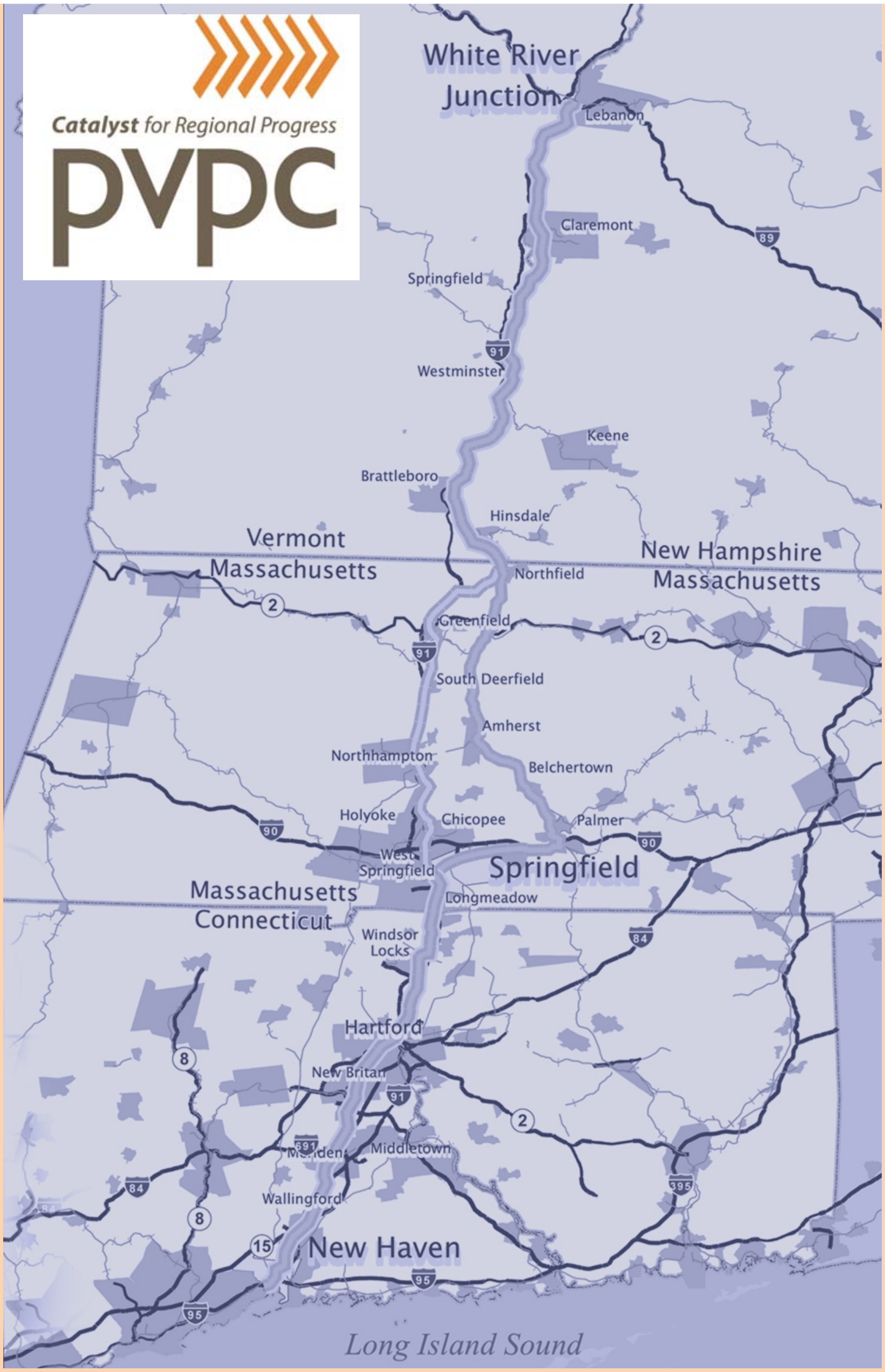

Knowledge Corridor Passenger Rail Feasibility Study

Final Report

Prepared by HDR **December 2009**

KNOWLEDGE CORRIDOR PASSENGER RAIL FEASIBILITY STUDY

FINAL REPORT

Prepared for:

