Economic Study for the Proposed Regional Rail-Trail from Franklin to Weirs Beach

Executive Summary
Alta Planning + Design works closely with communities across North America to analyze and communicate the connectivity, health, and safety trade-offs associated with transportation and recreation projects. For over two decades, the firm has pioneered bicycle and pedestrian count methods, developed leading-edge demand modeling tools, and advanced transparency in economic analyses. The firm's current work includes the development of a statewide pedestrian and bicycle transportation plan for the New Hampshire Department of Transportation, along with design and analysis of trail projects across the northeastern United States.

New Hampshire-based HEB Engineers, Inc. assisted Alta, providing cost estimates for the trail design alternatives. HEB has designed and built numerous rail-trails and shared-use path projects in New England.
Contents

1 - Study Summary
2 - Total Benefits and Costs
3 - Rail-with-Trail Alternative
5 - Rail-to-Trail Alternative
7 - Estimated Demand
8 - Estimated Costs
9 - Estimated Economic Benefits
10 - Estimated Mobility Benefits
11 - Estimated Health Benefits
12 - Estimated Safety Benefits
13 - Appendix
The WOW Trail Economic Study for the Proposed Regional Rail-Trail from Franklin to Weirs Beach analyzed the costs and benefits of closing gaps in the proposed 18.8-mile trail corridor between Franklin and Weirs Beach through “rail-with-trail” and “rail-to-trail” alternatives.

Results of the study showed that the “rail-to-trail” alternative (trail in place of the rail line per page 3 - 4) is likely to have a more positive impact on the regional economy and the State of New Hampshire over a 20-year period compared to the “rail-with-trail” alternative (trail alongside active rail per page 5 - 6) due to:

1) The greater estimated number of trail users;

2) Lower capital costs since need for the new retaining walls and bridge structures is minimized.

3) Greater estimated economic impact on the region (see figures on the following page).

Although clearly beneficial, it needs to be noted that the Rail-to-Trail alternative would disconnect the existing P&L train refurbishment shop in Lincoln from the rest of the rail network and would make the modest level of freight operation along the study corridor infeasible. However, the seamless nature of the Rail-to-Trail alternative is projected to induce additional use of the scenic rail service by bringing thousands of customers to the Weirs Beach platform. It also has the potential to increase the available time for snowmobile access, since less snow coverage is required on top of a trail vs. what's needed on top of active railroad tracks.

Finally, a Rail-to-Trail configuration could help reduce the risk of bicycle- and pedestrian-involved collisions and resulting injuries by reducing the need for on-road connections. All told, completing the WOW, Winni River, and Winni Scenic trails as a continuous, unpaved Rail-to-Trail facility is estimated to generate a high rate of return on investment. The results of this study show an approximate 32:1 benefit-cost ratio of the Rail-to-Trail alternative, four times higher than the estimated 8:1 ratio resulting from the Rail-with-Trail alternative.

*Please note that a full design feasibility study for either alternative was not part of this study.*
Total Benefits and Costs

When comparing trail alternatives along the Franklin-to-Weirs corridor, the option that replaces the current rail line with a trail (rail-to-trail) is estimated to generate substantially more economic benefit for Belknap County than the alternative that provides a trail adjacent to the active rail line (rail-with-trail). The table below represents a summary of the projected benefits and costs based on estimated future trail and scenic train use, the resulting spending by tourists, and impacts to mobility, public health, safety and other factors for each of the two trail alternatives.

