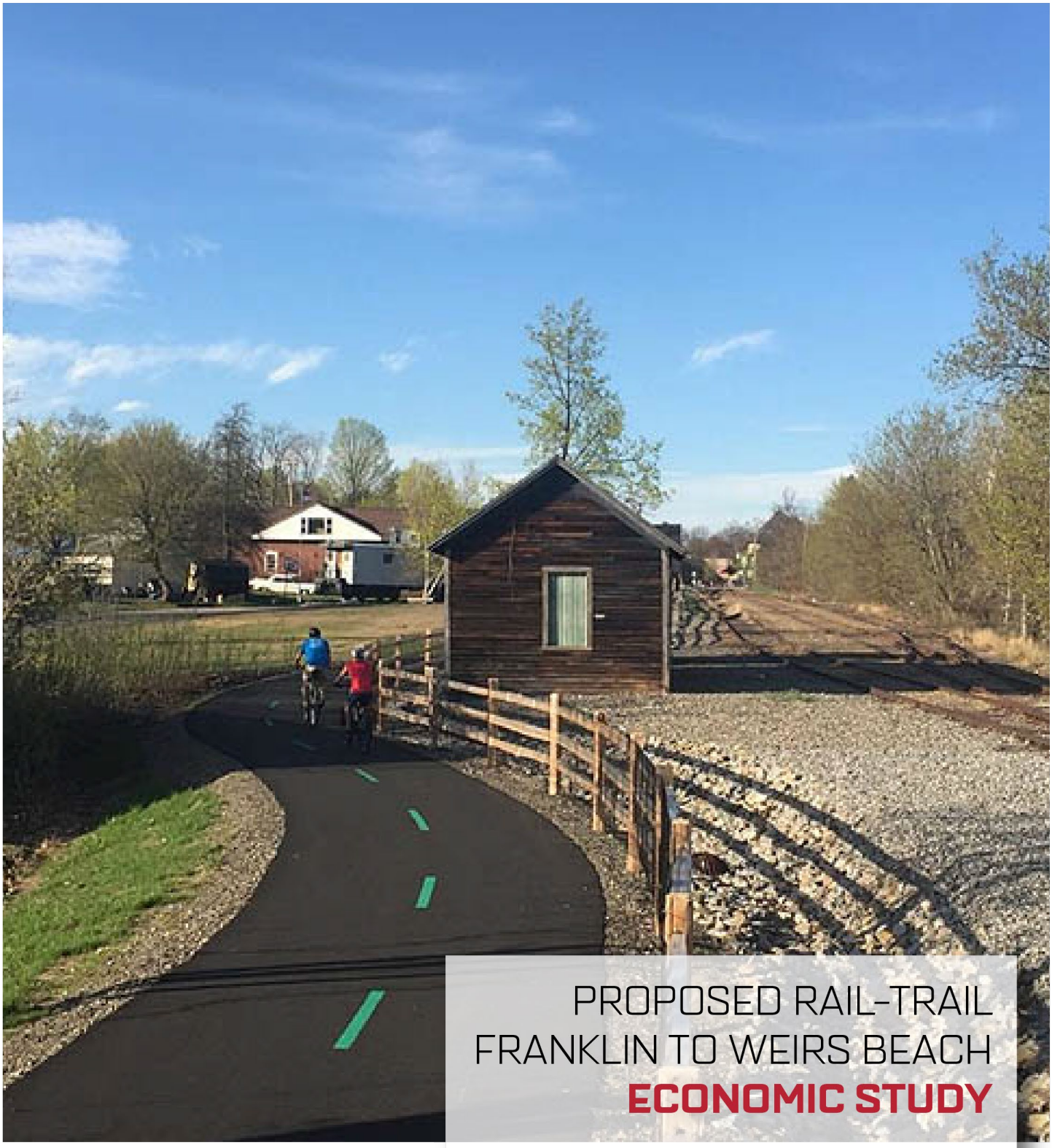

PROPOSED RAIL-TRAIL FRANKLIN TO WEIRS BEACH
ECONOMIC STUDY

City of Laconia
Revised Final: October 2019

Laconia CITY ON THE LAKES NEW HAMPSHIRE

alta PLANNING + DESIGN

HEB Engineers CIVIL • STRUCTURAL • SURVEY

Contents

Study Support

Funding for this study was provided by the WOW Trail Committee, with additional administrative support from the City of Laconia. The project team would like to express gratitude to the many stakeholders who offered their time to share their expertise and express their vision for rail service and outdoor recreation in New Hampshire's Lakes Region.

Prepared by: Alta Planning + Design with support from HEB Engineers, Inc.
Prepared for: City of Laconia

1 Introduction

This technical report contains the results of a cost-benefit analysis for a proposed rail-trail project that would close three gaps in the proposed trail network between Franklin and Weirs Beach in Belknap County, New Hampshire. The goal of the cost-benefit analysis was to **analyze the known economic tradeoffs** of constructing a proposed **"rail-with-trail" alternative** or a proposed **"rail-to-trail" alternative** to close the remaining 0.7-mile, 5.1-mile, and 4.7-mile gaps in the trail network. Realization of the network would connect the communities of Franklin, Tilton, Northfield, Belmont, and Laconia through a continuous, 18.8-mile rail-trail.[1] In addition, closing these gaps would help connect these communities to the larger, 66.1-mile Northern Rail Trail, providing residents with multi-county recreation and transportation opportunities.

1.1 Background

The State-owned rail corridor between Concord, New Hampshire and Lincoln, New Hampshire was built in the mid-1800s to help spur economic development in the Lakes Region. A portion of this 50-mile corridor is leased by the State for active, ongoing freight and scenic operations. However, freight rail activity has declined over the last two decades in concert with an overall decline in industrial activity in the region, helping to contribute to **stagnation in the regional economy and population**.

To address this issue, the City of Laconia has adopted a pro-population growth strategy that includes working to maintain and attract new industrial and commercial businesses and continued investment in quality-of-life improvements to attract new residents and visitors. In recent years, the City's targeted investments in **quality-of-life improvements** included a $1.6 million Lakeside Avenue streetscape project, a Main Street Bridge Gateway project, construction of a pocket park at Busy Corner, expansion of the Laconia River Walk, development of the 2.7 miles of existing Winnipesaukee-Opechee-Winnisquam (WOW Trail),[2] and support for the 1.7 miles of existing Lake Winnisquam Scenic Trail (Winni Scenic Trail) and Winnipesaukee River Trail (Winni River Trail).

To connect the existing segments of the WOW Trail, Winni Scenic Trail, and Winni River Trail to Weirs Beach in Laconia requires continued development along the State-owned rail corridor, identification of alternative on-road routes, or a combination of both. For this analysis, two potential rail-trail development approaches were analyzed:

- A "rail-with-trail" alternative in which the trail is constructed parallel to the rail corridor, where there is available right of way, and along on-road routes where the rail corridor is too narrow (approximately 10% of the proposed corridor).
- A "rail-to-trail" alternative in which the existing rail corridor would be replaced by a trail.

The scope of this study is limited to examining the high-level economic implications of the two potential options compared to the status quo while acknowledging social and political barriers that might limit support from members of the community and local businesses.

A detailed feasibility analysis has not been conducted for either approach, no funding has been dedicated to their design and construction, and real legislative and partnership hurdles exist.

[1] *Note: Total rail-trail project length varies by alternative.*
[2] *Note: Also called the Belmont Recreation Trail. See pages 5-6 of City of Laconia Master Plan (2018) for more information on completed projects. <https://www.laconianh.gov/DocumentCenter/View/2580/LU-Chapter-and-Vision-adopted-582018>*

1.2 Study Approach

Cost-benefit analyses are a process for quantifying, monetizing, and evaluating all known costs and benefits associated with a project. Some costs and benefits may be difficult to capture, while others may be highly uncertain. When the costs and benefits can be quantified using physical units, they are documented in this report and converted into a common measurement of $USD. While only quantitative factors can be incorporated into the overall cost-benefit framework, some qualitative factors may represent real impacts on individuals and can be important in the decision-making process. Where possible, known qualitative factors are highlighted throughout the study and should be considered alongside the quantitative factors.

This cost-benefit analysis adheres to the guidance provided by the U.S. Department of Transportation (USDOT) in its ***Benefit-Cost Analysis Guidance for Discretionary Grant Programs***,[3] the official economic resource for supplemental sections of the federal BUILD grant program. While a cost-benefit analysis is just one of many tools that can be used in making decisions about infrastructure investments, USDOT believes that results of the analysis provide a useful benchmark to evaluate and compare potential investments based on their contribution to an economy. In their guidance, USDOT provides recommended nationwide average values to help monetize common infrastructure benefits.

Two notable **variations from USDOT cost-benefit guidelines** are the inclusion of recreational trips within the demand estimates and the inclusion of select "transfer payments" within the Lakes Region. Earlier USDOT guidelines required the exclusion of social and recreational trips, as they were not considered as high of a funding priority compared to commute, school, and utilitarian trips. This study incorporates social and recreational trips because the distinction is not explicitly stated in the most current USDOT guidelines; however, the study continues to separate person-trips by trip purpose to improve the accuracy of the benefit estimates. USDOT guidelines also exclude transfer payments, such as changes in property values and non-local spending (see the Analysis Framework section for more information on transfer payments). Because this analysis is isolated to regional and not national impacts, some select transfer payments are included if they economically benefit the residents of Belknap County.

In addition, this cost-benefit analysis incorporates and expands on guidance provided by the National Cooperative Highway Research Program's (NCHRP) ***Report 552: Guidelines for Analysis of Investments in Bicycle Facilities***.[4] Two notable expansions from NHCRP's guidance are the inclusion of non-commute utilitarian trips, such as shopping and medical appointments, and the inclusion of pedestrian-related benefits associated with rail-trails. These additions help capture the full range of bicycling and walking trips in the project's study area. Other expansions from NHCRP guidance include the consideration of local travel patterns and review of public health issues.

[3] *Benefit-Cost Analysis Guidance for Discretionary Grant Programs (Dec. 2018). U.S. Department of Transportation. <https://bit.ly/2VHZYi7>*
[4] *NCHRP Report 552: Guidelines for Analysis of Investments in Bicycle Facilities. (2016) Transportation Research Board. <https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_552.pdf>*

1.3 Study Limitations

Even with extensive primary and secondary research incorporated into this analysis, it is not possible to accurately forecast the exact impacts of the study alternatives. Accordingly, **estimates with a high degree of uncertainty associated with them are expressed as ranges, and all estimated values are rounded and should be considered rough order of magnitude estimates instead of precise amounts**. Factors not directly documented in this study are assumed to be **held constant** so as to better isolate the impacts associated with the study alternatives. Other potential alternatives (e.g., on-road routes, paths through private property, etc.) and opportunity costs (i.e., financing an unrelated public project) are not included in this analysis.

2 Study Area

Because the goal of this analysis is to compare the costs and benefits of the study alternatives from the perspective of local residents, the **study area of the analysis is limited to publicly incurring costs and publicly accruing benefits within the extents of Belknap County, including the publicly accruing costs and benefits associated with businesses operating within the county**. While additional costs and benefits may accrue to visitors from outside of Belknap County, such as reduced spending near other trails in the state resulting from increased competition or new health benefits from visitors along the proposed rail-trail, these factors are excluded from this cost-benefit analysis.

2.1 Context

Historically, the Belknap County economy has been connected to its **water resources**. Downtown Laconia and Lakeport were built around mills powered by the Winnipesaukee River, and seasonal tourists have been attracted to the shores of Opechee Bay, Paugus Bay, Winnipesaukee Lake, and Winnisquam Lake. Although the river no longer plays a direct role in manufacturing, the presence of the river and connecting lakes create opportunities for recreation, contribute to the region's quality of life, and add to the vitality of marine-oriented businesses, resorts, and restaurants.[5]

Most of the shoreline around the lakes has been developed through a mix of residential and commercial uses. Because of this, **public access to the lakes for recreation is limited**. The beach, pier, and boardwalk at Weirs Beach offers public access to Lake Winnipesaukee, Ahern State Park provides public access to Lake Winnisquam, and additional beach access can be found on Lake Opechee.[5]

Currently, there are a **limited number of transportation options** in Laconia, Belknap County's seat. The city connects to Interstate 93 by 9 miles of US Route 3, a two-lane artery that can be impacted by unpredictable traffic conditions. This lack of direct proximity to Interstate 93 can be a limiting factor in attracting additional industry that desires on-road freight access. In addition, public transportation access is limited in Laconia. The Winnipesaukee Transit System was discontinued in 2017, and remaining transit service is provided by a door-to-door service for senior citizens and persons with disabilities through the Community Action Program's (CAP) Rural Transportation Program.[6] No regular passenger rail service exists in Laconia, but the city is served by an **active rail corridor** that enables scenic tourism and limited freight service. The current scenic rail service and the existing segments of rail-trail provide views of the area's lakes, and the rail-trail provides additional transportation options for residents.

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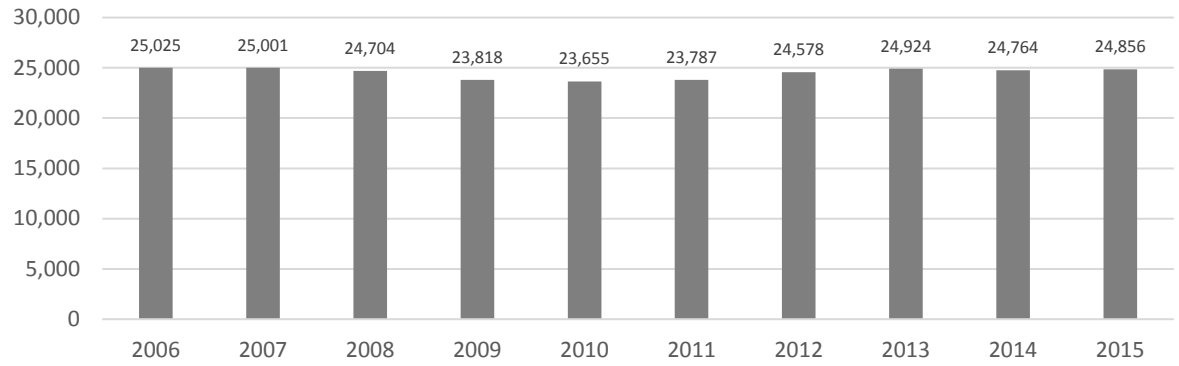
[5] *Economic Development Update (2016). Laconia Master Plan. City of Laconia.* <http://www.cogincorp.com/assets/Laconia-Master-Plan-ED-Element.pdf

[6] *End of the bus. The Laconia Daily Sun. May 2017.* <https://www.laconiadailysun.com/news/local/end-of-the-bus/article_9bc6f09a-8dc0-57e1-83ae-f78fb354fc09.html>

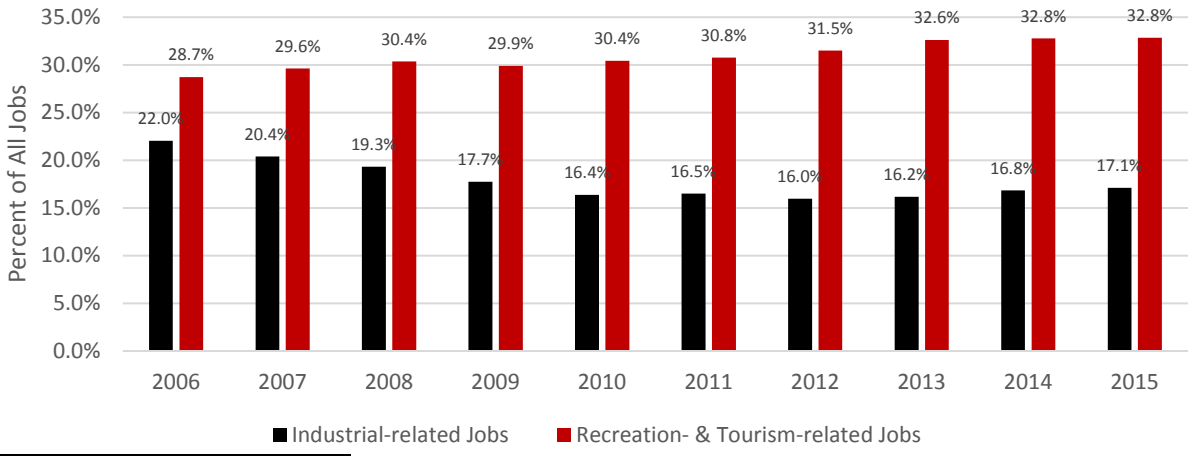
The Great Recession (2007-2009) has had a lasting impact on the economy of Belknap County. Although New Hampshire, New England, and the United States have recovered all the jobs lost in the recession and have shown additional growth beyond pre-recession numbers, **Belknap County job growth has remained stagnant**.[7,8] **Figure 1** shows the total number of jobs in Belknap County over the past decade of available data (2006-2015). Over that period, the total number of Belknap County jobs decreased 0.7% compared to a 2.9% increase statewide.[8]

Figure 1: Total Jobs in Belknap County (LEHD, 2006-2015)



While the number of jobs has remained relatively flat in Belknap County, the impacts of the Great Recession could have been worse if the community did not pivot its economic focus. The number of industrial-related jobs[9] decreased by 22.9% between 2006 and 2015 (representing a change from 22.0% of total jobs in the county to 17.1% jobs).[8] However, the decline in the industrial sector was buoyed by growth in the recreation- and tourism-related industry.[10] Between 2006 and 2015, the number of **recreation- and tourism-related jobs increased 13.6%**, representing a change from 28.7% of total jobs in the county to 32.8% and effectively replacing the loss of industrial-related jobs (see **Figure 2**).

Figure 2: Jobs in Belknap County by Sector (LEHD, 2006-2015)



[7] Note: Although New Hampshire has shown job growth over the past decade, the period after 2010 is the first time in more than four decades that New Hampshire's job growth lagged behind growth in New England and nationally. Master Plan (2018). City of Laconia. <https://bit.ly/2UzQpoB>
[8] U.S. Census Bureau. (2019). LEHD Origin-Destination Employment Statistics (2002-2015). <https://onthemap.ces.census.gov/>
[9] Industrial-related jobs include the following sectors: 'construction', 'transportation and warehousing', and 'manufacturing'.
[10] Recreation- and tourism-related jobs include the following sectors: 'arts, entertainment, and recreation', 'accommodation and food service', and 'retail trade'.

Belknap County's slow economic recovery may also be impacted by a decades-long pre-recession trend in **declining population growth**. The county saw its highest rate of growth between 1970 and 1980 when the population grew by 32.5% through the addition of 10,500 net new residents. However, population growth tailed off in the subsequent decades, with the county adding just over 6,000 net new residents between 1990 and 2000 and 4,700 net new residents between 2000 and 2010.[11] More recently, the county's population has plateaued, with the addition of only 700 net new residents between 2010 and 2017.[12]The issue of a declining number of residents is compounded by Belknap County's **aging population**, with a median age that is almost 9 years older than the national average and 4 years older than the state average.[13] Laconia has been no exception to the county's aging trend, with the average age of Laconia residents increasing from 38.1 years in 2007 to 46.7 years by 2016.[7]

Current projections for Laconia show **no anticipated population growth** between 2018 and 2025 and minimal growth through 2040. To combat this anticipated trend, the City adopted a pro-population growth strategy with the hopes of attracting residents and businesses to the area. The City's vision for implementing this strategy is called "Laconia Advantage", which was created during its 2018 master planning process and prioritizes the development of recreational opportunities and promotion of the area's scenic beauty, accessibility, relatively low tax rates, high-quality schools, and infrastructure investments.[7]

2.2 Study Corridor

Shown in **Figure 3**, the **study corridor** for this cost-benefit analysis **starts at Trestle View Park in Franklin**, New Hampshire and extends east along the Winnipesaukee River via an abandoned, State-owned rail corridor. Where the abandoned rail corridor connects to an active rail corridor near Park Street in Northfield, the study corridor continues east along the active rail corridor through Belmont, Lochmere, and Laconia. The study corridor forks left near Union Avenue and Elm Street in Lakeport and continues north along the active rail corridor on the west side of Paugus Bay, **ending at Weirs Beach**. Although an additional segment of rail-trail has been previously proposed between Weirs Beach and Meredith,[14] it is not included in this analysis.

2.3 Recreation & Tourism Job Access

Selecting a corridor that provides strong accessibility to tourism- and recreation-related jobs can help maximize the economic potential of a rail-trail project. Strong accessibility can be defined as being within 0.5 miles of a rail-trail, as that is the distance Americans travel on an average walk trip.[15,16,17] Currently, the existing segments of rail-trail within the study corridor are within 0.5 miles of approximately 7,000 tourism- and recreation-related jobs. Completion of rail-trail segments along the full study corridor would provide access to approximately 3,400 additional jobs (see **Figure 4**).[8,18] Clusters of tourism- and recreation-related jobs along unbuilt segments of the study corridor are located at the Tanger Outlets in Tilton, near the series of lodging establishments in Lochmere, and at the attractions around Weirs Beach.

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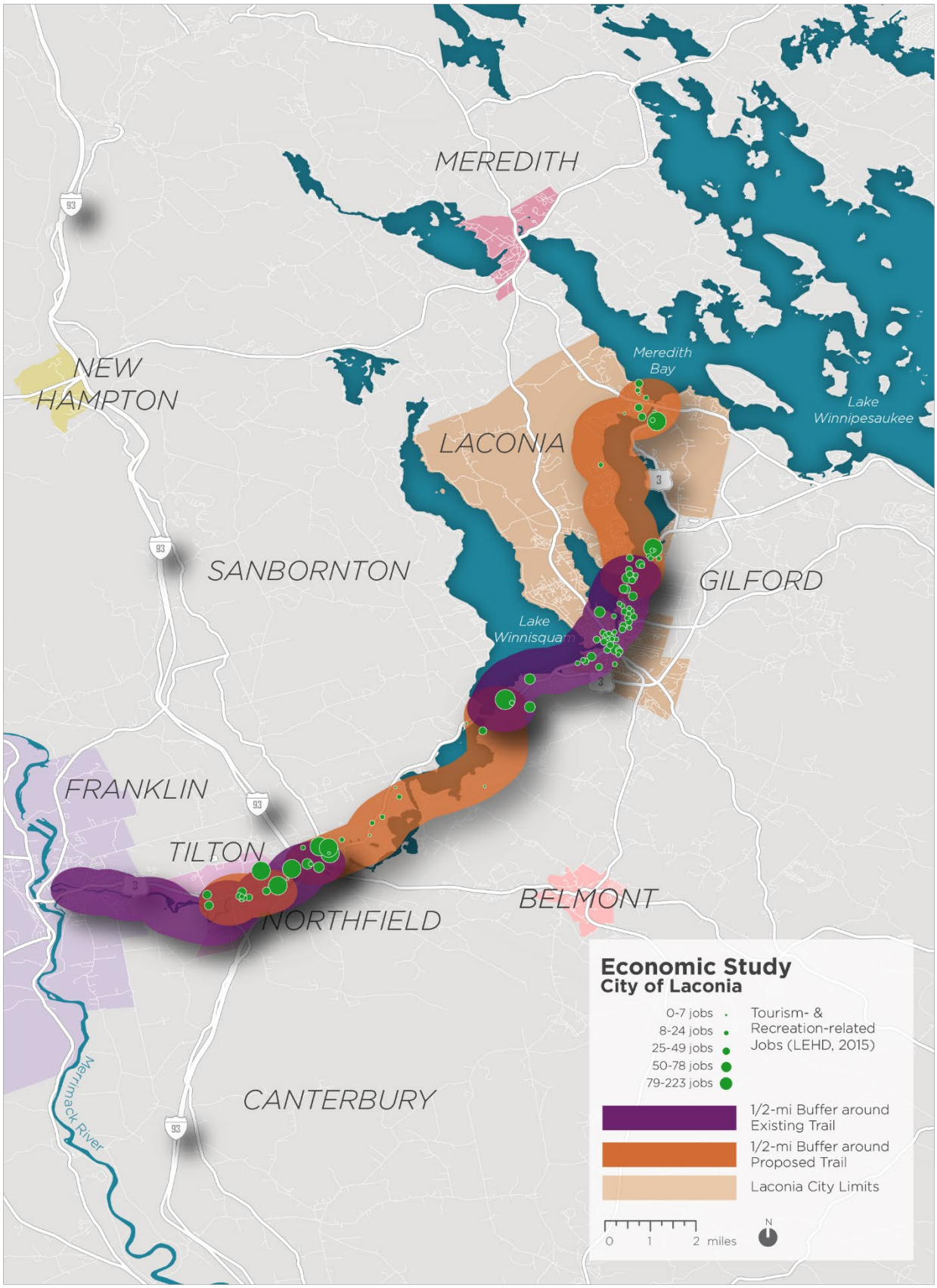
[11] *Belknap County. New Hampshire Employment Security.* <https://bit.ly/2IkvzD9>
[12] *Population (2006-2015). Google.* <https://bit.ly/2P9dAR0>
[13] *Table: B01002: Median Age by Sex. U.S. Census Bureau, 2013-2017 American Community Survey five-year estimates.*
[14] *WOW Trail (accessed April 12, 2019).* <https://www.wowtrail.org/>
[15] Pucher, J., Buehler, R., Merom, D., and A. Bauman. Walking and cycling in the United States, 2001-2009: evidence from the National Household Travel Surveys. American Journal of Public Health. 2011, 101, suppl. 1, S310-217.
< https://www.ncbi.nlm.nih.gov/pubmed/21551387/>
[16] Buehler, R., Pucher, J., Merom, D., and A. Bauman. Active travel in Germany and the U.S. Contributions of daily walking and cycling to physical activity. American Journal of Preventative Medicine. 2011. 41(3): 241-250.
< https://www.ncbi.nlm.nih.gov/pubmed/21855737/>
[17] Yang, Y. and A.V. Diez-Roux. Walking Distance by Trip Purpose and Population Subgroups. American Journal of Preventative Medicine. 2012. 43(1): 11-19. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3377942/>
[18] LEHD Origin-Destination Employment Statistics (LODES) Dataset Structure, Format Version 7.3. U.S. Census Bureau.
<https://lehd.ces.census.gov/data/lodes/LODES7/LODESTechDoc7.3.pdf>

Figure 3: Study Corridor

Figure 4: Tourism- and Recreation-related Jobs near the Study Corridor



3 Existing Trail Conditions

First conceptualized in 1982 as the Lakes Region Bikeway System by the Lakes Region Planning Commission,[19] the WOW Trail and the Belmont Recreation & Alternative Transportation Team (BRATT) revitalized efforts to construct a pathway between Franklin and Weirs Beach over the past two decades. To-date, **8.5 miles of existing rail-trail** have been constructed along the study corridor, allowing access to all non-motorized activity year-round and cross-country skiing, snowshoeing, and snowmobiling in the winter. Five existing segments of the rail-trail have been completed, which are listed in chronological order of completion below:

- **Segment 1** – Completed in 2005, a **3.0-mile segment of the Winni River Trail** extends along the abandoned rail corridor from Central Street in downtown Franklin (near Trestle View Park) through wooded conservation land adjacent to the Winnipesaukee River to Park Street in Northfield (near the Union Sanborn School, Hall Memorial Library, historic Merrimack Valley Rail Station, and Tilton's Riverfront Park). This segment is a mostly unpaved multi-use path and offers views of the Winnipesaukee River (see **Figure 6**).
- **Segment 2** – Completed in 2010, a **1.3-mile segment of the WOW Trail** extends along the active rail corridor from Main Street in downtown Laconia (near the historic Laconia Railroad Station, Laconia Historical & Museum Society, and Laconia Public Library) to Union Avenue at Elm Street in the Lakeport neighborhood of Laconia (near the Lakeport Freighthouse Museum). The rail-trail is a paved, 10-foot-wide multi-use path and offers views of Opechee Bay (see **Figure 7**).[14]
- **Segment 3** – Completed in 2016, a **1.7-mile segment of the Winni Scenic Trail** begins at US Route 3 in Belmont near the Winnisquam Agway and connects along the garden center's parking lot to the active rail corridor near Dutile Shore Road. The trail continues north paralleling the active rail corridor through a wooded area to where it connects back to US Route 3 at the Laconia-Gilford Bypass (near Leslie E. Roberts Beach & Recreation Area). This segment is a paved, 10-foot-wide multi-use path and offers access to Belknap Mall and views of Lake Winnisquam (see **Figure 7**).
- **Segment 4** – Completed in 2016, a **1.4-mile segment of the WOW Trail** starts at the north end of Segment 3 and continues north paralleling the active rail corridor to the intersection of Winnisquam Avenue and Fair Street in Laconia. The route crosses a narrow strait joining the Lake Winnisquam and Paugus Bay through an improved 8-foot-wide sidewalk along Fair Street followed by an easement on private land. The trail then continues parallel to the rail line to North Main Street in downtown Laconia where it connects to Segment 2. This segment is a paved, 10-foot-wide multi-use path and provides access to Bartlett Beach, Laconia Skate Park, the Laconia Police Department, and Pitman's Freight Room (see **Figure 7**).
- **Segment 5** – Completed in 2017, a **1.1-mile segment of the Winni River Trail** begins at East Main Street/US Route 3 near Knapp Road and runs east parallel with the existing, active rail corridor. The segment crosses under Interstate 93 and continues east to Tilton Road.

[19] *Publications. Lakes Regional Planning Commission. <* https://www.lakesrpc.org/publicationslrpc.asp#%E2%80%8B1971-1979>

While New Hampshire boasts a number of rail-to-trail projects, this corridor represents the only rail-with-trail segments in the state. Completion of these segments was enabled through a **partnership with NHDOT, the existing rail operator, and trail advocacy groups**. The rail operator allowed changes in their operating agreement with the State to help accommodate the rail-with-trail segments.

Figure 5: Existing Trail Segment

The west terminus of Segment 1 in Franklin is approximately 1.0 mile away from the **Northern Rail Trail**, an approximately 66.1-mile rail-trail between Lebanon and Boscawen. The Northern Rail Trail uses the right-of-way of the "Northern Line" along an abandoned segment of the Boston & Maine Railroad which was acquired by the State of New Hampshire in 1996 and is managed by the New Hampshire Department of Natural and Cultural Resources' Bureau of Trails. Connections between Segment 1 and the Northern Rail-Trail are provided by a sidewalk parallel to Central Street. Franklin residents' close proximity to the Northern Rail Trail provides them access to a long-distance recreation facility; however, remaining gaps along the study corridor limit connectivity between the Northern Rail Trail and communities in central and eastern Belknap County (see **Figure 8**).

Figure 6: Existing Rail-Trail Corridor (Winni River Trail section)

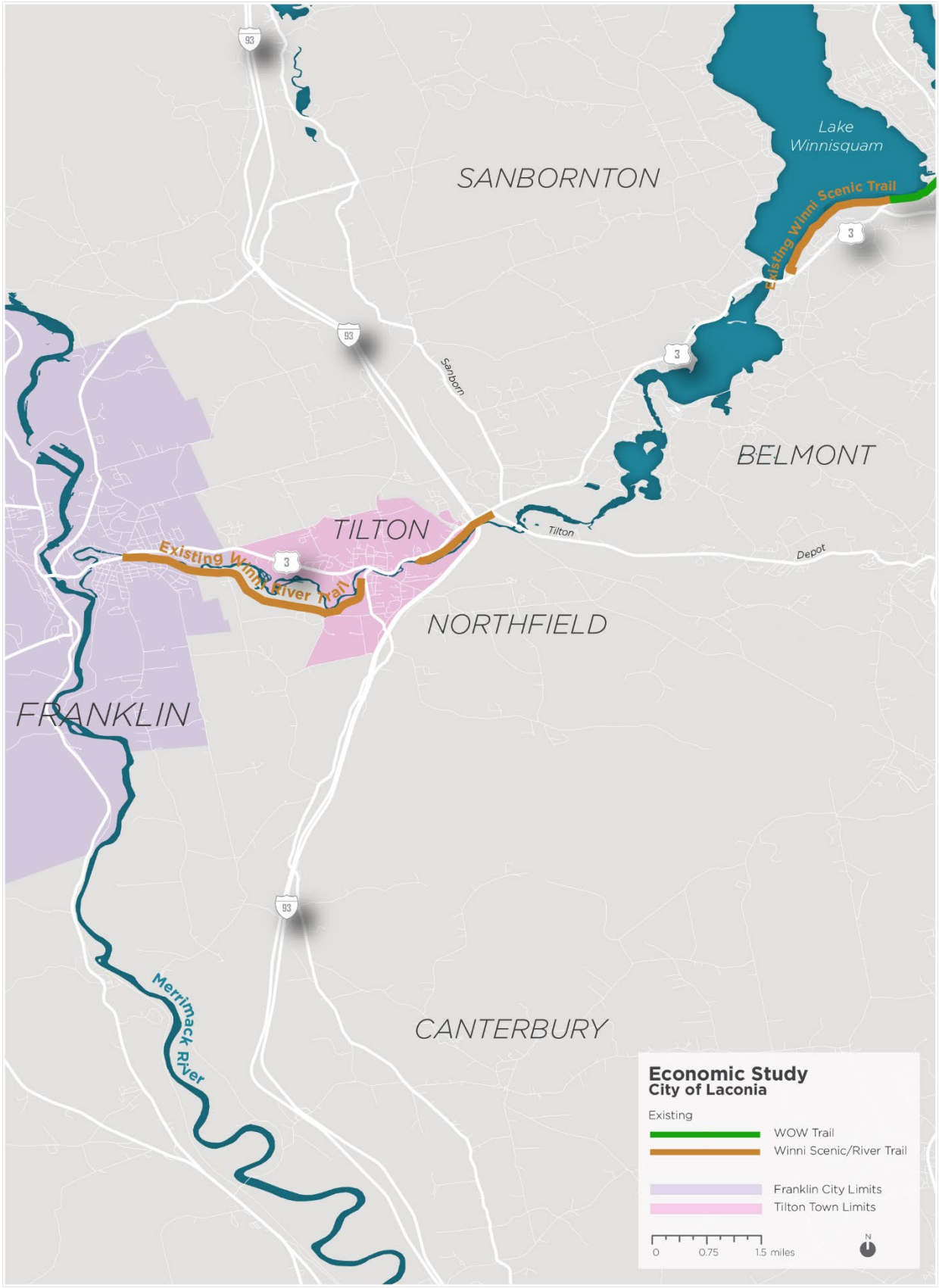
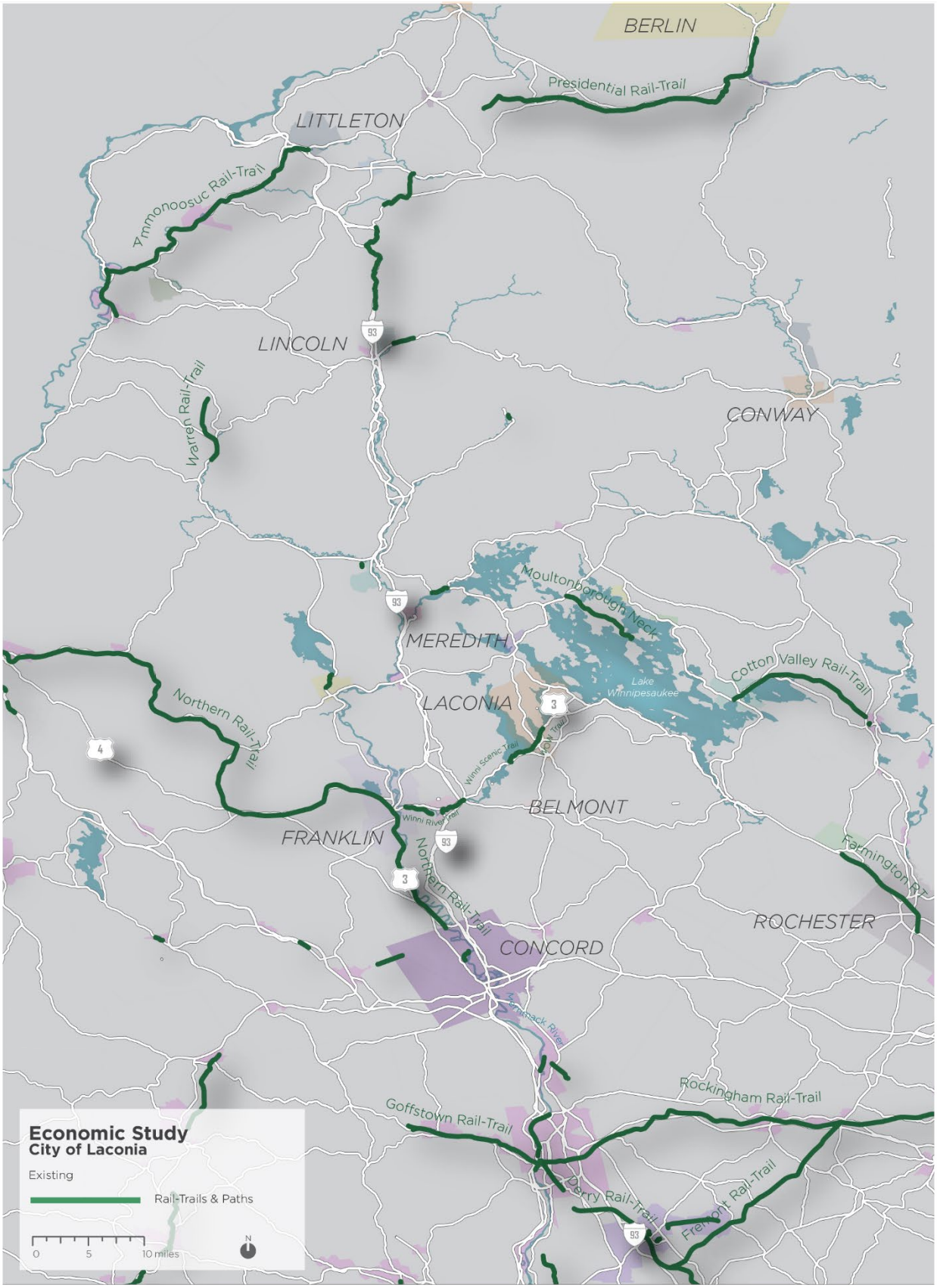


Figure 7: Existing Rail-Trail Corridor (WOW Trail sections)

Figure 8: Regional Trail Connections



4 Existing Rail Conditions

The study corridor falls along the State-owned White Mountain Branch of the historic Boston & Maine (B&M) Railroad that connects to the Pan Am Railway (PAR) at Concord and extends along a shortline to its northern terminus in Lincoln (see **Figure 10**). Regional connections on PAR allow for access to Manchester, Nashua, and Boston.[20] Two railroads operate along the study corridor:

- New England Southern (NES) Railroad
- Plymouth & Lincoln (P&L) Railroad

The owners of the NES Railroad and P&L Railroad were interviewed for this study, helping to provide background information on their operations. P&L Railroad provides the Winnipesaukee Scenic Railroad and Hobo Railroad scenic rail services, in addition to supporting the Café Lafayette Dinner Train that operates north of the study area.

4.1 Freight Rail Services

Freight service along the study corridor is operated by NES Railroad (see **Figure 11**). Begun in 1981, NES Railroad is available as-needed for all freight-related services between Concord and Lincoln, and their partnerships include:

- Transport of rail equipment to the P&L Shop in Lincoln, including transport of historic locomotives and railcars for refurbishment
- Transport of Massachusetts Bay Transportation Authority (MBTA) railcars from Boston to the P&L Shop in Lincoln (occasional)
- Transport of railroad ties for ongoing track maintenance (occasional)
- Transport of raw materials to the 3M facility in Tilton (roughly monthly)
- Transport of military equipment (approximately 75-100 railcars) for the National Guard approximately once every one to three years

In feedback on the draft report, the owner of NES Railroad reports that the frequency of their freight service on the White Mountain Branch has declined over the past few decades from approximately 300-400 cars/year to 100-200 cars/year, mirroring a regional decline in manufacturing and other industrial services. According to NES Railroad, the **maximum capacity of NES Railroad along the study corridor is one train per day**, and during the peak season (May to October), the railroad supports five (5), full-time equivalent employees. The railroad anticipates transporting four (4) to five (5) locomotives and/or rail passenger cars in 2019. Additional opportunities for expanded service are dependent on new potential project partners, which NES Railroad anticipates could generate an additional two (2) to three (3) trains per week in 2020 and 2021.