Pioneer Valley Planning Commission

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Study Overview

The Connecticut River Valley has long served as a connection between New York and Eastern Canada and is a critical rail transportation corridor for New England. Some of the earliest north-south railroads in North America connected the cities and towns along the Connecticut River, providing the first rail links between Boston, New York, and Montreal. Different segments of the rail corridor were constructed and owned by different railroad companies, a condition that persists to this day.

The Knowledge Corridor describes a cluster of communities between Springfield, Massachusetts, and White River Junction, Vermont, located along I-91 within the Connecticut River Valley. This corridor consists of high-density communities, in addition to a multitude of important cultural, educational, business, and medical facilities. It is an important cultural and economic backbone for New England. Well into the last century, significant levels of both passenger and freight service were offered in the Knowledge Corridor.

Purpose and Need

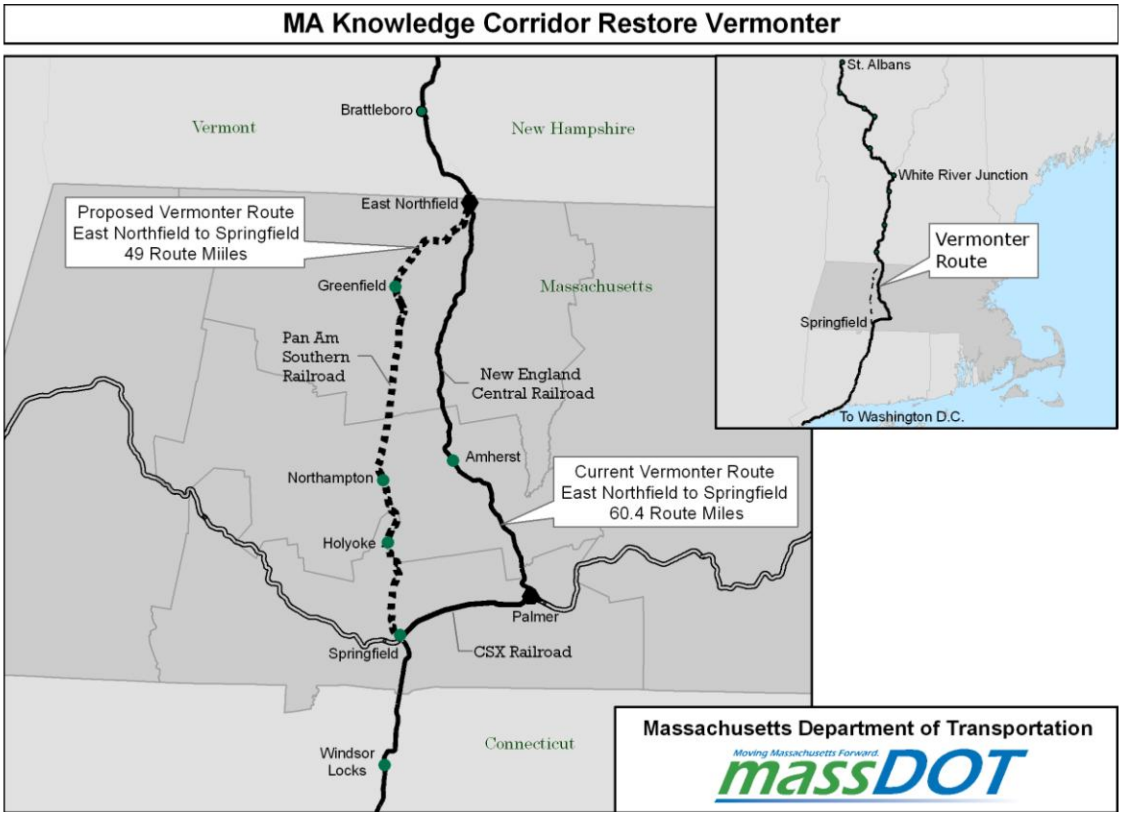
The Pioneer Valley Planning Commission (PVPC), with support of its partners, including the Vermont Agency of Transportation (VTrans), Massachusetts Department of Transportation (MassDOT), Amtrak, a technical advisory committee (TAC) and others, has led the Knowledge Corridor Passenger Rail Feasibility Study. The study's overarching objectives are to improve mobility and promote economic development. The study assesses the feasibility of possible future passenger rail improvements intended to reduce travel time, maximize accessibility, and provide viable transportation alternatives within the Knowledge Corridor. It also evaluates the impact to freight rail shipping costs and opportunities to move goods by rail rather than truck.