<table>
<thead>
<tr>
<th>Total Projected Benefits</th>
<th>Rail-with-Trail Alternative</th>
<th>Rail-to-Trail Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitor Spending</td>
<td>$77.7 - $145.6 million</td>
<td>$179.0 - $247.9 million</td>
</tr>
<tr>
<td></td>
<td>over 20 years</td>
<td>over 20 years</td>
</tr>
<tr>
<td>Tourism Jobs</td>
<td>$3.1 - $6.0 million/year</td>
<td>$3.6 - $6.3 million/year</td>
</tr>
<tr>
<td></td>
<td>30-60 permanent jobs</td>
<td>40-60 permanent jobs</td>
</tr>
<tr>
<td>Property Value</td>
<td>Neutral to Positive Impact</td>
<td>Positive Impact Anticipated</td>
</tr>
<tr>
<td>Room/Meal Tax</td>
<td>$0.28 - $0.5 million/year</td>
<td>$0.33 - $0.6 million/year</td>
</tr>
<tr>
<td>Mobility Benefits</td>
<td>$0.2 - $0.7 million/year</td>
<td>$0.4 - $0.8 million/year</td>
</tr>
<tr>
<td>Health Benefits</td>
<td>$0.01 - $0.2 million/year</td>
<td>$0.03 - $0.2 million/year</td>
</tr>
<tr>
<td>Safety Benefits</td>
<td>$1.2 million/year</td>
<td>$5.5 million/year</td>
</tr>
<tr>
<td><strong>Total Projected Benefits</strong></td>
<td><strong>$77.7 - $145.6 million</strong></td>
<td><strong>$179.0 - $247.9 million</strong></td>
</tr>
<tr>
<td><strong>Anticipated Costs</strong></td>
<td>$14.6 - $19.7 million</td>
<td>$5.7 - $7.3 million</td>
</tr>
<tr>
<td>(capital &amp; maintenance, and other costs)</td>
<td>over 20 years</td>
<td>over 20 years</td>
</tr>
<tr>
<td>Abutter Concerns</td>
<td>Required fencing separates</td>
<td>Potentially minimal</td>
</tr>
<tr>
<td></td>
<td>properties from Paugus Bay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rail buffer moves trail 20‘ - 25’</td>
<td>Loss of 2.5 annual FTE jobs*</td>
</tr>
<tr>
<td></td>
<td>closer to abutter properties</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No impact</td>
<td></td>
</tr>
<tr>
<td>Rail Jobs</td>
<td>Potential easements needed to avoid on-road gaps</td>
<td></td>
</tr>
<tr>
<td>Unknown Costs</td>
<td>Potential easements needed to avoid on-road gaps</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relocation of passing track</td>
<td></td>
</tr>
<tr>
<td><strong>Net Cost &amp; Benefits</strong></td>
<td>$19.0 - $37.8 million</td>
<td>$67.4 - $89.4 million</td>
</tr>
<tr>
<td><strong>Benefit-Cost</strong></td>
<td>-8 : 1</td>
<td>-32 : 1</td>
</tr>
<tr>
<td>Ratio**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* as reported by New England Southern Railroad
** at 7% real discount rate
Rail-with-Trail Alternative

Trail Adjacent to Active Rail Line

The Rail-with-Trail alternative provides a 10'-wide trail adjacent to the active rail line, separated by a continuous 4'-tall security fence. Due to constraints along the rail corridor, on-street connection using stencils and signage would be needed to allow trail users to avoid six gaps where space for both rail and trail is unavailable. Some gaps would likely require easements on private property to provide a comfortable connection, e.g. Channel Lane access across Rt. 3 to Weirs Beach. The Rail-with-Trail alternative would have no impact to scenic rail service or the modest level of current freight traffic.
DESIGN FEATURES

- 10'-wide crushed stone path*
- 6 on-road gap segments required in constrained areas
- 3 new trail bridges
- 3 Pedestrian Hybrid Beacons (PHB)
- 18 sections of retaining wall
- 4'-tall security fence (required by NHDOT) with trail aligned at west edge of rail corridor (20' - 25' closer to abutter properties)
- $14.0 - $18.9 million in construction costs
- $0.6 - $0.8 million in 20-year maintenance costs

*while a crushed stone path is the preferred treatment in order to provide a consistent comparison with the Rail-to-Trail alternative, a paved treatment may be desired. A separate cost estimate is made in the full report.
Rail-to-Trail Alternative