Figure 9: Freight Rail Service

[20] *Railroads (2015). New Hampshire Department of Transportation.*
<*https://www.nh.gov/dot/programs/bikeped/maps/documents/RailOperatorMap110515.pdf*>

Figure 10: Regional Rail Connections

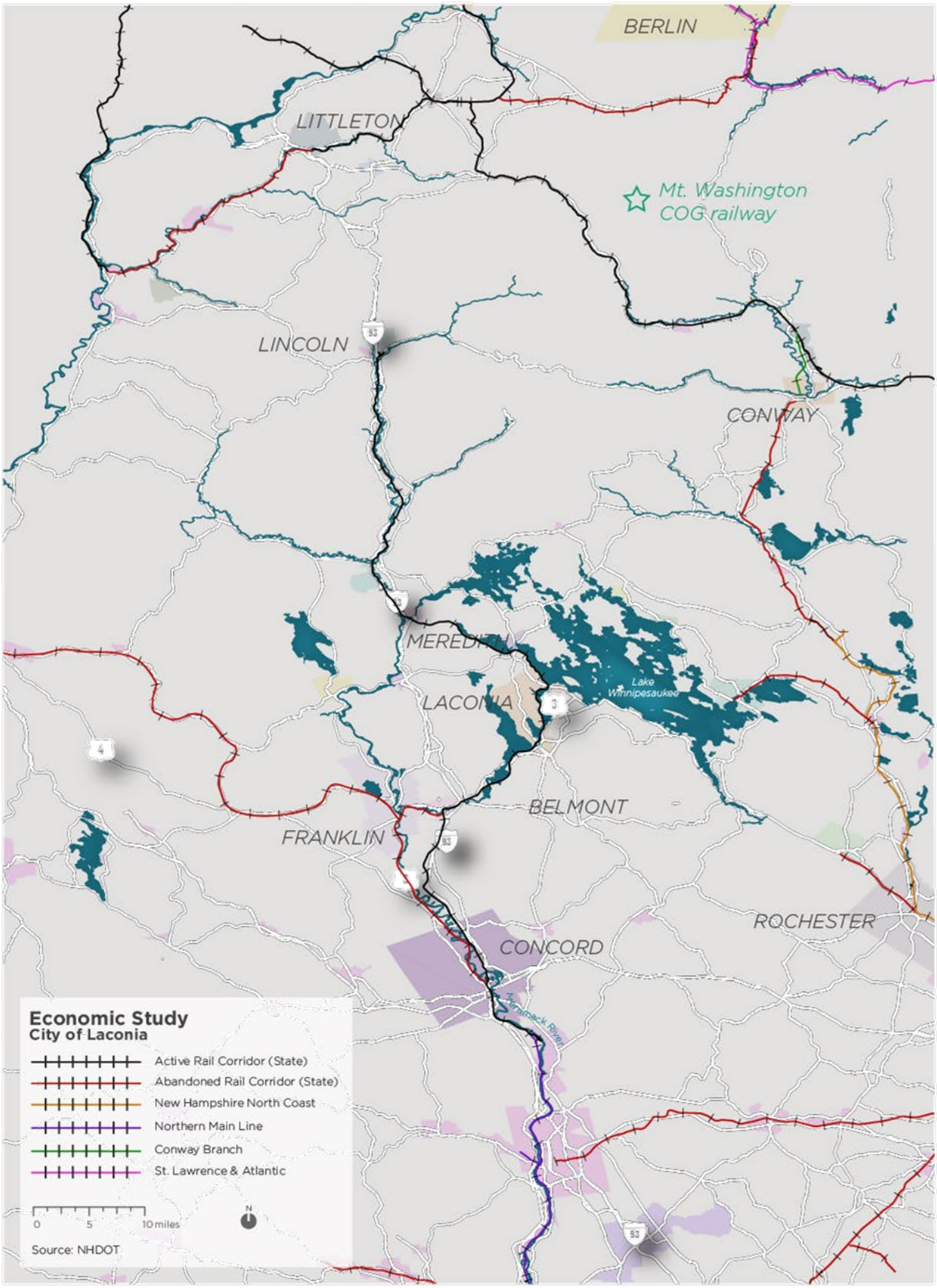
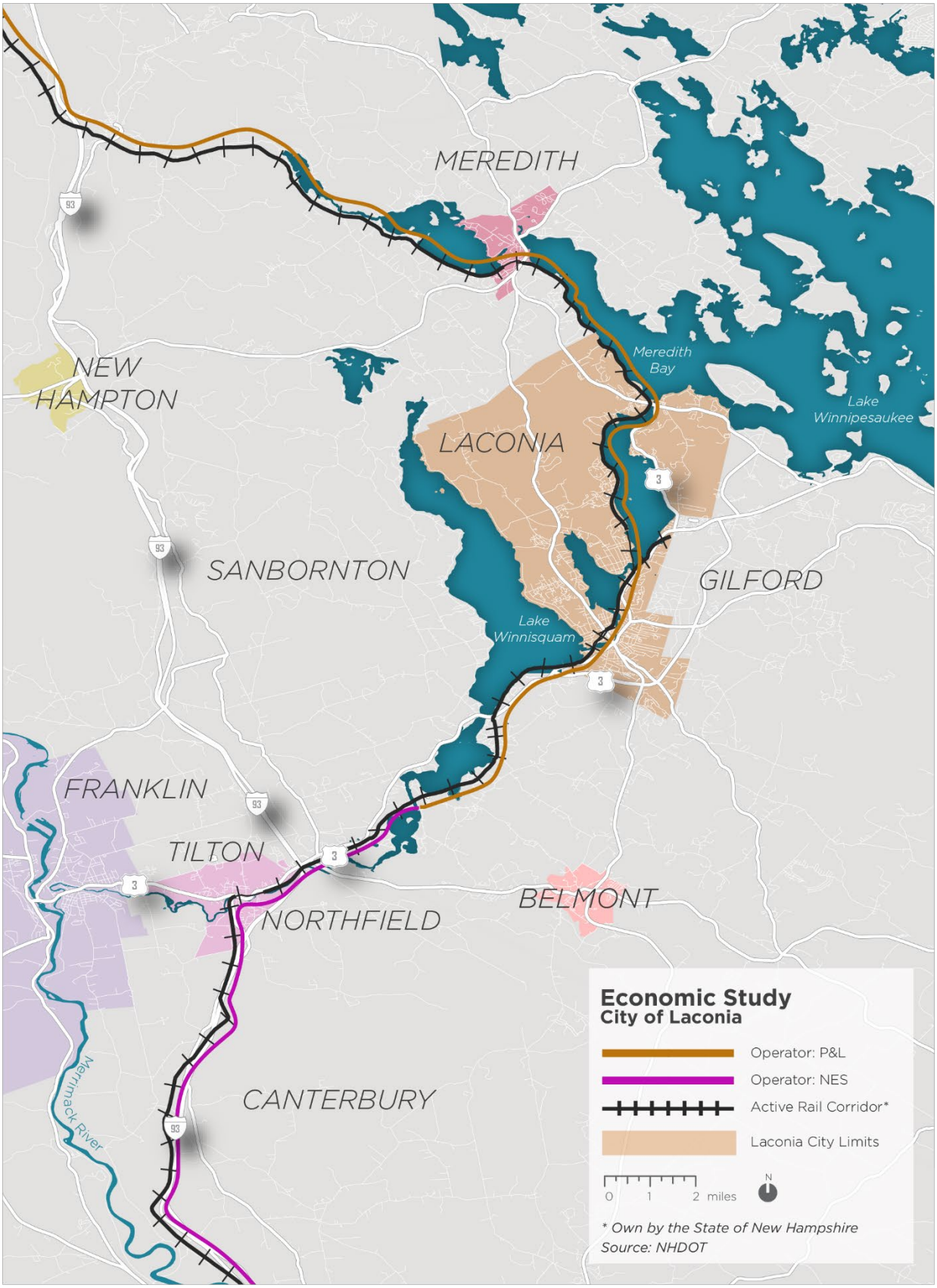


Figure 11: Existing Rail Corridor



4.2 Scenic Rail Services

Scenic rail service along the study corridor is operated by P&L Railroad (see **Figure 11**). Begun in 1986, P&L Railroad owns and operates the **Hobo Railroad** (based in Lincoln) and the **Winnipesaukee Scenic Railroad** (based in the Lakes Region), which runs from Meredith to Laconia's Lakeport neighborhood and back.

In a stakeholder interview, the owner of the P&L Railroad noted that their operations help support over 300 vendors and their major partnerships include:

- Support for the Café Lafayette Dinner operating out of North Woodstock
- Trip integration with the MS Mount Washington Cruise at Weirs Beach ("Rail & Sail" package)
- Provide limited passenger shuttle service during major events, such as Motorcycle Week, from satellite parking lots to Laconia
- Integration with the Common Man Inn in Plymouth to provide train-to-buffet dinner service

P&L Railroad reports that during their peak season between May and late October/early November, they **operate between and eight (8) and ten (10) trains per day**. During the shoulder season, P&L Railroad operates on a limited, as-needed basis to transport equipment to their refurbishment shop in Lincoln. P&L Railroad reported that they have a workforce of **68 employees (part- and full-time)** and that the refurbishment operations help stabilize the workforce during the shoulder season.

Figure 12: Scenic Rail Service (credit: Hobo Railroad)

In addition to scenic rail service and refurbishment operations, P&L Railroad owns space within Laconia's Passenger Railroad Station (commonly referred to as the "Rotunda") and the owner has stated that he hopes to use it as event space in the future.[21] The scenic rail service also plays a role in attracting group bus tours. During the peak fall foliage season, the owner of Hart's Turkey Farm in Meredith noted in an interview that they work with P&L Railroad to help provide dinner train service for approximately 1,400 to 2,600 group bus passengers per week (100 to 500 bus passengers per week during the shoulder season). The owner of Hart's Turkey Farm believes that the train is an important part of what attracts people to the tour and that bus tours would go to other parts of the state if the train dinner service was not available (see **Section 7.3** for scenic rail usage estimates).

During the stakeholder interviews, the existing local rail operators, scenic rail operators in other regions, and rail advocates **expressed support for rail-with-trail projects** if all perceived safety and liability issues could be addressed.

[21] *Hobo RR principals purchase Laconia train station unit. The Laconia Daily Sun. April 2, 2009.* <*https://www.laconiadailysun.com/news/local/hobo-rr-principals-purchase-laconia-train-station-unit/article_300132aa-5420-5fc4-b7e4-4f3f48821abb.html*>

5 Study Alternatives

This study includes the analysis of three alternatives along the study corridor:

- Alternative A: No Build
- Alternative B: Rail-with-Trail
- Alternative C: Rail-to-Trail

This section documents the project components associated with each alternative. Even though additional alternatives or variations of the selected alternatives may be worth considering, the goal of this cost-benefit analysis is to better understand the high-level economic tradeoffs that differentiate these three alternatives. Because a feasibility analysis has not been conducted for the rail-with-trail or rail-to-trail alternatives, the alignments and cost estimates shown may not fully reflect all potential design concerns and are subject to change if the project is advanced.

5.1 Alternative A: No Build

The "No Build" alternative shows baseline conditions along the study corridor if no changes were made over the 20-year analysis period (see **Figure 6** and **Figure 7**). Alternative A incorporates county-level population and employment forecasts, and it assumes maintenance of the existing segments of the rail-trail and continued freight and scenic rail operations along recent trend lines. Inclusion of a No Build alternative helps illustrate the incremental costs and benefits associated with Alternative B and Alternative C.

5.2 Alternative B: Rail-with-Trail

The "Rail-with-Trail" alternative proposes the construction of a **10-foot path (paved or crushed stone)** parallel to the active rail corridor, where the right of way allows. At segments with limited right of way along the rail corridor, the alignment follows an on-road route (see **Figure 14** and **Figure 15**). As stated, a feasibility study has not been completed for the proposed alternatives, so this analysis assumes on-road striped bicycle lanes, well-maintained sidewalks, and clear wayfinding for the on-road segments unless otherwise stated. There are likely to be study corridor sections that are too narrow to meet this assumption, and at those locations only wayfinding signage and shared lane markings ("sharrows") may be feasible without property easements or acquisition. The alignment is divided into the following parts:

- **Part A (0.52 mi)**– Off-road path connection to the east end of the Winni River Trail (Segment 1 in Existing Trail Conditions) at the Park Street and Elm Street trailhead in Northfield (near the Union Sanborn School and Hall Memorial Library). Continue east along Elm Street through an on-road route to School Street. Continue north along School Street to Main Street through an on-road route. Continue east along Main Street to the Tilton Island Park Bridge. Widen sidewalk along Main Street to accommodate a 10-foot-wide Sidepath between the Tilton Island Park Bridge and the west end of the Winni River Trail (Segment 5 in Existing Trail Conditions) near the Tilton Police Station.
- **Part B (0.8 mi)** – Off-road path connection to the east end of the Winni River Trail (Segment 5 in Existing Trail Conditions) and install a Pedestrian Hybrid Beacon (PHB)[22] to improve crossing conditions of Tilton Road. Continue east parallel to the existing, active trail corridor to Manville Road.
- **Part C (0.07 mi)** – On-road route along Manville Road from the active rail corridor to 1 Paper Trail. Continue path north along 1 Paper Trail to Noyes Road.

[22] Also known as a High-Intensity Activated Crosswalk beacon, or HAWK.

- **Part D (0.23 mi)** – At Noyes Road and 1 Paper Trail, an off-road path continues north with a 15-foot offset that runs parallel along the east side of the active rail corridor to Silver Lake Road.
- **Part E (0.52 mi)** – At Silver Lake Road and the active rail corridor, an on-road connection jogs east 1,200 feet on Silver Lake Road to cross the strait between Silver Lake and Lake Winnisquam.
- **Part F (1.19 mi)** – Install PHB Signal to improve the crossing of Silver Lake Road and continue north with an off-road path using the utility corridor and easement through portions of Winnisquam Beach Campgrounds to Sparrow Drive.
- **Part G (2.25 mi)**– At Sparrow Drive, continue east with a 15-foot offset off-road path that runs parallel along the south side of the active rail corridor via the Ephraim Cove causeway to Fox Hill Road. Cross the active rail corridor at Fox Hill Road and continue north with a 15-foot offset path that runs parallel along the north side of the active rail corridor to Winnisquam Way in Belmont. (Due to the proximity of the rail corridor to private homes along Mallards Landing Road, a short sidepath or protected bikeway may be needed to avoid conflicts.)
- **Part H (0.32 mi)**– At Winnisquam Way and the active rail corridor, continue east along Winnisquam Way using an on-road facility. Install a PHB Signal to improve the crossing of Daniel Webster Highway and connect to the south end of the existing Winni Scenic Trail next to the Winnisquam Agway (Segment 3 in Existing Trail Conditions).
- **Part I (0.22 mi)** – At the north end of the existing Winni Scenic Trail/WOW Trail (Segment 2 in Existing Trail Conditions), cross Elm Street in Lakeport and continue north along Railroad Avenue/Gold Street using an on-road connection that currently lacks sidewalks. Utilize existing Gold Street Bridge to cross the strait between Opechee Bay and Paugus Bay. Continue north on Belvidere Street/North Street/Sheridan Street using either a signed, on-road route or by widening the existing narrow sidewalk to provide separation for trail users going to the Paugus Bay Marina.
- **Part J (0.12 mi)** – Connect from the Sheridan Street to the active rail corridor using a sidepath or protected bikeway within an easement along the north edge the of the Paugus Bay Marina.
- **Part K (4.02 mi)**– Continue north with a 15-foot offset path that runs parallel along the west side of the active rail corridor and Paugus Bay. This section requires the construction of a retaining wall in three (3) locations and a bridge over an existing sewer line. After the bridge, the path would continue to the access road at Channel Marine (near Weirs Drive-in Theatre).
- **Part L (0.24 mi)**– An on-road connection is required where space along the rail corridor is limited in the Channel Marina area along Channel Lane. Alternatively, an easement for an off-road path could potentially be negotiated through the Weirs Drive-in Theater property.[23] For either option, the on-road route would then continue north along the access road and Channel Lane using an on-road facility to Daniel Webster Highway. Cross Daniel Webster Highway and continue north along Lakeside Avenue using an on-road facility to Weirs Beach.

Figure 13: Rail Undercrossing (Part L)

The narrow rail corridor below Route 3 precludes the rail-with-trail alternative to continue directly to Weirs Beach and may require an at-grade crossing of the State highway above the rail corridor.

[23] *The property owner has expressed little interest in granting an easement, according to the WOW Trail Committee*

In total, the rail-with-trail alternative potentially requires using up to six (6) on-road segments, three (3) bridges, three (3) PHB signals, and 18 retaining walls.[24] In addition, NHDOT guidelines require the construction of four-foot-tall security fencing along the rail-with-trail segments to help separate trail and rail activities, which may impede existing free-flowing access to Paugus Bay and amenities on the east side of the rail corridor.[25] However, NHDOT has shown a willingness to provide some flexibility to their design standards where warranted. The WOW Trail Committee worked with NHDOT to install a split-rail fence (with metal mesh) at discrete locations along existing segments of the WOW Trail. In addition, NHDOT allowed for less than a 15-foot offset at one location on the existing WOW Trail because of a significant pinch point next to a building.

Construction of on-road facilities at pinch points in Northfield, Lochmere, Lakeport, and Weirs Beach is likely to decrease the overall level of comfort of the trail for some bicyclists and pedestrians compared to a continuous off-street path unless property easements are negotiated to provide space for an off-road facility (see Usage Estimates for more information).[26]

The rail-with-trail alternative is unlikely to impinge on current scenic rail service. See **Figure 16** for a typical cross-section of the proposed rail-with-trail alternative.

[24] Based on a preliminary review of the study corridor

[25] NHDOT notes that not every abutter has a legal right to access the waterfront and that NHDOT's Crossing Agreements address access issues in accordance with State law.

[26] According to the WOW Trail Committee, the ability to negotiate property easements at some trail pinch points is unlikely due to adjacent property owner opposition to trail development on their property.

Figure 14: Alternative B (Rail-with-Trail, Winni River Trail Section)

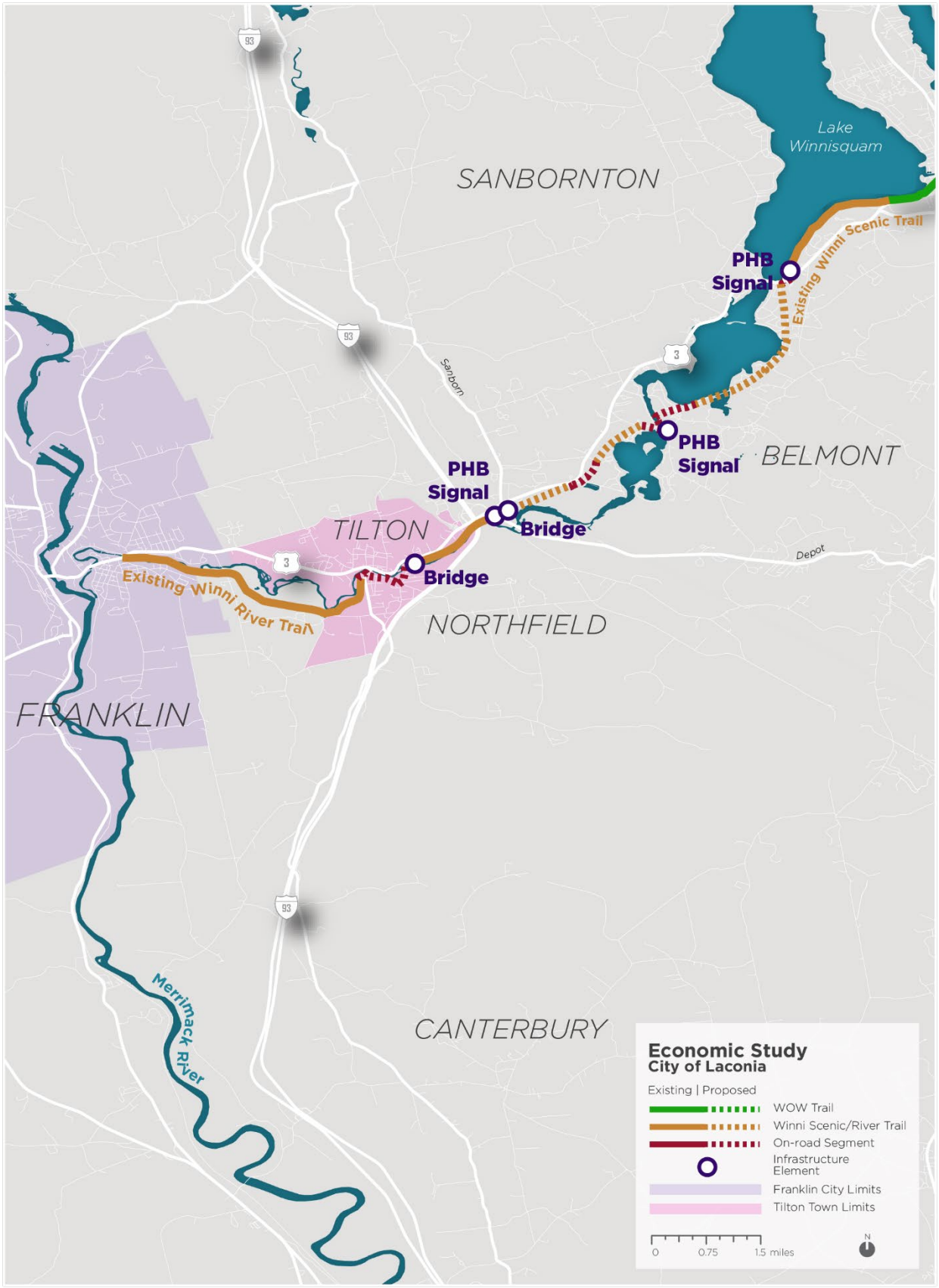


Figure 15: Alternative B (Rail-with-Trail, WOW Trail Section)

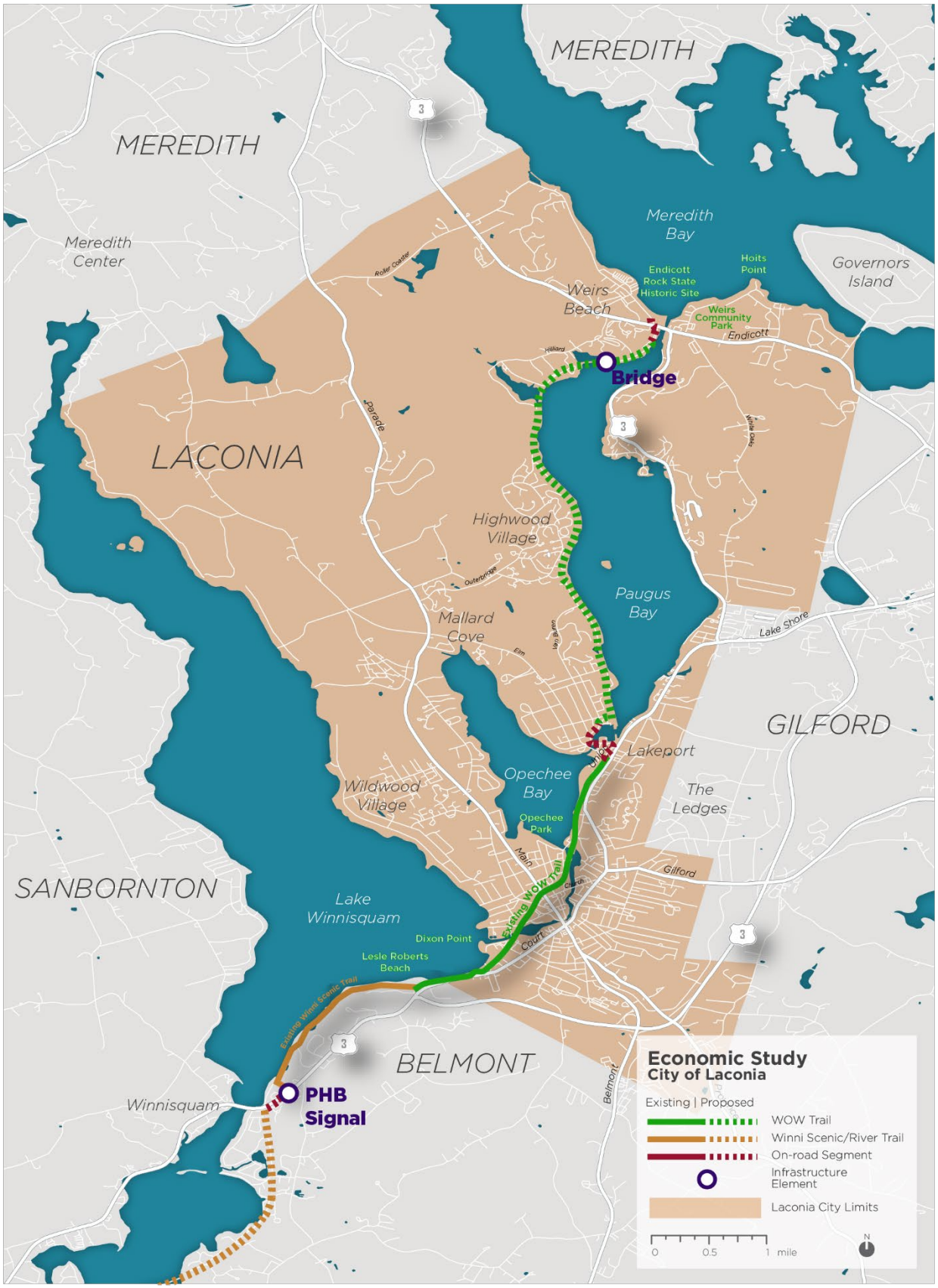
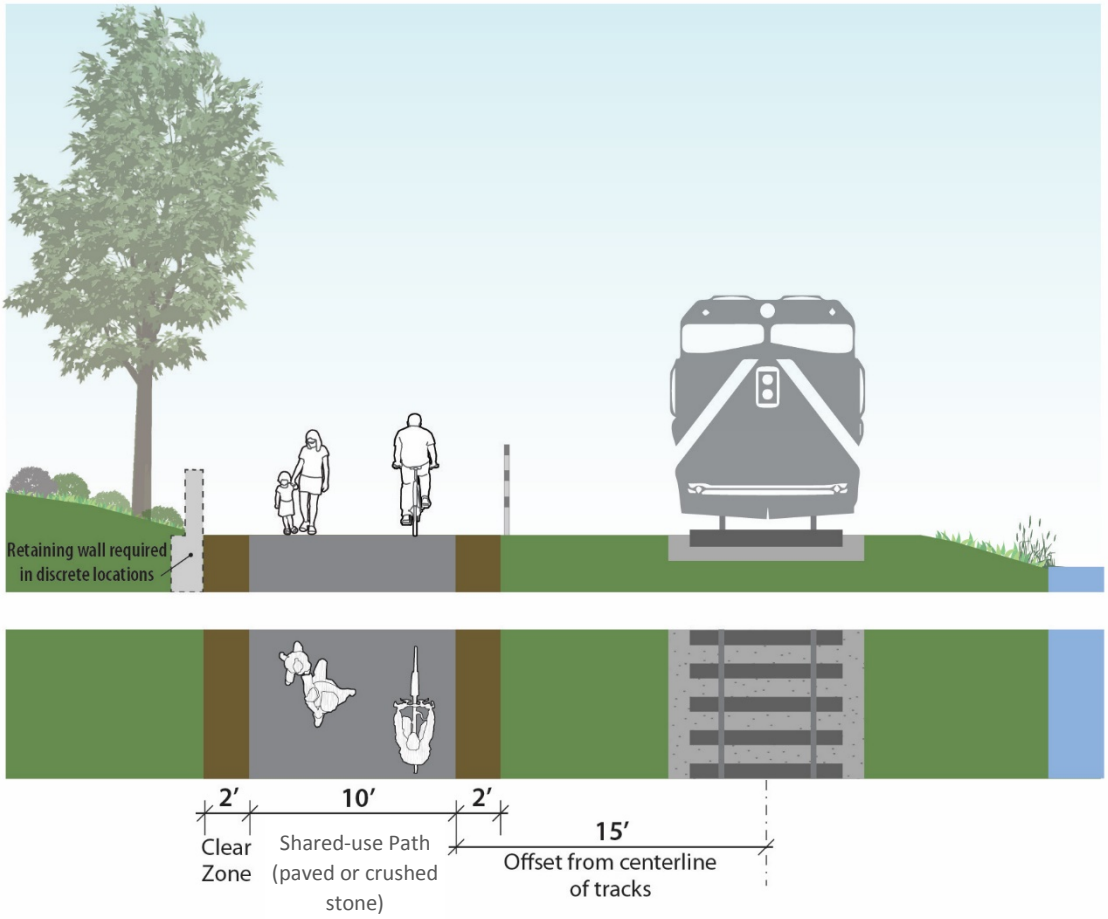


Figure 16: Alternative B (Rail-with-Trail, Typical Cross-Section along Paugus Bay)



5.3 Alternative C: Rail-to-Trail

The "Rail-to-Trail" alternative proposes discontinuance of the existing, active rail corridor between Tilton and Weirs Beach, removal of the existing rail tracks and ties,[27] and construction of a **10-foot crushed stone path** along its right-of-way (see **Figure 18** and **Figure 19**). The alignment is divided into the following parts:

- **Part A (0.71 mi)** – Off-road path connection to the east end of the Winni River Trail (Segment 1 in Existing Trail Conditions) at the Park Street and Elm Street trailhead in Northfield near the Union Sanborn School. Continue east along the existing, active rail corridor to East Main Street. Install a PHB signal to improve crossing conditions at East Main Street and continue east along the active, rail corridor to the west end of the Winni River Trail (Segment 5 in Existing Trail Conditions).
- **Part B (3.84 mi)**– Off-road path connection to the east end of the Winni River Trail (Segment 5 in Existing Trail Conditions) and install a second PHB signal to improve crossing conditions at Tilton Road, then continue east to Silver Lake Road. Install a third PHB signal to improve crossing conditions at Silver Lake Road and continue north to Daniel Webster Highway. Install a fourth PHB signal to improve crossing conditions at Daniel Webster Highway and continue north to connect to the south end of the existing Winni River Trail (Segment 3 in Existing Trail Conditions).
- **Part C (4.69 mi)** - At the north end of the WOW Trail (Segment 2 in Existing Trail Conditions), cross Elm Street in Lakeport and continue north on the existing, active rail corridor to the Lakeport drawbridge. Construct an ADA-grade ramp over the drawbridge and continue north on the rail corridor to Weirs Beach.

In total, this alternative requires the construction of one (1) bridge, five (5) trestle bridges, and four (4) PHB signals.[24] It also requires rail and tie removal, tie disposal, and contaminated soil handling.

Figure 17: Rail Drawbridge (Part C)

View of the rail corridor at the Lakeport Marina drawbridge. In the rail-to-trail alternative, this section may require a new trail ramp and bridge.

In contrast to Alternative B, the rail-to-trail alternative would be a continuous off-road trail and would not include any on-road segments. Construction of a continuous, off-road path may increase the overall level of comfort for trail users compared to the discontinuous segments noted in Alternative B. In addition, because the existing, active rail corridor would be discontinued in this proposed alternative, **no NHDOT requirement exists for the installation of fencing**. Without a requirement for four-foot-tall security fence, free-flowing resident access to Paugus Bay would likely remain in place. The WOW Trail Committee believes that Alternative C's ability to provide a comfortable trail experience and extended views of the waterfront could make the trail "one of the more attractive and sought-after rail trails in New England."

See **Figure 20** for a typical cross-section of the proposed rail-to-trail alternative.

[27] *Alternatively, the existing rail infrastructure could be "railbanked". See the Rails-to-Trails Conservancy's discussion on railbanking for more information. <https://www.railstotrails.org/build-trails/trail-building-toolbox/acquisition/railbanking/>*

Discontinuance of sections of the existing, active rail corridor between Tilton and Weirs Beach would likely have a **detrimental impact on the existing rail operators** that use the corridor. The existing rail operators report that discontinuance of the rail line along the study corridor will have the following impacts on their operations:

- Disconnection of the P&L Railroad Shop in Lincoln from the rest of the State rail corridor and potential isolation of existing equipment at the site.[28]
- Elimination of scenic rail service between Lakeport and Weirs Beach, shortening the length of some existing scenic rail services.
- P&L Railroad reports that discontinuance of sections of the existing, active rail corridor between Tilton and Weirs Beach would have a cascading impact on other components of P&L's business, putting the company out of business.[29]
- Elimination of access to the run-around track that allows for the efficient movement of a locomotive from one end of a train to another, an engine house with undercarriage inspection capabilities, and yard tracks that help facilitate switching and equipment storage.
- Elimination of direct freight rail service between Tilton/Northfield and Lincoln.

Discontinuing an active rail corridor would also **require State and Federal approval**. NHDOT, the owner of the rail line within the study corridor, is mandated by existing State law to promote rail use.[30] In a November 2017 letter to Laconia Mayor Edward Engler, NHDOT's director of the Division of Aeronautics, Rail and Transit, Patrick C. Herlihy, writes, "…existing and future rail service must take priority over recreational trail use in any [S]tate-owned rail corridor," and that expansion of the proposed trail network "…cannot be at the expense of the existing passenger excursion rail service that has supported tourism in the Lakes Region, including the City of Laconia, for over 25 years." In response to concerns expressed in Director Herlihy's letter, Laconia City Council passed a resolution (RES-2018-30) in August 2018 which indicates that if a trail were built along the rail corridor within the City limits, that the rail line could be "reinstated at a future date if it was determined that rail was a better and higher use."

Currently, P&L Railroad holds an operating agreement with NHDOT that is in effect until the end of 2021, at which point both P&L Railroad and NHDOT have the option to renew their agreement for an additional 10-year period. Similarly, NES Railroad is in the sixth year of a 10-year operating agreement and can elect to renew their agreement in 2023. Neither P&L Railroad or NES Railroad are considering discontinuance of rail service along the study corridor. If a rail operator decides it wants to abandon or discontinue rail service[31] but another rail service wishes to continue operations along the line, the **decision falls to the Surface Transportation Board** (STB) within the Federal government. According to a stakeholder interview with Peter Leishman, the owner of the Milford-Bennington Railroad, the STB denied Pan Am Railway's (PAR) request for an "adverse discontinuance" of a 3-mile portion of rail line used by the Milford-Bennington Railroad in 2018 because the segment still saw revenue-generating freight service. Similarly, STB would review any State-approved request for adverse discontinuance along the study corridor.

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[28] Benjamin Clark of the P&L Railroad stated "If rail access is severed-- even for a few miles-- the [P&L] shop will no longer be able to operate competitively due to the added costs of transportation, cranes/rigging and added labor to facilitate movement of inbound and outbound equipment. Additionally, certain rail equipment is simply too large and/or heavy to be transported via public roads, thus limiting potential future projects." P&L *Railroad and NES Railroad declined the option to provide verifiable data on existing revenue and employment data outside of data provided by NHDOT.*

[29] In correspondence on the draft report, Benjamin Clark of the P&L Railroad stated that "…removal of the railroad, or a portion thereof, will put our company out of business and result in major economic losses to tourism in New Hampshire. Economies of scale are required to keep the 'three legs' of our railroad stool upright (Hobo Railroad, Winnipesaukee Scenic Railroad and Plymouth & Lincoln Railroad Shop Services). If one 'leg of the stool' is dislodged, all will topple."

[30] The WOW Trail Committee intends to lobby for a change to existing State regulations.

[31] Section 228:60-a – Railroad Right of Way, 2016 New Hampshire Revised Statutes.
< https://law.justia.com/codes/new-hampshire/2016/title-xx/chapter-228/section-228-60-a>

5.4 Additional Considerations

In addition to the alternatives listed above, additional opportunities for complimentary services and negotiated agreements may exist. While these opportunities are not included in the cost-benefit analysis framework, they are acknowledged in this section as **potential variations to the analyzed alternatives**.

In discussions with Benjamin Clark, the owner of P&L Railroad, he believes that the development of rail-with-trail alternative could be a complimentary service to the existing scenic rail service. Mr. Clark noted that the rail corridor was originally designed with an offset to accommodate a second track that was never built. He expressed an openness to **re-aligning the existing rail corridor to allow more room for a trail** but noted that any such realignment would need to be approved by NHDOT. P&L Railroad and NHDOT both stated positions that they are unwilling to pay for the realignment. Because a feasibility analysis has not been completed for the study corridor, it is not known if a track realignment is feasible or the estimated costs of the suggested realignment.

In addition, Mr. Clark believes **bike-to-rail trips** could provide an opportunity for collaboration between trail advocates and P&L Railroad. Cuyahoga Scenic Railroad in Ohio uses a specialized railcar that allows people with bicycles to board the train. P&L Railroad has explored the purchase of a surplus commissary railcar from NHDOT to provide a similar service to their customers. One potential route would allow for bicyclists to travel downhill from Meredith to Weirs Beach and ride the train uphill in the reverse direction. In an interview with the president and the stationmaster of Strasburg Rail Road in Pennsylvania, they agreed that untapped potential existed for bike-to-rail trips.

Because the proposed alignment in Alternative C would eliminate direct rail access to the existing P&L Shop in Lincoln and based on an interview with Scott McCalla, a freight shipping consultant, intermodal transport of rail equipment to the **refurbishment shop** may be cost-prohibitive, relocation of the shop could be a potential negotiation item. Without relocation of the shop, refurbishment services could be diverted to competing shops in Waterville, Maine; East Deerfield, Massachusetts; and Worchester, Massachusetts, according to NES Railroad. While intermodal shipping is technically feasible as a means of replacing some of the rail service lost through Alternative C and may or may not be a viable replacement for existing shipments to the 3M facility and National Guard, the impact of this switch is not considered in this cost-benefit analysis.[32]

Removal of a portion of active rail corridor in Alternative C may also allow space for additional **on-street parking** near businesses in Laconia. Because a feasibility study has not been completed, the economic impact of increased parking was not included in this cost-benefit analysis.

Snowmobile access to most local trails is available from mid-December to mid-March, depending on weather conditions. No disruption in snowmobile access is anticipated for alternatives A, B, or C. Because less snow coverage is needed above a trail compared to rail tracks for snowmobile use, snowmobile access may be extended under Alternative C for discrete sections of the study corridor.

The WOW Trail Committee has suggested that **interpretive signage** could be installed along the proposed trail segments to highlight the area's rail history.

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[32] 3M declined to respond to multiple requests for participate in this study. Because existing freight service to the area is limited, no major detrimental impacts are anticipated to local traffic conditions following a shift to surface freight transport.

In addition, the WOW Trail Committee has suggested that existing **two-hour scenic rail service** could be maintained under Alternative C by extending the service north of Meredith. P&L Railroad suggested that this change in service is not a viable option.

Figure 18: Alternative C (Rail-to-Trail, Winni River Trail Section)

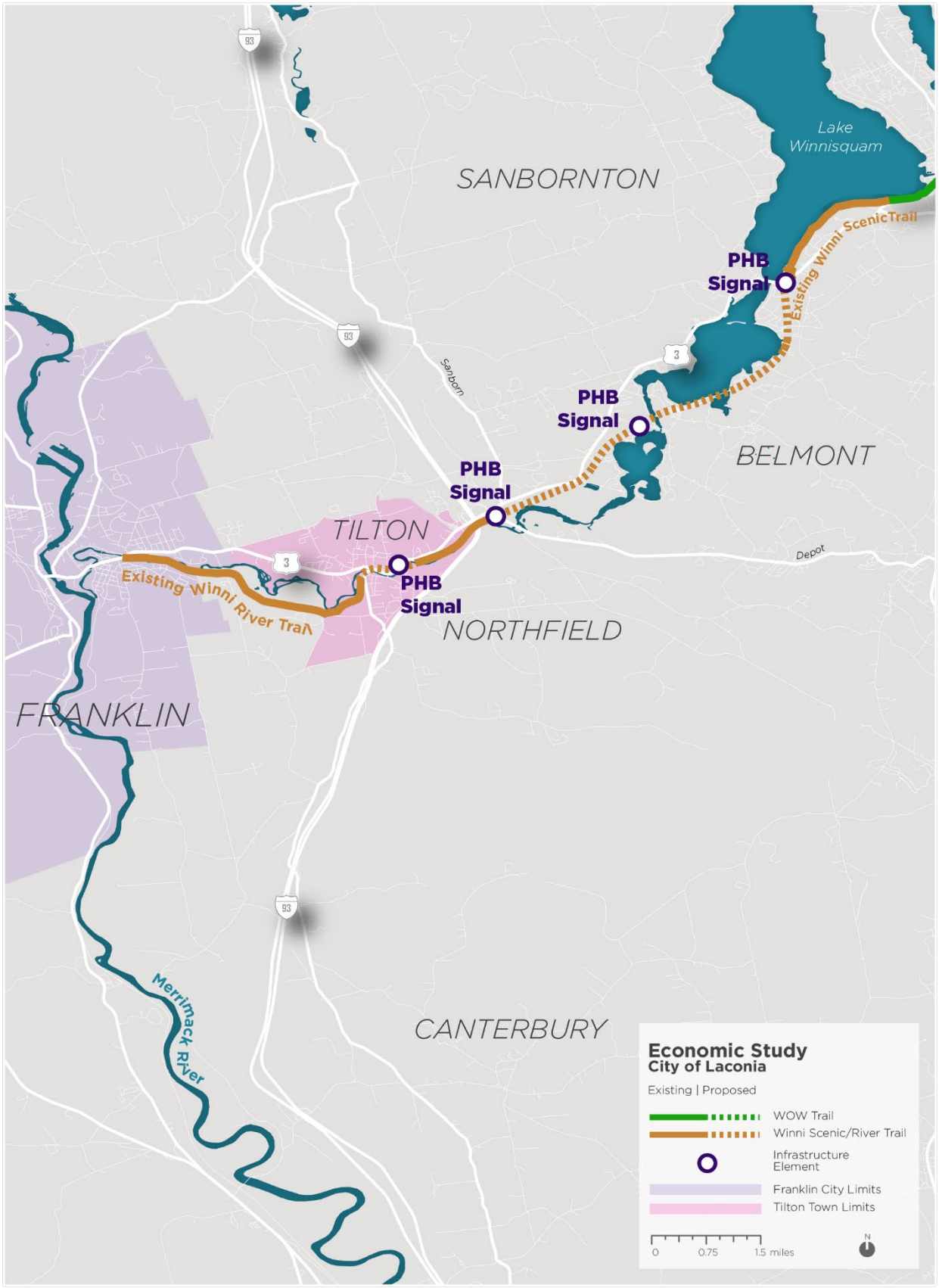


Figure 19: Alternative C (Rail-to-Trail, WOW Trail Section)

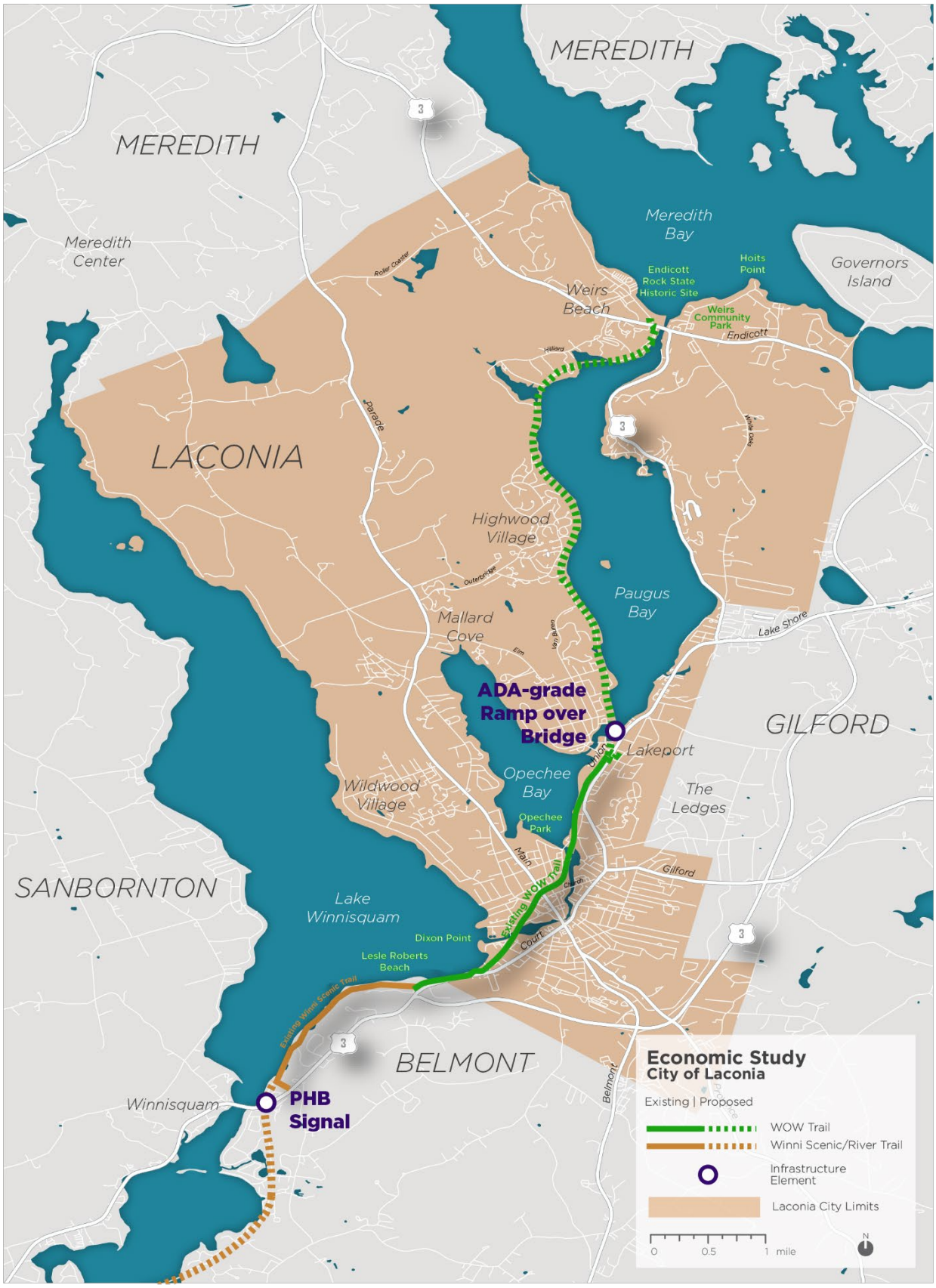
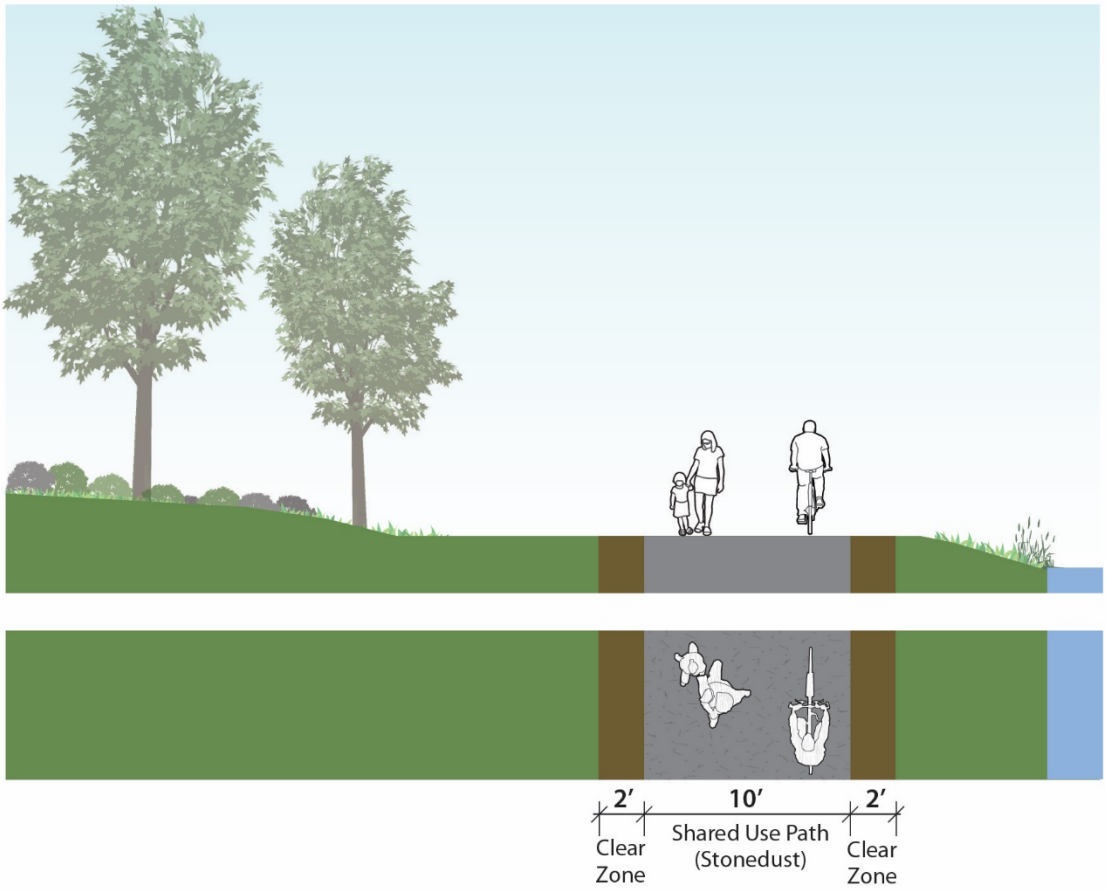


Figure 20: Alternative C (Rail-to-Trail, Typical Cross-Section along Paugus Bay)



6 Local Resident Opinion

To support this cost-benefit analysis, three methods of collecting feedback from the public were conducted:

- Mail-back surveys
- Online survey
- Stakeholder interviews

6.1 Mail-Back Survey Responses

In 2018, the WOW Trail Committee sent out 100 surveys to residents abutting the WOW Trail corridor between the Belmont town line and the Opechee Inn in Lakeport. The WOW Trail Committee used a mail-back survey instrument that included an anonymous, self-addressed stamped envelope (see Appendix A for the survey instrument and Appendix B for the mail-back survey responses). Responses to some of the survey questions included:

- Completed responses were received from 39 residents, of which 79% of respondents indicated that they were business owners abutting the WOW Trail corridor.
- Among the 31 respondents that were business owners, 32% said the trail had affected their business positively, 39% said it had no effect, 6% said it affected their business negatively, and 23% were not sure.
- Among the 39 total respondents (residents and business owners), 79% indicated that they were "satisfied" or "very satisfied" with having the WOW Trail as a neighbor, 13% were "indifferent", and 8% were unsatisfied.
- Respondents were asked to compare their initial reaction to the idea of living near the WOW Trail to how they feel about living near the trail today. Among the 38 respondents, 53% said they feel "better" or "much better", 39% feel the "same", and 8% feel "worse".
- In addition, 66% of respondents indicated that the trail "improved" or "much improved" the quality of their neighborhood, 21% indicated that it had "no impact", and 13% indicated that it "worsened" or "much worsened" the quality of their neighborhood.