Amtrak's current service in the corridor is the Vermonter, which operates one scheduled train per day in each direction between Washington, DC, and St. Albans, Vermont[1]. Expansion and improvement of this limited service could benefit residents and businesses in the Knowledge Corridor by improving overall mobility. In addition, passenger rail enhancements are anticipated to promote economic development, improve air quality, and reduce traffic congestion.

Figure 1 shows the existing Vermonter Service, as well as the proposed realignment. For the study, it is assumed that any enhanced intercity or commuter service will utilize the restored alignment for passenger rail service along the "Conn River Line" route traditionally used for passenger service in the area.

[1] Additional Amtrak service in the region includes the east-west Lake Shore Limited service from Boston to Chicago with a station stop in Springfield, shuttle trains between New Haven and Springfield, and a daily Northeast Regional train between Springfield and Washington, DC.

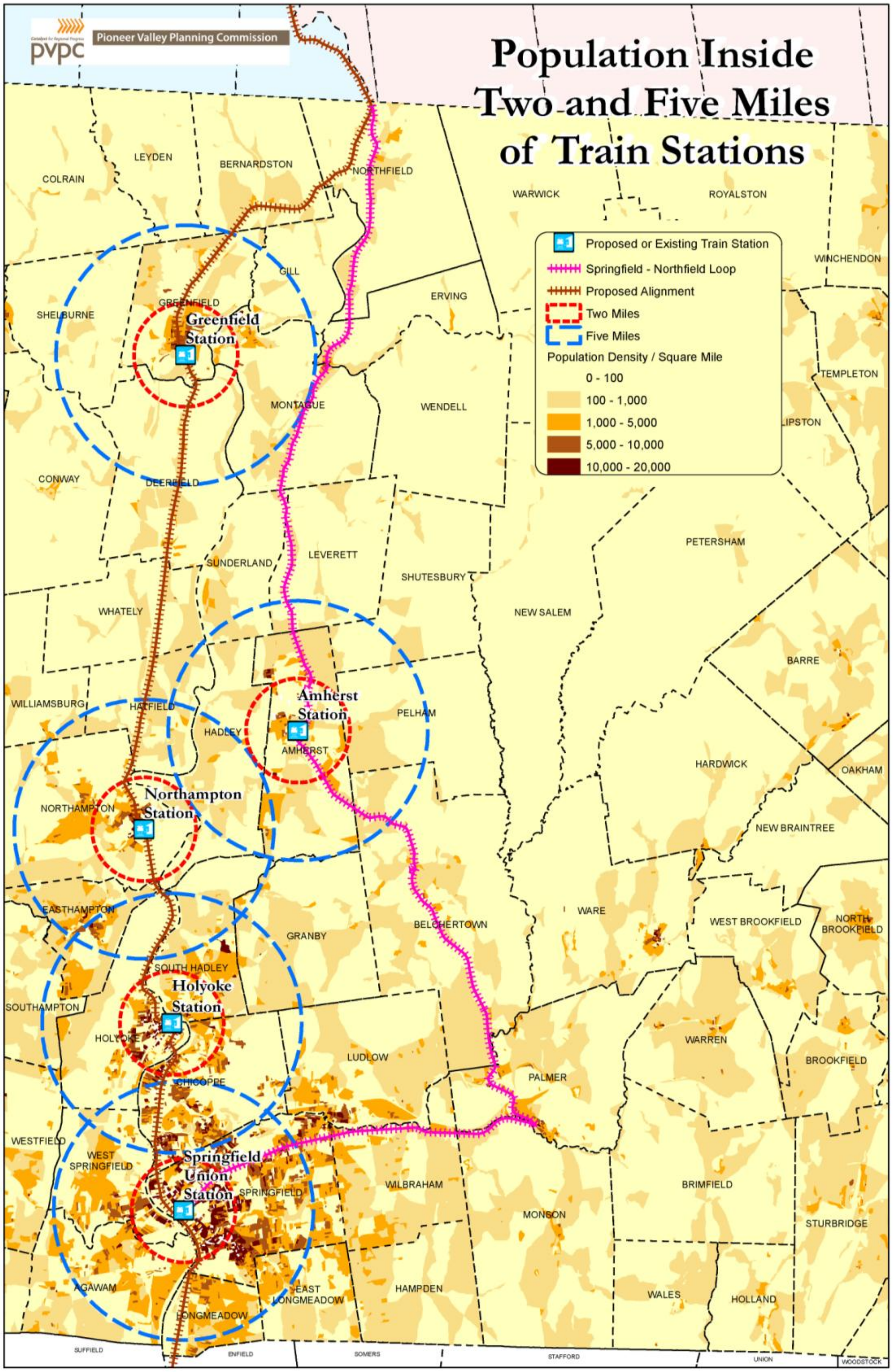
Figure 1 Knowledge Corridor Rail Alignment: Existing and Proposed