Trail Replaces Active Rail Line

The Rail-to-Trail alternative replaces the existing rail line from Weirs Beach to Tilton with a continuous 10’-wide trail. Since no on-road segments are needed, the entire route would create a seamless trail experience and is estimated to draw a greater number of trail users. Without active rail adjacent, a security fence would be unnecessary, providing unencumbered access and views to Paugus Bay and other features along the corridor. Although the Rail-to-Trail alternative would sever the freight rail connection through Laconia, scenic rail service would remain along Meredith Bay between Meredith and Weirs Beach.

The Rail-to-Trail alternative is likely to resemble other rail trails in New Hampshire, though likely unpaved (photo of Salem Rail Trail by Dave Topham).

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

Typical Rail-to-Trail cross-section along Paugus Bay.
DESIGN FEATURES

• 10'-wide crushed stone path*
• Seamless, off-road experience
• New bridge and ramps required at Lakeport Marina
• 4 Pedestrian Hybrid Beacons (PHB)
• Rail and tie removal, tie disposal, and handling of contaminated soil required
• No security fence required, allowing the trail to be located within the center of the state-owned rail corridor
• $3.8 - $5.2 million in construction costs
• $0.6 - $0.8 million in 20-year maintenance costs

*crushed stone path surface is typical of rail-trails throughout NH and provided a better surface for winter use by snowmobiles (which can damage a paved trail surface)
**Estimated DEMAND**

FOR TRAIL AND SCENIC RAIL TRIPS ALONG THE STUDY CORRIDOR

**TRAIL TRIPS**

Based on comparisons to similar, existing rail-with-trail projects in the northeastern United States, the Rail-with-Trail alternative is estimated to encourage an additional 145,000 to 301,000 trail trips per year. (Note that comparison rail-with-trails typically do not include on-road gap segments as would be required along the WOW Trail, so these estimates could potentially be lower.)

Similarly, comparisons to existing rail-to-trail projects in New Hampshire, Maine, Massachusetts, and Vermont lead to an estimated 179,000 to 340,000 additional trail trips per year for the Rail-to-Trail alternative.

**SCENIC RAIL TRIPS**

When considering existing scenic rail trips in the study corridor along with increased pedestrian and bicycle traffic created by the Rail-with-Trail and the Rail-to-Trail alternatives between downtown Laconia and Weirs Beach, 6,000 to 8,000 additional scenic rail trips are estimated for either trail alternative. The figures are similar for both as the loss of some trips due to the shorter route created by the Rail-to-Trail alternatives may be offset by the higher number of trail users having direct access to the platform at Weirs Beach.
Estimated COSTS

The Rail-with-Trail alternative is estimated to cost between $14.0 - $18.9 million to build (excluding the on-road facilities), plus an additional $0.55 - $0.76 million to maintain over 20 years.

Because the Rail-with-Trail alternative relies on six on-road links to help connect Tilton to Weirs Beach, the potential increased likelihood of crashes over a 20-year period creates a cost that is outlined in more detail in the Safety Benefits section of this Executive Summary. Difficult to quantify, yet potentially quite relevant, is addressing abutter concerns about the required security fence.

The Rail-to-Trail alternative is estimated to cost between $3.8 - $5.2 million to build, plus an additional $0.55 - $0.76 million to maintain over 20 years.

While the Rail-to-Trail alternative would allow for scenic rail operations north of Weirs Beach to continue, it would result in the elimination of freight and scenic service between Franklin and Weirs Beach. Elimination of the freight service is expected to result in the loss of $32,000 in annual economic activity and the equivalent of 2.5 annual FTE jobs*. In addition, $26,000 in annual revenue distributed to local communities by NHDOT would be effected ($58,000 total per year). It would also directly impact access to the P&L refurbishment shop in Lincoln (note that no property assessment and shop revenue data was provided to quantify the impact). In the Rail-to-Trail alternative, scenic rail service between Meredith and Weirs Beach would continue and longer rides south to Lakeport would be precluded. As such, a segment of passing track would be needed near Weirs Beach.