6.2 Online Survey Responses

In 2019, Alta Planning + Design developed an online survey to learn about travel and spending behaviors associated with trail and rail activity in the region (see Appendix C for the survey instrument). The survey was created in Survey Monkey, an online survey tool, and was distributed through paid advertising on Facebook between February 12, 2019, and February 28, 2019. The goal of the paid advertising approach was to minimize response bias from individuals with vested interests in the results of this economic study and to solicit responses from visitors to the region that might otherwise be difficult to capture through more traditional survey approaches (see Appendix D for the online survey response). Responses from the online survey inform 'Section 7: Usage Estimates' and 'Section 8: Spending Estimates'.

6.3 Stakeholder Interviews

To better understand impacts to groups with vested interests in the analysis and individual stakeholders, a series of interviews were conducted. In total, 16 interviews were completed, including railroad operators, rail and trail advocates, police officers, and nearby business owners (see Appendix E for a list of stakeholders).

6.4 Adjacent Property Owner Concerns

Dick Bordwell, the president of the Long Bay Homeowners Association, provided written responses to a set of rail-trail related questions to share his concerns about the proposed rail-trail alternatives. Mr. Bordwell identified the following concerns:

- Construction of a paved path could encourage higher speed travel by bicyclists, potentially leading to conflicts with slower moving pedestrians.
- A boat lift helps transport boats across the existing rail corridor into the water. Additional foot traffic from trail users could lead to conflicts with the boat lift.
- The fencing requirement associated with Alternative B (Rail-with-Trail) could potentially limit the access of adjacent property owners to the waterfront, land owned by the property owners on the opposite side of the path, and existing neighborhood recreation amenities such as beaches, boat docks, and kayak/canoe launches.[33]
- Pedestrians and bicyclists on a pathway might lead to cross-traffic conflicts with adjacent homeowners accessing the waterfront if access points are not controlled.
- The fencing might also block direct views of the waterfront from the Long Bay Homeowners Association resident's properties.
- The cost of constructing the Alternative B or Alternative C would not be the highest and best use of taxpayer resources.

6.5 Safety & Security

In addition to the concerns described above by Mr. Bordwell, he also expressed concern about the potential for the proposed rail-trail to lead to a concentration of crime along the corridor. **Open-ended responses to the WOW Trail Committee's mail-back survey** included the following positive and negative comments related to safety and security along existing segments of the rail-trail (see **Appendix B** for the full list of open-ended responses related to safety and security).

Positive Safety- or Security-related Comments:

- "The Trail has nothing to do with the drug or homeless issue in Laconia"
- "My property abuts the trail and I never had any problems."
- "Safe from traffic."
- "We were very worried it would bring a lot of 'unwanted' foot traffic, but in fact, the users have been [from all] walks of life. It has been a positive impact on Laconia."
- "I think it is nothing but positive when describing the benefits of this community to any visitor or prospective relocation."

Negative Safety- or Security-related Comments:

- "Do not feel safe using the Lakeport section alone. Biking on that section of the trail a few weeks ago saw a collapsed tent adjacent to the trail laying on the grass."
- "The trail needs to be policed more."
- "More security is needed on the trails in this area before someone gets hurt."
- "I like the track itself but it has attracted too many homeless people who trespass on our property."
- "I don't dare walk alone because of the transients on the woods. Need more police protection."
- "Nice during the day, at night it is popular for the transient population."
- "Homeless appear to use the trail for sleeping, bathroom, etc."

[33] NHDOT notes that not every abutter has a legal right to access the waterfront, and that NHDOT's Crossing Agreements address access issues in accordance with State law.

Because of the wide range in feedback on safety and security of the existing rail-trail, **interviews of local law enforcement** were conducted. Lt. Richard Simmons and Capt. Richard Mann reported that the Laconia Police Department and the Belmont Police Department, respectively, conduct regular patrols of the rail-trail. **Both noted that the trail is a safe facility and that no serious crimes have been reported along the trail.** They both referred to a growing number of encampments along portions of the existing trail segments that have made some residents uncomfortable and trigger complaints.

Because crime is a concern of adjacent property owners near proposed trails, a large number of studies have evaluated the impact of the construction of trails on crime statistics:

- A 1987 evaluation of the Burke-Gilman Trail by the City of Seattle found that "The existence of the trail has little, if any, effect on crime and vandalism…"
- A 1995 joint study of The Conservation Fund and Colorado State Parks found that "No public safety issues could be directly linked to the trail."
- A 1998 study by the Federal Highway Administration compared the incidence rate of major crimes on rail-trails to general U.S. crime rates. The researchers found that crime rates on urban, suburban, and rural rail-trails to be low compared the national crime rate for urban, suburban, and rural areas.
- A 2001 survey of trail users along six trails in Indiana found that 79% to 95% of trail users felt safe along the trails.
- A 2001 study of Boston's five-mile Southwest Corridor greenway by Arizona State University found no significant increase in crime for those living next to the corridor and less crime compared to houses bordering quiet commercial streets and buildings abutting busy arterial streets.
- A 2005 systematic four-year assessment of property crime on or adjacent to a greenway within Mecklenburg County, North Carolina by the University of North Carolina – Charlotte found that greenway-adjacent properties incurred a reduced risk of crime than other properties within the broader community.
- A 2005 thesis from the University of North Carolina – Chapel Hill found that the crime rate around the Lower Brook Creek Trail decreased at a greater rate than the overall study area.
- A 2007 survey of Heritage Rail Trail users in Pennsylvania and Maryland by the York County Department of Parks and Recreation found that approximately 92% of users rated trail safety and security as being good or excellent.
- A 2008 survey of Perkiomen Trail users in Pennsylvania by the Rails-to-Trails Conservancy found that over 85% of trail users rated safety and security as being good or excellent.

7 Usage Estimates

This section shows how bicycle and pedestrian trip activity, scenic rail, and freight rail usage estimates were developed in the cost-benefit analysis. Because of uncertainty in the underlying available data, all usage estimates are expressed in a low-high range.

7.1 Bicycle & Pedestrian Trip Activity

Bicycle and pedestrian trip activity estimates serve as the foundation for the mobility, health, and safety trail benefit estimates. Because no trail count data was available for existing segments of the study corridor, survey data and a comparative demand analysis of completed rail-with-trail and rail-to-trail projects were used to forecast potential usage of the project alternatives.

The mail-back and online surveys both asked participants how frequently they use trails. Mail-back survey respondents represented households and businesses living adjacent to existing segments of the WOW Trail. Roughly half (51%) of mail-back survey respondents indicated that they used the trail frequently or on an almost daily basis. Conversely, the online survey instrument captured residents within an 80-mile radius of Laconia that, in general, had more limited access to trails than the trail abutters in the mail-back survey. Only 18% of online survey respondents indicated that they used a trail frequently or on an almost daily basis (see Appendix B and Appendix D for survey results).

This disparity in trail use based on proximity to the trail is consistent with available research that indicates the majority of trail users on a local trail system are local residents.[34] As the trail system expands to offer regional, long-distance connections, the potential for greater non-local use increases. Because no intercept survey data of existing trail users was available, this analysis **assumes that approximately 71% of trail users are local**, defined as Belknap County being their primary residence.[35]

Once on the trail, the vast majority (96%) of online survey respondents indicated that they use the trail for social/recreational purposes.[36] The mode share among trail users in the online survey showed a preference for pedestrian use, with 68% of respondents indicating that they use trails to walk/jog/run, 23% to bicycle, 6% to snowmobile/ski/snowshoe, and 4% for other modes. Among the online survey respondents that indicated they did not use trails (n=42), 40% said the biggest barrier to trail use was that there were no trails near them.[37] When respondents who did not currently use trail were asked if they would use a trail built near them, 71% indicated "yes, frequently" or "yes, sometimes".

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[34] Sage, J.L. and N. Nickerson. Trail Usage and Value (2018). Institute for Tourism & Recreation Research, University of Montana. <https://pricklypearlt.org/wp-content/uploads/2018/02/Trail-Usage-and-Value-Helena-case-study_FINAL-DRAFT-2-3.pdf>

[35] Based on average percent of local users at the American Tobacco Trail (61.9%), D&L Trail (77.5%), Virginia Creeper Trail (47.2%), and Mohawk-Hudson Bike-Hike Trail (96.3%).

[36] Survey respondents were allowed to select multiple trip purposes, so values do not add to 100.0%. Travel to/from work comprised 2% of respondent trips, run errands comprised 4% of respondent trips, and "other" comprised 5% of respondent trips.

[37] An additional 26% indicated that safety/security were a barrier, and 29% indicated that personal physical limitations were a barrier.

Table 1 shows seven rail-with-trail projects in Maine, New Jersey, Pennsylvania, Rhode Island, and Vermont that are comparable to the proposed rail-with-trail alignment in **Alternative B** and shows the existing bicycle commute mode share within 3.0 miles and the existing walk commute mode share within 0.5 miles of their respective alignments.

Table 1: Comparative Rail-with-Trail Projects

						School Enrollment[a]		Commute Mode Share	
Trail	**State**	**Surface**	**Miles**	**Population[a]**	**Employment[a]**	**K-12th**	**College**	**Bike[a]**	**Walk[b]**
Study Corridor (No Build)	**NH**	**Paved**	**18.8**	**40,641**	**20,257**	**6,040**	**2,054**	**0.11%**	**2.83%**
Kennebec River Rail Trail	ME	Paved	6.5	28,186	12,827	3,906	1,597	0.23%	4.89%
Traction Line Recreation Trail	NJ	Paved	3.2	85,472	44,699	13,499	6,821	0.31%	8.01%
Clarion-Little Toby Creek Trail	PA	Stone	19.0	9,386	4,383	1,316	281	0.00%	4.04%
Heritage Rail Trail County Park	PA	Stone	21.1	151,965	70,241	26,309	9,728	0.41%	5.17%
Stavich Bicycle Trail	PA	Paved	7.0	17,512	7,240	2,564	637	0.00%	0.54%
Blackstone River Bikeway	RI	Varies	11.8	398,329	183,408	62,297	41,079	0.64%	7.43%
Island Line Rail Trail	VT	Varies	12.5	72,952	39,370	7,924	15,041	3.62%	15.71%
Comparative Trail Average			**11.6**	**109,115**	**51,738**	**16,831**	**10,741**	**0.74%**	**6.54%**

[a] *Within 3.0 miles of trail. NHGIS, American Community Survey, 2013-2017 five-year estimates.*
[b] *Within 0.5 mile of trail. NHGIS, American Community Survey, 2013-2017 five-year estimates.*

Similarly, **Table 2** shows the six rail-to-trail projects in Maine, Massachusetts, New Hampshire, and Vermont that are comparable to the proposed rail-to-trail alignment in **Alternative C** and shows the existing bicycle commute mode share within 3.0 miles and the existing walk commute mode share within 0.5 miles of their respective alignments.

Table 2: Comparative Rail-to-Trail Projects

						School Enrollment[a]		Commute Mode Share	
Trail	**State**	**Surface**	**Miles**	**Population[a]**	**Employment[a]**	**K-12th**	**College**	**Bike**	**Walk**
Study Corridor (No Build)	**NH**	**Stone**	**18.8**	**40,641**	**20,257**	**6,040**	**2,054**	**0.11%**	**2.83%**
Ashuelot Recreational Rail Trail	NH	Varies	21.5	32,786	16,703	3,985	4,825	1.50%	9.16%
Ammonoosuc Rail Trail	NH	Varies	19.2	9,370	4,643	1,226	404	0.01%	8.16%
Nashua River Trail	NH/MA	Paved	12.3	58,302	30,028	9,326	3,400	0.11%	1.08%
West River Trail	VT	Varies	16.1	14,594	6,922	2,073	603	0.58%	9.15%
Delaware and Hudson Rail-Trail	VT	Varies	25.8	8,899	4,408	815	1,654	0.33%	12.62%
Aroostock Valley Trail	ME	Varies	28.8	14,424	6,327	2,177	861	0.24%	5.45%
Comparative Trail Average			**20.6**	**23,063**	**11,505**	**3,267**	**1,958**	**0.46%**	**7.60%**

[a] *Within 3.0 miles of trail. NHGIS, American Community Survey, 2013-2017 five-year estimates.*
[b] *Within 0.5 mile of trail. NHGIS, American Community Survey, 2013-2017 five-year estimates.*

As shown in **Table 3**, if the bicycle commute mode share remains at +/- 15.00% of current rates for **Alternative A,** between 0.10% and 0.13% of employed people living near the existing trail segments might bicycle to work. If the bicycle commute mode share for **Alternative B** ranges from the 25th percentile to the 75th percentile of the bicycle commute mode shares of the comparative rail-with-trail projects in **Table 1**, between 0.12% and 0.53% of employed people living near the proposed alignment might bicycle to work. If the bicycle commute mode share for **Alternative C** ranges from the 25th percentile to the 75th percentile of the bicycle commute mode shares of the comparative rail-to-trail projects in **Table 2**, between 0.14% and 0.52% of employed people living near the proposed alignment might bicycle to work.

If the walk commute mode share remains at +/- 15.00% of current rates for **Alternative A**, between 2.41% and 3.26% of employed people living near the existing trail segments might walk to work. If the walk commute mode share for **Alternative B** ranges from the 25th percentile to the 75th percentile of the walk commute mode shares of the comparative rail-with-trail projects in **Table 1**, between 4.46% and 7.72% of employed people living near the proposed alignment might walk to work. If the walk commute mode share for **Alternative C** ranges from the 25th percentile to the 75th percentile of the walk commute mode shares of the comparative rail-to-trail projects in **Table 2**, between 6.12% and 9.16% of employed people living near the proposed alignment might walk to work.

Table 3: Demand Estimates

	Bike Commute Mode Share			Walk Commute Mode Share		
	Low[a]	Mid[b]	High[c]	Low[a]	Mid[b]	High[c]
Alternative A	0.10%	0.11%	0.13%	2.41%	2.83%	3.26%
Alternative B	0.12%	0.31%	0.53%	4.46%	6.54%	7.72%
Alternative C	0.14%	0.28%	0.52%	6.12%	8.66%	9.16%

[a] Alternative A "low" estimate based on 85% of "mid" estimate; Alternative B "low" estimate based on the 25th percentile of comparative rail-with-trail projects; Alternative C "low" estimate based on the 25th percentile of comparative rail-to-trail projects.

[b] Alternative A "mid" estimate based on existing ACS estimates; Alternative B "mid" estimate based on the 50th percentile of comparative rail-with-trail projects; Alternative C "mid" estimate based on the 50th percentile of comparative rail-to-trail projects.

[c] Alternative A "high" estimate based on 115% of "mid" estimate; Alternative B "high" estimate based on the 75th percentile of comparative rail-with-trail projects; Alternative C "high" estimate based on the 75th percentile of comparative rail-to-trail projects.

The commute mode share estimates in **Table 3** were then extrapolated to all trip purposes using commute to utilitarian and social/recreational trip purpose multipliers based on travel behavior data from the National Household Travel Survey (NHTS) shown in **Table 4**. On average in the United States, there were 5.3 utilitarian bicycle trips for every bicycle commute trip and 8.8 utilitarian walk trips for every walk commute trip.

Table 4: Trip Purpose Multipliers

	Bike	Walk
Ratio of Commute to Utilitarian Trips[38]	1:5.3	1:8.8
Ratio of Commute to Social/Recreation Trips[38]	1:1.7	1:2.2

[38] National Household Travel Survey (2017). <https://nhts.ornl.gov/>

Table 5 shows year-by-year estimates of the number of bicycle trips within 3.0 miles of the study corridor and the number of pedestrian trips within a 0.5 mile of the study corridor for any trip purpose. **Note that the estimates include all bicycle and pedestrian trip activity and not just bicycle and pedestrian activity along the existing and proposed trail segments.**[39] For **Alternative A** (No Build), between 76.0 million and 81.1 million bicycle and pedestrian trips are anticipated over the analysis period (bicycle and pedestrian activity from existing infrastructure). For **Alternative B** (Rail-with-Trail), between 92.2 million and 126.2 million bicycle and pedestrian trips are anticipated over the analysis period if bicycle/pedestrian activity increases to the levels documented near the comparable rail-with-trail projects. For **Alternative C** (Rail-to-Trail), between 106.4 million and 138.1 million bicycle and pedestrian trips are anticipated over the analysis period if bicycle/pedestrian activity increases to levels documented near the comparable rail-to-trail projects.

Table 5: Estimated Overall Bicycle & Pedestrian Trip Activity in the Study Area (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	4,126	4,126	4,126	4,126	4,126	4,126
Year -3	2020	4,141	4,141	4,141	4,141	4,141	4,141
Year -2	2021	4,156	4,156	4,156	4,156	4,156	4,156
Year -1	2022	4,171	4,171	4,171	4,171	4,171	4,171
Year 0	2023	4,186	4,186	4,186	4,186	4,186	4,186
Year 1	2024	4,057	4,080	4,131	4,286	4,196	4,341
Year 2	2025	3,927	3,974	4,075	4,387	4,205	4,496
Year 3	2026	3,796	3,866	4,019	4,488	4,215	4,652
Year 4	2027	3,664	3,758	3,962	4,590	4,224	4,809
Year 5	2028	3,531	3,648	3,905	4,692	4,233	4,967
Year 6	2029	3,396	3,538	3,847	4,795	4,242	5,126
Year 7	2030	3,261	3,427	3,788	4,898	4,251	5,285
Year 8	2031	3,125	3,315	3,729	5,002	4,260	5,446
Year 9	2032	2,987	3,202	3,669	5,106	4,269	5,607
Year 10	2033	2,849	3,088	3,609	5,210	4,278	5,769
Year 11	2034	2,709	2,973	3,548	5,315	4,286	5,932
Year 12	2035	2,568	2,858	3,487	5,421	4,294	6,096
Year 13	2036	2,426	2,741	3,425	5,527	4,303	6,261
Year 14	2037	2,284	2,623	3,363	5,634	4,311	6,426
Year 15	2038	2,140	2,505	3,300	5,741	4,319	6,593
Year 16	2039	1,995	2,386	3,236	5,848	4,327	6,760
Year 17	2040	1,849	2,265	3,172	5,956	4,334	6,928
Year 18	2041	1,702	2,144	3,107	6,065	4,342	7,097
Year 19	2042	1,554	2,022	3,042	6,174	4,350	7,267
Year 20	2043	1,404	1,899	2,976	6,283	4,357	7,438
Total		76,001	81,092	92,170	126,197	106,375	138,075
Difference		-	-	16,169	45,105	30,374	56,983
Local	(70.7%)	53,745	57,345	65,178	89,241	75,224	97,640
Visitor[40]	(29.3%)	22,257	23,747	26,991	36,956	31,152	40,435

** Review of count data at similar trail projects suggests that an adjustment period after construction may take place as local residents and visitors become familiar with the facility.*[41]

[39] *In 2012, Belknap County Economic Development Corporation published "Economic Impact Analysis of the WOW Trail". The analysis was commissioned by the WOW Trail Board of Directors and focused on the economic impacts of the 12-mile WOW Trail. Estimated demand included in the analysis for this portion of the proposed trail network was approximately 152,000 users per year.*

[40] *Average non-local visitors documented at American Tobacco Trail, D&L Trail, Virginia Creeper Trail, and the Mohowak-Hudson Bike-Hike Trail.*

[41] *Cook, T., O'Brien, S.W., Jackson, K.N., Searcy, S. and D.J. Findley. Behavioral Effects of Completing a Critical Link in the American Tobacco Trail (2014). ITRE and North Carolina State University. <https://itre.ncsu.edu/wp-content/uploads/2016/03/American-Tobacco-Trail-FinalReport-ITR-2014.pdf>*

Table 6 shows estimates of the percent of bicycle and pedestrian trips by trip purpose that might replace motor vehicle trips near the study corridor. The motor vehicle trip replacement factors were developed by Alta Planning + Design using data from the National Household Travel Survey (2017).

Table 6: Motor Vehicle Trip Replacement Factors

	Bike	Walk
Commute Trips	25.3%	25.6%
College Trips	68.0%	82.7%
K-12 Trips	51.0%	54.0%
Utilitarian Trips	80.7%	83.8%
Social/Recreation Trips	15.5%	15.5%

Applying the motor vehicle trip replacement factors in **Table 6** to the estimated number of bicycle and pedestrian trips near the study corridor in **Table 5** helps produce estimates in the number of motor vehicle trips reduced by increased bicycle and pedestrian traffic. Over the analysis period, **Table 7** shows that trip reduction estimates ranged between 15.7 million and 17.8 million for **Alternative A** reduced motor vehicle trips from existing bicycle and pedestrian activity), 22.5 million and 36.3 million for **Alternative B** (rail-with-trail), and 28.4 million and 41.2 million for **Alternative C** (rail-to-trail).

Table 7: Estimated Vehicle Trip Reductions from Bicycling and Walking Trip Activity (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	653	653	653	653	653	653
Year -3	2020	655	655	655	655	655	655
Year -2	2021	658	658	658	658	658	658
Year -1	2022	660	660	660	660	660	660
Year 0	2023	663	663	663	663	663	663
Year 1	2024	659	669	690	753	717	776
Year 2	2025	656	675	717	844	772	890
Year 3	2026	652	681	745	936	826	1,004
Year 4	2027	648	687	773	1,028	882	1,119
Year 5	2028	645	693	801	1,120	937	1,235
Year 6	2029	641	700	829	1,214	993	1,352
Year 7	2030	637	706	857	1,307	1,049	1,469
Year 8	2031	633	712	885	1,402	1,106	1,587
Year 9	2032	629	718	913	1,497	1,163	1,706
Year 10	2033	625	724	942	1,592	1,220	1,826
Year 11	2034	621	730	971	1,688	1,277	1,946
Year 12	2035	617	736	999	1,785	1,335	2,067
Year 13	2036	612	742	1,028	1,882	1,393	2,189
Year 14	2037	608	748	1,057	1,980	1,452	2,311
Year 15	2038	604	755	1,087	2,078	1,511	2,434
Year 16	2039	599	761	1,116	2,177	1,570	2,558
Year 17	2040	594	767	1,146	2,277	1,629	2,683
Year 18	2041	590	773	1,175	2,377	1,689	2,808
Year 19	2042	585	779	1,205	2,477	1,749	2,934
Year 20	2043	580	785	1,235	2,578	1,809	3,061
Total		15,724	17,829	22,458	36,280	28,367	41,244
Difference		-	-	6,734	18,451	12,643	23,415

Table 8 shows the average distance traveled on bicycle and pedestrian trips in the United States.

Table 8: Estimated Trip Distances

	Bike[42]	Walk[42]
Commute Trips	2.5 miles	0.7 miles
College Trips	1.3 miles	0.4 miles
K-12 Trips	1.4 miles	0.7 miles
Utilitarian Trips	2.3 miles	0.8 miles
Social/Recreation Trips	2.7 miles	1.1 miles

Applying the average trip estimates from **Table 8** to the motor vehicle trip reductions in **Table 7** helps produce estimates in the reduction of vehicle-miles traveled (VMT) from increased bicycle and pedestrian traffic. Over the analysis period, **Table 9** shows that VMT reduction estimates ranged between 12.4 million and 14.0 million for **Alternative A**, 17.1 million and 30.6 million for **Alternative B**, and 21.4 million and 33.9 million for **Alternative C**.

Table 9: Estimated Reduction in Vehicle-Miles Traveled from Bicycling and Walking Trip Activity (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	512	512	512	512	512	512
Year -3	2020	514	514	514	514	514	514
Year -2	2021	516	516	516	516	516	516
Year -1	2022	518	518	518	518	518	518
Year 0	2023	520	520	520	520	520	520
Year 1	2024	517	525	539	601	559	616
Year 2	2025	515	530	558	682	597	712
Year 3	2026	512	535	577	763	636	809
Year 4	2027	509	540	597	845	675	907
Year 5	2028	506	545	616	928	715	1,005
Year 6	2029	503	550	636	1,011	755	1,104
Year 7	2030	501	555	655	1,095	794	1,203
Year 8	2031	498	560	675	1,179	835	1,303
Year 9	2032	495	565	695	1,263	875	1,404
Year 10	2033	491	570	715	1,348	916	1,505
Year 11	2034	488	575	735	1,434	956	1,607
Year 12	2035	485	580	755	1,520	997	1,710
Year 13	2036	482	585	775	1,607	1,039	1,813
Year 14	2037	479	590	795	1,694	1,080	1,917
Year 15	2038	475	594	815	1,782	1,122	2,021
Year 16	2039	472	599	836	1,870	1,164	2,126
Year 17	2040	468	604	857	1,959	1,206	2,232
Year 18	2041	465	609	877	2,048	1,248	2,338
Year 19	2042	461	614	898	2,138	1,291	2,445
Year 20	2043	458	619	919	2,228	1,334	2,553
Total		12,362	14,024	17,104	30,576	21,375	33,913
Difference		-	-	4,742	16,552	9,013	19,889

However, as discussed in the Environmental Costs section, these VMT reductions may be partially or fully offset by additional motor vehicle trips created to access the trail.[43]

[42] *National Household Travel Survey (2017). <https://nhts.ornl.gov/>*
[43] *52% of online survey respondents indicated that they accessed trail by motor vehicle.*

As discussed above, **Table 5** includes all estimated bicycle trips within 3.0 miles of the study corridor and all pedestrian trips within 0.5 miles of the study corridor and is not limited to trips along the existing and proposed trail segments. To better understand how much of the estimated bicycle and pedestrian trip activity might take place along the trail, **available per mile user estimates** from the comparative trails shown in **Table 1** and available per mile count user estimates from comparative trails included in the 2012 *Economic Impact Analysis of the WOW Trail* was examined. **Table 10** shows that on average there were 12,600 annual users per mile at the eight comparative trail locations.

Table 10: Estimated Comparative Trail User Trips

Comparative Trails	Estimated Annual User Trips per Mile
Columbia Trail (NJ)	4,200
Clarion-Little Toby Creek Trail (PA)	1,200
Heritage Rail Trail County Park (PA)	13,100
Perkiomen (PA)	20,900
Ghost Town (PA)	2,100
Armstrong (PA)	2,300
Heritage Rail (MD)	18,800
Washington & Old Dominion (VA)	37,900

Using a weighted analysis of the estimated comparative trail user trips in **Table 10** based on the level of similarity of each comparable trail to the study corridor, **Table 11** shows the estimated number of trail users by study alternative. If existing trail segments within the study corridor experienced the same weighted number of annual per mile users as the comparative trails in **Table 10** and experienced the same trends in bicycle and pedestrian activity as shown in **Table 5**, there would be an estimated 1.6 million to 2.4 million trail users for **Alternative A** over the analysis period. Using the same assumptions, **Alternative B** would attract between 4.5 million and 8.4 million trail users over the analysis period and **Alternative C** would attract between 5.2 million and 9.2 million trail users.

Table 11: Estimated Trail User Trips (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	89	121	201	273	232	299
Year -3	2020	89	121	202	274	233	300
Year -2	2021	89	121	203	275	234	301
Year -1	2022	89	121	204	276	235	302
Year 0	2023	89	121	205	277	237	303
Year 1	2024	86	118	202	284	233	311
Year 2	2025	83	115	199	291	230	318
Year 3	2026	80	112	196	298	226	326
Year 4	2027	77	109	193	305	223	334
Year 5	2028	74	106	190	312	219	341
Year 6	2029	71	103	187	319	216	349
Year 7	2030	68	100	184	326	212	357
Year 8	2031	65	97	181	333	209	364
Year 9	2032	62	94	178	340	205	372
Year 10	2033	59	91	175	347	202	380
Year 11	2034	56	88	172	354	199	387
Year 12	2035	53	85	169	361	195	395
Year 13	2036	50	82	166	368	192	403
Year 14	2037	47	78	163	375	188	410
Year 15	2038	44	74	160	382	185	418
Year 16	2039	41	70	157	389	181	426
Year 17	2040	38	66	154	396	178	433
Year 18	2041	35	62	151	403	174	441
Year 19	2042	32	58	148	410	171	449
Year 20	2043	29	54	145	417	167	456
Total		1,595	2,367	4,485	8,385	5,176	9,175
Difference		-	-	2,890	6,018	3,581	6,808
Non-local	(29.3%)	463	686	1,301	2,432	1,501	2,661

7.2 Freight Railroad Usage

NHDOT provided data on the freight rail and movements and revenue by NES Railroad along the study corridor between 2015 and 2018 (see **Table 12** and Appendix F). Revenue remained consistent between 2015 and 2018, ranging between approximately $15,000 and $18,000. The number of freight rail movements ranged between 8 and 12 movements between 2015 and 2017, then spiked to 140 movements in 2018. The maximum number of reported movements per month was two (2). April through December represents the peak season for NES Railroad.

In addition to the freight rail revenue along the study corridor reported by NHDOT, NES Railroad reported in a phone conversation additional revenue related to the **transportation of National Guard equipment between Canterbury, NH, and Manchester, NH,** in 2015 (generating $105,000 in revenue) and 2018 (generating $75,000 in revenue)). While these movements were excluded from this analysis because they are outside of the study area, upstream impacts to NES Railroad's operations could impact their ability to complete future shipments for the National Guard.

Table 12: Freight Rail Movements and Revenue (NHDOT, 2015-2018)

Month	Movements (Revenue)				
	2015	2016	2017	2018	4-year Average
January	1 ($2,178)	0 ($0)	0 ($0)	0 ($0)	0 ($545)
February	0 ($0)	0 ($0)	0 ($0)	0 ($2,200)	0 ($550)
March	0 ($2,178)	0 ($3,667)	0 ($3,400)	0 ($550)	0 ($2,449)
April	0 ($0)	2 ($0)	0 ($0)	2 ($0)	1 ($0)
May	2 ($0)	0 ($0)	0 ($0)	0 ($0)	1 ($0)
June	2 ($2,178)	2 ($3,300)	2 ($2,985)	2 ($5,600)	2 ($3,516)
July	0 ($0)	0 ($0)	0 ($0)	67 ($0)	17 ($0)
August	2 ($0)	2 ($0)	0 ($0)	69 ($3,400)	18 ($850)
September	0 ($4,356)	2 ($6,050)	2 ($2,200)	0 ($0)	1 ($3,152)
October	0 ($400)	2 ($0)	2 ($2,200)	0 ($0)	1 ($650)
November	2 ($2,904)	0 ($0)	0 ($1,200)	0 ($0)	1 ($1,026)
December	1 ($1,452)	2 ($3,200)	2 ($3,400)	0 ($6,000)	1 ($3,513)
Total	10 ($15,646)	12 ($16,217)	8 ($15,385)	140 ($17,750)	43 ($16,250)

* Sources: In addition to NES freight revenue generated in Belknap County, NES Railroad and NHDOT report freight movements for the National Guard were completed in December 2014 ($105,000) and December 2018 ($75,000). According to NHDOT, a National Guard movement is scheduled for July 2019. While these shipments fall outside of the study corridor, upstream impacts to NES Railroad's operations could impact their ability to complete these movements.

7.3 Scenic Railroad Usage

Scenic rail operations serve as a tourism draw to the study area. Among the 134 **online survey respondents**, 59% indicated that they had ridden a scenic train in the Lakes Region of New Hampshire. When asked about the frequency of scenic train ridership, 67% of respondents indicated that they rode scenic rail "every few years", 15% indicated that they rode scenic rail "1-2 times a year", and 18% indicated that they rode scenic rail "3+ times a year". Online survey participants were asked about if they had ridden the Hobo Railroad/Winnipesaukee Scenic Railroad in the Lakes Region, and among the 67 respondents that indicated that they had, they indicated the following breakdown of which general segments of the scenic rail service they had ridden:

- Scenic rail from Lincoln to Meredith – 54%
- Scenic rail from Meredith to Weirs Beach – 52%
- Scenic rail from Weirs Beach to Lakeport – 46%

Scenic rail trips operated by P&L Railroad that extend between Meredith and Lakeport total approximately two hours in travel time. These trips are targeted at adults, and food service or connections to food vendors are integrated into the trip package. Conversations with other scenic rail operators suggested that 45 minutes is the ideal length of a scenic rail trip for children.

NHDOT provided data on the scenic rail ridership and revenue by P&L Railroad along the study corridor between 2015 and 2018 (see **Table 13** and **Appendix F**). Scenic rail operations by P&L Railroad are confined to the peak season of June through December, with the vast majority (77%) of reported paying passenger trips taking place between July and October. Between 2015 and 2018, reported annual ridership varied from approximately 49,000 to 71,000 paying passengers. Although NHDPOT **reported year-over-year ridership declined** steadily each year from 2015 to 2018 (overall, NHDOT reported ridership declined 31% between 2015 and 2018), **reported annual revenue remained relatively consistent** over the same time period (fluctuating between $936,817 and $987,128). The four years of provided scenic rail ridership and revenue data was not a long enough time period to establish a projected trend of increasing or decreasing estimated revenue from scenic rail passengers. Federal Railroad Administration passenger counts for Grafton County show a fluctuation between approximately 53,000 to 64,000 annual passengers between 2010 and 2018, with an average of approximately 60,000 passengers per year, as shown in **Table 14**.

This analysis **assumes an annual average scenic rail ridership of 65,000 passengers** over the study's analysis period based the available ridership and revenue data from NHDOT, estimated bicycle and pedestrian trip activity, and potential population growth across the state. P&L Railroad reviewed the values shown in **Table 13** and noted that NHDOT user fees are paid based on ticket revenues generated and that "certain group tours and children's tickets are accounted for by trip operated on a lump sum basis, not passengers hauled." Conversations with scenic rail operators indicated that the industry is sensitive to overall trends in the economy and gas prices because of the scenic rail customer base often travel from outside of the area to use the service.

Table 13: Scenic Rail Ridership and Revenue (NHDOT, 2015-2018)

	Scenic Rail Service	Ridership	Revenue[44]
2015	Hobo RR	28,881	$379,955
	Winnie RR	18,691	$256,007
	Weirs	11,697	$168,048
	Special	11,776	$153,270
	Total	71,045	$957,280
2016	Hobo RR	27,329	$404,487
	Winnie RR	31,071	$464,463
	Weirs	0	$0
	Special	6,600	$83,914
	Total	65,000	$952,863
2017	Hobo RR	26,904	$410,740
	Winnie RR	28,256	$467,188
	Weirs	0	$0
	Special	2	$109,200
	Total	55,162	$987,128
2018	Hobo RR	21,318	$364,407
	Winnie RR	17,686	$286,378
	Weirs	9,828	$173,332
	Special	425	$112,700
	Total	49,257	$936,817
Total	Hobo RR	104,432	$1,559,589
	Winnie RR	95,704	$1,474,036
	Weirs	21,525	$341,380
	Special	18,803	$459,084
	Total	240,464	$3,834,089
Average Annual*	Hobo RR	26,000	$390,000
	Winnie RR	24,000	$369,000
	Weirs	5,000	$85,000
	Special	5,000	$115,000
	Total	60,000	$959,000

** Rounded to nearest thousand*

Table 14: Rail Passenger Counts in Grafton County (Federal Railroad Administration)

Calendar Year	Passenger Operation Counts	2010-2018 Average Passengers
2010	57,773	59,797
2011	53,438	
2012	56,630	
2013	60,627	
2014	62,148	
2015	63,765	
2016	59,720	
2017	60,094	
2018	63,982	

[44] *P&L Railroad reports that the values shown in the table excludes some revenues that are not subject to the NHDOT user-fee, such as gift shop sales and maintenance projects.*

Table 15 shows the estimated annual future scenic rail ridership over the analysis period. Values are presented in a low-high range to represent the variability and uncertainty in the estimates. If ridership is sustained at current levels over the analysis period, an estimated 1.4 million to 1.9 million passengers are anticipated along the study corridor for **Alternative A** (No Build).

Construction of a trail parallel to the active rail corridor in **Alternative B** (Rail-with-Trail) is estimated to help increase overall bicycle and pedestrian trip activity by 42% to 104% compared to Alternative A (see **Table 5**). While estimating the cross-over potential between trail users and rail tourism is beyond the scope of this study, increased trail usage would likely enhance the visibility of scenic rail service and, possibly, scenic rail patronage. Because the two recreational activities are considered to be complementary and not competing, this analysis **assumes the construction of Alternative B would help increase scenic rail patronage by an average of 10% per year**. Over the 20-year analysis period, 1.5 million and 2.0 million scenic rail passengers are anticipated for Alternative B (approximately 6,000 to 8,000 estimated additional scenic rail passengers per year compared to Alternative A).

Construction of a rail-to-trail in **Alternative C** would eliminate the scenic rail corridor between Lakeport and Weirs Beach. NHDOT ridership data in **Table 13** shows that this section of the rail corridor had significantly lower ridership than the Lincoln to Meredith and Meredith to Weirs Beach sections, and the online survey showed that was the least ridden section among survey respondents but by a smaller margin (46% compared to 54% between Lincoln and Meredith and 52% between Meredith and Weirs Beach). While this reduction in the length of the rail corridor would impact currently offered scenic rail services, such as the two-hour dinner train, one vendor for that service indicated in a stakeholder interview that the loss of the segment of rail was unlikely to have a large impact on the overall attractiveness of the scenic rail service. **This analysis assumes that potential reductions in ridership from removal of the Lakeport-Weirs Beach rail corridor would be offset by increased visitor traffic to the area generated by the proposed rail-to-trail**, resulting in comparative scenic rail ridership shown for Alternative B. This assumption is based on the lower level of activity along this stretch of the corridor, typical tour lengths of other scenic rail providers, and feedback from the dinner service vendor. Over the 20-year analysis period, 1.5 million and 2.0 million scenic rail passengers are anticipated for Alternative C (approximately 6,000 to 8,000 estimated additional scenic rail passengers per year compared to Alternative A).

Table 15: Estimated Scenic Rail Ridership (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	55	75	61	83	61	83
Year -3	2020	55	75	61	83	61	83
Year -2	2021	55	75	61	83	61	83
Year -1	2022	55	75	61	83	61	83
Year 0	2023	55	75	61	83	61	83
Year 1	2024	55	75	61	83	61	83
Year 2	2025	55	75	61	83	61	83
Year 3	2026	55	75	61	83	61	83
Year 4	2027	55	75	61	83	61	83
Year 5	2028	55	75	61	83	61	83
Year 6	2029	55	75	61	83	61	83
Year 7	2030	55	75	61	83	61	83
Year 8	2031	55	75	61	83	61	83
Year 9	2032	55	75	61	83	61	83
Year 10	2033	55	75	61	83	61	83
Year 11	2034	55	75	61	83	61	83
Year 12	2035	55	75	61	83	61	83
Year 13	2036	55	75	61	83	61	83
Year 14	2037	55	75	61	83	61	83
Year 15	2038	55	75	61	83	61	83
Year 16	2039	55	75	61	83	61	83
Year 17	2040	55	75	61	83	61	83
Year 18	2041	55	75	61	83	61	83
Year 19	2042	55	75	61	83	61	83
Year 20	2043	55	75	61	83	61	83
Total		1,375	1,875	1,525	2,075	1,525	2,075
Difference		-	-	150	200	150	200

8 Spending Estimates

This section looks at the estimated **spending by visitors** during trail-related and scenic rail-related trips. Although local trail users and scenic rail patrons from Belknap County also spend money during their trips, this spending is considered a "transfer payment" within the context of this analysis (see Transfer Payments for more information).

8.1 Trail-related Spending

In stakeholder interviews of local business owners, all indicated that they believed the construction of the proposed trail would be good for local businesses, with one business owner noting that he would work to orient signage for his business if the proposed trail were built to help attract trail users. In the mail-back survey to property owners adjacent to existing segments of the trail network, 32% of participating business owners indicated that they believed the trail would have a positive impact on their business, 39% indicated that it would have no effect, 6% indicated that it would have a negative impact, and 23% were not sure. Results from the online survey showed that non-local trail users spent an average of $119 per person per trip (see **Table 16**), with the majority of spending allocated to lodging ($45/person/trip) and trail-related equipment such as walking shoes, sunscreen, clothes, and bicycle parts ($33/person/trip).

Table 16: Estimated Non-local Trail-related Expenditures

Expense	Non-Local Survey Responses	Average Expenditure per Person per Trip	Jobs per $1 million in Expenditures†
Food/beverage	43	$16	13.4
Lodging	43	$45	8.7
Equipment	42	$33	13.8*
Transportation	43	$14	7.9**
Other	42	$11	-
Total Non-local Expenditures	-	**$119**	-

† Based on the Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II) multipliers for Belknap County, NH
** Based on NAICS "amusements, gambling, and recreation industries"*
*** Based on NAICS "other transportation and support activities"*

If the estimated number of non-local trail users shown in **Table 11** spend $119 per person per day and the average trip duration is an assumed 0.5 days, non-local trail-related spending is expected to generate between $27.5 million and $40.8 million in **Alternative A**, between $77.4 million and $144.7 million in **Alternative B**, and between $89.3 million and $158.3 million in **Alternative C** (see **Table 17**).