* as reported by New England Southern Railroad
Estimated ECONOMIC Benefits

Belknap County has experienced a decline in industrial activity over the past decade, leading to general stagnation in the county’s economy and population. Between 2006 and 2015 the total number of jobs in the county decreased approximately 1% compared to a 3% increase statewide, with most of the jobs lost over the time period coming from construction, manufacturing, and transportation / warehousing businesses.

To address this concern, the City of Laconia adopted a pro-growth strategy that includes working to maintain and attract industrial and commercial businesses and continued investment in quality-of-life improvements to attract new residents and visitors, such as recreational trails.

Early returns of this strategy can be seen in Belknap County’s recreation and tourism industries which saw a 14% increase in the number of jobs between 2006 and 2015.

The economic benefits of either a Rail-with-Trail or Rail-to-Trail alternative would be meaningful, with the R2T alternative being 10% - 15% higher. This is illustrated in the 20-year trail spending (see upper right) by visitors from outside of Belknap County, representing approximately 29% of all trail users.

* represents spending by visitors from outside of Belknap County.
Estimated MOBILITY Benefits

The cost of transportation represents a large portion of Belknap County residents’ expenditures. According to the Center for Neighborhood Technology, Belknap County residents spend $11,200 to $16,900 on transportation each year, the equivalent to 18% to 27% of total household income (for context, residents spend 16% to 41% of total household income on housing in Belknap County.) The vast majority of transportation costs go to owning and operating a car ($8,300 to $13,100 per year).

Development of an expanded trail network will help provide lower-cost transportation options for residents. While money doesn’t always change hands, real cost savings can be estimated from the reduced costs associated with buying fuel, automobile repair, paying for parking, repaving and maintaining roadways, and waiting in traffic to get to your destination.

Of the two alternatives, the mobility benefits of the Rail-to-Trail are significantly higher than Rail-with-Trail. This is primarily due to the seamless off-road environment it creates which is likely to induce more utility transportation, bicycle commuting, and recreation for a wider range of bicyclists.

### RAIL-WITH-TRAIL alternative

- **$2.9-$8.8 million** in 20-year household travel cost savings
- **$1.1-$3.3 million** in 20-year roadway maintenance cost savings
- **$0.4-$1.3 million** in 20-year traffic congestion cost savings

**TOTAL MOBILITY BENEFITS OVER 20 YEARS**

**$4.4-$13.5 million**

### RAIL-TO-TRAIL alternative

- **$5.3-$10.7 million** in 20-year household travel cost savings
- **$2.0-$4.0 million** in 20-year roadway maintenance cost savings
- **$0.8-$1.6 million** in 20-year traffic congestion cost savings

**TOTAL MOBILITY BENEFITS OVER 20 YEARS**

**$8.1-$16.4 million**
Estimated HEALTH Benefits

More people bicycling, jogging, and walking can help encourage an increase in physical activity and help reduce healthcare costs for Belknap County residents. According to the University of Wisconsin’s health rankings, 22% of Belknap County adults and 12% of New Hampshire youths reported little to no leisure-time physical activity. This lack of exercise has helped contribute to a 29% adult obesity rate in the county and 11% of the population reporting to be in poor or fair health.

Increased levels of physical activity have been shown to help combat obesity, as well as related issues of heart disease, stroke, diabetes, and depression. The Centers for Disease Control and Prevention (CDC) recommend that adults get at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity physical activity each week. CDC also recommends that children and adolescents get at least 60 minutes of moderate-to-vigorous exercise every day. Both trail alternatives will lead to health benefits for the community, though the Rail-to-Trail alternative is estimated to induce more bicycling.