Table 17: Undiscounted and Unadjusted Estimated Non-Local Spending Related to Trail Use (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	$1,536	$2,088	$3,468	$4,711	$4,003	$5,159
Year -3	2020	$1,536	$2,088	$3,486	$4,728	$4,020	$5,177
Year -2	2021	$1,536	$2,088	$3,503	$4,745	$4,038	$5,194
Year -1	2022	$1,536	$2,088	$3,520	$4,762	$4,055	$5,211
Year 0	2023	$1,536	$2,088	$3,537	$4,780	$4,089	$5,228
Year 1	2024	$1,484	$2,036	$3,486	$4,900	$4,020	$5,366
Year 2	2025	$1,432	$1,984	$3,434	$5,021	$3,969	$5,487
Year 3	2026	$1,380	$1,933	$3,382	$5,142	$3,900	$5,625
Year 4	2027	$1,329	$1,881	$3,330	$5,263	$3,848	$5,763
Year 5	2028	$1,277	$1,829	$3,278	$5,384	$3,779	$5,884
Year 6	2029	$1,225	$1,777	$3,227	$5,504	$3,727	$6,022
Year 7	2030	$1,173	$1,726	$3,175	$5,625	$3,658	$6,160
Year 8	2031	$1,122	$1,674	$3,123	$5,746	$3,606	$6,281
Year 9	2032	$1,070	$1,622	$3,071	$5,867	$3,537	$6,419
Year 10	2033	$1,018	$1,570	$3,020	$5,987	$3,486	$6,557
Year 11	2034	$966	$1,518	$2,968	$6,108	$3,434	$6,678
Year 12	2035	$915	$1,467	$2,916	$6,229	$3,365	$6,816
Year 13	2036	$863	$1,415	$2,864	$6,350	$3,313	$6,954
Year 14	2037	$811	$1,346	$2,813	$6,471	$3,244	$7,075
Year 15	2038	$759	$1,277	$2,761	$6,591	$3,192	$7,213
Year 16	2039	$707	$1,208	$2,709	$6,712	$3,123	$7,351
Year 17	2040	$656	$1,139	$2,657	$6,833	$3,071	$7,471
Year 18	2041	$604	$1,070	$2,606	$6,954	$3,002	$7,609
Year 19	2042	$552	$1,001	$2,554	$7,075	$2,951	$7,747
Year 20	2043	$500	$932	$2,502	$7,195	$2,882	$7,868
Total		$27,522	$40,843	$77,389	$144,683	$89,312	$158,315
Difference		-	-	$49,867	$103,840	$61,790	$117,472
Jobs*		-	-	30	50	30	60

* *Based on the Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II) multipliers for Belknap County, NH; values rounded to the nearest tens place.*

8.2 Scenic Rail-related Spending

To establish a baseline for scenic rail-related spending, online survey respondents were asked about their scenic rail trip expenditures. **Table 18** shows that non-local scenic rail customers spent an average of $152 per person per trip, with a large portion of spending allocated to lodging ($62/person/trip) and the rest split between food/beverage ($25/person/trip), transportation ($23/person/trip), the cost of the train ticket ($18/person/trip), and other expenditures ($24/person/trip).

Table 18: Estimated Non-local Scenic Rail-related Expenditures

Expense	Non-Local Survey Responses	Average Expenditure per Person per Trip	Jobs per $1 million in Expenditures†
Food/beverage	33	$25	13.4
Lodging	33	$62	8.7
Transportation	33	$23	7.9*
Other	33	$24	-
Non-local Expenditures Subtotal	-	$134	-
Train Ticket		**$**18	13.8**
Non-local Expenditures Total	**-**	**$152**	**-**

† Based on the Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II) multipliers
** Based on NAICS "other transportation and support activities"*
*** Based on NAICS "amusements, gambling, and recreation industries"*

If 50% of the estimated number of scenic rail customers shown in **Table 15** are non-local and they spend $152 per person per trip, non-local scenic rail-related spending is expected to generate between $104.5 million and $142.5 million in **Alternative A** and between $115.9 million and $157.7 million for both **Alternative B** and **Alternative C** (see **Table 19**).

Table 19: Undiscounted and Unadjusted Estimated Non-Local Spending Related to Scenic Rail Trips (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year -3	2020	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year -2	2021	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year -1	2022	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 0	2023	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 1	2024	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 2	2025	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 3	2026	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 4	2027	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 5	2028	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 6	2029	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 7	2030	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 8	2031	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 9	2032	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 10	2033	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 11	2034	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 12	2035	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 13	2036	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 14	2037	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 15	2038	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 16	2039	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 17	2040	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 18	2041	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 19	2042	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Year 20	2043	$4,180	$5,700	$4,636	$6,308	$4,636	$6,308
Total		$104,500	$142,500	$115,900	$157,700	$115,900	$157,700
Difference		-	-	$11,400	$15,200	$11,400	$15,200
Jobs*		-	-	0	10	0	10

* *Based on the Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II) multipliers for Belknap County, NH; values rounded to the nearest tens place.*

9 Analysis Framework

This section documents the general framework and assumptions incorporated into the cost-benefit analysis.

9.1 Reliability and Sensitivity Analyses

Producing dependable and repeatable outputs that attempt to overestimate the benefits of an alternative or underestimate its costs is critical for understanding the weight in decision making that a cost-benefit analysis should carry. To improve the reliability of this cost-benefit analysis, the **input factors with the greatest uncertainty are expressed as ranges**. For trail-related components, factors expressed as ranges include usage estimates and cost estimates. For rail-related components, factors expressed as ranges include usage estimates and full-time equivalent jobs.

9.2 Inflation, Constant Dollars, & Discounting

To meaningfully compare the costs and benefits of a project over an extended planning window, it is important to express values in common terms. "Constant dollars" (or "real dollars") describes the process of adjusting values for inflation or deflation of currency over time. Undertaking this process is necessary to **ensure that the purchasing power of a dollar is consistently expressed from one year to the next**. For all monetized costs and benefits, this analysis expresses their values in inflation-adjusted constant dollars ($USD) from the common base year of 2019. In accordance with USDOT guidelines, the inflation adjustment is captured by incorporating a "Gross Domestic Product Deflator".[45]

After accounting for the effects of inflation, a second adjustment must be made to account for the time value of money. This concept reflects that costs and benefits that occur sooner in time are more highly valued than those that occur in the more distant future and that there is a **cost associated with diverting the resources needed for an investment from other productive services**. This process is known as "discounting", and results in costs and benefits being expressed in the same present value terms. In accordance with USDOT guidelines, real discount rates of 3% and 7% per year are used in this analysis to discount each cost and benefit separately to their present value.

9.3 Analysis Periods & Residual Values

The selection of an appropriate analysis period is a fundamental consideration of any cost-benefit analysis. The capital investment needed to construct the proposed rail-trail alternatives is expected to take place over multiple years, as are the expected benefits. To capture this dynamic, the **analysis period covers the initial design and construction of the project, as well as the subsequent operational period during which any reoccurring costs (such as operations and maintenance) and any ongoing benefits are realized**.

The anticipated analysis period **start date** is dependent on overcoming current legislative barriers, addressing social and political partnership issues, securing funding, completion of design, completion of environmental review and permitting, length of the construction period, and availability of administrative support to oversee design and construction. Because none of these issues are currently resolved, this analysis **assumes a two-year design, permitting, and construction period** based on typical trail development timelines.

[45] *Federal Reserve Bank, Gross Domestic Product: Implicit Price Deflator.* <https://fred.stlouisfed.org/series/GDPDEF>

The anticipated analysis period **end date** generally corresponds to the excepted "**useful life**" of a project, or how long a project will last before it has to be replaced or reconstructed. Even if a project has multiple components with varying useful lives, such as a pathway and bridge, only one analysis end period can be integrated into the analysis. The typical useful life for surface transportation projects using asphalt paving or crushed stone is 20 years, and the typical useful life for a bridge is 70 years.[46] Routine maintenance, avoidance of use by heavy vehicles,[47] and favorable weather conditions can extend the useful life of a project; however, there is a limit to the utility of modeling project benefits over long time periods. General uncertainty about the future, including travel patterns and market trends, may mean that forecasts over an extended analysis period become less reliable. Additionally, the process of discounting means that each subsequent year in an analysis become less and less likely to impact the overall outputs of the analysis. For these reasons, **the selected analysis period for this cost-benefit is 20 years.**

To help account for benefits of a project component that are anticipated to extend beyond the selected analysis period end date, such as a bridge along the study corridor, a cost-benefit analysis can incorporate the project component's "**residual value**". The approach used for estimating the residual value assumes that the asset's value depreciates in a linear manner over its useful life. If a bridge along the corridor has a useful life of 70 years and the selected analysis period ends after 20 years, the bridge could be used for an additional 50 years without needing to be replaced. These remaining 50 years are considered as a **lump sum at the end of the 20-year analysis period** and discounted to their present value using the 3% and 7% real discount rates.

9.4 Transfer Payments

USDOT guidelines require a cost-benefit analysis to distinguish between benefits and "transfer payments". Benefits reflect real reductions in resource usage and overall net benefits to society, such an estimated reduction in the number of collisions reflects a real reduction in costs associated with property damage and medical expenses. Transfer payments are often somewhere **in between being a benefit and being a cost, depending on the perspective of the stakeholder for whom the transfer is being evaluated**. For example, an increase in property value is a benefit to an existing property owner but a potential cost to a prospective purchaser of the property. In addition to property values, transfer payments can include changes in local spending, non-local spending, local wages, and tax revenues. Because this analysis is limited to addressing the costs and benefits realized by residents of Belknap County, **non-local spending is incorporated into the cost-benefit analysis as a benefit**. Because changes in property value, local spending, local wages, and tax revenues might transfer from one Belknap County resident to another, they are excluded from the cost-benefit analysis framework and reported separately.

[46] Bridge Inspection. Nondestructive Testing Resource Center.
<https://www.nde-ed.org/AboutNDT/SelectedApplications/Bridge_Inspection/Bridge_Inspection.htm>
[47] If traffic on a bridge is limited to only bicyclists and pedestrians, it's useful life may extend well beyond 100 years. To remain conservative in the estimated benefits, this analysis assumes a 70-year useful life for all bridge components.

9.5 Alternatives and Independent Utility

To conform with USDOT guidelines, each cost-benefit analysis must include a well-defined baseline (or "**No Build**" alternative) by which to measure the incremental costs and benefits associated with one or more build alternatives. This baseline **documents the study area under future population, employment, and known travel conditions if no additional factors outside of the status quo are incorporated**, notwithstanding factors that would occur even in the absence of the proposed project such as ongoing operation and maintenance. For this analysis, the "No Build" alternative **includes a continuation of rail operations at their current levels of ridership and shipment frequency**. While additional trails projects have been proposed in the region, only the rail-trail alternatives identified in the Study Conditions section are included in this analysis.

USDOT guidelines also require that projects with multiple components identify the components that have "**independent utility**", meaning that a given project component **would produce the same projected benefits regardless of whether or not any of the other project components are built**. These components with independent utility are required to be analyzed separately to help identify potential opportunities to capture a large portion of estimated economic benefits without incurring all of the estimated costs. If built, the proposed rail-trail alternatives would close two gaps in the existing trail network. While the closure of any one of these two gaps could independently provide marginal benefits to Belknap County residents, it would not accomplish the City of Laconia's goal of connecting economic centers in Franklin and at Weirs Beach. Because of this, **no individual components of the study alternatives are considered to have independent utility** in this analysis.

10 Estimated Costs

This section includes estimated capital, maintenance, and other costs associated with the alternatives discussed in the Study Conditions section.[48] Alternative B (Rail-with-Trail) is further divided into paved and unpaved sub-alternatives.

10.1 Capital Costs

Table 20 shows planning-level capital cost estimates for individual project components, expressed as a low-high range to represent uncertainty and to help identify the sensitivity of the analysis findings to the capital costs (see Reliability and Sensitivity Analyses section for more information).[49] Because no new project components are proposed for **Alternative A** (No Build), no additional capital costs are anticipated. Estimated capital costs for **Alternative B** (Rail-with-Trail) range between $14.5 million and $20.0 million for a paved surface and $14.0 million and $18.9 million for an unpaved surface. Estimated capital costs for **Alternative C** (Rail-to-Trail) range between $3.8 million and $5.2 million. For detailed planning-level capital cost assumptions and estimates, see Appendix G.

Table 20: Summary of Planning-level Capital Cost Estimates (in thousands)

	Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail, unpaved)	
Components[a]	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost
Path[b]	$0	$0	$10,046	$13,592	$9,167	$12,402	$2,434	$3,294
Retaining Walls[c]	$0	$0	$3,697	$5,001	$3,696	$5,001	$0	$0
Trestle Bridges[d]	$0	$0	$0	$0	$0	$0	$186	$252
Bridge(s)[e]	$0	$0	$850	$1,150	$850	$1,150	$850	$1,150
PHB Signals[f]	$0	$0	$255	$345	$225	$345	$340	$460
Total	**$0**	**$0**	**$14,848**	**$20,088**	**$13,968**	**$18,898**	**$3,811**	**$5,155**

[a] All estimated project component costs based on prior projects include a 3% annual inflation rate from project completion date; all values rounded to nearest thousand. Capital cost estimates do not include the segments of Alternative B that may require on-road bikeways, new or widened sidewalks, curbs, roadway restriping, signage, relocation of utility equipment, or property easements.

[b] Alternative B (paved) estimated path capital costs based on typical engineering/design, legal, soil scientist, construction, construction observation, contaminated soil handling, and bond fees from existing segments of the WOW Trail (see Segment 4 of Existing Trail Conditions). Estimated path capital costs for Alternative B (unpaved) were supplemented by cost estimates included in the Northwest Indiana Regional Planning Commission's 2010 "Ped & Pedal Plan". Alternative C estimated path capital costs based on typical engineering/design, legal, soil scientist, construction, construction observation, rail removal, contaminated soil handling, and bond fees from a combination of the Northern Rail Trail (2010 section) and the Mascoma River Greenway. Tie removal and disposal costs are based on cost estimates from NHDOT.

[c] Retaining wall heights and widths were estimated using available LiDAR data, aerial imagery, and onsite observations. Capital cost estimates were based on NHDOT's weighted average unit price for precast concrete modular retaining wall, plus additional engineering/design and construction observation costs. The need for 17 retaining walls was identified for Alternative B.

[d] Trestle bridge locations and lengths were identified through LiDAR data, aerial imagery, onsite observations. Estimated re-decking and railing installation costs were based on costs associated with trestle bridge improvements on the Mascoma River Greenway.

[e] Bridge location based on available LiDAR data, aerial imagery, and onsite observations. Bridge cost estimates based on bid price data (excluding specialty project costs) from the recently completed Durkee Brook bridge project. The need for three (3) bridges was identified for Alternative B (paved and unpaved), and the need for one (1) bridge was identified for Alternative C.

[f] Pedestrian Hybrid Beacon (PHB) signal cost estimates were based on capital costs provided by NHDOT from recent PHB signal installations. The need for three (3) PHB signals was identified for Alternative B (paved and unpaved) and for Alternative C.

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[48] Grants from outside Belknap County and private donations could reduce the capital or maintenance costs borne by the public in the study area. Because no grant or private funding has been identified at the time of this study, all capital and maintenance costs are assumed to be publicly financed in this analysis by residents of Belknap County.

[49] The "low" value represents 85% of the capital cost estimate in Appendix G.
The "high" value represents 115% of the capital cost estimate in Appendix G.

For year-by-year undiscounted and unadjusted capital cost estimates, see **Table 21**. As noted in the Analysis Period & Residual Values section, capital cost expenditures are assumed to take place over a two-year period beginning in 2021. Over the project analysis period, **Alternative A** (No Build) is estimated to incur no capital expenditures. Over the same time period, **Alternative B** (Rail-with-Trail) is estimated to incur between $14.8 million and $20.1 million in undiscounted capital costs for a paved surface and between $14.0 million and $18.9 million for an unpaved surface. And **Alternative C** (Rail-to-Trail) is estimated to incur between $3.8 million and $5.2 million in undiscounted capital costs during the analysis period.

Table 21: Undiscounted and Unadjusted Estimated Capital Costs (in thousands)

		Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail, unpaved)	
Project Year	**Year**	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost
Year -4	2019	$0	$0	$0	$0	$0	$0	$0	$0
Year -3	2020	$0	$0	$0	$0	$0	$0	$0	$0
Year -2	2021	$0	$0	$7,424	$10,044	$6,984	$9,449	$1,905	$2,578
Year -1	2022	$0	$0	$7,424	$10,044	$6,984	$9,449	$1,905	$2,578
Year 0	2023	$0	$0	$0	$0	$0	$0	$0	$0
Year 1	2024	$0	$0	$0	$0	$0	$0	$0	$0
Year 2	2025	$0	$0	$0	$0	$0	$0	$0	$0
Year 3	2026	$0	$0	$0	$0	$0	$0	$0	$0
Year 4	2027	$0	$0	$0	$0	$0	$0	$0	$0
Year 5	2028	$0	$0	$0	$0	$0	$0	$0	$0
Year 6	2029	$0	$0	$0	$0	$0	$0	$0	$0
Year 7	2030	$0	$0	$0	$0	$0	$0	$0	$0
Year 8	2031	$0	$0	$0	$0	$0	$0	$0	$0
Year 9	2032	$0	$0	$0	$0	$0	$0	$0	$0
Year 10	2033	$0	$0	$0	$0	$0	$0	$0	$0
Year 11	2034	$0	$0	$0	$0	$0	$0	$0	$0
Year 12	2035	$0	$0	$0	$0	$0	$0	$0	$0
Year 13	2036	$0	$0	$0	$0	$0	$0	$0	$0
Year 14	2037	$0	$0	$0	$0	$0	$0	$0	$0
Year 15	2038	$0	$0	$0	$0	$0	$0	$0	$0
Year 16	2039	$0	$0	$0	$0	$0	$0	$0	$0
Year 17	2040	$0	$0	$0	$0	$0	$0	$0	$0
Year 18	2041	$0	$0	$0	$0	$0	$0	$0	$0
Year 19	2042	$0	$0	$0	$0	$0	$0	$0	$0
Year 20	2043	$0	$0	$0	$0	$0	$0	$0	$0
Total		$0	$0	$14,848	$20,088	$13,968	$18,898	$3,811	$5,155
Difference		-	-	$14,848	$20,088	$13,968	$18,898	$3,811	$5,155

10.2 Maintenance Costs

Table 22 shows annual rail-trail maintenance cost estimates, expressed as a low-high range to represent uncertainty and to help identify the sensitivity of the analysis findings to the maintenance costs (see Reliability and Sensitivity Analyses section for more information).[50] Because no new rail-trails segments are proposed in **Alternative A** (No Build), only annual maintenance cost estimates for existing rail-trail segments are included, which range between $15,000 and $20,000 per year. Estimated annual maintenance cost estimates for **Alternative B** (Rail-with-Trail) range between $33,000 and $45,000 per year for a paved surface. Estimated annual maintenance cost estimates for **Alternative B** (Rail-with-Trial) for an unpaved surface and **Alternative C** (Rail-to-Trail) range between $24,000 and $33,000 per year.

Although maintenance and operation costs are associated with the existing **rail service** for Alternative A and Alternative B, these costs are paid by the private rail operator through a user fee collected by NHDOT. Because these maintenance and operation costs are borne by a private entity and do not represent a cost to Belknap County residents, they are **excluded from the cost-benefit analysis** framework.

Table 22: Annual Rail-Trail Maintenance Cost Estimates

	Alt A (No Build)		Alt B (Rail-with-Trail, paved)[a]		Alt B (Rail-with-Trail, unpaved)[a]		Alt C (Rail-to-Trail, unpaved)[a]	
	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost
Asphalt Path[b]	8.3 mi		18.8 mi		8.3 mi		8.3 mi	
Annual Maintenance Cost (Asphalt)[51]	$1,675/mi	$2,267/mi	$1,675/mi	$2,267/mi	$1,675/mi	$2,267/mi	$1,675/mi	$2,267/mi
Asphalt Subtotal[c]	$14,000	$19,000	$31,000	$43,000	$14,000	$19,000	$14,000	$19,000
Crushed Stone Path[b]	0.0 mi		0.0 mi		10.5 mi		10.5 mi	
Annual Maintenance Cost (Crushed Stone)[51]	$855/mi	$1,157mi	$855/mi	$855/mi	$855/mi	$1,157/mi	$855/mi	$1,157/mi
Crushed Stone Subtotal[c]	$0	$0	$9,000	$9,000	$9,000	$12,000	$9,000	$12,000
Subtotal (in 2014 Dollars)	**$14,000**	**$19,000**	**$23,000**	**$23,000**	**$23,000**	**$31,000**	**$23,000**	**$31,000**
Total (in 2019 dollars)[d]	**$15,000**	**$20,000**	**$24,000**	**$24,000**	**$24,000**	**$33,000**	**$24,000**	**$33,000**

[a] Post-construction trail maintenance cost estimates
[b] Does not include slight variation in proposed rail-trail length between Alternative A and Alternative B (paved and unpaved)
[c] Subtotal = (Path mileage) x (Annual Maintenance Cost estimate per mile); all values rounded to nearest thousand
[d] Inflation adjustment from 2014 estimates to 2019 estimates (5.5% increase, rounded to nearest thousand)

[50] The "low" value represents 85% of the identified per mile maintenance cost estimate. The "high" value represents 115% of the identified per mile maintenance cost estimate.
[51] Note: Does not include any extensive or exceptional repairs and assumes inclusion of only the most basic maintenance tasks needed to keep the trail usable. Per mile maintenance cost estimates based on 95 study participants who provided their 2013-2014 annual budgets. Knoch, C. and T. Sexton. Maintenance Practices and Costs of Rail-Trails (2015). Rails-to-Trails Conservancy. <https://www.railstotrails.org/resourcehandler.ashx?id=6336>

For year-by-year undiscounted and unadjusted maintenance cost estimates, see **Table 23**. Over the project analysis period, **Alternative A** (No Build) is estimated to incur between $0.4 million and $0.5 million in undiscounted maintenance costs. Over the same time period, **Alternative B** (Rail-with-Trail) is estimated to incur between $0.7 million and $1.0 million in undiscounted maintenance costs for a paved surface. **Alternative B** (Rail-with-Trail) for an unpaved surface and (**Alternative C** (Rail-to-Trail) are estimated to incur between $0.5 million and $0.7 million in undiscounted maintenance costs during the analysis period.

Table 23: Undiscounted and Unadjusted Estimated Maintenance Costs (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt (B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail, unpaved)	
		Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost
Year -4	2019	$15	$20	$15	$20	$15	$20	$15	$20
Year -3	2020	$15	$20	$15	$20	$15	$20	$15	$20
Year -2	2021	$15	$20	$15	$20	$15	$20	$15	$20
Year -1	2022	$15	$20	$15	$20	$15	$20	$15	$20
Year 0	2023	$15	$20	$15	$20	$15	$20	$15	$20
Year 1	2024	$15	$20	$33	$45	$24	$33	$24	$33
Year 2	2025	$15	$20	$33	$45	$24	$33	$24	$33
Year 3	2026	$15	$20	$33	$45	$24	$33	$24	$33
Year 4	2027	$15	$20	$33	$45	$24	$33	$24	$33
Year 5	2028	$15	$20	$33	$45	$24	$33	$24	$33
Year 6	2029	$15	$20	$33	$45	$24	$33	$24	$33
Year 7	2030	$15	$20	$33	$45	$24	$33	$24	$33
Year 8	2031	$15	$20	$33	$45	$24	$33	$24	$33
Year 9	2032	$15	$20	$33	$45	$24	$33	$24	$33
Year 10	2033	$15	$20	$33	$45	$24	$33	$24	$33
Year 11	2034	$15	$20	$33	$45	$24	$33	$24	$33
Year 12	2035	$15	$20	$33	$45	$24	$33	$24	$33
Year 13	2036	$15	$20	$33	$45	$24	$33	$24	$33
Year 14	2037	$15	$20	$33	$45	$24	$33	$24	$33
Year 15	2038	$15	$20	$33	$45	$24	$33	$24	$33
Year 16	2039	$15	$20	$33	$45	$24	$33	$24	$33
Year 17	2040	$15	$20	$33	$45	$24	$33	$24	$33
Year 18	2041	$15	$20	$33	$45	$24	$33	$24	$33
Year 19	2042	$15	$20	$33	$45	$24	$33	$24	$33
Year 20	2043	$15	$20	$33	$45	$24	$33	$24	$33
Total		$375	$500	$735	$1,000	$555	$760	$555	$760
Difference		-	-	$360	$500	$180	$260	$180	$260

10.3 Insurance Costs

While many rail-with-trail projects exist around the country, a common source of concern voiced by rail owners and operators is the potential for conflicts between trail users and locomotives. As of 2013, there were approximately 161 documented rail-with-trail projects in the United States, with 28% of those projects being directly adjacent to Class I railroads.[52] According to the Rails-to-Trails Conservancy, a nonprofit organization that advocates for a nationwide network of trails, the vast majority of rail-with-trail projects are insured by an existing local umbrella policy, similar to most rail-to-trail or greenway projects.[53]

To better understand safety and liability issues associated with interactions between trains and trail users, the nonprofit surveyed 88 rail-with-trail managers, conducted a review of related literature (including the Federal Highway Administration's *Rail-with-Trails: Lessons Learned*),[54] analyzed Federal Railroad Administration data on railroad corridor fatalities, and assessed available case studies.[53]

In their survey of rail-with-trail managers, the Rails-to-Trails Conservancy found that a plurality of trail managers said that no indemnification was required by the railroad or was included in the easement or license agreement. The most important legal protections available to trails, including rail-with-trails, are the Recreational Use Statutes (RUS), which are enacted in some form by all 50 states. These statutes typically limit the liability of landowners and managers who invite the public onto their land for recreational uses and do not charge a fee. Where a RUS is applicable, the trail manager will not be held liable for any injuries sustained by trail users unless the trail manager intentionally harmed the trail user or was grossly negligent. Notable state legislative efforts to encourage rail-with-trail development include recent amendments to the Recreational Use Statues (RUS) of Virginia and Maine (which provide an exemption from liability for private landowners allowing public recreational use of their land).[53,55]

In addition to a RUS, some states have enacted general statutes immunizing railroads from liability from injury to trespassers. For example, Pennsylvania enacted a statute providing that "[a] railroad carrier owes no duty of care to keep its railroad property safe for entry or use by any trespasser who enters upon any railroad property or railroad right-of-way or to give any warning to such trespasser entering or going on that railroad property of a dangerous condition, use or activity thereon." The Federal Railroad Administration (FRA) has also developed model legislation that penalizes persons who trespass on railroad property to engage in recreational activities such as bicycling and walking.[53]

According to data from the FRA, there have been between 667 and 1,516 fatalities on railroad corridors each year between 1975 and 2012, including intentional fatalities, people crossing tracks by vehicle or on foot, and people under the influence of alcohol. Among the tens of thousands of reported fatalities within the last 20 years, to-date there was **only one known fatality involving a rail-with-trail user**. The fatality took place along the South Bay Trail in Bellingham, Washington, and a lawsuit was filed against the railroad and trail manager. The presiding court found that neither the railroad or trail manager were liable due to protections provided by the state's RUS.[53]

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[52] Note: Class I railroads are those railroads that have an annual operating revenue that exceeds $433 million. These railroads account for most of the freight rail traffic in the United States.
Pack, K. and P. Tomes. America's Rails-with-Trails (2013). Rails-to-Trails Conservancy.
<https://www.railstotrails.org/resourcehandler.ashx?id=2982>
[53] Pack, K. and P. Tomes. America's Rails-with-Trails (2013). Rails-to-Trails Conservancy.
<https://www.railstotrails.org/resourcehandler.ashx?id=2982>
[54] Rail-with-Trails: Lessons Learned (2002). Federal Highway Administration, Office of Planning, Environment, & Realty, Recreational Trails Program.
< https://www.fhwa.dot.gov/environment/recreational_trails/publications/rwt/page00.cfm>
[55] The State of New Hampshire's RUS can be found here: http://www.gencourt.state.nh.us/rsa/html/XVIII/212/212-34.htm

Even with these strong legal defenses to liability, some rail owners and operators may remain concerned about the time and expense that may be involved in defending against even a non-meritorious personal injury lawsuit.[56] Approaches to shift liability from railroads and other landowners to another party include insurance and indemnification agreements in which a trail manager assume legal responsibility and agree to hold the railroad harmless for any loss or damage that may be incurred in connection with trail use. The trail manager may also be required to assume responsibility for the railroad's defense in any legal action in which the railroad is named as a responsible party. Although a review of State of New Hampshire trail insurance requirements was outside the scope of this cost-benefit analysis, a majority of trail managers reported in the Rail-to-Trails Conservancy survey that their trail's insurance requirement was covered by an existing municipal or state insurance policy.[53] Because this was the prevailing trend among rail-with-trail projects, insurance costs are not included in the cost-benefit analysis framework.[57]

10.4 Environmental Costs

A variety of potential environmental costs can be associated with rail-trail development projects, including clean-up of contaminated soil and rail materials, disturbance of wildlife or environmentally sensitive resources, and impacts on air quality.

For Alternative C (Rail-to-Trail), the potential costs associated with **rail and tie removal**, tie disposal, and contaminated soil handling were incorporated into the estimated capital costs. Existing segments of the Winni and WOW trails received Categorical Exclusion from the requirement to conduct an **environmental assessment** because of no anticipated significant impact to the human environment. While additional, proposed segments of trail along the study corridor have not yet received Categorical Exclusion, this analysis assumes that no environmental assessment will be needed for Alternative B or Alternative C.

Negative impacts to **air quality** may exist for rail service. While freight rail offers a more fuel-efficient means of shipping goods compared to trucks,[58] scenic rail service does not necessarily replace another form of passenger travel. A 2008 study of train emissions found that diesel locomotives produce on average 136.0 g/mile of Nitrous Oxides (NOx) and 57.7 g/mile of Carbon Oxide (CO).[59] A 2014 study of train emissions found that living close to a rail line significantly increased fine particulate matter exposure ($PM_{2.5}$).[60] Similarly, popular trails can attract visitors from outside the region, and many trail users access the trail by motor vehicle. A 2015 survey of trail users on 15 trails in New York found that the average distance traveled by trail users to access a trail was 8.9 miles and 65% of trail users arrived by motor vehicle.[61] The online survey included in Appendix D found that approximately 52% of trail user respondents arrived at trails by motor vehicle.

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[56] In a stakeholder interview, one existing scenic rail operator expressed interest in a trail being developed near their facility but said that he would want to make sure the facility was safely separated from the rail corridor.

[57] A 2014 survey by the Rails-to-Trails Conservancy found that 77% of respondents indicated that their trail was covered by liability insurance and most indicated that that they held between $1 million and $2 million in coverage.
Knoch, C. and T. Sexton. Maintenance Practices and Costs of Rail-Trails (2015). Rails-to-Trails Conservancy.
<https://www.railstotrails.org/resourcehandler.ashx?id=6336>

[58] Freight Railroads Help Reduce Greenhouse Gas Emissions. Association of American Railroads.
< https://www.aar.org/data/freight-railroads-help-reduce-greenhouse-gas-emissions/>

[59] Park, D. and Y. Cho. Emission Rates of Air Pollutants Exhausted from Railroad Diesel Engines.
<https://www.semanticscholar.org/paper/Emission-Rates-of-Air-Pollutants-Exhausted-from-Park-Cho/8593afe54e938154c2702401a15e4bb183e8989c#extracted>

[60]Note: Locomotives also emit course Particulate Matter (PM_{10}) and Carbon Dioxide. Open coal trains have a significantly higher concentration of particles compared to diesel and electric trains.
Jaffe, et al. Diesel particulate matter emission factors and air quality implications from in-service rail in Washington State, USA. Atmospheric Pollution Research. 2014. 5(2): 344-351. <https://www.sciencedirect.com/science/article/pii/S1309104215303342>

[61] An Analysis of the 2015 Trail User Survey & Count (2016). New York State, Office of Parks, Recreation & Historic Preservation, Planning Bureau.
<https://parks.ny.gov/recreation/trails/documents/2015TrailUserSurveyCountReport.pdf>

An important factor in determining to include emission costs from scenic train travel or emissions costs from visitors accessing trails by motor vehicle into the cost-benefit analysis framework is whether or not these trips would have been replaced by another emission-causing trip if the scenic rail service or trail were not available. Because no survey of scenic rail riders' or trail users' alternative trip choice was available, a compromise approach to accounting for impacts to air quality was selected. This cost-benefit analysis assumes that emission reduction benefits of work, school, and utilitarian trail trips for Alternative B and Alternative C would be **offset** by emission costs associated with social and recreational trail users accessing the trail by motor vehicle. Similarly, emission benefits of the NES freight service are assumed to offset emission costs associated with scenic rail service.

10.5 Economic Costs

As discussed in the Study Alternatives section, implementation of **Alternative C** would have a detrimental impact on rail operations along the study corridor, potentially impacting freight revenue, freight and refurbishment shop employment. The Freight Railroad Usage section estimated that average freight revenue totaled approximately $16,000 per year. Regional Input-Output Modeling System (RIMS II) data from the U.S. Bureau of Economic Analysis for Belknap County suggests that for every $1.00 of final demand output from rail transportation, there is an additional associated $1.00 of final demand output in the transportation/warehousing sector.[62] Therefore, $16,000 in average annual output for freight service is associated with an additional $16,000 in average annual output, **totaling $32,000 in lost annual economic activity** if discontinuance of the rail line under Alternative C made the continuation of freight rail service by NES Railroad infeasible.

In a stakeholder interview, NES Railroad reported over the last few years of operations it has had two to three full-time staff positions and five to seven part-time staff positions during the peak season from May to October, which they estimated to be five (5) full-time equivalent positions over the six-month period. Verifiable employment data was not made available by NES Railroad to convert reported staff to full-time equivalent (FTE) staff. RIMS II data showed no employment multiplier for the rail transportation sector for Belknap County. Quarterly Workforce Indicator (QWI) data from the U.S. Census Bureau data suggest an average monthly **wage** of approximately $2,676 for private firms that have been in New Hampshire's urban transit system industry for more than ten years. If discontinuance of the rail line under Alternative C made the continuation of freight rail service by NES Railroad infeasible, loss of an estimated but unverified 2.5 FTE positions during the peak season of May to October associated with the company may lead to approximately $40,000 in lost earnings per year ($2,676 x 2.5 FTE x 6 months).

Implementation of **Alternative C** would also isolate the existing P&L refurbishment shop in Lincoln, likely forcing the shop to transport equipment by truck (when feasible), relocate, or cease operations. P&L Railroad reported by email that it has 68 part- and/or full-time positions, but **data on what percent of employees work within the refurbishment shop and what portion of P&L overall operations are represented by the refurbishment operations was not made available**. QWI data for private scenic and sighting transportation jobs in New Hampshire among firms that have been in business for at least 10 years shows that the average monthly wage of employees was $2,659 and the workforce followed a seasonal trend, with the majority of economic activity taking place in Quarter 3 of the fiscal year. Because specific data on the potential impacts to the refurbishment shop is not available, it is included in this analysis as an **undetermined cost** associated with Alternative C.

[62] *Note: A $1 : $1 ratio means that the rail transportation industry is unusually insulated from the county's other economic sectors.*

Similarly, the **Café Lafayette Dinner Train** would be impacted by a disconnection of the branch rail line from the main rail line and any disruption in access to P&L Railroad's refurbishment shop in Lincoln. Alexandra French of the Café Lafayette Dinner Train reports that a lack of access to the main line would prohibit the ability to of the scenic train service to expand operations through the acquisition of new rail equipment or to move their equipment to a new rail line. In addition, Mrs. French noted that the Café Lafayette Dinner Train relies on P&L Railroad for a locomotive and conductors to operate their service and the refurbishment shop for potential future repairs. If the P&L Railroad were to discontinue operations, there would be downstream economic impacts on the Café Lafayette Dinner Train. Because the Café Lafayette Dinner Train operates outside of the study area and the potential impacts to their service under Alternative C (Rail-to-Trail) is dependent on an undetermined cost on the P&L Railroad, quantified impacts on the Café Lafayette Dinner Train are not included in this analysis.

NHDOT collects a user fee from railroad operators on active, State-owned railroad lines and distributes 20% of the State's receipts each year to cities and towns based on the proportion of the railroad that passes through them.[63] Using average annual receipts collected between 2015 and 2018 for NES Railroad and P&L Railroad shown in Appendix F, NHDOT collects approximately $99,000 in combined user fees from the railroad operators each year (approximately $700 from NES Railroad and approximately $98,000 from P&L Railroad). Most of the user fees are used for ongoing maintenance of the rail line, but 20% is distributed to local municipalities. Approximately 20% of the NES Railroad passes through municipalities in the study area and approximately 26% of the P&L Railroad passes through municipalities in the study area, generating an estimated average distribution of approximately $26,000 to local municipalities within the study area each year. Because the impacts to P&L Railroad from the proposed Alternative C (Rail-to-Trail) are unknown, this analysis conservatively assumes a reduction of $26,000 in distributions to local municipalities would no longer be available.

Table 24 shows the combined economic costs for each proposed alternative, including the decreased economic activity from the discontinuation of freight rail and loss of user fees within the study area under Alternative C (Rail-to-Trail) totaling approximately $1.3 million over the 20-year analysis period. Because no data was made available for P&L Railroad, the economic costs resulting from impacts of Alternative C (Rail-to-Trail) are undetermined and not included in **Table 24**. Loss revenue to municipalities outside of the study area are also not included in **Table 24**.

[63] *Source: http://www.gencourt.state.nh.us/rsa/html/XX/228/228-69.htm*

Table 24: Undiscounted and Unadjusted Estimated Economic Costs (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail)*	
		Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost
Year -4	2019	$0	$0	$0	$0	$0	$0	$0	$0
Year -3	2020	$0	$0	$0	$0	$0	$0	$0	$0
Year -2	2021	$0	$0	$0	$0	$0	$0	$58	$58
Year -1	2022	$0	$0	$0	$0	$0	$0	$58	$58
Year 0	2023	$0	$0	$0	$0	$0	$0	$58	$58
Year 1	2024	$0	$0	$0	$0	$0	$0	$58	$58
Year 2	2025	$0	$0	$0	$0	$0	$0	$58	$58
Year 3	2026	$0	$0	$0	$0	$0	$0	$58	$58
Year 4	2027	$0	$0	$0	$0	$0	$0	$58	$58
Year 5	2028	$0	$0	$0	$0	$0	$0	$58	$58
Year 6	2029	$0	$0	$0	$0	$0	$0	$58	$58
Year 7	2030	$0	$0	$0	$0	$0	$0	$58	$58
Year 8	2031	$0	$0	$0	$0	$0	$0	$58	$58
Year 9	2032	$0	$0	$0	$0	$0	$0	$58	$58
Year 10	2033	$0	$0	$0	$0	$0	$0	$58	$58
Year 11	2034	$0	$0	$0	$0	$0	$0	$58	$58
Year 12	2035	$0	$0	$0	$0	$0	$0	$58	$58
Year 13	2036	$0	$0	$0	$0	$0	$0	$58	$58
Year 14	2037	$0	$0	$0	$0	$0	$0	$58	$58
Year 15	2038	$0	$0	$0	$0	$0	$0	$58	$58
Year 16	2039	$0	$0	$0	$0	$0	$0	$58	$58
Year 17	2040	$0	$0	$0	$0	$0	$0	$58	$58
Year 18	2041	$0	$0	$0	$0	$0	$0	$58	$58
Year 19	2042	$0	$0	$0	$0	$0	$0	$58	$58
Year 20	2043	$0	$0	$0	$0	$0	$0	$58	$58
Total		$0	$0	$0	$0	$0	$0	$1,334	$1,334
Difference		-	-	$0	$0	$0	$0	$1,334	$1,334

** This analysis assumes completion of design and beginning of construction for Alternative C (Rail-with-Trail) along the existing scenic rail corridor in 2021.*

10.6 Total Quantitative Costs

Table 25 shows the total undiscounted and unadjusted quantitative costs associated with each study alternative (capital, maintenance, and economic). Over the analysis period, total costs for **Alternative A** ranged between $0.4 million and $0.5 million, between $15.6 million and $21.1 million for **Alternative B (paved)**, between $14.5 million and $19.7 million for **Alternative B (unpaved)**, and between $5.9 million and $7.6 million for **Alternative C**.

Table 25: Undiscounted and Unadjusted Estimated Total Costs (in thousands)

		Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail)	
Project Year	**Year**	Low Cost	High Cost	Low Cost	High Cost	Low Cost	High Cost	Low Cost*	High Cost*
Year -4	2019	$15	$20	$15	$20	$15	$20	$15	$20
Year -3	2020	$15	$20	$15	$20	$15	$20	$15	$20
Year -2	2021	$15	$20	$7,439	$10,064	$6,999	$9,469	$2,099	$2,820
Year -1	2022	$15	$20	$7,439	$10,064	$6,999	$9,469	$2,099	$2,820
Year 0	2023	$15	$20	$15	$20	$15	$20	$73	$78
Year 1	2024	$15	$20	$33	$45	$24	$33	$82	$91
Year 2	2025	$15	$20	$33	$45	$24	$33	$82	$91
Year 3	2026	$15	$20	$33	$45	$24	$33	$82	$91
Year 4	2027	$15	$20	$33	$45	$24	$33	$82	$91
Year 5	2028	$15	$20	$33	$45	$24	$33	$82	$91
Year 6	2029	$15	$20	$33	$45	$24	$33	$82	$91
Year 7	2030	$15	$20	$33	$45	$24	$33	$82	$91
Year 8	2031	$15	$20	$33	$45	$24	$33	$82	$91
Year 9	2032	$15	$20	$33	$45	$24	$33	$82	$91
Year 10	2033	$15	$20	$33	$45	$24	$33	$82	$91
Year 11	2034	$15	$20	$33	$45	$24	$33	$82	$91
Year 12	2035	$15	$20	$33	$45	$24	$33	$82	$91
Year 13	2036	$15	$20	$33	$45	$24	$33	$82	$91
Year 14	2037	$15	$20	$33	$45	$24	$33	$82	$91
Year 15	2038	$15	$20	$33	$45	$24	$33	$82	$91
Year 16	2039	$15	$20	$33	$45	$24	$33	$82	$91
Year 17	2040	$15	$20	$33	$45	$24	$33	$82	$91
Year 18	2041	$15	$20	$33	$45	$24	$33	$82	$91
Year 19	2042	$15	$20	$33	$45	$24	$33	$82	$91
Year 20	2043	$15	$20	$33	$45	$24	$33	$82	$91
Total		$375	$500	$15,583	$21,088	$14,523	$19,658	$5,942	$7,577
Difference		-	-	$15,208	$20,588	$14,148	$19,158	$5,567	$7,077

** Cost of reduction in service or closure of P&L Shop (and any resulting loss in employment and earnings) is currently undetermined and will require additional information from the P&L Railroad to accurately reflect in the cost-benefit analysis.*

10.7 Qualitative Costs

In addition to estimated quantitative costs, difficult-to-measure factors such as a connection to history, generational experiences, and potential long-term opportunity costs may play a role in any future decision-making process.

Rail service has a long history in Laconia, helping to grow the region's manufacturing industry and spur tourism.[64] In 2017, the city celebrated the 125th anniversary of the opening of its historic Passenger Railroad Station,[65] and train depots along the study corridor have been converted into museums, attractions, and public spaces to **celebrate the region's deep connection to its rail heritage**. Laconia's Passenger Railroad Station is one of New Hampshire's last surviving late 19th-century railroad passenger stations.[66] Built in 1882 for the Boston and Maine (B&M) Railroad, the station represents one of the largest and most prominent examples of Richardsonian Romanesque architecture from the era and was added to the National Register of Historic Places in 1982.[67] While an economic value cannot be placed on the value of preserving the region's rail heritage through maintenance of an active rail line along the study corridor, a reduction in freight and scenic rail service may limit its overall visibility.

Lastly, some public discussion has included the potential opportunity cost that removal of a portion of existing rail corridor through Alternative C (Rail-to-Trail) would place on the potential for a revived passenger rail service to Laconia. A stakeholder interview with staff from NHDOT, which owns and manages the rail line, reported that there are **no plans for future passenger rail service** to the area. Onsite observations of the rail corridor and interviews with the existing rail operators suggest that conversion of the existing track to accommodate frequent passenger service would be a large-scale project.[68]

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[64] Laconia History. City of Laconia. <https://www.laconianh.gov/500/Laconia-History>
[65] Amsden, R. City marks Train station's 125th Anniversary. The Laconia Daily Sun. August 19, 2017. <https://www.laconiadailysun.com/news/local/city-marks-train-station-s-th-anniversary/article_ea819f2f-095f-5805-b267-7f51c6151036.html>
66 [66] Economic Development Update (2016). Laconia Master Plan. City of Laconia. <http://www.cogincorp.com/assets/Laconia-Master-Plan-ED-Element.pdf
[67] Laconia Passenger Station. National Register of Historic Places, National Park Service. <https://npgallery.nps.gov/NRHP/AssetDetail?assetID=7f28f7f6-3b59-40a5-b879-d5a0cf8095e2>
[68] One existing rail operator along the study corridor noted that some conversations have taken place regarding potential passenger service for access ski resorts.

11 Estimated Benefits

This section includes estimated mobility, health, and safety benefits associated with the alternatives discussed in the Study Conditions section.

11.1 Mobility Benefits

Replacing motor vehicle trips with bicycle and pedestrian trips can help reduce household transportation costs, roadway maintenance costs, and traffic congestion costs. **Table 26** shows that for every vehicle-mile reduced from increased bicycling and walking, Belknap County residents can expect to save $0.61 in combined transportation-related costs.

Table 26: Estimated Transportation Multipliers

	Value per VMT Reduced
Household Transportation Cost Savings[69]	$0.40
Roadway Maintenance Cost Savings[70]	$0.15
Congestion Cost Savings[71]	$0.06
Total Mobility Cost Savings	**$0.61**

Applied to the vehicle-miles traveled reduction estimates in **Table 9**, an increase in bicycle and walk trips in Belknap County can help residents save between $29.6 million and $31.7 million for **Alternative A**, between $34.0 million and $45.2 million for **Alternative B**, and between $37.7 million and $48.1 million for **Alternative C** (see **Table 27**).

[69] *"Our Driving Costs, AAA (2016). <http://exchange.aaa.com/automobiles-travel/automobiles/driving-costs/#.Vw_xCPkrKUk*

[70] *Kitamura, R., Zhao, H., and Gubby, A. R. Development of a Pavement Maintenance Cost Allocation Model. Institute of Transportation Studies, University of California, Davis.*

[71] *Average Annual Miles per Driver by Age Group. Last modified: September 26, 2014. FHWA. https://www.fhwa.dot.gov/ohim/onh00/bar8.htm; Using Figure ES.3 "Cost of Crashes and Congestion per Vehicle Mile Traveled" ratios from 2008 report and adjusting to 2011 values. http://www.camsys.com/pubs/AAA.pdf*

Table 27: Undiscounted and Unadjusted Estimated Mobility Benefits (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	$0	$0	$0	$0	$0	$0
Year -3	2020	$0	$0	$0	$0	$0	$0
Year -2	2021	$0	$0	$0	$0	$0	$0
Year -1	2022	$0	$0	$0	$0	$0	$0
Year 0	2023	$0	$0	$0	$0	$0	$0
Year 1	2024	$2,339	$2,349	$2,359	$2,410	$2,376	$2,424
Year 2	2025	$2,253	$2,272	$2,293	$2,396	$2,327	$2,422
Year 3	2026	$2,166	$2,195	$2,227	$2,381	$2,277	$2,421
Year 4	2027	$2,078	$2,117	$2,160	$2,366	$2,227	$2,419
Year 5	2028	$1,989	$2,038	$2,092	$2,350	$2,177	$2,417
Year 6	2029	$1,900	$1,959	$2,024	$2,335	$2,126	$2,415
Year 7	2030	$1,811	$1,879	$1,955	$2,319	$2,074	$2,414
Year 8	2031	$1,720	$1,799	$1,886	$2,303	$2,023	$2,411
Year 9	2032	$1,629	$1,718	$1,816	$2,287	$1,971	$2,409
Year 10	2033	$1,537	$1,637	$1,746	$2,271	$1,918	$2,407
Year 11	2034	$1,445	$1,554	$1,675	$2,255	$1,865	$2,405
Year 12	2035	$1,352	$1,472	$1,603	$2,238	$1,812	$2,402
Year 13	2036	$1,258	$1,388	$1,532	$2,222	$1,758	$2,400
Year 14	2037	$1,163	$1,304	$1,459	$2,205	$1,703	$2,397
Year 15	2038	$1,068	$1,220	$1,386	$2,187	$1,649	$2,395
Year 16	2039	$972	$1,135	$1,313	$2,170	$1,594	$2,392
Year 17	2040	$876	$1,049	$1,239	$2,153	$1,538	$2,389
Year 18	2041	$779	$963	$1,164	$2,135	$1,482	$2,386
Year 19	2042	$681	$876	$1,089	$2,117	$1,426	$2,383
Year 20	2043	$583	$788	$1,013	$2,099	$1,369	$2,380
Total		$29,599	$31,712	$34,030	$45,200	$37,691	$48,088
Difference		-	-	$4,431	$13,488	$8,092	$16,376

11.2 Health Benefits

More people bicycling and walking can help encourage an increase in physical activity levels, which may help reduce healthcare costs for Belknap County residents. As shown in **Table 28**, 22% of Belknap County adults and 12% of New Hampshire youths report little or no leisure-time physical activity. The health benefits from a physically inactive person becoming physically active and having a reduced probability of suffering from chronic diseases or missing work for health-related reasons can help save a region approximately $1,539 per newly active person per year in healthcare costs.

Table 28: Public Health Multipliers

	Value
Physically Inactive Adults in Belknap County[72]	22%
Physically Inactive Youths in New Hampshire[73]	12%
Healthcare Cost Savings for Newly Active Persons[74]	$1,539

Trails provide an accessible resource for recreation and exercise. Among online survey respondents, 96% reported using local trails for exercise, recreation, and socializing. Two-thirds of respondents also indicated that each trail trip lasted at least 45 minutes. If the level of physical activity increased among Belknap County residents in proportions to the estimated bicycle and pedestrian trip activity in **Table 5**, the county residents could expect to see the healthcare cost savings shown in **Table 29**. Estimated healthcare cost savings ranged between $16.2 million and $16.6 million for **Alternative A**, between $16.4 million and $21.2 million for **Alternative B**, and between $16.7 million and $21.1 million for **Alternative C**.

[72] County Health Rankings. <http://www.countyhealthrankings.org/app/new-hampshire/2019/rankings/belknap/county/outcomes/overall/snapshot>
[73] State Indicators Report on Physical Activity, 2014, CDC, <http://www.cdc.gov/physicalactivity/downloads/pa_state_indicator_report_2014.pdf>
[74] Inadequate Physical Activity and Health Care Expenditures in the United States, <http://www.cdc.gov/nccdphp/dnpao/docs/carlson-physical-activity-and-healthcare-expenditures-final-508tagged.pdf>

Table 29: Undiscounted and Unadjusted Estimated Health Benefits (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	$0	$0	$0	$0	$0	$0
Year -3	2020	$0	$0	$0	$0	$0	$0
Year -2	2021	$0	$0	$0	$0	$0	$0
Year -1	2022	$0	$0	$0	$0	$0	$0
Year 0	2023	$0	$0	$0	$0	$0	$0
Year 1	2024	$1,482	$1,484	$1,483	$1,504	$1,484	$1,504
Year 2	2025	$1,414	$1,418	$1,416	$1,460	$1,419	$1,459
Year 3	2026	$1,346	$1,351	$1,349	$1,414	$1,353	$1,414
Year 4	2027	$1,277	$1,285	$1,282	$1,369	$1,287	$1,368
Year 5	2028	$1,208	$1,217	$1,214	$1,323	$1,220	$1,321
Year 6	2029	$1,138	$1,149	$1,145	$1,277	$1,153	$1,275
Year 7	2030	$1,068	$1,081	$1,076	$1,230	$1,085	$1,228
Year 8	2031	$997	$1,012	$1,006	$1,183	$1,017	$1,181
Year 9	2032	$926	$943	$936	$1,136	$948	$1,133
Year 10	2033	$854	$873	$866	$1,088	$879	$1,085
Year 11	2034	$782	$803	$794	$1,040	$809	$1,037
Year 12	2035	$709	$732	$723	$991	$739	$988
Year 13	2036	$636	$660	$651	$942	$668	$939
Year 14	2037	$562	$588	$578	$893	$597	$889
Year 15	2038	$488	$516	$505	$844	$525	$839
Year 16	2039	$413	$443	$431	$794	$452	$789
Year 17	2040	$338	$370	$357	$743	$380	$739
Year 18	2041	$262	$296	$282	$693	$306	$688
Year 19	2042	$185	$222	$207	$642	$233	$636
Year 20	2043	$108	$147	$132	$590	$158	$585
Total		$16,196	$16,589	$16,433	$21,155	$16,710	$21,095
Difference		-	-	$237	$4,566	$514	$4,506

11.3 Safety Benefits

As shown in **Table 30**, there were 11 reported bicycle- and pedestrian-involved collisions resulting in an injury within 0.5 miles of the proposed trail segments for **Alternative B** (Rail-with-Trail) and 22 reported bicycle- and pedestrian-involved collisions resulting in an injury within 0.5 miles of the proposed trail segments for **Alternative C** (Rail-to-Trail) between January 1, 2012 and December 31, 2016.

Table 30: Reported Bicycle- and Pedestrian-involved Collisions (NHDOT, 2012-2016)

Severity	Alt B (Rail-with-Trail)*	Alt C (Rail-to-Trail)*
Fatal	0 collisions	0 collisions
Severe	0 collisions	2 collisions
Visible	9 collisions	13 collisions
Complaint of Pain	2 collisions	7 collisions
Total	11 collisions	22 collisions

** Last five years of available data on reported bicycle- and pedestrian-involved collisions within 0.5 miles of the proposed pathway (2012-2016)*

The U.S. Department of Transportation's cost-benefit guidance monetizes the value of these collisions, as shown in **Table 31**.

Table 31: Value of Reduced Fatalities & Injuries (USDOT)

Severity	Monetized Value
Fatal	$9,600,000
Severe	$459,100
Visible	$125,000
Complaint of Pain	$63,900
No Injury	$3,200

** Source: Benefit-Cost Analysis Guidance for Discretionary Grant Programs (December 2018). U.S. Department of Transportation. <https://www.transportation.gov/sites/dot.gov/files/docs/mission/office-policy/transportation-policy/14091/benefit-cost-analysis-guidance-2018.pdf>*

To estimate the potential for the proposed study alternatives to reduce collisions where safety countermeasures would be installed (PHB signals, pathway, and bicycle lanes), the U.S. Department of Transportation tracks known available research on "crash reduction factors" in its Crash Modification Factors Clearinghouse and Benefit Calculator. The crash reduction factors for the study alternatives are shown in **Table 32**.

Table 32: Crash Reduction Factors (CMF Clearinghouse)

Safety Countermeasure	Crash Reduction Factor*
Install PHB signal(s)	0.55
Install pathway	0.80
Install bicycle lanes	0.35

** HSIP Cycle 8 Benefits Calculator <http://www.dot.ca.gov/hq/LocalPrograms/HSIP/apply_nowHSIP.htm>*

Using the information in **Table 30**, **Table 31**, and **Table 32**, the collision-reduction benefits over the analysis period are $23.0 million for **Alternative B** and $110.7 million for **Alternative C** (see **Table 33**).

Table 33: Undiscounted and Unadjusted Estimated Safety Benefits (in thousands)

Project Year	Year	Alt A (No Build)	Alt B (Rail-with-Trail)	Alt C (Rail-to-Trail)
Year -4	2019	$0	$0	$0
Year -3	2020	$0	$0	$0
Year -2	2021	$0	$0	$0
Year -1	2022	$0	$0	$0
Year 0	2023	$0	$0	$0
Year 1	2024	$0	$1,148	$5,533
Year 2	2025	$0	$1,148	$5,533
Year 3	2026	$0	$1,148	$5,533
Year 4	2027	$0	$1,148	$5,533
Year 5	2028	$0	$1,148	$5,533
Year 6	2029	$0	$1,148	$5,533
Year 7	2030	$0	$1,148	$5,533
Year 8	2031	$0	$1,148	$5,533
Year 9	2032	$0	$1,148	$5,533
Year 10	2033	$0	$1,148	$5,533
Year 11	2034	$0	$1,148	$5,533
Year 12	2035	$0	$1,148	$5,533
Year 13	2036	$0	$1,148	$5,533
Year 14	2037	$0	$1,148	$5,533
Year 15	2038	$0	$1,148	$5,533
Year 16	2039	$0	$1,148	$5,533
Year 17	2040	$0	$1,148	$5,533
Year 18	2041	$0	$1,148	$5,533
Year 19	2042	$0	$1,148	$5,533
Year 20	2043	$0	$1,148	$5,533
Total		$0	$22,965	$110,669
Difference		-	$22,965	$110,669

11.4 Residual Value

No residual was claimed for **Alternative A**, an $0.6 million residual was claimed as a lump sum in the 20th year of the analysis period for **Alternative B**, and a $0.7 million residual was claimed as a lump sum in the 20th year of the analysis period for **Alternative C**.

11.5 Total Quantitative Benefits

Table 34 shows the total undiscounted and unadjusted quantitative benefits associated with each study alternative (mobility, health, safety, non-local spending, and residual). Over the analysis period, total benefits for **Alternative A** ranged between $150.7 million and $194.3 million, between $228.4 million and $339.8 million for **Alternative B**, and between $329.6 million and $442.1 million for **Alternative C**.

Table 34: Undiscounted and Unadjusted Estimated Total Benefits (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
		Low Use	High Use	Low Use	High Use	Low Use	High Use
Year -4	2019	$0	$0	$0	$0	$0	$0
Year -3	2020	$0	$0	$0	$0	$0	$0
Year -2	2021	$0	$0	$0	$0	$0	$0
Year -1	2022	$0	$0	$0	$0	$0	$0
Year 0	2023	$0	$0	$0	$0	$0	$0
Year 1	2024	$9,599	$11,683	$13,227	$16,391	$18,167	$21,256
Year 2	2025	$9,389	$11,485	$13,040	$16,453	$17,999	$21,332
Year 3	2026	$9,178	$11,286	$12,852	$16,514	$17,813	$21,425
Year 4	2027	$8,965	$11,085	$12,663	$16,575	$17,643	$21,517
Year 5	2028	$8,751	$10,884	$12,472	$16,636	$17,455	$21,592
Year 6	2029	$8,536	$10,681	$12,281	$16,696	$17,283	$21,683
Year 7	2030	$8,320	$10,478	$12,088	$16,755	$17,094	$21,774
Year 8	2031	$8,103	$10,273	$11,895	$16,814	$16,920	$21,848
Year 9	2032	$7,884	$10,067	$11,700	$16,872	$16,728	$21,938
Year 10	2033	$7,665	$9,860	$11,504	$16,930	$16,553	$22,028
Year 11	2034	$7,444	$9,651	$11,307	$16,987	$16,377	$22,100
Year 12	2035	$7,221	$9,442	$11,109	$17,044	$16,182	$22,189
Year 13	2036	$6,998	$9,231	$10,911	$17,100	$16,004	$22,277
Year 14	2037	$6,773	$9,002	$10,711	$17,156	$15,808	$22,348
Year 15	2038	$6,547	$8,772	$10,510	$17,211	$15,628	$22,435
Year 16	2039	$6,320	$8,541	$10,307	$17,265	$15,430	$22,522
Year 17	2040	$6,092	$8,309	$10,104	$17,319	$15,248	$22,592
Year 18	2041	$5,863	$8,075	$9,900	$17,373	$15,048	$22,678
Year 19	2042	$5,632	$7,841	$9,695	$17,425	$14,864	$22,763
Year 20	2043	$5,400	$7,605	$10,096	$18,299	$15,402	$23,833
Total		$150,680	$194,251	$228,371	$339,817	$329,646	$442,128
Difference		-	-	$77,691	$145,566	$178,966	$247,877

11.6 Qualitative Benefits

An often-cited economic concern expressed by property owners living adjacent to a corridor where an active transportation project is proposed is the project's potential impact on nearby property values. While changes in property value are considered a transfer payment (see the Transfer Payments section for more information), addressing these concerns is important if one of the study alternatives is to be advanced.

Similar to the more general economic analyses of active transportation infrastructure projects, studies have been completed that looked at stated preference surveys of adjacent property owners' perceptions of changes in property values. A literature review completed by Crompton (2001) included eight surveys of resident and homeowner opinions on the impact of trails and greenways on nearby property values. The eight studies, representing diverse geographic areas in the United States, led the author to conclude that a broad consensus existed that trails did not have a negative impact on adjacent property values or a homeowners' ability to re-sale their home.[75] The author's conclusion echoes additional studies not included in his literature review.[76,77,78,79] In the WOW Trail Committee's mail-back survey, property owners were asked if they believed that being located near the WOW Trail had affected the resale value of their property. Among the 39 respondents, 31% said proximity to the WOW Trail had increased their property value, 21% said it had no impact, 5% said it had lowered their property value, and 44% were not sure.

In addition to a general perception that proximity to active transportation projects has a neutral or positive impact on property values, revealed preference analyses have attempted to estimate the actual change in price premiums resulting from proximity to bikeways, trails, greenways, and other facilities. Highlights within the literature include:

- In San Antonio, Texas, neighborhood trails were associated with a 2% price premium. Trails that were surrounded by greenbelts were associated with a 5% house price premium.
- In southwestern Ohio, the Little Miami Scenic Trail is associated with higher property value in urban, suburban, and rural settings. For every foot closer to the trail (up to one mile away), property values increased by about $7. A home one-half mile from the trail would sell for approximately 9% less than a home adjacent to the trail.
- In suburban New Castle County, Delaware, homes within 50 meters of bike paths commanded a 4% price premium.
- In rural Methow Valley, Washington, homes within one-quarter miles of trails benefit from a 10% price premium.
- Along a popular trail in Austin, Texas, the price premium ranged from 6% to 20%, depending on whether the neighborhood had views of the greenbelt surrounding the trail and whether it had direct neighborhood access to the trail. This price premium translated to roughly $59,000 per year in additional tax revenue of 5% of the annual cost of trail construction and maintenance.
- In Indianapolis, Indiana, researchers found that a high-profile destination trail was associated with an 11% price premium for homes within one-half mile of the trail. Other trails had no price premium.

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[75] Crompton, J. L. (2001). Perceptions of How the Presence of Greenway Trails Affects the Value of Proximate Properties. Journal of Park and Recreation Administration. Fall, 19(3): 114-132. http://bit.ly/2I3h7My

[76] The Impacts of Rail-Trails: A Study of the Users and Property Owners from Three Trails. (1992) Rivers, Trails, and Conservation Assistance Program, National Park Service. http://bit.ly/2oKiGac

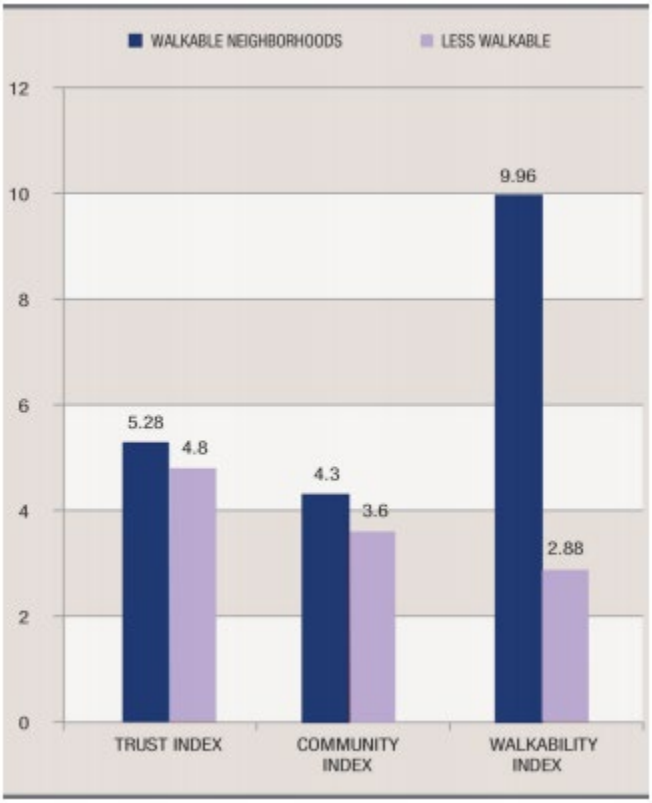
[77] Greer, D. L. (2000). Omaha Recreational Trails: Their Effect on Property Values and Public Safety. University of Nebraska at Omaha. http://bit.ly/2FhIDUG

[78] Murphy, M. M. (1992). The Impact of the Brush Creek Trail on Property Values and Crime. Sonoma State University. http://amzn.to/2oPHqOz

[79] Karadeniz, D. (2003). The Impact of the Little Miami Scenic Trail on Single Family Residential Property Values. Division of Research and Advanced Studies, University of Cincinnati (Thesis). http://bit.ly/2I6CeNV

One factor that may influence the ability of trails to positively impact nearby property values are trails ability to promote social cohesion. In a 2019 study in the International Journal of Environmental Research and Public Health, Jennings and Bamkole found the presence of green space can encourage positive social interactions that cultivate social cohesion in ways that enhance health and well-being.[80] In a 2014 2,000-household survey by the University of New Hampshire, researchers found that more walkable communities in Portsmouth and Manchester were associated with higher social capital, an important factor for creating vibrant communities, developing social networks, and making life more enjoyable. As shown in **Figure 21**, the researchers found that residents who lived in more walkable neighborhoods had higher levels of trust and a more developed sense of community. In addition, the **walkable community residents were more likely to have participated in a community project in the last year, volunteered, and to have been physically active**.[81]

Figure 21: Walkable v. Less Walkable Communities (University of New Hampshire)



Respondents to the online survey for this study found that trail use was a social activity for residents in the region. Among the 114 respondents, 81% reported typically traveling with another person while using a trail.

[80] *Jennings, V. and O. Bamkole. The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion. International Journal of Environmental Research and Public Health.*
[81] *Rogers, S.H., Gardner, K.H., and C.H. Carlson. Walking Builds Community Cohesion (2014). Carsey Institute.* <*https://scholars.unh.edu/cgi/viewcontent.cgi?referer=http://www.iowahealthieststate.com/blog/communities/creating-social-cohesion-through-walking/&httpsredir=1&article=1208&context=carsey*>

Similarly, scenic rail travel is a social activity. In stakeholder interviews with scenic rail operators outside of the study area, one observed a nationwide decline in opportunities to experience historic passenger trains and commented that their scenic rail service was an **easy way for senior citizens and people with physical disabilities to access their area's scenic beauty**. Another scenic rail operator noted that 45% to 55% of their business comes from repeat customers and that most of their customer base is comprised of younger families and senior citizens. This suggests that scenic rail service can provide a **way for older generations to share experiences of their youth with younger generations**.

New Hampshire assesses a 9% 'Meals and Rooms (Rentals) Tax' on lodging, meals at restaurants (greater than $0.36), and motor vehicle rentals. See **Table 35** for estimates of what portion of non-local trail- and scenic rail-related spending would be captured by the tax. For **Alternative A** (No Build), there could be between $11.9 million and $16.5 million in tax revenue related to existing non-local bicycle and pedestrian activity and existing non-local scenic rail service. For **Alternative B** (Rail-with-Trail), there could be between $17.4 million and $27.2 million in tax revenue related to estimated non-local trail and scenic rail activity. For **Alternative C** (Rail-to-Trail), there could be between $18.5 million and $28.4 million in tax revenue related to estimated non-local trail and scenic rail activity.

Table 35: Meals & Rooms (Rentals) Tax on Non-local Spending (in thousands)

	Alt A (No Build)		Alt B (Rail-with-Trail)		Alt C (Rail-to-Trail)	
	Low Use	High Use	Low Use	High Use	Low Use	High Use
Non-local Trail-related Spending	$27,522	$40,843	$77,389	$144,683	$89,312	$158,315
Non-local Scenic Rail-related Spending	$104,500	$142,500	$115,900	$157,700	$115,900	$157,700
Subtotal	$132,022	$183,343	$193,289	$302,383	$205,212	$316,015
9% Tax	$11,882	$16,501	$17,396	$27,214	$18,469	$28,441
Difference	-	-	$5,514	$10,713	$6,587	$11,940

While a feasibility study has not been completed for the study corridor, it is anticipated that the rail-to-trail alternative would provide a larger offset distance between the trail and abutting property lines compared to the rail-with-trail alternative.

12 Analysis Results

Table 36 and **Table 37** show the net cumulative costs and benefits associated with each study alternative at a 3% and 7% real discount rate, respectively (see Inflation, Constant Dollars, & Discounting for more information on the role of discounting).

At a 3% real discount rate, **Alternative B (paved)** is estimated to generate between $139.1 million and $204.4 million in net cumulative benefits over the analysis period (a difference of between an additional $36.9 million and $73.6 million compared to Alternative A). **Alternative B (unpaved)** is estimated to generate between $140.0 million and $205.6 million in net cumulative benefits over the analysis period (a difference of between an additional $37.8 million and $74.8 million compared to Alternative A). **Alternative C** is estimated to generate between $213.6 million and $283.4 million in net cumulative benefits over the analysis period (a difference of between $111.5 million and $152.6 million compared to Alternative A).

Table 36: Net Cumulative Costs and Benefits at 3% Real Discount Rate (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail)	
		Low	High	Low	High	Low	High	High	Low
Year -4	2019	-$15	-$20	-$15	-$20	-$15	-$20	-$15	-$20
Year -3	2020	-$30	-$39	-$30	-$39	-$30	-$39	-$30	-$39
Year -2	2021	-$44	-$58	-$7,041	-$9,526	-$6,627	-$8,965	-$2,008	-$2,697
Year -1	2022	-$57	-$77	-$13,849	-$18,736	-$13,032	-$17,630	-$3,930	-$5,277
Year 0	2023	-$71	-$94	-$13,862	-$18,754	-$13,045	-$17,648	-$3,995	-$5,347
Year 1	2024	$8,196	$9,966	-$2,481	-$4,654	-$1,656	-$3,538	$11,605	$12,910
Year 2	2025	$16,047	$19,568	$8,413	$9,087	$9,245	$10,213	$26,611	$30,699
Year 3	2026	$23,497	$28,728	$18,835	$22,479	$19,675	$23,614	$41,027	$48,045
Year 4	2027	$30,562	$37,463	$28,805	$35,528	$29,652	$36,673	$54,890	$64,959
Year 5	2028	$37,258	$45,789	$38,339	$48,243	$39,193	$49,398	$68,205	$81,437
Year 6	2029	$43,599	$53,722	$47,452	$60,633	$48,313	$61,796	$81,005	$97,504
Year 7	2030	$49,599	$61,277	$56,161	$72,705	$57,028	$73,877	$93,294	$113,169
Year 8	2031	$55,271	$68,468	$64,481	$84,466	$65,354	$85,647	$105,104	$128,428
Year 9	2032	$60,630	$75,310	$72,425	$95,925	$73,305	$97,114	$116,439	$143,305
Year 10	2033	$65,687	$81,815	$80,009	$107,088	$80,894	$108,285	$127,329	$157,808
Year 11	2034	$70,455	$87,997	$87,245	$117,963	$88,137	$119,167	$137,788	$171,935
Year 12	2035	$74,946	$93,868	$94,148	$128,556	$95,045	$129,768	$147,821	$185,705
Year 13	2036	$79,171	$99,441	$100,729	$138,875	$101,631	$140,094	$157,454	$199,128
Year 14	2037	$83,141	$104,717	$107,001	$148,926	$107,909	$150,152	$166,691	$212,201
Year 15	2038	$86,866	$109,709	$112,976	$158,715	$113,888	$159,948	$175,557	$224,944
Year 16	2039	$90,357	$114,427	$118,664	$168,249	$119,582	$169,489	$184,055	$237,364
Year 17	2040	$93,624	$118,882	$124,078	$177,535	$125,001	$178,781	$192,207	$249,459
Year 18	2041	$96,676	$123,086	$129,228	$186,578	$130,155	$187,831	$200,018	$261,247
Year 19	2042	$99,522	$127,049	$134,123	$195,385	$135,055	$196,643	$207,507	$272,734
Year 20	2043	$102,171	$130,780	$139,074	$204,365	$140,010	$205,629	$215,044	$284,414
Difference		-	-	$36,903	$73,585	$37,839	$74,849	$112,873	$153,634

At a 7% real discount rate, **Alternative B (paved)** is estimated to generate between $82.7 million and $118.7 million in net cumulative benefits over the analysis period (a difference of between an additional $18.2 million and $36.7 million compared to Alternative A). **Alternative B (unpaved)** is estimated to generate between $83.6 million and $119.8 million in net cumulative benefits over the analysis period (a difference of an additional $19.0 million and $37.8 million compared to Alternative A). **Alternative C** is estimated to generate between $131.1 million and $170.7 million in net cumulative benefits over the analysis period (a difference of between $66.5 million and $88.7 million compared to Alternative A).

Table 37: Net Cumulative Costs and Benefits at 7% Real Discount Rate (in thousands)

Project Year	Year	Alt A (No Build)		Alt B (Rail-with-Trail, paved)		Alt B (Rail-with-Trail, unpaved)		Alt C (Rail-to-Trail)	
		Low	High	Low	High	Low	High	High	Low
Year -4	2019	-$15	-$20	-$15	-$20	-$15	-$20	-$15	-$20
Year -3	2020	-$29	-$39	-$29	-$39	-$29	-$39	-$29	-$39
Year -2	2021	-$42	-$56	-$6,526	-$8,829	-$6,142	-$8,309	-$1,863	-$2,501
Year -1	2022	-$54	-$72	-$12,599	-$17,044	-$11,856	-$16,039	-$3,576	-$4,803
Year 0	2023	-$66	-$88	-$12,610	-$17,060	-$11,867	-$16,054	-$3,632	-$4,863
Year 1	2024	$6,767	$8,228	-$3,203	-$5,405	-$2,453	-$4,391	$9,262	$10,227
Year 2	2025	$13,014	$15,867	$5,464	$5,528	$6,220	$6,550	$21,201	$24,381
Year 3	2026	$18,720	$22,883	$13,447	$15,784	$14,209	$16,814	$32,243	$37,667
Year 4	2027	$23,929	$29,323	$20,798	$25,405	$21,564	$26,441	$42,463	$50,137
Year 5	2028	$28,681	$35,233	$27,564	$34,429	$28,335	$35,472	$51,913	$61,832
Year 6	2029	$33,012	$40,652	$33,790	$42,894	$34,566	$43,943	$60,657	$72,808
Year 7	2030	$36,958	$45,621	$39,517	$50,833	$40,298	$51,888	$68,739	$83,110
Year 8	2031	$40,549	$50,173	$44,784	$58,278	$45,568	$59,339	$76,216	$92,770
Year 9	2032	$43,815	$54,342	$49,625	$65,261	$50,413	$66,326	$83,123	$101,836
Year 10	2033	$46,782	$58,158	$54,074	$71,809	$54,865	$72,879	$89,511	$110,343
Year 11	2034	$49,474	$61,649	$58,160	$77,950	$58,955	$79,024	$95,417	$118,320
Year 12	2035	$51,915	$64,840	$61,912	$83,708	$62,710	$84,787	$100,871	$125,805
Year 13	2036	$54,126	$67,756	$65,356	$89,107	$66,157	$90,190	$105,911	$132,829
Year 14	2037	$56,125	$70,414	$68,515	$94,170	$69,318	$95,256	$110,564	$139,414
Year 15	2038	$57,931	$72,834	$71,412	$98,916	$72,218	$100,005	$114,863	$145,592
Year 16	2039	$59,561	$75,036	$74,067	$103,367	$74,875	$104,459	$118,829	$151,389
Year 17	2040	$61,029	$77,038	$76,499	$107,538	$77,310	$108,633	$122,492	$156,823
Year 18	2041	$62,348	$78,856	$78,726	$111,450	$79,539	$112,547	$125,870	$161,921
Year 19	2042	$63,533	$80,506	$80,765	$115,116	$81,579	$116,216	$128,988	$166,704
Year 20	2043	$64,595	$82,001	$82,748	$118,715	$83,564	$119,817	$132,008	$171,384
Difference		-	-	$18,154	$36,714	$18,970	$37,816	$67,413	$89,383

Three common statistics to summarize the results of a cost-benefit analysis are net present value, internal rate of return, and benefit-cost ratio. See **Table 38** for these summary statistics at a 3% real discount rate and see **Table 39** for these summary statistics at a 7% real discount rate.

1. **Net Present Value** (NPV) – The difference between the net benefits of a project and its net costs over a given period of time. The benefits and costs are shown in "constant dollars" which is an adjusted value of currency used to compare dollar values from one period (such as the start of a project) to another (such as the end of a project) to help account for inflation and the fact that unspent money can gain value through investment in other projects. A positive NPV indicates that the anticipated benefits of a project exceed the anticipated costs. In general, the NPV is useful for comparing multiple build alternatives to a no build alternative. An agency can decide to select an alternative with the highest NPV (including the no build alternative), or it can establish a minimum threshold for the NPV, such as being higher than the no build alternative, and can consider any alternative that meets that threshold to be acceptable.

   At 3% real discount rate, **Alternative A** has a net present value between $102.2 million and $130.8 million, **Alternative B (paved)** had a net present value between $139.1 million and $204.4 million, **Alternative B (unpaved)** had a net present value between $140.0 million and $205.6 million, and **Alternative C** had a net present value between $215.0 million and $284.4 million.

   At a 7% real discount rate, **Alternative A** has a net present value between $64.6 million and $82.0 million, **Alternative B (paved)** had a net present value between $82.8 million and $118.7 million, **Alternative B (unpaved)** had a net present value between $83.6 million and $119. 8 million, and **Alternative C** had a net present value between $132.0 million and $171.4 million.

2. **Internal Rate of Return** (IRR) – The annual rate at which a project would have to be discounted so that it's NPV equals zero by the end of the period of analysis (e.g., the annual rate of return that an agency would have to make through investing their money elsewhere to justify not building the proposed project). The IRR is useful for comparing multiple build alternatives to one another. In general, an alternative with the highest IRR – with all other factors held equal – is considered the best investment, and all alternatives with IRRs above the assumed discount rate are considered good investments.

   At a 3% real discount rate, **Alternative B (paved)** had an internal rate of return between 41.3% and 42.8%, **Alternative B (unpaved)** had an internal rate of return between 43.2% and 44.7%, and **Alternative C** had an internal rate of return between 104.8% and 112.0%.

   At 7% real discount rate, **Alternative B (paved)** had an internal rate of return between 36.0% and 37.5%, **Alternative B (unpaved)** had an internal rate of return between 37.8% and 39.3%, and **Alternative C** had an internal rate of return between 97.1% and 104.0%.

3. **Benefit-Cost Ratio** (BCR) – The net benefits of a project over a given period of time divided by its net costs over that same period of time. Like NPV, the benefits and costs shown in a BCR are in "constant dollars". A build alternative with a BCR that is greater than 1.0 suggests that the benefits of the project outweigh its costs (i.e. a BCR of 5.2 suggests that for every $1 invested, an agency could expect $5.2 in benefits). A BCR of less than 1.0 suggests that the costs of the project outweigh its benefits (i.e. a BCR of -3.2 suggests that for every $1 in benefit, an agency could expect to lose $3.2 in costs). And a BCR equal to 1.0 suggests that the benefits of the project are equal to its costs.

   At a 3% real discount rate, **Alternative B (paved)** had a benefit-cost ratio between 10.7:1.0 and 11.6:1.0, **Alternative B (unpaved)** had a benefit-cost ratio between 11.5:1.0 and 12.4:1.0, and **Alternative C** had a benefit-cost ratio between 43.3:1.0 and 44.4:1.0.

   At 7% real discount rate, **Alternative B (paved)** had a benefit-cost ratio between 7.4:1.0 and 7.8:1.0, **Alternative B (unpaved)** had a benefit-cost ratio between 7.9:1.0 and 8.3:1.0, and **Alternative C** had a benefit-cost ratio between 31.6:1.0 and 31.7:1.0.

Table 38: Summary Statistics at 3% Real Discount Rate

Alt	Cost	Net Present Value	Internal Rate of Return	Benefit-Cost Ratio
Alt A (No Build)	Low	$102,170,000	-	-
	High	$130,780,000	-	-
Alt B (Rail-with-Trail, paved)	Low	$139,070,000	42.8%	10.7 : 1.0
	High	$204,360,000	41.3%	11.6 : 1.0
Alt B (Rail-with-Trail, unpaved)	Low	$140,010,000	44.7%	11.5 : 1.0
	High	$205,630,000	43.2%	12.4: 1.0
Alt C (Rail-to-Trail)	Low	$215,040,000	112.0%	43.3 : 1.0
	High	$284,410,000	104.8%	44.4 : 1.0

Table 39: Summary Statistics at 7% Real Discount Rate

Alt	Cost*	Net Present Value	Internal Rate of Return	Benefit-Cost Ratio
Alt A (No Build)	Low	$64,590,000	-	-
	High	$82,000,000	-	--
Alt B (Rail-with-Trail, paved)	Low	$82,750,000	37.5%	7.4 : 1.0
	High	$118,710,000	36.0%	7.8 : 1.0
Alt B (Rail-with-Trail, unpaved)	Low	$83,560,000	39.3%	8.3 : 1.0
	High	$119,820,000	37.8%	7.9 : 1.0
Alt C (Rail-to-Trail)	Low	$132,010,000	104.0%	31.7 : 1.0
	High	$171,380,000	97.1%	31.6 : 1.0

** Represents combined low-high range of usage estimates, low-high range of estimated benefits, and low-high range of estimated costs*

In addition to the estimated quantitative costs and benefits, below is a list of **qualitative impacts, transfer payments, and undetermined costs** associated with the study alternative:

- **Alternative B (Rail-with-Trail)**
  - Benefit
    - Transfer Payment: Positive impact on adjacent property values
    - Qualitative Benefit: Contributes to social cohesion and positive mental health
    - Qualitative Benefit: Preserves history embedded in the active rail corridor
    - Transfer Payment: Creation of 30-60 permanent tourism jobs
    - Transfer Payment: Creation of approximately 220 short-term jobs from construction[82]
    - Transfer Payment: Between $5.5 million and $10.7 million in 'Meals & Rooms (Rental) Tax' revenue over a 20-year period from non-local spending
  - Cost
    - Qualitative Cost: The **fencing requirement** is likely to reduce the access of adjacent property owners to the waterfront and related amenities compared to Alternative C[83]
    - Qualitative Cost: Potential conflict with Long Bay Homeowners Association's boat lift
- **Alternative C (Rail-to-Trail)**
  - Benefit
    - Transfer Payment: Positive impact on adjacent property values
    - Qualitative Benefit: Contributes to social cohesion and positive mental health
    - Transfer Payment: Creation of 40-60 permanent tourism jobs
    - Transfer Payment: Creation of approximately 60 short-term jobs from construction[82]
    - Transfer Payment: Between $6.6 million and $11.9 million in 'Meals & Rooms (Rental) Tax' revenue over a 20-year period from non-local spending
    - Potential for larger relative offset distance between trail and abutting properties
  - Cost
    - Undetermined Cost: **Disconnection of the P&L Railroad Shop** in Lincoln from the rest of the State rail corridor, potential associated loss in refurbishment shop jobs, and potential isolation of existing equipment at the site
    - Undetermined Cost: **Elimination of access to the run-around track** that allows for the efficient movement of a locomotive from one end of a train to another, an engine house with undercarriage inspection capabilities, and yard tracks that help facilitate switching and equipment storage.
    - Transfer Payment: Loss of freight rail jobs and equivalent in loss wages and economic activity
    - Qualitative Cost: Potential conflict with Long Bay Homeowners Association's boat lift

[82] Based on USDOT inflation-adjusted estimate of 1 job for every $80,244 in infrastructure spending

[83] NHDOT notes that not every abutter has a legal right to access the waterfront, and that NHDOT's Crossing Agreements address access issues in accordance with State law.

Appendices

- Appendix A – Mail-back Survey Instrument
- Appendix B – Mail-back Survey Responses
- Appendix C – Online Survey Instrument
- Appendix D – Online Survey Responses
- Appendix E – Stakeholder Interviews
- Appendix F – Rail Ridership & Revenue Data
- Appendix G – Cost Estimates
- Appendix H – Draft Report Feedback

Appendix A – Mail-back Survey Instrument

The survey instrument included the following six questions, plus space for additional comments:

1. Overall, how satisfied are you with having the WOW Trail as a neighbor?
    - Very Satisfied
    - Satisfied
    - Indifferent
    - Unsatisfied
    - Very Unsatisfied
2. Compare your initial reaction of the idea of living near the WOW Trail to how you feel about living near the trail today. Would you say that living near the Trail is better or worse than you expected it to be?
    - Much Better
    - Better
    - Same
    - Worse
    - Much Worse
3. How do you think being located near the WOW Trail has affected the resale of this property?
    - Lowered
    - Increased
    - No Effect
    - Not Sure
4. How would you categorize your household's use of the Trail?
    - Almost Daily
    - Frequent
    - Occasional
    - Rate
    - Never
5. If you are a business owner, how do you think the WOW Trail has affected your business?
    - Positive
    - Negative
    - No Effect
    - Not Sure
6. How much do you feel the Trail has affected the quality of your neighborhood?
    - Much Improved
    - Improved
    - No Impact
    - Worsened
    - Much Worsened

Appendix B – Mail-back Survey Responses

A summary of the mail-back survey responses is below:

1. Overall, how satisfied are you with having the WOW Trail as a neighbor? (n=39)

Very Satisfied	Satisfied	Indifferent	Unsatisfied	Very Unsatisfied
22 (56%)	9 (23%)	5 (13%)	3 (8%)	0 (0%)

2. Compare your initial reaction of the idea of living near the WOW Trail to how you feel about living near the trail today. Would you say that living near the Trail is better or worse than you expected it to be? (n=38)

Much Better	Better	Same	Worse	Much Worse
9 (24%)	11 (29%)	15 (39%)	3 (8%)	0 (0%)

3. How do you think being located near the WOW Trail has affected the resale of this property? (n=39)

Lowered	Increased	No Effect	Not Sure
2 (5%)	12 (31%)	8 (21%)	17 (44%)

4. How would you categorize your household's use of the Trail? (n=39)

Almost Daily	Frequent	Occasional	Rare	Never
12 (31%)	9 (23%)	6 (15%)	9 (23%)	3 (8%)

5. If you are a business owner, how do you think the WOW Trail has affected your business? (n=31)

Positive	Negative	No Effect	Not Sure
10 (32%)	2 (6%)	12 (39%)	7 (23%)

6. How much do you feel the Trail has affected the quality of your neighborhood? (n=38)

Much Improved	Improved	No Impact	Worsened	Much Worsened
14 (37%)	11 (29%)	8 (21%)	3 (8%)	2 (5%)

In addition to responses to the mail-back survey questions, some respondents provide additional open-ended feedback. All the feedback received is provided below, with names and contact information removed for privacy and light editing noted in brackets for grammatical clarity.

Survey Respondent #4

I like the idea of the WOW Trail; I have a business and Rental property on the Trail. There are a lot of people using it during the day and is a positive amenity. I also see [a lot] of use of daily use on the Park Benches and in the wooded area but I also had this going on before the Trail. In general, it is a positive thing to have. The Trail has nothing to do with the drug use or the homeless, it only gives them easier access to their tents and areas of drug use. Before they just used the railroad tracks. Again, the Trail has nothing to do with the drug or homeless issue in Laconia…

Keep up the good work

I have been on the trail in Burlington Vt and think it is a great trail along the water, Skate Board Park, work out Stations etc. lots of use!

Survey Respondent #5

I am an employee of a business abutting the WOW Trail. I, personally, love having the WOW Trail literally at our doorstep. However, out of the nine employees in our office suite, only two of us utilize the WOW Trail for daily "lunch break" walks.

The Pros:

- beautiful views
- safe from traffic
- nice to see others on the trail

The Cons:

- Even though it is posted as No Smoking, there are people who are smoking on the trail.
- Goose droppings by the river
- Large flocks of geese to walk through or around at times
- Loiterers at Bartlett Beach on the picnic tables pulled right up to the trail (same group every day) who will call out and address us as we walk by, not in a bad way, but nevertheless…
- Actually, saw someone from that group ready to take a nap in the shade on the grassy section next to the trail the other day. Not a good impression for visiting users…
- Saw a man getting ready to urinate on the WOW side of the locked restroom building at Bartlett Beach.
- Do not feel safe using the Lakeport section alone. Biking on that section of the trail a few weeks ago, saw a collapsed tent adjacent to the trail laying on the grass.