### RAIL-WITH-TRAIL alternative

- 0.2-0.4 million more miles biked per year
- 0.2-0.5 million more miles walked per year
- 7.6-16.8 million more hours of exercise per year
- 500-700 more residents meeting the CDC’s recommendation for weekly exercise

**TOTAL HEALTH BENEFITS OVER 20 YEARS**

$0.2-$4.6 million

### RAIL-TO-TRAIL alternative

- 0.3-0.6 million more miles biked per year
- 0.3-0.6 million more miles walked per year
- 11.4-22.8 million more hours of exercise per year
- 500-700 more residents meeting the CDC’s recommendation for weekly exercise

**TOTAL HEALTH BENEFITS OVER 20 YEARS**

$0.5-$4.5 million
Estimated SAFETY Benefits

The US Department of Transportation (USDOT) reports that crashes can create large personal and societal costs. USDOT’s research suggests that a crash resulting in a severe injury, on average, can result in approximately $459,000 in property damage, hospital bills, pain/suffering, and emergency responders’ time. Similarly, moderate and minor crashes can result in $125,000 and $64,000 in related expenses, respectively.

People bicycling and walking are particularly vulnerable road users and require additional protection from contact with people driving. Construction of off-road paths can provide a safer alternative for people bicycling and walking compared to on-road routes.

“Crash Reduction Factors” developed by the USDOT suggest that improved bicyclist and pedestrian crossings can help reduce the risk of collisions by 55% and off-street paths can help reduce the risk of collisions by 80%.

While both alternatives provide substantial safety benefits compared with existing conditions, the lack of on-road connections required in the Rail-to-Trail alternative could lead to an estimated reduction in 2 severe and 4 moderate injuries from crashes every 5 years, creating over $110 million in estimated benefits over a 20-year period.

| **RAIL-WITH-TRAIL** alternative | **RAIL-TO-TRAIL** alternative |
|--------------------------------|--|---|
| **History of collisions** near the proposed alignment that could potentially be avoided* | **History of collisions** near the proposed alignment that could potentially be avoided* |
| 0 severe crash injuries over past 5 years | 2 severe crash injuries over past 5 years |
| 9 moderate crash injuries over past 5 years | 13 moderate crash injuries over past 5 years |
| 7 minor crash injuries over past 5 years | 7 minor crash injuries over past 5 years |
| 6 remaining on-road gaps | 0 remaining on-road gaps |

**TOTAL SAFETY BENEFITS OVER 20 YEARS**

- **RAIL-WITH-TRAIL** alternative: **$23.0 million**
- **RAIL-TO-TRAIL** alternative: **$110.7 million**

*represents the gross number of injury crashes over a 5-year period that would theoretically not have occurred if current conditions were replaced with each trail alternative.
METHODOLOGY FOR COMPLETING THE COST BENEFIT ANALYSIS

Cost-benefit analyses are a process for quantifying, monetizing, and evaluating all known costs and benefits associated with a project. 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. In the instances in which cost and benefit estimates are highly uncertain, this analysis uses a “low-high” range to express that uncertainty.

In other instances, some costs and benefits may be difficult to capture because of a lack of available data or because they represent qualitative factors. While only known quantitative factors can be incorporated into the overall cost-benefit framework, these unquantifiable variables and qualitative factors may represent real impacts on individuals and can be important in the decision-making process. Where possible, these additional variables and factors are highlighted alongside the quantitative outputs to provide balance to the study findings.

This cost-benefit analysis adheres to the guidance provided by the U.S. Department of Transportation. While a cost-benefit analysis is just one of many tools that can be used in making decisions about infrastructure investments, the results of the analysis provide a useful tool to evaluate and compare multiple alternatives based on their potential economic impact on the surrounding region.

Even with extensive primary and secondary research (including online survey responses and stakeholder interviews), it is not possible to accurately forecast the exact impacts of the study alternatives. Accordingly, all estimated values are rounded and should be considered rough order-of-magnitude estimates instead of precise amounts.

Click HERE for a detail report