Survey Respondent #6:

The trail needs to be policed more. Also, some lighting, People are smoking & dropping their butts on the ground. Twice we have called the police about needles. Laconia looks much nicer than it has in years but the people are so awful I'm not sure it matters. My mother used to say "You can put jewels on a jackass but [it's] still a jackass". This applies to Laconia.

Survey Respondent #8

The WOW trail is not the problem so many people and families enjoy it and are very nice. I've seen the numbers dwindle and people do not feel safe anymore for it has brought in [a lot] of low life people who have nothing but foul language place to drink and act like animals – Drugs harassment to people going by on the trail. It is not a safe place always especially they might be [every day] & night at Bartlett Beach which the City has taken care of and done a great job. More security is needed on the trails in this area before someone gets hurt. When called Police come but these people have scanners and they jump on [their] bikes before they arrive. The Police [cannot] be everywhere, but somehow volunteers are needed to change this – Parents will not put children at unsafe places. The WOW trail doesn't need bad publicity because of these people who have no respect for anyone. Hope it can change ----------you all work so hard.

Thank You for all Your hard work ----------

Survey Respondent #9

Thank you so much for doing this endeavor! We love having it and can't wait for it to be completed.

Survey Respondent #10

The trail is near commercial property of mine and not my home. I think it is nothing but positive when describing the benefits of this community to any visitor or prospective relocation.

Survey Respondent #11

We would like to see it expanded to the Weirs.

Survey Respondent #12

Commercial property [owner], not residential.

Small office – we all use it for exercise to walk to O' for lunch, etc.

We love it!

Survey Respondent #13

1.) As a user of the Trail, I believe it is good for my cardiovascular health. As a heart attack survivor, the WOW Trail allows me to get this exercise I need in a safer environment.

2.) It is also getting much more popular with friends and acquaintance coming from surrounding towns to walk and ride their bikes.

3.) My property abuts the trail and I never had any problems.

Survey Respondent #14

I do not live near WOW Trail. My Business abuts it.

I fully support your efforts. Love the Trail.

It adds beauty to Laconia!

Survey Respondent #15

I like the track itself but it has attracted too many homeless people who trespass on our property. We had to put combination locks on our doors.

Survey Respondent #16

I don't dare walk alone because of the transients on the woods. Need more police protection.

Survey Respondent #17

Please keep us posted on wow trail and how we can help (Get rid of railroad tracks for WOW trail is such a common sense way to improve house values & the economy)!!!

Survey Respondent #18

Expand to Meredith.

Survey Respondent #19

All of the volunteers and supporters should be congratulated for working so hard and maintaining their commitment to this project for such a long time. Thank you all.

Survey Respondent #20

Nice during the day, at night it is popular for the transient population.

Survey Respondent #21

If I were a retail business, it would be a positive response

It is supported by solid research.

Trails have a positive & direct financial benefit to the towns & residents in which they're located. Great job, WOW Trail committee.

If you need help, call me!

Survey Respondent #22

We love using the wow trail

safe way to get downtown. If more stores downtown

more use of the trail. Thanks

Survey Respondent #23

We were very worried it would bring a lot of "unwanted" foot traffic, but in fact, the users have been [all] walks of life. It has been a positive impact on Laconia.

Survey Respondent #24

Although I am not a dog owner, I have had a dog walking business in the past and I LOVE the bags provided along the way to encourage responsible pet owners.

Survey Respondent #25

Homeless appear to use trail for sleeping, bathroom, etc.

Trail maintenance, such as trimming trees and shrubs, is lacking. It was done initially, but currently it is not (at least in the area of my property).

Survey Respondent #26

On a couple of occasions, I've seen ATV's & dirt bikes on the WOW Trail.

Survey Respondent #38

More cops [patrolling], get rid of the [homeless] people!!

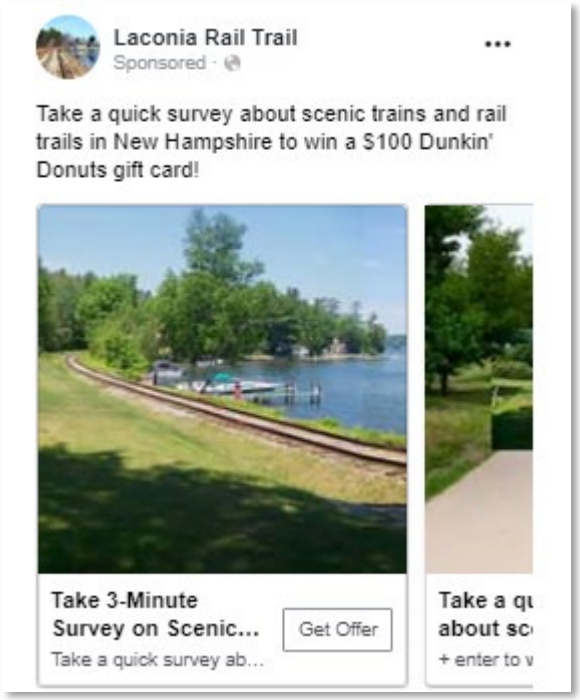
Survey Respondent #39

Very happy so many families are using the Trail. We Love it.

Appendix C – Online Survey Instrument

In 2019, Alta Planning + Design developed and online survey to learn about travel and spending behaviors associated with trail and rail activity in the Lakes Region. The survey was created in Survey Monkey, an online survey tool. The survey was distributed through paid advertising on Facebook between February 12, 2019 and February 28, 2019. The goal of the paid advertising approach was to minimize response bias from individuals with vested interests in the results of this economic study and to solicit responses from visitors to the region that might otherwise be difficult to capture through more traditional survey approaches.

Below is an image of the Facebook advertisement:



To help encourage participation in the survey, entry into a drawing for a $100 Dunkin' Donuts gift card was promoted in the Facebook advertisement ("Take a quick survey about scenic trains and rail trails to enter to win a $100 Dunkin' Donuts gift card!). The gift card winner was randomly selected from the completed responses and the gift card was mailed to the winning participant on March 7, 2019.

The online survey was divided into five sections and contained 19 total questions. Skip logic was used in the survey to help improve the overall response rate. Those online questions are listed below.

Trail Use Questions

1. Do you currently use trails any purpose? (including off-street paths, greenway, and paved/unpaved rail-trails)?
    a. Yes
    b. No [Skip to Question #10]
2. How often do you typically use trails?
    a. A few times per year
    b. A few times per month
    c. 1-2 times per week
    d. 3-5 times per week
    e. 5+ times per week
3. Which trails do you use? [check all that apply]
    a. WOW Trail (Laconia, NH)
    b. Lake Winnisquam Scenic Trail ("Winni Trail" in Belmont, NH)
    c. Cotton Valley Rail-Trail (Carroll County, NH)
    d. Northern Rail Trail (Grafton and Merrimack counties, NH)
    e. Other: [Open-ended, limit to 50 characters]
    f. Skip
4. How do you typically use trails? [check all that apply]
    a. Exercise/recreation/socialize
    b. Travel to/from work
    c. Travel to/from school
    d. Run errands (shopping, restaurants, etc.)
    e. Other
5. What mode do you typically use to get to a trail?
    a. Auto
    b. Bus
    c. Bike
    d. Walk
    e. Other
6. How do you typically travel once on a trail?
    a. Walk
    b. Jog/Run
    c. Bike
    d. Snowmobile
    e. Ski/snowshoe
    f. Other

7. How many people typically travel with you on the trail?
    a. Just me
    b. 1 other
    c. 2 others
    d. 3 others
    e. 4+ others
8. How long are your typical trips on trails?
    a. 0-15 minutes
    b. 16-30 minutes
    c. 31-45 minutes
    d. 46-60 minutes
    e. 61+ minutes

Trail Development [Only if respondent answered "No" to Question #1]

9. If a trail was built near you, would you use it?
    a. Yes, frequently
    b. Yes, Sometimes
    c. No
    d. Skip
10. What factors prevent you from using trails now? [check all that apply]
    e. There are none near me
    f. Safety/security concerns
    g. Personal physical limitations
    h. Other: [open-ended, limit 50 characters]

Trail-related Expenditures

11. On average, how much do you typically spend per person each time you use a trail? (Please provide a numeric response for all applicable categories)
    a. Food/beverage? $[open-ended number, limit 7 digits]
    b. Lodging (motel, camping, etc.)? $[open-ended number, limit 7 digits]
    c. Equipment (shoes for walking, hiking, or running; bicycle and parts; etc.)? $[open-ended number, limit 7 digits]
    d. Transportation (gas, bus pass, etc.)? $[open-ended number, limit 7 digits]
    e. Other expenses? $[open-ended number, limit 7 digits]

Scenic Rail Questions [Answered by all respondents]

12. Have ridden a scenic train in the Lakes Region of New Hampshire?
    a. Yes
    b. No [Skip to Question #17]
13. Which scenic rail line(s) have you ridden? (choose all that apply)
    a. Hobo Railroad between Lakeport and Weirs Beach
    b. Hobo Railroad between Weirs Beach and Meredith
    c. Hobo Railroad in Lincoln
    d. Other: [open-ended, limit 50 characters]

14. How often do you typically ride along a scenic rail route?
    a. Every few years
    b. 1-2 times a year
    c. 3+ times per year
15. How many people typically join you when you ride a scenic train?
    a. Just myself
    b. 1 other
    c. 2 others
    d. 3 others
    e. 4+ others
16. How much do you typically spend per person each time you ride a scenic train?
    a. Train tickets? $[open-ended number, limit 7 digits]
    b. Food/beverage? $[open-ended number, limit 7 digits]
    c. Lodging? $[open-ended number, limit 7 digits]
    d. Transportation? $[open-ended number, limit 7 digits]
    e. Other expenses? $[open-ended number, limit 7 digits]

Final Questions

17. What is the zip code of your home address? [open-ended number, limited to 5 digits]
18. Optional: If you would like to be eligible to win the $100 gift card to Dunkin' Donuts, please enter your email address* [open-ended text]

    *Disclaimer: The $100 gift card is funded by The WOW Trail non-profit group, in partnership with the City of Laconica. One gift card winner will be selected after the survey is closed. Provided email addresses will not be used outside of selecting a gift card winner.

Appendix D – Online Survey Responses

Alta Planning + Design received 183 responses to the online survey. Among the 183 responses, 22 were incomplete and five were identified as duplicate responses from the same IP address. The online survey responses of the remaining 156 responses are listed below.

1. Do you use trails for any purpose (including off-street paths, greenways, and paved/unpaved rail-trails)? (n=156)

Yes	No
114 (73%)	42 (27%)

2. How often do you typically use trails? (n=114)

A few times per year	A few times per month	1-2 times per week	3-5 times per week	6+ times per week
52 (46%)	41 (36%)	13 (11%)	5 (4%)	3 (3%)

3. Which trails do you use? [check all that apply] (n=114)

WOW Trail (Laconia, NH)	Lake Winnisquam Scenic Trail	Cotton Valley Rail-Trail	Northern Rail Trail	Other*
16 (14%)	19 (17%)	15 (13%)	34 (30%)	41 (36%)

Note: Because respondents could select more than one option, responses do not add to 100%

*Common open-ended responses included:

- Response included "Dover Community Trail" – 7 (6%)
- Response included "Derry Rail Trail" – 2 (2%)

4. How do you typically use trails [check all that apply] (n=114)

Exercise/ recreation/ socialize	Travel to/ from work	Travel to/ from school	Run errands	Other
109 (96%)	2 (2%)	0 (0%)	4 (4%)	6 (5%)

Note: Because respondents could select more than one option, responses do not add to 100%

5. What mode do you typically use to get to a trail? (n=114)

Auto	Bus	Bike	Walk	Other
59 (52%)	0 (0%)	20 (18%)	31 (27%)	4 (4%)

6. How do you typically travel once on a trail? (n=114)

Walk	Jog/Run	Bike	Snowmobile	Ski/ Snowshoe	Other
73 (64%)	4 (4%)	26 (23%)	5 (4%)	2 (2%)	4 (4%)

7. How many people typically travel with you on trails? (n=114)

Just me	1 other	2 others	3 others	4+ others
22 (19%)	59 (52%)	17 (15%)	7 (6%)	9 (8%)

8. Typically, how long are your trips on trails? (n=114)

0-15 minutes	16-30 minutes	31-45 minutes	46-60 minutes	61+ minutes
1 (1%)	17 (15%)	21 (18%)	33 (29%)	42 (37%)

9. If a trail was built near you, would you use it? (n=41)

Yes, frequently	Yes, sometimes	No
8 (20%)	21 (51%)	12 (29%)

10. What factors prevent you from using trails now? [check all the apply] (n=42)

There are none near me	Safety/ security concerns	Personal physical limitations	Other
17 (40%)	11 (26%)	12 (29%)	7 (17%)

Note: Because respondents could select more than one option, responses do not add to 100%

11. On average, how much do you typically spend per person each time you use a trail? (Please provide a numeric response for all applicable categories)

	Food/ beverage	Lodging	Equipment	Transportation	Other	Total
Average	$12.85	$28.80	$30.75	$12.27	$8.42	$92.20
Number of responses	79	79	77	79	78	79

Note: Outlier values removed

12. Have you ridden a scenic train in the Lakes Region of New Hampshire? (n=134)

Yes	No
79 (59%)	55 (41%)

13. Which scenic rail line(s) have you ridden [check all that apply] (n=67)

Hobo Railroad			
between Lakeport & Weirs Beach	Between Weirs Beach & Meredith	In Lincoln	Other
31 (46%)	35 (52%)	36 (54%)	16 (24%)

Note: Because respondents could select more than one option, responses do not add to 100%

14. How often do you typically ride along a scenic train? (n=67)

Every few years	1-2 times a year	3+ times a year
45 (67%)	10 (15%)	12 (18%)

15. How many people typically join you when you ride a scenic train? (n=67)

Just myself	1 other	2 others	3 others	4+ others
1 (1%)	20 (30%)	12 (18%)	21 (31%)	12 (19%)

16. How much do you typically spend per person each time you ride a scenic train?

	Train tickets	Food/ beverage	Lodging	Transportation	Other expenses	Total
Average	$44.22	$21.03	$38.06	$20.30	$20.55	$144.16
Number of Responses	67	67	67	67	67	67

17. Zip Code of Permanent Address: (n=110)

Local	Non-local
48 (48%)	62 (56%)

Zip codes by county (n=124)

- Belknap County, NH – 13 (10%)
- Carroll County, NH – 8 (6%)
- Cheshire County, NH – 1 (1%)
- Cumberland County, ME – 2 (2%)
- Essex County, MA – 1 (1%)
- Grafton County, NH – 10 (8%)
- Hillsborough County, NH – 13 (10%)
- Merrimack County, NH – 17 (14%)
- Middlesex County, MA – 1 (1%)
- Orange County, VT – 1 (1%)
- Oxford County, ME – 3 (2%)
- Rockingham County, NH – 14 (11%)
- Strafford County, NH – 14 (11%)
- Sullivan County, NH – 3 (2%)
- Windsor County, NT – 2 (2%)
- York County, ME – 7 (6%)

Appendix E – Stakeholder Interviews

A steering committee was created to help guide the development of this study. The steering committee consisted of City staff, members of the WOW Trail Committee, and local advocates for an expanded trail network. To provide balance to the pro-trail perspective provided by the steering committee and to better understand impacts to groups with vested interests in the analysis and individual stakeholders, a series of interviews were conducted. The interviews took place in-person, by phone, and by email. In total, 16 interviews were completed. The intent of the interviews was to document strengths and constraints of the proposed alternatives from the perspective of individual stakeholders and groups. The stakeholders are listed below next the agency/group to which they are associated and the date of the initial interview:

1. Ames, Robert (Half Moon Enterprises & Weirs Action Committee, 2/26/2019)
2. Barrall, Steve and Lefever, Craig (Strasburg Rail Road, 3/8/2019)
3. Bordwell, Dick (Long Bay Homeowners Association, 3/4/2019)
4. Bernhard, Alex (Northern Rail Trail, 1/29/2019)
5. Clark, Benjamin (Hobo Railroad & Winnipesaukee Scenic Railroad, 2/13/2019)
6. Dearness, Peter (New England Southern Railroad, 1/16/2019)
7. Gottlieb, Brian (PolEcon Research, 1/10/2019)
8. Grant, Callum (White Mountain Railroad, 2/28/2019)
9. Leishman, Peter (Milford-Bennington Railroad, 1/7/2019)
10. Mann, Capt. Richard (Belmont Police Department, 2/12/2019)
11. McCalla, Scott (North East Association of Rail Shippers, 1/7/2019)
12. McLear, Rusty (Mill Farms, 3/1/2019)
13. Pearson, Ben (Belknap Snowmobilers, 12/5/2018)
14. Simmons, Lt. Rich (Laconia Police Department, 2/14/2019)
15. Willey, Sim (Hart's Turkey Farm, 2/26/2019)
16. Winters, Shelley; Herlihy, Patrick; and Barker, Lou (New Hampshire DOT, 12/5/2018)

In addition to the stakeholder interviews, Alta Planning + Design received letters from Capt. Jeffery, Monroe (White Mountain & Atlantic Rail Equipment) and Keith Knowlton (NEREX), as well as an email from Paul Yorkis (Patriot Real Estate, Inc.). The two letters are provided on the following pages and the email is within pursuant to the non-disclosure request in the email signature.

Keith L. Knowlton
P O Box 325
Brooklyn, CT 06234

January 26, 2019

Mr. Kyle James, Senior Planner
Alta Planning and Design, Inc.
722 Cambridge Street
Cambridge, MA 02141

Dear Mr. James:

It has come to my attention that you and your firm have been tasked with preparing a recommendation to the town of Laconia regarding the possible conversion of a portion of the railroad right of way into a multi purpose trail, and I wish to provide our perspective on that project. By "our" I am referring to the North American Rail Car Operators Association, an organization whose members purchase, restore, and operate antique railroad motorcars and other Maintenance of Way track equipment. (WWW.NARCOA.ORG) NARCOA has approximately 1800 members throughout the US and Canada and approximately 1000 of them have one or more motorcars which they operate on host railroads. To better help you understand the time and effort our members spend not only to acquire and restore their equipment, but also to complete our training and qualify to purchase insurance, I am enclosing a copy of the Railroad Handbook which I wrote to present to potential host railroads, and a copy of our periodical, *The Setoff.*

I am a Certified Excursion Coordinator for NARCOA as well as a past member of the Board of Directors and have personally participated in numerous excursions on the tracks from Concord to Lincoln. By my estimate, our members, many of whom come from far out of state, typically spend between fifteen and twenty thousand dollars in New Hampshire on a typical weekend excursion.

It is obvious to me that there are many times more hiking and biking trails available to proponents of those hobbies then there are rail corridors available to us, which makes the possible loss of one such as the section through Laconia a significant blow to future excursions here in the northeast. Further, someone walking or biking can easily negotiate a section where a trail is interrupted, but

that is not possible to do with a motorcar. When you reach an impassable point in a motorcar, the only option is to go back. Consequently, if the track were interrupted in Laconia there would be no possible way to continue to Lincoln.

However, our personal interests aside, the most important reasons for not interrupting the rail corridor is that there are active tourist railroads operating out of Lincoln, and the railroad repair shops located there. The tourist railroads infuse a considerable amount of money into the local economy, and they all provide local jobs as well.

The railroad repair facility in Lincoln has established an excellent reputation as a first class repair and fabrication shop for railroad rolling stock, and routinely services equipment for the MBTA and other railroads in the New England area. One of the current projects is restoration of the *Flying Yankee*, a Maine Central "Train of the Future" dating from the 1930s, which when complete will attract huge crowds as it tours the country as it is one of a kind.

If the rail corridor integrity is compromised there will be no way to get equipment to or from the shops, putting them totally out of business instantly. The Hobo tourist railroad will die a slower death, but with no way to replace equipment it will be only a matter of time before that entire railyard and complex in Lincoln is empty.

We cannot urge you strongly enough to please recommend that, for the reasons stated, this rail corridor be kept intact.

Personally, I believe that if this multi-use trail is as important as some people say it is, then there should be sufficient funds allocated to build it next to the rails because having rails WITH trails means everybody wins.

Thank you for your time,

Very Truly Yours,

Keith L. Knowlton

Keith L. Knowlton
keith@nerex.org

WHITE MOUNTAIN AND ATLANTIC RAIL EQUIPMENT

11 Katahdin Road, Portland, Maine 04107-2828

(207)741-7000

5 December 2018

Kyle James | Senior Planner

Alta Planning + Design, Inc.

722 Cambridge Street,

Cambridge, MA 02141

Dear Mr. James-

I have been notified of the potential removal of tracks in the Laconia Area which would isolate the Lincoln Branch of the Plymouth and Lincoln Railroad operating over State owned track. We have a rail passenger car (Unit 9060) situated in Lincoln which is on the Lincoln Branch. The car was transported from Boston by rail and has been restored by the railroad shops in Lincoln. The car continues to undergo repair and maintenance at the Plymouth and Lincoln Railroad maintenance shops by their professional staff.

The isolation of this national system connection would create a financial hardship for us since any rail equipment would have to be transported over land utilizing cranes, heavy truck equipment and specialized personnel to handle and manage the move. We regard this as an unreasonable situation which in essence eliminates our access to the national rail system. This reduces the value of our equipment and strands our equipment in Lincoln. Our equipment would no longer be able to be moved into the national rail network and given what would have to be done to provide access to that network, our presumption would be that the City of Laconia would bear all financial responsibility for insuring that any stranded rail equipment would be moved to and from the national rail network at the City's expense and at the convenience of the equipment owners.

While I understand the desire to develop recreational trails, the elimination of the rail on the existing corridor would isolate the Lincoln Branch and in effect strand our rail car, as well as other rail cars that use this active branch. The P&L Shops undertake quality rail equipment maintenance and restoration. The removal of the rail would put this active rail company out of business and result in the elimination of skilled jobs in an area that certainly needs good employment opportunities.

As a former public transportation official who has dealt with public recreational wants in various communities the past, I am sure other alternatives can be explored and found that would not sacrifice New Hampshire employment opportunities and active growing businesses.

I will at every opportunity oppose any removal of active rail in the Laconia community before the Federal Railroad Administration and the State of New Hampshire. I encourage the community to seek out and find other alternatives to their recreational desires which would not compromise current private sector business opportunities.

Please be assured of my continued interest in this discussion and contact me if you have further questions.

Jeffrey W. Monroe

Capt. Jeffrey W. Monroe, MM, AMPE

Senior Manager

NH Residence:

85 Pleasant Street, Conway, NH 03818

Appendix F – Rail Ridership & Revenue Data

Source: New Hampshire Department of Transportation

New England Southern Railroad
Monthly Totals
January 1, 2018 thru December 31, 2018

PRELIMINARY - Precompliance Review Draft
4th Quarter Report due January 31, 2019

Month	Traffic Count	TOTAL Freight Revenue	Total Passenger Count	Total Passenger Revneue	Total Railroad Revenue	Freight Revenue User Fee	Passenger Revenue User Fee	Total User Fee Received	20% Of Railroad's Revenue	Actual M-O-W Expenses	Marketing Report	Check #
January	0		$0.00	$0.00		$0.00	$0.00		$0.00			
February	0	$2,200.00	$0.00	$0.00	$2,200.00	$110.00	$0.00	$110.00	$440.00	$110.00		11404
March	0	$550.00	$0.00	$0.00	$550.00	$27.50	$0.00	$27.50	$110.00			
April	2		$0.00	$0.00		$0.00	$0.00		$0.00			
May	0		$0.00	$0.00		$0.00	$0.00		$0.00			
June	2	$5,600.00	$0.00	$0.00	$5,600.00	$280.00	$0.00	$280.00	$280.00	$7,481.00	8/10/2018	11473
July	67											
August	69	$3,400.00	$0.00	$0.00	$3,400.00	$170.00	$0.00	$170.00	$680.00	$18,308.00		11515
September		$0.00		$0.00	$0.00	$0.00	$0.00		$0.00			
October			$0.00	$0.00		$0.00	$0.00		$0.00			
November			$0.00	$0.00		$0.00	$0.00		$0.00			
December		*$6,000.00*	$0.00	$0.00	*$6,000.00*	*$300.00*	*$0.00*		$1,200.00			due 2/1/19
Totals	140	*$17,750.00*	0	$0.00	*$17,750.00*	*$887.50*	$0.00	$587.50	*$2,710.00*	$25,899.00		

Note: (Line closed January through March 31). First quarter user fee based on revenue received for end of season (17) moves.
MOW review,

SFY 18 $417.50
Insurance current 5/25/2018 SFY 19 $170.00

President - Peter Dearness

810015868

New England Southern Railroad
Monthly Totals
January 1, 2017 thru December 31, 2017

Month	Traffic Count	TOTAL Freight Revenue	Total Passenger Count	Total Passenger Revneue	Total Railroad Revenue	Freight Revenue User Fee	Passenger Revenue User Fee	Total User Fee Received	20% Of Railroad's Revenue	Actual M-O-W Expenses	Marketing Report	Check #
January	0		$0.00	$0.00		$0.00	$0.00		$0.00			
February	0		$0.00	$0.00		$0.00	$0.00		$0.00			
March	0	$3,400.00	$0.00	$0.00	$3,400.00	$170.00	$0.00	$170.00	$680.00			10708
April	0		$0.00	$0.00		$0.00	$0.00		$0.00			
May	0		$0.00	$0.00		$0.00	$0.00		$0.00			
June	2	$2,985.00	$0.00	$0.00	$2,985.00	$149.25	$0.00	$149.25	$597.00	$8,468.00	8/4/2017	11243
July	0											
August	0		$0.00	$0.00		$0.00	$0.00		$0.00		8/3/2017	
September	2	$2,200.00		$0.00	$2,200.00	$110.00	$0.00	$110.00	$440.00			11326
October	2	$2,200.00	$0.00	$0.00	$2,200.00	$110.00	$0.00	$110.00	$440.00			
November		$1,200.00	$0.00	$0.00	$1,200.00	$60.00	$0.00	$60.00	$240.00			
December	2	$3,400.00	$0.00	$0.00	$3,400.00	$170.00	$0.00	$170.00	$680.00		2/5/2018	11366
Totals	8	$15,385.00	0	$0.00	$15,385.00	$769.25	$0.00	$769.25	$3,077.00	$8,468.00		
	Note:	(Line closed January through March 31). First quarter user fee based on revenue received for end of season (16) moves.										
	MOW review,											
	November revenue switch (moving cars at 3M plant, 2nd car placed at unloading spot)											
		Insurance current										
							SFY 17	$319.25				
							SFY 18	$450.00				
President - Peter Dearness												

New England Southern Railroad
Monthly Totals
January 1, 2016 thru December 31, 2016

Month	Traffic Count	TOTAL Freight Revenue	Total Passenger Count	Total Passenger Revneue	Total Railroad Revenue	Freight Revenue User Fee	Passenger Revenue User Fee	Total User Fee Received	20% Of Railroad's Revenue	Actual M-O-W Expenses	Marketing Report	
January	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
February	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
March	0	$3,667.00	$0.00	$0.00	$3,667.00	$183.35	$0.00	$183.35	$733.40	$0.00	0	ck#10530
April	2	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
May	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
June	2	$3,300.00	$0.00	$0.00	$3,300.00	$165.00	$0.00	$165.00	$660.00	$9,530.00	7/30/2016	ck#10571
July	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
August	2	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
September	2	$6,050.00	$0.00	$0.00	$6,050.00	$302.50	$0.00	$275.00	$1,210.00	$4,552.16	0	ck#10631
October	2	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
November	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	
December	2	$3,200.00	$0.00	$0.00	$3,200.00	$160.00	$0.00	$160.00	$640.00	$3,879.00	1/18/2017	ck#10657
Totals	12	$16,217.00	0	$0.00	$16,217.00	$810.85	$0.00	$783.35	$3,243.40	$17,961.16		

Note: (Line closed January through March 31). First quarter user fee based on revenue received for end of season (15) moves.
MOW review,
September submission $9,126.00
December submission $4,653.00

SFY16	$348.35	
SFY17	$435.00	Insurance current 5/25/2016
	$783.35	

New England Southern Railroad
Monthly Totals
January 1, 2015 thru December 31, 2015

	A	B	C	D	E	F	G	H	I	J	K	L	M
1			TOTAL	Total	Total	Total	Freight	Passenger	Total	20% Of	Actual		
2	Month	Traffic	Freight	Passenger	Passenger	Railroad	Revenue	Revenue	User Fee	Railroad's	M-O-W	Marketing	
3		Count	Revenue	Count	Revneue	Revenue	User Fee	User Fee	Received	Revenue	Expenses	Report	
4	January	1	$2,178.00	0	$0.00	$2,178.00	$108.90	$0.00	$108.90	$435.60			
5	February	0	$0.00	0	$0.00		$0.00	$0.00	$0.00	$0.00			
6	March	0	$2,178.00	0	$0.00	$2,178.00	$108.90	$0.00	$108.90	$435.60			
7	April	0	$0.00	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			
8	May	2	$0.00	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			
9	June	2	$2,178.00	0	$0.00	$2,178.00	$108.90	$0.00	$108.90	$435.60	$4,152.08		
10	July	0	$0.00	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			
11	August	2	$0.00	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			
12	September	0	$4,356.00	0	$0.00	$4,356.00	$217.80	$0.00	$217.80	$871.20	$4,536.60		
13	October	0	$400.00	0	$0.00	$400.00	$20.00	$0.00	$0.00	$80.00			
14	November	2	$2,904.00	0	$0.00	$2,904.00	$145.20	$0.00	$0.00	$580.80			
15	December	1	$1,452.00	0	$0.00	$1,452.00	$72.60	$0.00	$238.00	$290.40	$4,094.00	1/30/2016	
17	Totals	10	$15,646.00	0	$0.00	$15,646.00	$782.30	$0.00	$782.50	$3,129.20	$12,782.68		
18													
19		Note:	(Line closed January through April 30). First quarter user fee based on revenue received for previous season (Calendar year 14										
20			First revenue move May 2, 2015 (2 loads in, 1 empty out).										
21			NEGS requesting advance warning system Sewalls Falls Rd.										
22			Insurance (freight only)										
23			Maintenance contribution not properly documented.					SFY 15	$326.70				
24								SFY 16	$455.80				
25									$782.50				

PRELIMINARY - Precompliance Review Draft

Plymouth Lincoln Railroad
Monthly Totals
January 1, 2018 thru December 31, 2018

	Lincoln-Hobo		Meredith-Winnie		Weirs		Special		Total					Actual	
	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Leases	*Total User Fee	10% Of Revenue	M-O-W Expenses	Ck#
January	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	
February	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	
March	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	
April	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	
May	0		0		0	$0.00	0		0	$0.00	$202.50	$2,159.40	$2,159.40	$0.00	
June	1851	$29,293.20	2619	$41,606.20	1047	$17,891.00	0	$0.00	5517	$88,790.40	$ 202.50	$9,081.54	$8,879.04		20958
July	5028	$76,460.40	2199	$41,084.95	2900	$51,747.00	0	$6,200.00	10127	$175,492.35	$ 202.50	$17,751.74	$17,549.24	$0.00	21041
August	4916	$75,530.75	2502	$45,675.05	3557	$62,695.50	0		10975	$183,901.30	$ 202.50	$18,592.63	$18,390.13	$0.00	21136
September	2892	$49,711.50	3062	$48,262.45	927	$16,610.00	0	$0.00	6881	$114,583.95	$ 202.50	$ 11,660.90	$11,458.40	$0.00	21240
October	5684	$99,425.50	7304	$109,749.65	1397	$24,388.00	0		14385	$233,563.15	$ 202.50	$ 23,558.82	$23,153.82	$0.00	Ck# 21308
November	947	$10,717.50	0	$0.00	0	$0.00	425	$26,500.00	1372	$37,217.50	$ 202.50	$ 3,924.25	$3,721.75	$0.00	Ck# 21361
December		$23,268.00	0	$0.00	0	$0.00		$80,000.00	0	$103,268.00	$ 202.50	$ 10,529.30	$10,326.80	*$151,000.00*	Due 2/1/19
Totals	21318	$364,406.85	17686	$286,378.30	9828	$173,331.50	425	$112,700.00	49257	$936,816.65	$ 2,430.00	$98,068.57	$95,638.57	$151,000.00	

NOTES: Special ridership does not include passenger count on caboose specials or Motor Car Weekend.

	SFY 18	$12,050.94
Journey to Northpole Charter, estimated ridership, calculated by dividing lump sum by 12.50 ticket	SFY 19	$86,017.63
MOW - Conservative estimate, reconciling vendor invoicing.		$98,068.57
*Total User Fee includes Land and Equipment rentals.		
Weirs revenue and ridership reported under Meredith.		
Marketing, Maintain Website, email flyers.		
Winter Shutdown Bulletin 1/1/201		
President - Ben Clark		
AP - Brenda Clark		

Plymouth Lincoln Railroad
Monthly Totals
January 1, 2017 thru December 31, 2017

	Lincoln-Hobo		Meredith-Winnie		Weirs		Special		Total					Actual	
	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Leases	*Total User Fee	10% Of Revenue	M-O-W Expenses	
January	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	
February	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	
March	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	ck # 19844
April	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$202.50	$202.50	$0.00	$0.00	ck # 19873
May	0		0		0	$0.00	0		0	$0.00	$202.50	$202.50	$0.00	$0.00	ck # 19910
June	2300	$34,420.90	3122	$49,893.40	0	$0.00	0	$0.00	5422	$84,314.30	$ 202.50	$8,542.93	$8,431.43		ck # 20099
July	5502	$83,008.70	5694	$101,396.15	0	$0.00	0	$0.00	11196	$184,404.85	$ 202.50	$18,642.99	$18,440.49	$0.00	ck # 20219
August	5848	$89,151.65	6107	$108,296.05	0	$0.00	1	$5,500.00	11956	$202,947.70	$ 202.50	$20,496.78	$20,294.77	$0.00	ck # 20311
September	3551	$59,212.50	3834	$62,649.95	0	$0.00	0	$0.00	7385	$121,862.45	$ 202.50	$ 12,388.75	$12,186.25	$0.00	ck # 20384
October	4075	$73,306.00	9499	$144,952.75	0	$0.00	1	$6,200.00	13575	$224,458.75	$ 202.50	$ 22,648.38	$22,243.38	$0.00	ck # 20506
November	3377	$46,434.00	0	$0.00	0	$0.00	0	$15,000.00	3377	$61,434.00	$ 202.50	$ 6,345.90	$6,143.40	$0.00	ck # 20556
December	2251	$25,206.00	0	$0.00	0	$0.00		$82,500.00	2251	$107,706.00	$ 202.50	$ 10,973.10	$10,770.60	$143,515.57	ck # 20614
Totals	26904	$410,739.75	28256	$467,188.30	0	$0.00	2	$109,200.00	55162	$987,128.05	$ 2,430.00	$101,051.32	$98,510.31	$143,515.57	

NOTES: Special ridership does not include passenger count on caboose specials or Motor Car Weekend.

		SFY 17	$9,555.43
Journey to Northpole Charter, estimated ridership, calculated by dividing lump sum by 12.50 ticket		SFY 18	$91,495.89
MOW - Weed Spray participation			$101,051.32
*Total User Fee includes Land and Equipment rentals.			
Weirs revenue and ridership reported under Meredith.			
Marketing, Maintain Website, email flyers.			
Winter Shutdown Bulletin 1/1/2017			$126,226.62
President - Ben Clark			
AP - Brenda Clark			

Plymouth Lincoln Railroad
Monthly Totals
January 1, 2016 thru December 31, 2016

	Lincoln		Meredith		Weirs		Special		Total					Actual	
	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Credits	*Total User Fee	10% Of Revenue	M-O-W Expenses	
January	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$202.50	$0.00	$0.00	
February	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$202.50	$0.00	$0.00	
March	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$202.50	$0.00	$0.00	
April	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$202.50	$0.00	$0.00	
May	0	$694.75	0	$1,288.40	0	$0.00	0	$1,414.00	0	$3,397.15	$ -	$542.22	$339.72	$0.00	
June	1539	$23,652.05	4525	$67,957.10	0	$0.00	0	$0.00	6064	$91,609.15	$ -	$9,363.42	$9,160.92	$37,800.00	ck #19256
July	4531	$68,783.85	5455	$91,767.75	0	$0.00	0	$0.00	9986	$160,551.60	$ -	$16,257.67	$16,055.16	$0.00	CK#19397 lab
August	6804	$94,186.00	7359	$100,543.50	0	$0.00	0	$0.00	14163	$194,729.50	$ -	$19,675.45	$19,472.95	$0.00	ck #19492
September	3092	$51,336.00	4374	$67,680.00	0	$0.00	0	$0.00	7466	$119,016.00	$ -	$11,901.60	$11,901.60	$0.00	ck #19602 lab
October	6429	$108,972.50	9358	$135,225.75	0	$0.00	0	$0.00	15787	$244,198.25	$ -	$24,622.33	$24,419.83	$0.00	ck#19664 lab
November	2995	$37,471.50	0	$0.00	0	$0.00	0	$0.00	2995	$37,471.50	$ -	$3,949.65	$3,747.15	$0.00	ck#19738 lab
December	1939	$19,390.00	0	$0.00	0	$0.00	6600	$82,500.00	8539	$101,890.00	$ -	$10,391.50	$10,189.00	$134,823.65	
Totals	27329	$404,486.65	31071	$464,462.50	0	$0.00	6600	$83,914.00	65000	$952,863.15	$ -	$97,513.84	$95,286.32	$172,623.65	

NOTES: Special ridership does not include passenger count on caboose specials or Motor Car Weekend.

May Special Revenue 2015 Audit correction, April rentals only (no trains).	SFY 16	$10,715.64	
Journey to Northpole Charter, estimated ridership, 1800, calculated by dividing lump sum by 12.50 ticket	SFY 17	$86,798.20	
MOW - May 16 Weed Spray participation		$97,513.84	
*Total User Fee includes Land and Equipment rentals.			
Weirs revenue and ridership reported under Meredith.			
Marketing, Maintain Website, email flyers.			
Winter Shutdown Buletin 1/1/2017			
January 10, 2017 Report - Maintenance Expenditure Summary ($172,623.65)			

Plymouth Lincoln Railroad
Monthly Totals
January 1, 2015 thru December 31, 2015

	Lincoln		Meredith		Weirs		Special		Total					Actual	
	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Ridership	Monthly Revenue	Credits	Total User Fee	10% Of Revenue	M-O-W Expenses	
January	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$0.00	$0.00	$0.00	
February	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$0.00	$0.00	$0.00	
March	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$0.00	$0.00	$0.00	
April	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	$ -	$0.00	$0.00	$0.00	
May	1,000	$12,948.00	521	$7,205.00	417	$5,586.00	0	$0.00	1938	$25,739.00	$ -	$2,573.90	$2,573.90	$0.00	ck#18312
June	2,023	$26,951.00	760	$11,119.10	767	$10,746.00	3473	$52,000.00	7023	$100,816.10	$ -	$10,081.61	$10,081.61	$0.00	ck#18432
July	5,669	$75,476.00	2405	$37,424.40	3695	$53,163.00	0	$0.00	11769	$166,063.40	$ -	$16,606.34	$16,606.34	$0.00	ck#18546
August	6,745	$90,129.00	2952	$45,905.30	3936	$56,365.00	0	$0.00	13633	$192,399.30	$ -	$19,239.93	$19,239.93	$0.00	ck#18629 (lhg)
September	2,995	$41,343.40	4258	$59,688.95	1182	$17,244.00	0	$0.00	8435	$118,276.35	$ -	$11,827.22	$11,827.64	$0.00	ck#18752 (lhg)
October	6,651	$93,612.80	7650	$102,867.00	1700	$24,944.00	1298	$11,270.00	17299	$232,693.80	$ -	$23,269.38	$23,269.38	$0.00	ck#18799 (lhg)
November	1,413	$15,600.00	145	$1,797.00	0	$0.00	5	$20,000.00	1563	$37,397.00	$ -	$2,335.70	$2,335.70	$0.00	ck#18892 (lhg)
December	2,385	$23,895.00	0	$0.00	0	$0.00	7000	$70,000.00	9385	$93,895.00	$ -	$9,389.50	$9,389.50	$176,155.09	ck#18967 (lhg)
Totals	28881	$379,955.20	18691	$266,006.75	11697	$168,048.00	11776	$153,270.00	71045	$967,279.95	$ -	$95,323.58	$95,324.00	$176,155.09	

NOTES: Special ridership does not include passenger count on caboose specials or Motor Car Weekend. Only # of moves.

* Caboose run (none scheduled); Polar Express charter per trip fee. Dinner Train ridership included. November 14 & 15 track car event.

MOW - Contract (Karl Dearness) from Lakeport to Sargent Street brush clearing May/June.

October - Added Pumpkin Festival Train Laconia to Winnisquam

SFY 15		$12,655.51
SFY 16		$82,668.07
		$95,323.58

Appendix G – Cost Estimates

Source: HEB Engineers, Inc. (HEB)

Rail with Trail (Paved) – Summary Cost Estimate

The "Rail with Trail" option includes a 10-foot wide paved path from downtown Tilton to Weirs Beach, with no work necessary along the existing segments of the WOW Trail in Belmont and Laconia. Where feasible, a 15-feet offset from the centerline of the tracks to the edge of the trail is assumed with some segments requiring retaining walls.

Item	Cost	Per Mile Cost
Typical Pathway Construction (58,768 LF or 11.1 mi.) [1]	$11,819,166.35	$1,061,890.80
Non-Typical Construction Items [2]	$5,648,530.00	N/A
Total Construction Cost [3]	**$17,467,696.35**	**$1,569,381.93**

[1] Typical Pathway Construction costs are based on calculated "typical" construction costs per linear foot of the WOW Trail Phase II in Laconia, New Hampshire. The total project expenditures, as provided by the City of Laconia, were used as a baseline. These expenditures include engineering/design, legal, soil scientist, construction, construction observation, contaminated soil handling, and bond fee costs. Specialty construction costs specific to that project were subtracted using the actual bid pricing for the project which included a bridge structure. These specialty construction costs were removed to give a more accurate construction cost of a typical pathway section. The length of the WOW Trail Phase II, as documented in design drawings prepared by HEB Engineers, Inc. (HEB), were used to determine the per linear foot cost. The per linear foot cost ($201.12) was then multiplied by the length of the proposed Rail with Trail alignment (58,768 LF). This alignment was provided by Alta Planning + Design (Alta) and altered slightly by HEB to account for known issues identified by HEB as part of the WOW Trail Phase III conceptual design. All cost estimates using information from prior projects include a 3% annual inflation rate from project completion date.

[2] Non-typical construction costs were identified along the trail alignment by Alta and then confirmed by HEB. These costs include seventeen (17) retaining walls, three (3) new bridges, and three (3) PHB crossing signals. The costs for these items were estimated using several different sources of information gathered by HEB. The retaining wall heights and lengths were estimated using WOW Trail Phase III design drawings, LiDAR data, aerial imagery, and on-sight observation. The costs for these retaining walls were also determined using the NHDOT Weighted Average Unit Price for Precast Concrete Modular Retaining Wall ($84 per SF). An additional $6 per SF was added to the cost to account for engineering and construction observation costs. The bridge costs were estimated by HEB based on LiDAR data, aerial imagery, on-site observation, and knowledge of similar structure costs from recent local projects. Alta provided the PHB signal locations and estimated costs were provided by NHDOT. All cost estimates using information from prior projects include a 3% annual inflation rate from project completion date

[3] Total Construction Cost represents a best estimate based on the information made available to HEB. It is based on several recent projects and knowledge of local construction pricing; it does not represent a thorough cost estimate based on design of the proposed trail.

Rail with Trail (Ledge Pack) – Summary Cost Estimate

The "Rail with Trail" option includes a 10-foot wide ledge pack path from downtown Tilton to Weirs Beach, with no work necessary along the existing segments of the WOW Trail in Belmont and Laconia. Where feasible, a 15-feet offset from the centerline of the tracks to the edge of the trail is assumed with some segments requiring retaining walls.

Item	Cost	Per Mile Cost
Typical Pathway Construction (58,768 LF or 11.1 mi.) [1]	$10,784,688.20	$968,948.30
Non-Typical Construction Items [2]	$5,648,530.00	N/A
Total Construction Cost [3]	**$16,433,218.20**	**$1,476,439.28**

[1] Typical Pathway Construction costs are based on calculated "typical" construction costs per linear foot of the WOW Trail Phase II in Laconia, New Hampshire and modified to reflect a ledge pack trail surface. The total project expenditures, as provided by the City of Laconia, were used as a baseline. These expenditures include engineering/design, legal, soil scientist, construction, construction observation, contaminated soil handling, and bond fee costs. Specialty construction costs specific to that project were subtracted using the actual bid pricing for the project which included a bridge structure. These specialty construction costs were removed to give a more accurate construction cost of a typical pathway section. In order to determine costs for ledge pack trail, HEB estimated for a revised typical section of 4" of ledge pack over 8" of crushed gravel as compared to 2" of bituminous pavement over 10" of crushed gravel. Costs for ledge pack were determined using costs outlined in the "Northwest Indiana Regional Pedestrian and Bicycle Transportation Plan of 2010." The length of the WOW Trail Phase II, as documented in design drawings prepared by HEB Engineers, Inc. (HEB), were used to determine the per linear foot cost. The per linear foot cost ($183.51) was then multiplied by the length of the proposed Rail with Trail alignment (58,768 LF). This alignment was provided by Alta Planning + Design (Alta) and altered slightly by HEB to account for known issues identified by HEB as part of the WOW Trail Phase III conceptual design. All cost estimates using information from prior projects include a 3% annual inflation rate from project completion date.

[2] Non-typical construction costs were identified along the trail alignment by Alta and then confirmed by HEB. These costs include seventeen (17) retaining walls, three (3) new bridges, and three (3) PHB crossing signals. The costs for these items were estimated using several different sources of information gathered by HEB. The retaining wall heights and lengths were estimated using WOW Trail Phase III design drawings, LiDAR data, aerial imagery, and on-sight observation. The costs for these retaining walls were also determined using the NHDOT Weighted Average Unit Price for Precast Concrete Modular Retaining Wall ($84 per SF). An additional $6 per SF was added to the cost to account for engineering and construction observation costs. The bridge costs were estimated by HEB based on LiDAR data, aerial imagery, on-site observation, and knowledge of similar structure costs from recent local projects. Alta provided the PHB signal locations and estimated costs were provided by NHDOT. All cost estimates using information from prior projects include a 3% annual inflation rate from project completion date

[3] Total Construction Cost represents a best estimate based on the information made available to HEB. It is based on several recent projects and knowledge of local construction pricing; it does not represent a thorough cost estimate based on design of the proposed trail.

Rail to Trail – Summary Cost Estimate

The "Rail to Trail" option includes a 10-foot wide stone-dust path from downtown Tilton to Weirs Beach, with no work necessary along the existing segments of the WOW Trail in Belmont and Laconia. Trail construction includes the removal of railroad rails and ties and construction of the path in their place.

Item	Cost	Per Mile Cost
Typical Pathway Construction (55,199 LF or 10.5 mi.) [4]	$2,863,916.43	$273,944.80
Non-Typical Construction Items [5]	$1,518,553.79	N/A
Total Construction Cost [6]	**$4,382,470.23**	**$419,200.40**

[4] Typical Pathway Construction costs are based on a hybrid "typical" construction cost per linear foot based off of the Mascoma River Greenway in Lebanon, New Hampshire and the Northern Rail Trail (NRT) projects. The City of Lebanon provided a complete per mile cost of the NRT project that was used as a baseline for the estimated costs for tie and rail removal and disposal. This per linear foot cost ($51.88) was then multiplied by the length of the proposed Rail to Trail alignment (55,199 LF). This alignment was provided by Alta Planning + Design (Alta). All cost estimates using information from prior projects include a 3% annual inflation rate from project completion date

[5] Non-typical construction costs were identified along the trail alignment provided by Alta and confirmed by HEB. These costs include five (5) trestle bridge improvements, one (1) new bridge, and three (3) PHB crossing signals. The costs for these items were estimated using several different sources of information gathered by HEB Engineers, Inc. (HEB). The trestle bridge locations and lengths were determined using aerial imagery. The costs for the re-decking and railing installations on these bridges were calculated using costs and estimates associated with the trestle bridge improvements as part of the Mascoma River Greenway Project. The bridge costs were estimated by HEB based on LiDAR data, aerial imagery, and knowledge of similar structure costs from recent local projects. Alta provided the PHB signal locations and estimated costs were provided by the NHDOT. All cost estimates using information from prior projects include a 3% annual inflation rate from project completion date

[6] Total Construction Cost represents a best estimate based on the information made available to HEB. It is based on several recent projects and knowledge of local construction pricing; it does not represent a thorough cost estimate based on design of the proposed trail.

Rail with Trail (Ledge Pack) – Typical Section Costs

The "Rail with Trail" typical section cost is derived using information gathered from the most recent and relevant "Rail with Trail" project, WOW Phase II Trail project, located in Laconia, New Hampshire. This typical section includes the design and construction of a 10-foot wide Ledge Pack path, the required 15-foot offset from the rail tracks, and the necessary fencing.

Item	**Cost**
Surveying [1]	$19,949.25
Preliminary Engineering [1]	$137,787.36
Construction [1]	$804,995.34
Construction Oversight [1]	$28,826.65
Ancillary Project Costs [1]	$31,922.82
Total	**$1,023,481.42**
Specialty Project Costs [2]	$(55,750.00)
Paving Costs [3]	$(116,400.00)
Reduction in Crushed Gravel Depth [4]	$(9,384.00)
Ledge Pack Costs [5]	$41,082.85
Typical Construction Costs 2016	**$883,030.27**
Typical Construction Costs 2019 [6]	**$964,911.02**
Length of Path (Feet) [7]	5,258
Total Cost per Linear Foot 2019 [8]	**$183.51**

[1] Typical Section costs are based on detailed city expenditures for the WOW Trail Phase II project as provided by the City of Laconia.

[2] Specialty project costs include the construction of a bridge over Durkee Brook as part of the project. The bridge costs were identified using the actual bid price from the Durkee Brook bridge poject. This specialty project cost were removed from the typical linear foot cost to develop an accurate baseline construction cost.

[3] Paving quantities and costs were generated using the winning bid for the project. These costs include, all pavement, planing of pavement, and painted centerline marking on pavement.

[4] Crushed gravel depth was reduced from 10" in the paved typical section, to 8" in the ledge pack typical section. The ledge pack depth in the typical section is 4", where as the pavement depth is 2".

[5] Ledge pack quantities are double the pavement quantities estimated for bidding, to accommodate the increase in depth. Ledge pack costs were generated from Appendix B of the "Northwest Indiana Regional Pedestrian and Bicycle Transportation Plan of 2010."

[6] Construction costs from the 2016 project were multiplied by a 3% annual inflation rate to better estimate project costs for a similar project taking place in 2019.

[7] Path length was determined using the WOW Trail Phase II design drawings prepared by HEB Engineers, Inc. (HEB).

[8] Total Construction Cost represents a best estimate based on the information made available to HEB. The goal of the estimate is to reflect a baseline per linear foot cost of the "Rail with Trail" construction for a similar project taking place in 2019.

Rail with Trail (Ledge Pack) – Detailed Cost Estimate

The "Rail with Trail" overall cost estimate utilizes the typical section costs developed from the WOW Trail Phase II path in Laconia, New Hampshire. Non-typical costs were then added in as identified along the alignment by Alta Planning + Design (Alta) and HEB Engineers, Inc. (HEB). Estimates for these non-typical costs were determined using information from NHDOT and HEB.

Item	Unit	Cost per Unit	Quantity	Total Cost
Typical Pathway (WOW Phase II) [6]	LF	$183.51	58,768	$10,784,688.20
Retaining Wall 1 (3' x 177') [7]	SF	$90.00	531	$47,790.00
Retaining Wall 2 (2' x 80') [7]	SF	$90.00	160	$14,400.00
Retaining Wall 3 (2' x 107') [7]	SF	$90.00	214	$19,260.00
Bridge 1 [8]	U	$350,000.00	1	$350,000.00
Retaining Wall 4 (5' x 307') [7]	SF	$90.00	1535	$138,150.00
Bridge 2 [8]	U	$275,000.00	1	$275,000.00
Retaining Wall 5 (2' x 152') [7]	SF	$90.00	304	$27,360.00
Retaining Wall 6 (7' x 566') [7]	SF	$90.00	3,962	$356,580.00
Retaining Wall 7 (2' x 44') [7]	SF	$90.00	88	$7,920.00
Retaining Wall 8 (2' x 27') [7]	SF	$90.00	54	$4,860.00
Retaining Wall 9 (7' x 198') [7]	SF	$90.00	1,386	$124,740.00
Retaining Wall 10 (5' x 356') [7]	SF	$90.00	1,780	$160,200.00
Retaining Wall 11 (4' x 112') [7]	SF	$90.00	448	$40,320.00
Retaining Wall 12 (5' x 852') [7]	SF	$90.00	4,260	$383,400.00
Retaining Wall 13 (5' x 215') [7]	SF	$90.00	1,075	$96,750.00
Retaining Wall 14 (5' x 130') [7]	SF	$90.00	650	$58,500.00
PHB Signal 1 [9]	U	$100,000.00	1	$100,000.00
Retaining Wall 15 (5' x 2373') [7]	SF	$90.00	11,865	$1,067,850.00
Retaining Wall 16 (5' x 1056') [7]	SF	$90.00	5,280	$475,200.00
Retaining Wall 17 (5' x 231') [7]	SF	$90.00	1,155	$103,950.00
Retaining Wall 18 (5' x 2714') [7]		$90.00	13,570	$1,221,300.00
Bridge 3 [8]	U	$375,000.00	1	$375,000.00
PHB Signal 2 [9]	U	$100,000.00	1	$100,000.00
PHB Signal 3 [9]	U	$100,000.00	1	$100,000.00
			Total [10]	**$16,433,218.20**

[6] Typical Pathway Construction costs reflect the typical construction cost per linear foot based on the WOW Trail Phase II project in Laconia, New Hampshire with modifications made to incorporate a ledge pack trail surface. This cost estimate includes a 3% annual inflation rate to best estimate 2019 construction costs. The proposed path length was determined using the alignment developed by Alta and HEB.

[7] The location and size of the retaining walls were determined using WOW Trail Phase III Conceptual Design drawings by HEB as well as aerial imagery and LiDAR data. The costs of these retaining walls were estimated using NHDOT Weighted Average Unit Prices for Precast Concrete Modular Retaining Wall with an additional $6 per square foot added for engineering costs.

[8] Bridge cost estimates were provided by HEB. These estimates were determined using aerial imagery, LiDAR data, on-site observation, and knowledge of similar recent projects.

[9] PHB signal locations were provided by Alta. Costs for these signals were estimated based on information provided by NHDOT from recent signal installations in New Hampshire.

[10] Total Construction Cost represents a best estimate based on the information made available to HEB. It is based on several recent projects and knowledge of local construction pricing; it does not represent a thorough cost estimate based on design of the proposed trail.

Rail with Trail – Typical Section Costs

The "Rail with Trail" typical section cost is derived using information gathered from the most recent and relevant "Rail with Trail" project, WOW Phase II Trail project, located in Laconia, New Hampshire. This typical section includes the design and construction of a 10-foot wide paved path, the required 15-foot offset from the rail tracks, and the necessary fencing.

Item	Cost
Surveying [1]	$19,949.25
Preliminary Engineering [1]	$137,787.36
Construction [1]	$804,995.34
Construction Oversight [1]	$28,826.65
Ancillary Project Costs [1]	$31,922.82
Total	**$1,023,481.42**
Specialty Project Costs [2]	**$(55,750.00)**
Typical Construction Costs 2016	**$967,731.42**
Typical Construction Costs 2019 [3]	**$1,057,466.25**
Length of Path (Feet) [4]	5,258
Total Cost per Linear Foot 2019 [5]	**$201.12**

[1] Typical Section costs are based on detailed city expenditures for the WOW Trail Phase II project as provided by the City of Laconia.

[2] Specialty project costs include the construction of a bridge over Durkee Brook as part of the project. The bridge costs were identified using the actual bid price from the Durkee Brook bridge poject. This specialty project cost were removed from the typical linear foot cost to develop an accurate baseline construction cost.

[3] Construction costs from the 2016 project were multiplied by a 3% annual inflation rate to better estimate project costs for a similar project taking place in 2019.

[4] Path length was determined using the WOW Trail Phase II design drawings prepared by HEB Engineers, Inc. (HEB).

[5] Total Construction Cost represents a best estimate based on the information made available to HEB. The goal of the estimate is to reflect a baseline per linear foot cost of the "Rail with Trail" construction for a similar project taking place in 2019.

Rail with Trail – Detailed Cost Estimate

The "Rail with Trail" overall cost estimate utilizes the typical section costs developed from the WOW Trail Phase II path in Laconia, New Hampshire. Non-typical costs were then added in as identified along the alignment by Alta Planning + Design (Alta) and HEB Engineers, Inc. (HEB). Estimates for these non-typical costs were determined using information from NHDOT and HEB.

Item	Unit	Cost per Unit	Quantity	Total Cost
Typical Pathway (WOW Phase II) [6]	LF	$201.12	58,768	$11,819,166.35
Retaining Wall 1 (3' x 177') [7]	SF	$90.00	531	$47,790.00
Retaining Wall 2 (2' x 80') [7]	SF	$90.00	160	$14,400.00
Retaining Wall 3 (2' x 107') [7]	SF	$90.00	214	$19,260.00
Bridge 1 [8]	U	$350,000.00	1	$350,000.00
Retaining Wall 4 (5' x 307') [7]	SF	$90.00	1,535	$138,150.00
Bridge 2 [8]	U	$275,000.00	1	$275,000.00
Retaining Wall 5 (2' x 152') [7]	SF	$90.00	304	$27,360.00
Retaining Wall 6 (7' x 566') [7]	SF	$90.00	3,962	$356,580.00
Retaining Wall 7 (2' x 44') [7]	SF	$90.00	88	$7,920.00
Retaining Wall 8 (2' x 27') [7]	SF	$90.00	54	$4,860.00
Retaining Wall 9 (7' x 198') [7]	SF	$90.00	1,386	$124,740.00
Retaining Wall 10 (5' x 356') [7]	SF	$90.00	1,780	$160,200.00
Retaining Wall 11 (4' x 112') [7]	SF	$90.00	448	$40,320.00
Retaining Wall 12 (5' x 852') [7]	SF	$90.00	4,260	$383,400.00
Retaining Wall 13 (5' x 215') [7]	SF	$90.00	1,075	$96,750.00
Retaining Wall 14 (5' x 130') [7]	SF	$90.00	650	$58,500.00
PHB Signal 1 [9]	U	$100,000.00	1	$100,000.00
Retaining Wall 15 (5' x 2373') [7]	SF	$90.00	11,865	$1,067,850.00
Retaining Wall 16 (5' x 1056') [7]	SF	$90.00	5,280	$475,200.00
Retaining Wall 17 (5' x 231') [7]	SF	$90.00	1,155	$103,950.00
Retaining Wall 18 (5' x 2714') [7]		$90.00	13,570	$1,221,300.00
Bridge 3 [8]	U	$375,000.00	1	$375,000.00
PHB Signal 2 [9]	U	$100,000.00	1	$100,000.00
PHB Signal 3 [9]	U	$100,000.00	1	$100,000.00
			Total [10]	**$17,467,696.35**

[6] Typical Pathway Construction costs reflect the typical construction cost per linear foot based on the WOW Trail Phase II project in Laconia, New Hampshire. This cost estimate includes a 3% annual inflation rate to best estimate 2019 construction costs. The proposed path length was determined using the alignment developed by Alta and HEB.

[7] The location and size of the retaining walls were determined using WOW Trail Phase III Conceptual Design drawings by HEB as well as aerial imagery and LiDAR data. The costs of these retaining walls were estimated using NHDOT Weighted Average Unit Prices for Precast Concrete Modular Retaining Wall with an additional $6 per square foot added for engineering costs.

[8] Bridge cost estimates were provided by HEB. These estimates were determined using aerial imagery, LiDAR data, on-site observation, and knowledge of similar recent projects.

[9] PHB signal locations were provided by Alta. Costs for these signals were estimated based on information provided by NHDOT from recent signal installations in New Hampshire.

[10] Total Construction Cost represents a best estimate based on the information made available to HEB. It is based on several recent projects and knowledge of local construction pricing; it does not represent a thorough cost estimate based on design of the proposed trail.

Rail with Trail (Paved) – Typical Section Costs

The "Rail with Trail" typical section cost is derived using information gathered from the most recent and relevant "Rail with Trail" project, WOW Phase II Trail project, located in Laconia, New Hampshire. This typical section includes the design and construction of a 10-foot wide paved path, the required 15-foot offset from the rail tracks, and the necessary fencing.

Item	Cost
Surveying [1]	$19,949.25
Preliminary Engineering [1]	$137,787.36
Construction [1]	$804,995.34
Construction Oversight [1]	$28,826.65
Ancillary Project Costs [1]	$31,922.82
Total	**$1,023,481.42**
Specialty Project Costs [2]	**$ (55,750.00)**
Typical Construction Costs 2016	**$967,731.42**
Typical Construction Costs 2019 [3]	**$1,057,466.25**
Length of Path (Feet) [4]	5,258
Total Cost per Linear Foot 2019 [5]	**$201.12**

[1] Typical Section costs are based on detailed city expenditures for the WOW Trail Phase II project as provided by the City of Laconia.

[2] Specialty project costs include the construction of a bridge over Durkee Brook as part of the project. The bridge costs were identified using the actual bid price from the Durkee Brook bridge poject. This specialty project cost were removed from the typical linear foot cost to develop an accurate baseline construction cost.

[3] Construction costs from the 2016 project were multiplied by a 3% annual inflation rate to better estimate project costs for a similar project taking place in 2019.

[4] Path length was determined using the WOW Trail Phase II design drawings prepared by HEB Engineers, Inc. (HEB).

[5] Total Construction Cost represents a best estimate based on the information made available to HEB. The goal of the estimate is to reflect a baseline per linear foot cost of the "Rail with Trail" construction for a similar project taking place in 2019.

Rail with Trail (Paved) – Detailed Cost Estimate

The "Rail with Trail" overall cost estimate utilizes the typical section costs developed from the WOW Trail Phase II path in Laconia, New Hampshire. Non-typical costs were then added in as identified along the alignment by Alta Planning + Design (Alta) and HEB Engineers, Inc. (HEB). Estimates for these non-typical costs were determined using information from NHDOT and HEB.

Item	Unit	Cost per Unit	Quantity	Total Cost
Typical Pathway (WOW Phase II) [6]	LF	$201.12	58,768	$11,819,166.35
Retaining Wall 1 (3' x 177') [7]	SF	$90.00	531	$47,790.00
Retaining Wall 2 (2' x 80') [7]	SF	$90.00	160	$14,400.00
Retaining Wall 3 (2' x 107') [7]	SF	$90.00	214	$19,260.00
Bridge 1 [8]	U	$350,000.00	1	$350,000.00
Retaining Wall 4 (5' x 307') [7]	SF	$90.00	1,535	$138,150.00
Bridge 2 [8]	U	$275,000.00	1	$275,000.00
Retaining Wall 5 (2' x 152') [7]	SF	$90.00	304	$27,360.00
Retaining Wall 6 (7' x 566') [7]	SF	$90.00	3,962	$356,580.00
Retaining Wall 7 (2' x 44') [7]	SF	$90.00	88	$7,920.00
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Retaining Wall 9 (7' x 198') [7]	SF	$90.00	1,386	$124,740.00
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PHB Signal 1 [9]	U	$100,000.00	1	$100,000.00
Retaining Wall 15 (5' x 2373') [7]	SF	$90.00	11,865	$1,067,850.00
Retaining Wall 16 (5' x 1056') [7]	SF	$90.00	5,280	$475,200.00
Retaining Wall 17 (5' x 231') [7]	SF	$90.00	1,155	$103,950.00
Retaining Wall 18 (5' x 2714') [7]	SF	$90.00	13,570	$1,221,300.00
Bridge 3 [8]	U	$375,000.00	1	$375,000.00
PHB Signal 2 [9]	U	$100,000.00	1	$100,000.00
PHB Signal 3 [9]	U	$100,000.00	1	$100,000.00
			Total [10]	**$17,467,696.35**

[6] Typical Pathway Construction costs reflect the typical construction cost per linear foot based on the WOW Trail Phase II project in Laconia, New Hampshire. This cost estimate includes a 3% annual inflation rate to best estimate 2019 construction costs. The proposed path length was determined using the alignment developed by Alta and HEB.

[7] The location and size of the retaining walls were determined using WOW Trail Phase III Conceptual Design drawings by HEB as well as aerial imagery and LiDAR data. The costs of these retaining walls were estimated using NHDOT Weighted Average Unit Prices for Precast Concrete Modular Retaining Wall with an additional $6 per square foot added for engineering costs.

[8] Bridge cost estimates were provided by HEB. These estimates were determined using aerial imagery, LiDAR data, on-site observation, and knowledge of similar recent projects.

[9] PHB signal locations were provided by Alta. Costs for these signals were estimated based on information provided by NHDOT from recent signal installations in New Hampshire.

[10] Total Construction Cost represents a best estimate based on the information made available to HEB. It is based on several recent projects and knowledge of local construction pricing; it does not represent a thorough cost estimate based on design of the proposed trail.

Appendix H – Draft Report Feedback

This appendix contains feedback from interview participants and interested parties on the draft report. The feedback was collected by email and by phone, and are listed in the order that they were received below. Actions in response to the feedback are also noted below.

- **Alex Bernhard**, Northern Rail Trail (comment received by email, 6/5/2019)
  - Comment: "Good report. Unfortunately, based on my experience, NHDOT is narrowly focused on the transportation value of the line. For either trail option to succeed there would have to be concentrated and sustained political effort."
    - Follow-up: No action.
- **Steve Barrall**, Strasburg Railroad (comment received by email, 6/6/2019)
  - Comment: "Thank you for sharing the Laconia report for review. Craig Lefever is on indefinite medical leave; however, the report's reference to our March conversation is consistent with our discussion at that time. I don't have anything further to add."
    - Follow-up: No action.
- **Dick Bordwell**, Long Bay Homeowners Association (comments received by email, 6/10/2019)
  - Comment: "First let me compliment Alta on a very comprehensive study that raises many concerns and challenges for the WOW Trail and the expansion plans tied to it. Second, thank you for your opportunity to review the comments taken from the feedback I had provided Alta to specific questions."
    - Follow-up: No action.
  - Comment: "Because this was a response to the specific questions it actually left out our primary concern we have for a WOW Trail along the proposed ROW. That primary concern is Safety: The proposed route for the WOW Trail through Long Bay and its sister Association South Down, using the existing Railroad ROW, creates an alarming safety issue for our two communities. Any trail through the ROW will have competing uses that are in direct competition with one another. In one direction you will have over 650 homeowners along with their families and friends crossing the tracks daily to get to 80% of the amenities that exist on the other sides of the tracks. These are walkers, bikers, and golf cart riders that travel to beaches, clubhouses, picnic areas, boats, docks, moorings, tennis courts and other amenities. The proponents of the WOW Trail have proposed an estimated 150,000 trail users annually will use that same ROW that travel by bike and by foot. This new competing traffic will travel right through the normal traffic flow that has existed for over 32 years, and there are no planned controls for this new traffic pattern. This will happen in 6 different locations just in these two communities. The danger to owners and trail users are significant. The homeowners that include both elderly and children are now unprotected from serious injury from bikers that are not used to stopping. At the same time the unsuspecting trail users that are not used to traffic patterns that conflict with theirs, will be subject to injuring others or injuring themselves. The proposed route has never given thought to the issue that is created by uncontrolled access."
    - Follow-up: In 'Section 6.4: Adjacent Property Owner Concerns', we have moved the bullet points noting safety issues to the top of list to represent it as a primary concern of the Long Bay Homeowners Association.

        - Follow-up: Added new bullet point: "Pedestrians and bicyclists on a pathway might lead to cross-traffic conflicts with adjacent homeowners accessing the waterfront if access points are not controlled."
- **Paul Yorkis**, Patriot Real Estate, Inc. (comments received by email, 6/10/2019)
    - Comment: "Thank you for the opportunity to comment and to talk with you by phone. My standing in this matter: My wife and I own three pieces of rail equipment located on live track in Lincoln, NH. My wife and I have been associated with the Hobo Railroad from its second year of operation to the current time. My wife and I spend numerous weekends and weekdays in Lincoln, NH making purchases of materials that are used to restore and maintain our railroad equipment. We have hired New Hampshire craftspersons to assist us in the restoration of our equipment. In addition each year we extended invitations to family and friends from across New England to join us for weekend trips riding in our restored Boston & Maine Railroad caboose. These visitors make purchases in New Hampshire of meals, fuel, and gifts, often visit related White Mountain attractions and stay in hotels."
        - Follow-up: No action.
    - Comment: "My comments regarding the proposed alternative that would result in the removal of railroad track: 1. If the proposal to remove the rails is approved by the State of New Hampshire we will relocate our equipment out of New Hampshire and will not return the equipment. We will invest our time and money working to restore and operate our equipment in a rail friendly environment. Our expenditures and the expenditures of our guests will be terminated. 2. The study seems to focus on one portion of the state not the total length of the rail line and I believe that has led to a flawed analysis. No person today can accurately predict future transportation needs in the lakes region and white mountain region because we do not know what technologies may be developed that would result in employment increases in the entire region. Hotel room count in the White Mountain Region is steadily increasing and results in an increase of visitors looking for activities. The cooperative marketing programs linking the railroad with the SS Mount Washington helps both the lakes region and the White Mountain Region attractions.
        - Follow-up: For clarification, while the study corridor goes from Franklin to Weirs Beach, impacts to businesses that operate along the corridor (even if they are based outside of Belknap County) are within the scope of the analysis. For example, the impacts to all of NES Railroad's operations based on the proposed alternatives to the study corridor are included in the analysis even though NES Railroad's operations extend outside of the study corridor and Belknap County. Similarly, we would like to include the impacts to P&L Railroad's full operations, including impacts to the refurbishment shop in Lincoln. Currently, the impacts on the refurbishment shop are noted as an "unknown cost". As discussed previously, if you are able to provide verifiable data on the operations at the refurbishment shop, we will update the analysis accordingly.
    - Comment: "3. It is my understanding that tourism is one of the most important engines of the New Hampshire economy. Harming one aspect of the tourism industry to expand another aspect is simply foolish. My Comments regarding the creation of a shared right of way: 1. Preserving and maintaining the railroad right of way is critical not just for the current rail users but for the long term transportation needs that today are unknown. 2. The railroad right of way is shared today when rail operations shut down for the winter and snow machines use the right of way in the winter. 3. Safely separating the bikers, hikers, walkers, and joggers from the rail right of way is critical for safety of all persons. 4. Developing a plan

that is not an "us" and "them" plan but a "we" plan for the long term benefit of all current and future users seems to me to be the best outcome. Many thanks for providing me this opportunity.
    - Follow-up: No action.
- **Peter Dearness**, NES Railroad (comments received by phone, 6/19/2019)
    - Comment: Because the focus of the study is on the White Mountain branch line, page 13 should show a decline in cars per year from 300-400 to 100-200. Overall decline in rail traffic may be attributable to decline in coal train traffic.
        - Follow-up: Changed "In a stakeholder interview, the owner of NES Railroad reports that the frequency of their freight service has declined over the past few decades from approximately 2,000 cars/year to 200-300 cars/year…" to "In feedback on the draft report, the owner of NES Railroad reports that the frequency of their freight service on the White Mountain Branch has declined over the past few decades from approximately 300-400 cars/year to 100-200 cars/year…"
    - Comment: On page 13, NES is expecting 4-5 locomotives and/or rail passenger cars.
        - Follow-up: Changed "The railroad anticipates transporting four (4) to five (5) locomotives in 2019…" to "The railroad anticipates transporting four (4) to five (5) locomotives and/or rail passenger cars in 2019."
    - Comment: On page 13, NES is anticipating 2-3 trains per week in 2020 and 2021.
        - Follow-up: Changed "…and additional opportunities for expanded service are dependent on two new potential project partners (such as the "Northern Pass Project" and which could generate an additional 1 train/week in 2020 or other ongoing talks with potential future customers that generate a total of three trains/week in 2020)." to "Additional opportunities for expanded service are dependent on new potential project partners, which NES Railroad anticipates could generate an additional two (2) to three (3) trains per week in 2020 and 2021."
    - Comment: NES is the fourth operator along the White Mountain branch.
        - Follow-up: No action.
    - Comment: It would not be possible for the P&L Shop to relocate because the type of work couldn't be done at another shop.
        - Follow-up: No action.
    - Comment: Mr. Dearness accredits increased revenue to scenic rail trips between Lakeport and Weirs Beach.
        - Follow-up: No action.
    - Comment: The additional space provided by the two-track right of way would not be available along the causeways.
        - Follow-up: No action.
- **Capt. Jeff Monroe**, WM&A Rail Equipment (comments received by email, 6/19/2019)
    - Comment: "I have taken the opportunity to review the Proposed Rail-Trail Economic Study issued in draft on May 29, 2019. I am very familiar with these studies both as a client and transportation systems senior consultant for a major consulting firm. I also note that I own rail equipment dependent upon the rail line that extends to Concord. This is also the case with the maintenance shops of the P&L Railroad in Lincoln on whom I depend. My earlier concerns were detailed in my letter of 5 December 2018 which was included in the draft report."
        - Follow-up: No action.

- Comment: "I have two major issues related to the draft. First, it was not as broad based as a study of this significance should be regarding the alteration or potential discontinuance of an active rail line. Second, I was concerned about some of the data and related assumptions made in the report. For the purpose of expedience, I will present some of these concerns with the report in a summarized form: 1. Existing Similar Project Impacts - The study did not take into account the extended experience of communities that already have existing rail-trails or trails on former rail lines. For example, New Hampshire data such as the trail from Woodsville to Littleton would have been more relevant than trails outside of the region in populated areas that are not in many cases comparative to the study area."
    - Follow-up: 'Section 7.1: Bicycle & Pedestrian Trip Activity' includes a list of comparable trail facilities that helped inform the trail usage estimates. The comparable trails include rail-with-trail and rail-to-trail facilities in the northeast (New Hampshire, Vermont, Rhode Island, Maine, Massachusetts, New Jersey, and Pennsylvania). Among the list of comparable trails in 'Table 2: Comparable Rail-to-Trail Projects' is the Ammonoosuc Rail Trail, which runs between Woodsville and Littleton in Grafton County, NH.
- Comment: "2. Usage Demographics - The study area is very attractive for visitors, but not all visitors who might enjoy the experience of the region are mobile enough to enjoy a long walk or bicycle trip along a new scenic trail. An advantage of the tourist railroad is that visitors who have physical limitations including elderly, young children and the physically challenged don't have access to many of the scenic areas except by other means such as a ride in a rail car. The area hosts bus traffic, but this could increase if there were no tourism alternatives. There was no effort to look at the demographics of who use tourism railroads, particularly those operated by the P&L."
    - Follow-up: Intercept surveys of existing scenic rail, bus tour, and trail users could provide additional insights into how tourism demographics vary by user. However, completion of intercept surveys was outside the scope of this analysis.
- Comment: "3. Freight Decline - The study correctly captured the decline in freight but failed to focus on the other access requirements that the rail line addresses. This includes a resurgence of development that could provide additional revenue freight for the railroad as an alternative to trucks. Rail cars carry three times the capacity of a truck and rail moves reduce overall highway and secondary road maintenance particularly when higher volumes of materials are involved."
    - Follow-up: Rail does provide more energy efficient long-distance, high volume freight service compared to trucking. However, to complete the economic analysis requires factors outside of the study parameters being held constant, as noted in 'Section 1.3: Limitations'. While future changes in technology and industry may change demand for freight rail in Belknap County (positively or negatively), this analysis assumes continuation of existing levels of demand.
- Comment: "4. Lincoln Shops - The study did not fully regard the business handled in the Lincoln Shops stating that other shops in the region might take on that business. Does the study assume that the skilled personnel who handled railcar maintenance, repair and refurbishment in this specialized field and depend on employment in the Lincoln area could find meaningful full time employment as tour guides or ice cream vendors? The critical work done at the Lincoln Shops, on which I depend, would be eliminated along with my access to the national rail system. There was no mention of new employment opportunities for those skilled personnel or compensating the equipment owners for lost employment or asset value. In relation to this work handled elsewhere-where specifically?

What firms have expertise in vintage rail equipment and shop capacity? These were not explored."

- Follow-up: P&L declined the option to provide verifiable revenue and employment data on shop activities. While we note the economic multiplier impact that rail operations have on the local economy in 'Section 10.5: Economic Costs', we also note that without verifiable data we have to include any potential decline in the P&L shop's activity as an "undetermined" cost. We make no assumptions about shifts in the fields of the existing employed population if the P&L shop were to experience changes in their number and type of employees. An interview with another firm with equipment at the P&L shop has made note that other maintenance, repair, and refurbishment vendors are available in the northeast to which they would relocate their equipment if the P&L shop was no longer available. However, because verifiable revenue and employment data was not available on the P&L shop, we make no assumptions or estimates about how the customer base would react to a change in availability of the shop services.

- Comment: "5. Data Sources - In looking at the footnote references, there were a number of high level studies related to bicycle paths, trails and other similar projects that while contain a lot of information, may not be directly related to the study at hand. It is given that there is not a large amount of current study work available and very little follow-up study work that quantifies the assumptions made in initial project planning. Since the amount of published work is limited, this requires additional diligence in regard to making quantified assumptions. This would be best developed by looking at similar communities where rail-trail projects have taken place and what have been the long term benefits. That being said, most projects have involved the development of unused rail corridors into trails which limits available information. There is very little in regards to the elimination of an active rail line and its replacement by a trail that is available except for corresponding economic studies in general context. The data assumptions are at times questionable because there is no comparative context and estimates are just that, and are often wrong."
  - Follow-up: The referenced studies showing the economic impacts of trails/greenways in the report rely heavily on quantified impacts measured after implementation of the trails/ greenways. For more information on comparable trails with completed economic studies, see 'Section 7.1: Bicycle & Pedestrian Trip Activity', such as the American Tobacco Trail, D&L Trail, Virginia Creeper Trail, and Mohawk-Hudson Bike-Hike Trail. Only one study to which we are aware included an analysis of replacing an active rail line with a rail-trail project : "Highest and Best Use Recommendations, U&D Railroad Corridor" (2015). While there are some similarities in scopes between the two analyses, the 2015 report more on a segment-by-segment discussion about the feasibility of scenic rail and trail operations along the study corridor.
- Comment: "Physical Limitations of Rail Corridor Infrastructure - The study points out some areas in the corridor that were constrained by infrastructure (narrow bridge openings) and where users might have to go over structures and onto public road if the rails were to stay in place. These impediments are not fatal flaws and are present in many, if not most, projects."
  - Follow-up: For Alternative B (Rail-with-Trail), the report notes segments along the alignment that may require on-street pedestrian and bicycle facilities. These on-street facilities are captured in the cost estimates. However, as noted in 'Section 1.1: Background', no detailed feasibility analysis has been conducted for either alternative, so the estimated on-street facility needs are only preliminary.
- Comment: "7. Assumptions - On Page 43 is the following statement: This analysis assumes that potential reductions in ridership from removal of the Lakeport-Weirs Beach rail

corridor would be offset by increased visitor traffic to the area generated by the proposed rail-to-trail……This is a far reaching and inaccurate assumption. Trails are numerous throughout the region, tourist rail is not. Choices for hikers and bikers are also numerous. Like the tour boats on the lake, tourism rail is part of the fabric of the overall attractiveness of the region. A more in-depth review of tourism profiles would have been appropriate. To assume an offset is more subjective than accurate, even with high level data available."

        - Follow-up: Scenic railroad usage estimates in 'Section 7.3' are based on discussions with other scenic rail operators about the importance of foot traffic near the scenic rail corridor and the availability of additional recreation opportunities in the area. As noted in 'Section 1.3: Study Limitations', it is not possible to accurately forecast the exact impacts of the study alternatives. Accordingly, estimates with a high degree of uncertainty associated with them are expressed as ranges, and all estimated values are rounded and should be considered rough order of magnitude estimates instead of precise amounts.
    - Comment: "CONCLUSION: Having completed numerous quality assurance/quality control reviews for the firms I work with, I would rate the study presented in draft from as generally incomplete. I question some of the data sources used as well as the eventual conclusions reached. I recognize that budget and time were no doubt constraints and I hope the outcome was not predetermined by the client. I have read a great deal about the efforts here, spoken with the host railroad and having been involved with similar projects, my professional opinion is that a rail-with-trail corridor would more than adequately meet the objectives of the railroad and the trail advocates working in conjunction with the State of New Hampshire as well as the Federal Railroad Administration (FRA). There is a well-tested middle ground that can be reached that preserves the importance of the industrial rail capabilities of the P&L, allows the tourism component of the railroad to remain viable, particularly serving elderly, young families and physically challenged persons, as well as those who find vintage tourism rail attractive (particularly on cold and rainy days), yet provide a venue for the physically able to walk and bike in a comfortable, safe and scenic environment. On a final note, given my dependence on the P&L industrial shops in Lincoln, and their dependence on a connecting rail corridor, I would strongly oppose any abandonment of the rail before the Surface Transportation Board (STB), which as the report correctly points out, is a required part of the process. Thank you for your consideration of these comments."
        - Follow-up: No action.
- **Benjamin Clark**, P&L Railroad, comments received by email, 6/21/2019)
    - Comment: "The following information, with attached companion document, is provided in harmony with your request. These clarifications and corrections should be carefully reviewed and for purposes of accuracy, incorporated as part of a rewritten report-- not just included as part of an appendix. For many months, I have worked tirelessly to express significant concerns regarding this study's approach, both by telephone and via email. Upon reading your draft document, I was troubled in that much of my information was not fully incorporated as part of the study. As such, I would strongly advise you against purposefully excluding this information, or knowingly and willingly including information I have advised you is not supported by the facts. Doing so will certainly cloud the integrity of this entire process."
        - Follow-up: No action.
    - Comment: "In addition to the clarifications and corrections attached, I implore you to consider the following: 1. Scope of Study: The study limits its scope to Belknap County. While this may be appropriate in studying the effects of a trail on the residents of the immediate surrounding area and the local micro economy, the narrow scope does not accurately capture the true effect of the railroad along its length. Railroads have a unique

geographic impact, and any interference along a stretch of line, however short, can interrupt service and impact the entire length of the railroad. Confining the analysis to only a portion of the affected rail line severely diminishes the magnitude of effects, positive or negative, rendering the analysis inaccurate. This is especially apparent when the report discusses the 'Rail-to-Trail' option."

    - Follow-up: For clarification, while the study corridor goes from Franklin to Weirs Beach, impacts to businesses that operate along the corridor (even if they are based outside of Belknap County) are within the scope of the analysis. For example, the impacts to all of NES Railroad's operations based on the proposed alternatives to the study corridor are included in the analysis even though NES Railroad's operations extend outside of the study corridor and Belknap County. Similarly, we would like to include the impacts to P&L Railroad's full operations, including impacts to the refurbishment shop in Lincoln. Currently, the impacts on the refurbishment shop are noted as an "unknown cost". As discussed previously, if you are able to provide verifiable data on the operations at the refurbishment shop, we will update the analysis accordingly.

- Comment: "In Table 14, the study estimates the scenic rail ridership, and predicts that ridership will increase significantly if the proposed portion of the rail is converted to trail. This completely ignores the economic reality that severing the rail would without doubt eliminate the scenic operator: if a central portion of the rail line is discontinued, operations north and south are stranded, and the scenic rail will not generate enough income to continue operations. This is true not only for the scenic rail, but for rail repair and transport businesses north and south of the proposed project area. The economic impact of an activity in one section of the rail ripples to businesses operating along its entire length. By focusing only on Belknap County, the study excludes the severely negative impact that abandoning the railroad would have on the substantial portions of the rail line that lie outside the county."
    - Follow-up: Scenic railroad usage estimates in 'Section 7.3' are based on discussions with other scenic rail operators about the importance of foot traffic near the scenic rail corridor and the availability of additional recreation opportunities in the area. P&L declined the option to provide verifiable revenue and employment data on shop activities. In 'Section 10.5: Economic Costs' we note that without verifiable data we have to include any potential decline in the P&L shop's activity as an "undetermined" cost. If additional verifiable information was made available regarding the importance of the shop operations on P&L's ability to provide scenic rail service, we will adjust the estimates in the report accordingly. Without verifiable information, we can only note that P&L has reported that they will not be able to continue scenic rail operations without continued shop operations (see 'Section 5.3: Alternative C: Rail-to-Trail').
- Comment: "Surface Transportation Board Abandonment Process: The complexity of the rail abandonment process before the Surface Transportation Board is one of the most significant impediments to the rail to trail option, and one that has not been evaluated with appropriate detail in your report. Put simply, the Surface Transportation Board must authorize the abandonment of the rail line in order for the City of Laconia to take possession, remove the rail line, and build a rail trail. A mere Petition for Abandonment costs upwards of $15,000 in application and legal fees, and that assumes the abandonment is unopposed. In this case, it is a virtual certainty that the petition will be opposed, driving up the legal costs for the City of Laconia and others, to the hundreds of thousands of dollars. Yet, the study addresses this extensive process in a mere three paragraphs, devoting not even one page of the 111-page report. Doing so ignores the predictable and high costs of even attempting to obtain federal approval for the

abandonment, and ignores the likelihood that the attempt will be unsuccessful. Ignoring this significant component skews the entire economic analysis and results in a false impression of the cost of the rail-to-trail alternative."

- Follow-up: Noting the unprecedented procedural process necessary for an active rail corridor to be replaced by a trail corridor is important contextual information for understanding the hurdles that would need to be overcome before real consideration of a rail-to-trail alternative could be considered. This major hurdle is highlighted in a red call-out box on the first page of the report, and we believe that 'Section 5.3: Alternative C: Rail-to-Trail' succinctly captures the necessary information for understanding the STB process within the context of the report. The focus of the report is to analyze the potential publicly-accruing economic impacts to residents of Belknap County. The City of Laconia has given no indication that they would finance any legislative lobbying effort, so the costs of that effort (even if they could be estimated with a reasonable level of uncertainty) would not be a cost borne by the public in Belknap County and is, therefore, outside of the scope of the analysis.

- Comment: "Use of Qualifier Language: The study contains language that subtly undermines the concerns over the negative effects of the trail and its impact on the railroad. Words like "likely," "potential" and "may" and phrases like "existing rail operators report that" lessen the impact of the project and discredit the testimony and answers provided by railroad stakeholders. It appears that the authors of the study, instead of verifying the information, simply presented that stakeholders "reported" a certain number of workers, or the impact on their businesses, which serve to discredit, or at least call into question, the very real economic impact the railroad has throughout its corridor. We think the selective use of this language results in a biased report that clearly favors the construction of a trail and blurs the negative impacts, especially regarding the existing rail industry in the area."
  - Follow-up: Providing verifiable data to support claims made during the interview process is preferable to noting an unverified positional claim. As communicated previously by phone, the underwriters of the report have offered to pay for a third-party audit to verify any provided information, and they would be willing to work with a data provider to ensure the confidentially of the source information. As is their right, P&L has declined the option to provide verifiable data or to engage in a third-party audit. If P&L does choose to provide verifiable data or to engage in a third-party audit for data that is not publicly available, the analysis will be updated accordingly. Without that verification, the use of qualifier language is necessary to highlight that the information represents a positional claim and to make clear an appropriate level of uncertainty associated with the claim. The use of qualifier language is applied consistently throughout the draft report, including unverified claims from the WOW Trail Committee, such as the claims regarding the potential for easements along the study corridor or the suggestion that the "existing two-hour scenic rail service could be maintained under Alternative C by extending the service north of Meredith."
- Comment: "The section addressing public safety concerns, both current and predicted with a trail, seems contrary to the anecdotal evidence we have heard thus far. The study only gives statistics about "serious crime," which we understand does not include drug and alcohol use. Based on the City of Laconia's police logs however, these are a major concern relative to the current trail. Additionally, this study references several studies showing rail trails do not pose a risk to public safety, but those studies are from incomparable regions that predate or simply do not have the opioid crisis that is present in New Hampshire."

        - Follow-up: As part of the interview process for the study, Capt. Richard Mann of the Belmont Police Department and Lt. Rich Simmons of the Laconia Police Department were interviewed, and 'Section 6.5: Safety & Security' reflects their feedback on the safety conditions along the existing trail facilities. The police officers did not that they respond to calls regarding found syringes and encampments along the existing trail, and these reports are documented in the police logs. The interviewed police officers did not that issues were identified at other locations prior to completion of the trail project and that they do not believe they are directly related to the trail. Alcohol use along the trail was not identified by the police officers in the interview process, and only one incident in which an intoxicated subject on the trail was taken into police custody was identified in the police logs between 2016 and 2018. The studies included in 'Section 6.5: Safety & Security' include crime statistics for trails in Pennsylvania, Maryland, North Carolina, Massachusetts, Indiana, Colorado, and Washington. In addition, the cited FHWA trail study included a large number of trails around the country, including trails in the northeastern United States. While drug overdoses were an issue at the time of completion of these studies, it is correct to state that there has been a large increase in issues related to opioid use in New Hampshire over the last 10 years. Similarly, there has been a large increase in issues related to opioid use at some of the locations included in the study, such as Maryland and Massachusetts, which show comparable opioid-involved overdose death rates per 100,000 people as New Hampshire according to the National Institute on Drug Abuse (2017).
    - Comment: "Fencing/Rail-Trail Separation Issue: The fencing and rail-trail separation issue, including possible alternatives, is not adequately addressed in this report. The fencing estimate (see page 107) does not appear to be delineated as a standalone cost item. Other major costs, such as those associated with construction of retaining walls, are not readily transparent. Because a comprehensive trail design has not been provided in this report, it is not possible for the stakeholders to offer valuable input relative to this matter."
        - Follow-up: Planning-level cost estimates are included in 'Appendix G: Cost Estimates'. The cost estimates for Alternative B (Rail-with-Trail) are based on linear foot construction costs for Phase II of the WOW Trail and includes the constructed fencing. Cost estimates for retaining walls are also shown in detail in the appendix.
    - Comment: "1.1 Background - Background information is inaccurate. Incorrect mileage and stated purpose of the rail line. This rail corridor is actually more active today than it was in the late 1960's, 1970's or early 1980's due to the addition of tourist railroad and dinner train traffic to augment existing freight rail operations."
        - Follow-up: In 'Section 1.1: Background', changed "However, total rail activity has declined over the last two decades in concert with an overall decline in industrial activity in the region…" to "However, freight rail activity has declined over the last two decades in concert with an overall decline in industrial activity in the region…"
    - Comment: "4.2 Scenic Rail Services - The railroad does not *'provide train – to – buffer dinner service.'"*
        - Follow-up: Corrected typo from "buffer" to "buffet".
    - Comment: "5.3 Alternative C: Rail-to-Trail – *'Discontinuance of sections of the existing, active rail corridor between Tilton and Weirs Beach would likely have a detrimental impact on the existing rail operators that use the corridor.'* 1) As previously communicated several times, removal of the railroad, or a portion thereof, will put our company out of business and result in major economic losses to tourism in New Hampshire. Economies of scale are required to keep the "three legs" of our railroad stool upright (Hobo Railroad,

Winnipesaukee Scenic Railroad and Plymouth & Lincoln Railroad Shop Services). If one 'leg of the stool' is dislodged, all will topple."

- Follow-up: Scenic railroad usage estimates in 'Section 7.3' are based on discussions with other scenic rail operators about the importance of foot traffic near the scenic rail corridor and the availability of additional recreation opportunities in the area. P&L declined the option to provide verifiable revenue and employment data on shop activities. In 'Section 10.5: Economic Costs' we note that without verifiable data we have to include any potential decline in the P&L shop's activity as an "undetermined" cost. If additional verifiable information was made available regarding the importance of the shop operations on P&L's ability to provide scenic rail service, we will adjust the estimates in the report accordingly. Without verifiable information, we can only note that P&L has reported that they will not be able to continue scenic rail operations without continued shop operations (see 'Section 5.3: Alternative C: Rail-to-Trail').

- Comment: "2) Removal of the rail line south of Weirs Beach will disconnect us from our privately owned railroad station in downtown Laconia. There is no "alternate route" for access if the rails are pulled and significant economic losses will result, as well as loss of utility of this historic asset. Additionally, the value of industrial properties along the entire length of the railroad will be negatively impacted if rail transportation will no longer be available."
  - Follow-up: Can you elaborate on the importance of continued rail access to the historic Laconia Passenger Station? Does an existing train stop at the station or are any goods or passengers transported to the station by rail?
  - Response: Continued rail access to downtown Laconia is very important, which is why we purchased and restored the center section of the historic Laconia Railroad Station. We have successfully staged a variety of special excursions from this location in the past, and look forward to considerable opportunities for train service to the Colonial Theater, once it is finally restored. We envision the train providing value added experiences to guests as a "connector" for passengers utilizing satellite parking lots, as well as the possibility of marketing dinner/theater packages. The long delayed theater restoration project finally appears to be gaining traction, and like the railroad itself, will be a historical link helping to shape the future of the city.
  - Follow-up: As noted in 'Section 1.3: Study Limitations', one of the necessary assumptions used for cost-benefit analyses is the assumption of "all other things held equal". This assumption is necessary to isolate the impacts of the proposed alternatives from the many potential future opportunities that may exist. If we can demonstrate that the theater operation is guaranteed to take place and dependent on its connection to the continued rail (even if the connection is only marginal) or if we can document the number of passengers that on special excursions that access the historic station by rail, we'll be able to include those within the report.
- Comment: "3) Our locomotive and railcar repair facility in Lincoln is a completely rail dependent business. If rail access is severed-- even for a few miles-- the shop will no longer be able to operate competitively due to the added costs of transportation, cranes/rigging and added labor to facilitate movement of inbound and outbound equipment. Additionally, certain rail equipment is simply too large and/or heavy to be transported via public roads, thus limiting potential future projects. 4) Nearly 75 pieces of rail equipment located north of Laconia, representing several million dollars of invested capital, will be landlocked if the existing rail infrastructure is compromised. Said equipment will be greatly devalued due to the lack of connectivity to the national rail

network. 5) The railroad currently leases a variety of locomotives and railcars from owners situated as far away as Ohio. Removal of the rails will limit lease options and make end of lease return provisions drastically more expensive. In many instances, it will make such options cost prohibitive-- particularly when calculated on a short-term basis. 6) Bulk materials utilized by the railroad, such as railroad crossties and stone ballast for ongoing maintenance, will be more costly to acquire if delivery by rail is not an available transportation option."

- Follow-up: Added "P&L Railroad reports that discontinuance of sections of the existing, active rail corridor between Tilton and Weirs Beach would have a cascading impact on other components of P&L's business, putting the company out of business." to list included in 'Section 5.3: Alternative C: Rail-to-Trail'. Added footnote to new bullet list item: In correspondence on the draft report, Benjamin Clark of the P&L Railroad stated that "…removal of the railroad, or a portion thereof, will put our company out of business and result in major economic losses to tourism in New Hampshire. Economies of scale are required to keep the "three legs" of our railroad stool upright (Hobo Railroad, Winnipesaukee Scenic Railroad and Plymouth & Lincoln Railroad Shop Services). If one 'leg of the stool' is dislodged, all will topple." Added footnote to first bullet point: "Benjamin Clark of the P&L Railroad stated 'If rail access is severed-- even for a few miles-- the [P&L] shop will no longer be able to operate competitively due to the added costs of transportation, cranes/rigging and added labor to facilitate movement of inbound and outbound equipment. Additionally, certain rail equipment is simply too large and/or heavy to be transported via public roads, thus limiting potential future projects.' P&L Railroad and NES Railroad declined the option to provide verifiable data on existing revenue and employment data outside of data provided by NHDOT."

- Comment: 7) If the rails are pulled, railroad employees will lose their jobs (68 full and part time workers last year). Additionally, the economic multiplier effect of railroad spending will no longer resonate through the larger economy, resulting in lost revenue and benefits to surrounding communities (the railroad helps support 365 vendors as a component of its ongoing business operations).
  - Follow-up: We would like to include the impacts to P&L Railroad's full operations, including impacts to the refurbishment shop in Lincoln. Currently, the impacts on the refurbishment shop are noted as an "unknown cost". As discussed previously, if you are able to provide verifiable data on the operations at the refurbishment shop, we will update the analysis accordingly.
- Comment: "8) The State of New Hampshire and local municipalities will lose an important revenue stream in the form of user fees (roughly $100K per year) if the railroad is forced out of business. In addition, the railroad invests significant private resources into the State of New Hampshire's rail line (over $2 million invested during the past 10 years alone). Benefits to non-profit and civic groups will also be lost if the railroad is shuttered (donations have recently been made to 64 community organizations and over 100 since inception)."
  - Follow-up: NHDOT has provided additional information on what percentage of railroad operator user fees are distributed to local municipalities. We will update the draft report to reflect the potential loss of these fees to the municipalities, consistent with Alternative B and Alternative, as described in the report. The focus of the report is to analyze the potential publicly-accruing economic impacts to residents of Belknap County. With this in mind, investments in railroad infrastructure by a private company that benefits the company or elective donations would not fit this criterion.

- Comment: "9) If the rails are removed, it would represent a sizable loss to historic preservation efforts in New Hampshire and the Lakes Region in particular. The railroad has been part of the economic and social fabric of the region continuously since the 1840's."
    - Follow-up: The negative impact on historic preservation efforts in the Lakes Region are noted in 'Section 10.7: Qualitative Costs'.
- Comment: 10) Environmental benefits of freight and passenger rail will be forever lost if the rails are lifted. The NH Climate Action Plan (2008) specifically calls for the retention of all existing rail corridors for future passenger and freight transportation needs. This is referenced in the 2012 NH State Rail Plan.
    - Follow-up: The 2009 New Hampshire Climate Action Plan lists both the expansion of freight rail service and bicycle/pedestrian infrastructure as Task Force recommendations.
- Comment: 11) Removal of the rails is in violation of State law. See: RSA 228:60-a. 12) Furthermore, the Interstate Commerce Commission Termination Act (ICCTA) preempts state condemnation laws to the extent that it interferes with the provision of common carrier railroad service. Precedent holds that where a party such as a political subdivision undertakes action that prevents a rail shipper from receiving service on reasonable request, those actions are preempted by Federal law. *'In response to concerns expressed in Director Herilhy's letter, Laconia City Council passed a resolution (RES-2018-30) in August 2018 which indicates that if a trail were built along the rail corridor within City limits, that the rail line could be 'reinstated at a future date if it was determined that rail was a better and higher use.'* This railroad corridor is a specialized piece of transportation infrastructure and is protected by both State law (RSA 228:60-a) and Federal law (49 U.S.C 10501-b). RES-2018-30 does not supersede State and Federal transportation policy. As the Federal courts and the Surface Transportation Board have stated repeatedly, where a local regulation conflicts with the rights and obligations contained in the Interstate Commerce Act, Federal law will preempt the local regulation. See 49 U.S.C. 10501(b)(1)."
    - Follow-up: No action.
- Comment: "'*…if a rail operator decides it wants to abandon or discontinue rail service…'* The rail operators (New England Southern Railroad and Plymouth and Lincoln Railroad), are not considering the discontinuance of rail service. Furthermore, even if the rail operators wanted to abandon or discontinue service, the Plymouth and Lincoln Railroad Shops (located on private property and not subject to NHDOT rail operating agreements) would still require common carrier rail service as a shipper. The Interstate Commerce Act provides any person the right to ask for common carrier rail service and carriers the obligation to provide such service upon reasonable request. See 49 U.S.C. 11101."
    - Follow-up: To make this position clear, the following statement has been added to 'Section 5.3: Alternative C: Rail-to-Trail': "Neither P&L Railroad or NES Railroad are considering discontinuance of rail service along the study corridor."
- Comment: "5.4 Additional Considerations – *'Mr. Clark noted that the rail corridor was originally designed with an offset to accommodate a second track that was never built. He expressed and openness to re-aligning the existing rail corroder to allow more room for a trail.'* Although Mr. Clark rightfully indicated that the corridor could potentially allow for re-alignment, this decision would need to be approved by the property owner, NHDOT Bureau of Rail and Transit and paid for by parties exclusive of the railroad."
    - Follow-up: Changed "Mr. Clark noted that the rail corridor was originally designed with an offset to accommodate a second track that was never built. He expressed an openness to re-aligning the existing rail corridor to allow more room for a trail." to "Mr. Clark noted that the rail corridor was originally designed with an offset to accommodate a second track that was never built. He expressed an openness to re-aligning the existing rail corridor to allow more room for a trail but noted that

any such realignment would need to be approved by NHDOT and that P&L Railroad is unwilling to pay for the realignment."

- Comment: "*'In addition, the WOW Trail Committee has suggested that existing two-hour scenic rail service could be maintained under Alternative C by extending the service north of Meredith.'* Based upon nearly 35 years of experience in railroad operations, I can assure you this theory is not supported by the facts. Revenues, facilities, and rail infrastructure would be inadequate to sustain said service. Furthermore, no tangible information is provided in the report to support this claim."
  - Follow-up: The assumptions and method for the scenic trail usage estimates are documented in 'Section 7.3: Scenic Railroad Usage'.
- Comment: "6.1 Mail-Back Survey Response – *'…the WOW Trail Committee sent out 100 surveys to residents abutting the WOW Trail corridor…'* With only 39 completed responses, the Mail-Back Survey is not statistically significant. Due to the limited sample size, credible conclusions cannot be drawn from such a small number of survey responses. Conclusions on support were reached by as few as 11 responses."
  - Follow-up: The mail-back survey may include a representative sample of property owners abutting existing segments of the WOW Trail within a given confidence interval but more information on the total population of property owners abutting the WOW Trail would be needed to make that statement. Because the report authors did not conduct the survey, it is not our role to provide a margin of error to the results. However, for us to include the results of the survey within the report required a review of potential bias in the wording of the questions and to whom the survey was distributed. No such bias was identified. As noted in 'Section 6.1: Mail-back Survey Responses', The WOW Trail Committee sent out 100 mail-back surveys to property owners (including residential and commercial property owners) abutting existing segments of the WOW Trail. 39 of the 100 property owners returned a completed survey. Among the 39 respondents to Question #1 (Overall, how satisfied are you with having the WOW Trail as a neighbor?"), 22 responded that they were "very satisfied" (56%), 9 responded that they were "satisfied" (23%), 5 responded that they were "indifferent" (13%), 3 responded that they were "unsatisfied" (8%), and 0 reported that they were "very unsatisfied" (0%).
- Comment: "6.2 Online Survey Responses - With only 134 valid responses, the online survey is not statistically significant. Due to the limited sample size, credible conclusions cannot be drawn."
  - Follow-up: Showing a margin of error is useful for expressing the level of uncertainty associated with survey results. As noted in 'Section 6.2: Online Survey Responses', the online survey received 156 responses. The report does not claim that the survey includes a representative sample of potential tourists, existing scenic rail users, and existing trail users to Belknap County, and any report making that claim would have to show a reasonable estimate of the total population of these users to generate a confidence interval. That said, targeted advertising for the survey on social media was able to capture scenic rail users that live outside of the study area to provide estimates of local and non-local spending (including 14% from out-of-state) which provides unique insights into tourists preferences and spending habits that were consistent with similar studies.
- Comment: "7.3 Scenic Railroad Usage - *'…reported year-over-year ridership declined steadily…'* The railroad has not experienced year-over-year losses as indicated in the study. Passenger counts actually are increasing. This data greatly impacts the conclusions reached on the value analysis. Because NHDOT user fees are paid based upon ticket revenues generated, certain group tours and children's tickets are accounted for by trip

operated on a lump sum basis, not passengers hauled. In order to determine actual passenger counts, one must refer to the annual Federal Railroad Administration (FRA) reporting. 2018: 63,982[;] 2017: 60,094[;] 2016: 59,720[.] Since assuming operations over portions of the State-owned Concord-Lincoln Line, the railroad has welcomed over 2.1 million guests aboard its trains. *'…an annual operating budget of over $2.1 million (compared to the $1.6 million in average annual revenue included in the NHDOT dataset).'* This statement suggests a discrepancy in total revenues reported to NHDOT. The railroad operating budget includes revenues not subject to the NHDOT user-fee, such as gift shop sales and maintenance projects. As such, a gap would be reasonably expected. Table 13 Scenic Rail Ridership and Revenue - As previously communicated to Kyle James via email on March 6, 2019, this table does not accurately reflect passengers transported or locations served, thus marginalizing the importance of the Weirs Beach to Lakeport track section. *'…loss of the segment of rail was unlikely to have a large impact on the overall attractiveness of the scenic rail service. This analysis assumes that potential reductions in ridership from removal of the Lakeport-Weirs Beach rail corridor would be offset by increased visitor traffic to the area generated by the proposed rail-to-trail, resulting in comparative scenic rail ridership shown for Alternative B. This assumption is based on the relative lack of activity along this stretch of the corridor…'* This assumption is flawed, as the information contained in Table 13 does not accurately reflect passengers transported or locations served, thus marginalizing the importance of the Weirs Beach to Lakeport track section. Furthermore, Weirs Beach to Lakeport is the most scenic portion of any trip we operate and is specifically requested by many passengers/group tours we serve. This was communicated to Kyle James by email on March 6, 2019."

- Follow-up: Can you provide a hyperlink to the Federal Railroad Administration report that shows increasing passenger counts? The FRA freight/passenger operations ten-year overview query system shows the following data for Grafton County: CY 2010 - 57,773, CY 2011 - 53,438, CY 2012 - 56,630, CY 2013 - 60,627, CY 2014 - 62,148, CY 2015 - 63,765, CY 2016 - 59,720, CY 2017 - 60,094, CY 2018 - 63,982. This dataset would suggest an average of approximately 60,000 passengers per year. While it uses NHDOT data, 'Table 13: Scenic Rail Ridership and Revenue' also shows an average of approximately 60,000 passengers per year. In the draft report, we've included a forecast of 65,000 annual passengers per year. For clarification, is your comment requesting that we use the 60,000 figure instead of the 65,000 figure? In addition, FRA passenger counts for 2015 are 63,765 and the ridership values provided by NHDOT for 2015 are 71,045. Your feedback only discussed years 2016 to 2018, and we could use clarification on how group tour and children's ticket lump sum accounting can inflate *and* deflate passenger counts in various years so that we are better able to explain that process in the report.
- Response: "Your report indicates that overall railroad ridership is decreasing and yet, over the past three (3) years, railroad patronage has actually been increasing. This was the language in the report that caught my eye."
- Follow-up: 'Table 13: Scenic Rail Ridership and Revenue' shows the ridership and revenue data provided by NHDOT (source tables are shown in Appendix F, as well). If you are able to provide verifiable data that differs from the data shown in Table 13 or can provide specific corrections to the table with evidence for those corrections, we will update the table and analysis accordingly. Added to 'Section 7.3: Scenic Railroad Usage': "Federal Railroad Administration passenger counts for Grafton County show a fluctuation between approximately 53,000 to 64,000 annual passengers between 2010 and 2018, with an average of approximately 60,000 passengers per year." We've added the following footnote to 'Table 13:

Scenic Rail Ridership and Revenue': "P&L Railroad reports that the values shown in the table exclude some revenues that are not subject to the NHDOT user-fee, such as gift shop sales and maintenance projects."

- Follow-up: If 'Table 13: Scenic Rail Ridership and Revenue' does not accurately reflect passengers transported or locations served, can you describe how the NHDOT is inaccurate and provide more accurate and verifiable segment-by-segment data so that we can include it in the final report? Without additional source data for segment-by-segment scenic rail trips, we'll have to continue to use the data provided by NHDOT.
- Response: "Table 13 does not properly tabulate actual conditions. I wanted to bring this to your attention for accuracy purposes, as I believe others have made similar observations (your report shows no revenues or ridership from Weirs Beach at all during 2016 and 2017 as an example)."
- Follow-up: 'Table 13: Scenic Rail Ridership and Revenue' shows the ridership and revenue data provided by NHDOT (source tables are shown in Appendix F, as well). If you are able to provide verifiable data that differs from the data shown in Table 13 or can provide specific corrections to the table with evidence for those corrections, we will update the table and analysis accordingly. We will include the 2010 to 2018 passenger counts from FRA within the report as a complement to the NHDOT ridership data included in 'Table 13: Scenic Rail Ridership and Revenue', as well as a description of the FRA data. If verifiable segment-by-segment passenger counts that differ from the data provided by NHDOT is available, we would also welcome their inclusion within the report. Per our previous follow-up question, it would be particularly helpful to know how the ridership figures that P&L reported to NHDOT which were based on lump sum trips instead of passenger counts could undercount actual passengers one year and overcount actual passengers another year. Being able to explain this discrepancy in the two datasets would be helpful.

- Comment: "Table 14 Estimated Future Scenic Rail Ridership - *'…assumes the construction of Alternative B would help increase scenic rail patronage by an average 10% per year.'* This assumption is not supported by the facts contained in this report."
  - Follow-up: Baseline scenic railroad usage estimates are based on the ridership data provided by NHDOT. Scenic railroad usage estimates in 'Section 7.3' are based on discussions with other scenic rail operators about the importance of foot traffic near the scenic rail corridor and the availability of additional recreation opportunities in the area. If P&L can provide more accurate and verifiable passenger counts by segment, we will update the estimates accordingly.
- Comment: "8.2 Scenic Rail-related Spending - Table 17 shows that non-local scenic rail customers spent an average of $152 per person per trip. With only 33 valid responses, this limited sample size cannot be used to draw credible conclusions. A 2019 Excursion Railroad Economic Impact Analysis completed by Stone Consulting Inc., indicated the Hobo & Winnipesaukee Scenic Railroad provides and overall economic impact to the area of more than $17.4 million dollars annually. Visitor spending, including economic activity resulting from overnight accommodations, was derived from 541 visitor surveys completed by railroad guests during the 2018 operating season. This process resulted in a confidence factor of 95%, with a 4.2% margin of error in statistical analysis. Stone Consulting's research concluded: 61% of the railroad's guests reside outside of NH, resulting in $8.8 million in additional visitor spending while traveling. 44% of the railroad's guests incorporated an overnight stay as part of their trip, resulting in $4.4 million of economic benefit to the local lodging community. The railroad is a proven, state-wide destination attraction documented by purchased tickets and cannot be measured strictly

against local benefits and potential impacts. Your survey reach of local residents and their spending, did not correlate to the actual ridership of the railroad, which is primarily out of state, and national in draw. Overall railroad impacts are significant and include: purchasing, employment and support to the regional tourism and lodging industry as a state-wide participant, true to its function operating on a state-owned corridor."

- Follow-up: Can you provide a copy of the 2019 *Excursion Railroad Economic Impact Analysis* that you referenced in your feedback? If we can evaluate the inputs and methods used for the analysis, then we'll be able to incorporate the findings of Stone Consulting, Inc. that fit into a cost-benefit analysis framework (as opposed to an economic impact analysis framework) into the final report. In particular, we would need to know how scenic rail users were surveyed, the population of tourists that the author used to determine their confidence intervals and margins of error, and the underlying data supporting vendor operations (such as verifiable revenue data for P&L by operational component).
- Response: "If you like, I can certainly provide you with a copy of the Executive Summary from the Stone Consulting report, as it does not contain confidential and privileged information. As an aside, Stone actually focused as much on our spending with vendors (to facilitate railroad operations) as they did our revenues-- revenue and spending are two different things. This appears to have been largely overlooked in your analysis."
- Follow-up: If you are able to provide a copy of the report from Stone Consulting and it is in a format that allows us to verify the information within it, we will update the report for the City of Laconia accordingly to reconcile any discrepancies identified. The analysis differentiates between revenue and spending (see 'Section 8.1: Trail-related Spending' and 'Section 8.2: Scenic Rail-related Spending' for more information on how spending is incorporated into cost-benefit analyses). 'Section 10.5: Economic Costs' shows how we would incorporate impacts to scenic rail-related vendors through RIMS II economic multiplier data from the US Bureau of Economic Analysis if additional, verifiable data on scenic rail operations were made available. Until that data is made available, the impacts will be noted as an "unknown cost".
- Update: Stone Consulting repot not shared as of 7/8/2019.

- Comment: "I should also echo the comments of others in respect to what should constitute a "comparable trail". The Washington and Old Dominion Trail in particular, does not seem to be a good comparison. Unlike many other areas of the country, winter comes early to New Hampshire and has a tendency to stay late-- not to mention differences in population densities. This skews the entire narrative unfortunately."
  - Follow-up: The comparative trails listed in 'Table 10: Estimated Comparative Trail User Trips' were carefully selected to show a range of trail types that also had verifiable annual user trip counts. We have received comments that the comparative trails represent too aggressive and not aggressive enough examples of what the proposed alternatives along the study corridor might become. We use an internal weighting scheme to make sure that the trails with surrounding population and mode spilt conditions that are more similar to the study corridor are weighted more heavily than those that are less similar. Based on your comment and those received from others, we will make it more clear that this weighting scheme is in place.
- Comment: "9.3 Analysis Periods & Residual Values - Spending budgets by the railroad and the employment generated from this spending were omitted from this report. The railroad purchases goods and services from 365 vendors to support operations; 203 of these businesses are based in NH. Stone Consulting determined that 380 equivalent full

time jobs have been created as a result of railroad operations in the region. *'…the selected analysis period for this cost-benefit is 20 years.'* Because the railroad's overall economic impact has not been properly tabulated in this report, the conclusions reached in the cost benefit analysis are inherently flawed."

- Follow-up:

- Comment: "10.2 Maintenance Costs – *'Because these maintenance and operation costs are borne by a private entity and do not represent a cost to Belknap County residents, they are excluded from the cost-benefit analysis framework.'* Railroad user fees paid to NHDOT and annual railroad maintenance contributions should be subject to analysis in this report. A portion of the approximately $100,000 paid to NHDOT each year, is returned to local communities along the line annually. Furthermore, the railroad's annual maintenance contribution (typically over $150,000) helps preserve rail service over 55.2 miles of track through central and northern NH. Table 22 Undiscounted and Unadjusted Estimated Maintenance Costs - The maintenance costs outlined in Table 22 are incomplete. The railroad currently absorbs many of the costs pertaining to infrastructure maintenance including drainage, culverts, and vegetation control. If the rails were removed, as contemplated by Alternative C, these costs would need to be shouldered at great expense by others."
  - Follow-up: NHDOT has provided additional information on what percentage of railroad operator user fees are distributed to local municipalities. We will update the draft report to reflect the potential loss of these fees to the municipalities, consistent with Alternative B and Alternative, as described in the report. The focus of the report is to analyze the potential publicly-accruing economic impacts to residents of Belknap County. With this in mind, investments in railroad infrastructure by a private company that benefits the company or elective donations would not fit this criterion.
- Comment: "11.6 Qualitative Benefits - *'An often-cited economic concern expressed by property owners living adjacent to a corridor where an active transportation project is proposed is the project's potential impact on nearby property values.'* Although this report considers potential benefits to property owners situated adjacent to the trail, the impacts to communities and industrial properties, both in Laconia and beyond, that no longer would be served by an active rail corridor were not properly considered. The report also failed to consider the impacts on all current rail dependent customers such as the Café Lafayette Dinner Train and the private rail car owners who stage their equipment along the corridor. This major omission requires further analysis in order to determine the true impacts of creating an isolated rail system.
  - Follow-up: Impacts to industrial property values were considered in the framework for the analysis. Consistent with the "all other things held equal" assumption noted above, the existing level of demand for industrial access to freight rail services was incorporated into a review of all property types near the proposed alignment and was estimated to continue over the 20-year analysis period. As noted in 'Section 9.4: Transfer Payments', changes in property values - including residential, commercial, and industrial properties - are considered "transfer payments". Transfer payments are transactions that are typically a cost for one party and a benefit for another party. When a property increases in value due to proximity to transportation infrastructure, a benefit potentially accrues to the existing property owner but only through their ability to sell the property to another person. That potential new property owner would experience the increased property value as a cost. Transfer payments, like changes in property value, are noted in the draft report as transfer payments and are not included in the final cost-benefit analysis, per USDOT guidelines. The Café Lafayette Dinner

Train and the private rail car owners were not omitted from the analysis. Economic multiplier data was obtained for scenic rail service in the region to ascertain the impact that scenic rail spending has on vendors and related service providers. Because P&L declined to provide verifiable employment and revenue data and disputed the values provided by NHDOT, we are not able to estimate the impacts from these vendors. If verifiable employment and revenue data is made available, we will update analysis accordingly.

- Comment: "Table 33 Meals and Rooms Tax on Non-local Spending - Because the railroad's overall economic impact has not been properly tabulated in this report, the conclusions reached in Table 33 regarding Rooms and Meals are inherently flawed. The analysis does not fully contemplate taxes generated through railroad associated overnight stays and meals."
  - Follow-up: 'Table 34: Meals & Rooms (Rentals) Tax on Non-local Spending' includes non-local spending from scenic rail customers noted in 'Section 8.2: Scenic Rail-related Spending' which includes food/beverage and lodging expenditures.
- Comment: "12 Analysis Results - The conclusions reached are not fully developed and required further study, particularly in relation to Alternative C Rail-to-Trail. Because the railroad's overall economic impact has not been properly tabulated in this report, the conclusions reached are inherently flawed. Implementation of Alternative C Rail-to-Trail would result in the closure of many rail dependent companies—including the Hobo and Winnipesaukee Scenic Railroad, a Women-owned Small Business. Economic impacts will include: Loss of an overall economic impact stemming from railroad operations of more than $17.4 million annually. Loss of 380 equivalent full-time jobs created as a result of railroad operations. Loss of 68 full and part time jobs employed directly by the railroad. Loss of $8.8 million in additional visitor spending though rail related activity. Loss of $4.4 million of economic benefit to the local lodging community. Loss of railroad purchased goods and services from over 365 vendors to support operations, 203 of these businesses are based in New Hampshire. Loss of railroad donations to 64 non-profit and community organizations in the Lakes and White Mountain Regions of New Hampshire. Loss of over 60,000 customers served by the railroad annually. Loss of railroad "user fee" revenues provided to the State of New Hampshire in the amount of approximately $100,000 each year, a portion of which is returned to local communities along the line annually. Loss of the railroad's Annual Maintenance Contribution (typically over $150,000), which helps preserve rail service over 55.2 miles through central and northern New Hampshire. Finally, if Alternative C is implemented, it would be in violation of both State law (RSA 228:60-a) and Federal law (49 U.S.C 10501-b). Any attempt to disconnect the Plymouth & Lincoln Railroad Shops from the international rail network, will result in extensive litigation, the cost of which will be significant and has not been included as a component of this report.
  - Follow-up: No action.

- **Shelley Winters**, NHDOT (comments received by email, 6/21/2019)
  - Comment: "The state-owned Concord-Lincoln Railroad Corridor goes from Concord, NH to Lincoln, NH yet this study only reviews the impact to Belknap County and more specifically Laconia. The alternatives contemplated would have an effect on the entire state-owned line and its use/limitations, as well as the future of both the Plymouth & Lincoln Railroad's and the New England Southern Railroad's future business opportunities, and therefore does not allow a full review and comparisons for the options presented."
  - Comment: "Impacts of this are local (Belknap County and more specifically Laconia) whereas rail has a statewide (and beyond) impact. Is this a true apples-to-apples?"
  - Comment: "Alternative C does not include a significant portion of the costs to the railroad—including closing the shop"

        - Follow-up: While the study corridor goes from Franklin to Weirs Beach, impacts to businesses that operate along the corridor (even if they are based outside of Belknap County or the eastern edge of Merrimack County) are within the scope of the analysis. For example, the estimated impacts to all of NES Railroad's operations based on the proposed alternatives to the study corridor are included in the analysis even though NES Railroad's operations extend outside of the study corridor and Belknap County. Similarly, we would like to include the impacts to P&L Railroad's full operations, including impacts to the refurbishment shop in Lincoln. Currently, the impacts on the refurbishment shop are noted as an "unknown cost". As is their right, P&L has declined multiple requests for verifiable data on employment and operations of their facilities. The railroad has also declined an offer by the primary underwriters of the analysis for an independent, third-party audit to fully capture the impacts to their operations. If P&L Railroad does choose to provide verifiable data or to engage in a third-party audit for data that is not publicly available, the analysis will be updated accordingly.
    - Comment: "The key on the map on Page 14 has inaccurate labels for the purple & green lines. Purple should be Pan Am-owned Northern Main Line and the green should be Conway Scenic-owned Conway Branch."
        - Follow-up: The legend for 'Figure 10: Regional Rail Connections' was updated as suggested.
    - Comment: "Page 13 - New England Southern capacity is not accurately described. (Current operation practice (demand for service) is one train. Train capacity is significant, passing tracks in Canterbury, Northfield, Laconia (2) and Meredith."
        - Follow-up: The description of NES Railroad's capacity in 'Section 4.1: Freight Rail Services' is based on direct conversations with Mr. Peter Dearness of NES Railroad. To be clear on the source of this information, we've changed "The maximum capacity of NES Railroad is one train per day..." to "According to NES Railroad, the maximum capacity of NES Railroad along the study corridor is one train per day..." Based on Mr. Dearness' review of the section within the draft report, additional changes to the text have been made, which can be viewed in the final report when it is approved to be made publically available.
    - Comment: "Page 18 - Causeway Ephraim Cove not mentioned."
        - Follow-up: Updated 'Part G' of 'Section 5.2: Alternative B: Rail-with-Trail' from "At Sparrow Drive, continue east with a 15-foot offset off-road path that runs parallel along the south side of the active rail corridor to Fox Hill Road." to "At Sparrow Drive, continue east with a 15-foot offset off-road path that runs parallel along the south side of the active rail corridor via the Ephraim Cove causeway to Fox Hill Road."
    - Comment: "Page 25 - Alignment; question is a significant engineering exercise. Also 28-38' offset in baseline is possibly based on survey methodology – holding one rail as the "baseline". Instead of setting monumentation."
        - Follow-up: As noted in 'Section 5.4: Additional Considerations', the inclusion of re-aligning the existing rail corridor in the draft report was at the suggestion of P&L Railroad and is noted as their opinion. Because no feasibility study has been completed for the corridor, the analysis does not evaluate this as an alternative. We added the following text to the section: "...but noted that any such realignment would need to be approved by NHDOT and that NHDOT and P&L Railroad are unwilling to pay for the realignment."
    - Comment: "3M shipments are a bulk commodity not conducive to intermodal handling. Track removal will likely result in closing of plant."

        - Follow-up: As noted in 'Section 5.4: Additional Considerations', the impact of switching to intermodal shipping to the 3M facility in Tilton was not included in the analysis. Mr. Dearness provided contact information for whom he believed we should talk to at 3M, but no response from 3M has been received as of 6/28/2019.
    - Comment: "Page 76 - Alternative B Fencing requirement is not a qualitative cost to abutters – not every abutter has a legal right to access waterfront. NHDOT's Crossing Agreements properly address access issues in accordance with State law. All others accessing waterfront or crossing property, with or without a fence, would be trespassing."
        - Follow-up: We've added the following footnote to 'Section 6.5: Safety & Security', 'Section 5.2: Alternative B: Rail-with-Trail', and 'Section 12: Analysis Results': "NHDOT notes that not every abutter has a legal right to access the waterfront, and that NHDOT's Crossing Agreements address access issues in accordance with State law."
    - Comment: "Page 105 - Based on our experience, the summary does not accurately represent the cost for removal and disposal of cross ties; it is underestimating the cost, including the proper disposition of cross ties."
        - Follow-up: Regarding the comment on the cost of removal and disposal of rail ties, are you able to provide us some example projects where the cost was significantly higher? If so, I will FW to HEB Engineers, as I know the $$ numbers used were based on project work in NH that the firm has been involved with. They'd be happy to look into some other projects in order to provide a more-accurate estimate.
        - Response: "NHDOT calculates tie removal & disposal (including transportation to a licensed facility) per ton, not per linear foot. Our most recent per ton estimate for removal & disposal of creosoted ties is $185/ton (this was used as an estimate for the Hampton Branch)"
        - Follow-up: We will compare this per ton estimate with the current linear foot estimate included in the draft report to see if a discrepancy exists, and if so, we'll update the cost estimate accordingly.
        - Update: We will incorporate a tie removal and disposal cost of $185/ton or $10.25/linear foot into the cost estimate.
- **Shelley Winters**, NHDOT (comments received by email, 6/26/2019)
    - Comment: "There should to be an Executive Summary with findings & conclusions for ease of digestion & understanding"
        - Follow-up: A separate draft summary of the report has been created and will be available for distribution after it is finalized.
    - Comment: "Insurance component on page 56 needs to also be reviewed/considered from Railroad Operators perspective, not just trails groups perspective"
        - Follow-up: 'Section 10.3: Insurance Costs' addresses liability concerns for railroad operators, noting that in the lone documented case of a fatality on a rail-with-trail project, the railroad operator and trail manager were found not to be liable under the State of Washington's Recreational Use Statutes. In addition, the section includes a discussion about how railroad operators can shift legal liability to another party, such as a trail manager.
    - Comment: "Consideration needs to be given to ongoing maintenance cost with Alt C as the municipalities would need to fund ongoing maintenance that is typically paid for by the Railroad Operator or the NHDOT through the Special Railroad Fund, which collects revenue for the use of the line. This revenue source will not exist without rail service."
    - Comment: "Also, the municipalities on the active state-owned lines also receive annual revenue payments from NHDOT in accordance with RSA 228:69 Appropriation and Use of Special Railroad Fund."

        - Follow-up: There is no estimated impact to rail service under Alternative B (Rail-with-Trail) compared to existing conditions. Changes in maintenance cost needs are proportionate to estimated changes in rail service for Alternative C (Rail-to-Trail). We will add changes to municipal revenue payments to 'Section 10.5: Economic Costs', in accordance with 'RSA 228:69 Appropriate and Use of Special Railroad Fund'.
- **Shelley Winters**, NHDOT (comments received in marked-up PDF and paraphrased below for ease of reference, 6/26/2019)
    - Comment Summary: The consideration of potential alternative routes and opportunity costs should be weighted and assessed before a decision is made on a preferred alternative.
        - Follow-up: We agree and made note of the need for these considerations following a feasibility analysis in 'Section 1.3: Study Limitations'.
    - Comment Summary: If the existing trail segments along the study corridor aren't winter maintained, then they likely only support seasonal recreational activity.
        - Follow-up: Use of the rail-trail for exercise, recreation, and social trips does not negate its use for commute and utilitarian trips during warmer weather months. Trip purpose data and assumptions are included in 'Section 7.1: Bicycle & Pedestrian Trip Activity'.
    - Comment Summary: Some of the recreation- and tourism-related jobs noted in 'Figure 2: Jobs in Belknap County by Sector' may be the result of the scenic railroad tourism.
        - Follow-up: We concur with that assumption.
    - Comment Summary: NHDOT owns and New Hampshire Department of Natural & Cultural Resources' Bureau of Trails manages the Northern Rail Trail.
        - Follow-up: In 'Section 3: Existing Trail Conditions', we changed "...is managed by the New Hampshire Department of Transportation." to "...is managed by the New Hampshire Department of Natural and Cultural Resources' Bureau of Trails."
    - Comment Summary: List the road owner for 'Part I' in 'Section 5.2: Alternative B: Rail-with-Trail".
        - Follow-up: The function of the section is to provide the reader with a high-level idea of the potential corridor alignment. Because no feasibility study has been completed for the corridor and because we do not believe that noting road ownership would directly serve the function of the section, the text for 'Part I' in 'Section 5.2: Alternative B: Rail-with-Trail' will remain as-is.
    - Comment Summary: 'Section 5.2: Alternative B: Rail-with-Trail' should state that the rail-with-trail alternative "will not impinge" on current scenic rail services.
        - Follow-up: Because a design feasibility study has not been completed for the rail-with-trail alternative, we can not use the definitive statement of "will not impinge".
    - Comment Summary: Were the railroad operators consulted on the WOW Trail Committee's opinion that Alternative C (Rail-to-Trail) would be "one of the more attractive and sought-after rail trails in New England."
        - Follow-up: NES and P&L railroad had the opportunity to review the draft report and did not have any feedback on the WOW Trail Committee's opinion that Alternative C (Rail-to-Trail) would be "one of the more attractive and sought-after rail trails in New England."
    - Comment Summary: In 'Section 5.3: Alternative C: Rail-to-Trail', only the State can abandon a State-owned rail line.
        - Follow-up: Changed "Similarly, STB would review any request for adverse discontinuance of active rail corridors along the study corridor." to "Similarly, STB would review any State-approved request for adverse discontinuance along the study corridor."

- Comment Summary: The validity of the WOW Trail Committee's mail-back survey is questionable because of the small sample size and number of responses.
    - Follow-up: A response rate of 39% (39 out of 100 distributed surveys) is relatively high for a mail-back survey in our experience. The mail-back survey may include a representative sample of property owners abutting existing segments of the WOW Trail within a given confidence interval but more information on the total population of property owners abutting the WOW Trail would be needed to make that statement. Because the report authors did not conduct the survey, it is not our role to provide a margin of error to the results. However, for us to include the results of the survey within the report required a review of potential bias in the wording of the questions and to whom the survey was distributed. No such bias was identified.
- Comment Summary: What is the purpose of the comparative trail information in 'Table 2: Comparative Rail-to-Trail Projects'? Do the numbers in the table reflect values before or after completion of the trails? If the rail lines associated with the comparative rail-to-trail projects were abandoned and did not impact an existing railroad operator, this information should be included in the table.
    - Follow-up: The American Community Survey (ACS) five-year estimates included in 'Table 1: Comparative Rail-with-Trail Projects' and 'Table 2: Comparative Rail-to-Trail Projects' are used to demonstrate the comparability of the population and mode split of the study corridor and the comparable trail projects that inform the usage estimates in 'Section 7.1: Bicycle & Pedestrian Trip Activity'. The ACS estimates represent post-construction years for the comparative trail projects. The prior use of the rail corridor does not inform the bicycle and pedestrian trip activity estimates in 'Section 7.1: Bicycle & Pedestrian Trip Activity' and therefore are not included in Table 1 or Table 2.
- Comment Summary: Because the proposed trail alternatives would not be available for bicycle and pedestrian use during the winter, the usage estimates in 'Section 7.1: Bicycle & Pedestrian Trip Activity' should reflect this.
    - Follow-up: The ACS estimates are based on a rolling average that incorporates seasonal differences, so the commute mode splits off which the usage estimates in 'Section 7.1: Bicycle & Pedestrian Trip Activity' reflect the potential decrease in bicycle and pedestrian trip activity during the winter.
- Comment Summary: Does 'Table 6: Motor Vehicle Trip Replacement Factors' purport to show that bicycling and walking trips will reduce motor vehicle trips by the values included in the table?
    - Follow-up: 'Table 6: Motor Vehicle Trip Replacement Factors' shows the percent of bicycle and pedestrian trips on the trail that would otherwise have been made by motor vehicle.
- Comment Summary: How were scenic rail ridership estimates for 'Table 14: Estimated Scenic Rail Ridership' derived, and why do Alternative B (Rail-with-Trail) and Alternative C (Rail-to-Trail) show the same estimates even though Alternative C would result in the cessation of scenic rail operations between Tilton and Weirs Beach?
    - Follow-up: The process and assumptions included in the scenic railroad usage estimates are documented in 'Section 7.3: Scenic Railroad Usage'.
- Comment Summary: Should Alternative C (Rail-to-Trail) include costs for a paved path instead of a stone dust path?
    - Follow-up: Stone dust was chosen as the preferred trail surface for Alternative C (Rail-to-Trail) because of the reduced trail maintenance costs associated with snowmobile use. We will consider including cost estimates for both asphalt and stone dust surface treatments for Alternative C.