The restored route will provide stations or improved access to rail for the region's larger cities including Greenfield, Northampton, Easthampton, Holyoke, and Chicopee (see Figure 2). The realigned rail corridor would provide improved rail access and connectivity to a population of 319,886 within five miles of the stations and a population of 138,233 within 2 miles.[2] Relocating the Amherst station to Northampton results in a 20 percent increase in population within 5 miles of the station, along with the potential to provide rail connectivity to more cities (Greenfield and Holyoke) while still improving the train travel time in the corridor. Re-connecting these cities to rail is anticipated to lead to greater ridership; improved pedestrian, bicycle and transit connectivity; and transit-oriented development opportunities.

[2] Analysis from the Pioneer Valley Planning Commission based on detailed 2000 U.S. Census Block data.

Figure 2 Population Inside Two and Five Miles of Train Stations



Passenger Rail Service

Three options for passenger rail service improvements for the Knowledge Corridor are considered in the feasibility study. They include:

Case 1 Realignment: Realignment along the Pan Am Southern (PAS) route that parallels Interstate 91 along the Connecticut River. This is a more direct route and it avoids use of the CSX main line, and a switching maneuver at Palmer. The current alignment in Massachusetts covers 60.4 miles between East Northfield and Springfield, with a station in Amherst. Under the new alignment, the trip length would be reduced to 49 miles and the stop in Amherst would be eliminated. A stop in Northampton would replace the Amherst stop. PVTA provides regularly scheduled bus service between Northampton and Amherst. A stop would also be added at the Greenfield Intermodal Facility with the expectation that another station would be developed in Holyoke.[3]

Case 2 Enhanced Intercity: The proposed enhanced intercity rail service would include 4 to 6 trains in each direction in the Knowledge Corridor. More specifically, the near-term expansion of service would likely mean that in addition to the Vermonter, three daily round trip trains that currently run between New Haven, Connecticut, and Springfield, Massachusetts, would extend northward. One train would travel to White River Junction, Vermont, and the other two would extend to Greenfield, Massachusetts.

Case 3 Commuter: The proposed commuter level service would offer more frequency of trains for the morning and evening commutes with 7-9 trains per day in each direction, in addition to any intercity trains potentially operated as noted in Case 2. A goal of this service would be to link to the proposed New Haven-Springfield Commuter service, anticipated to run between New Haven and Hartford in Connecticut and Springfield, Massachusetts.

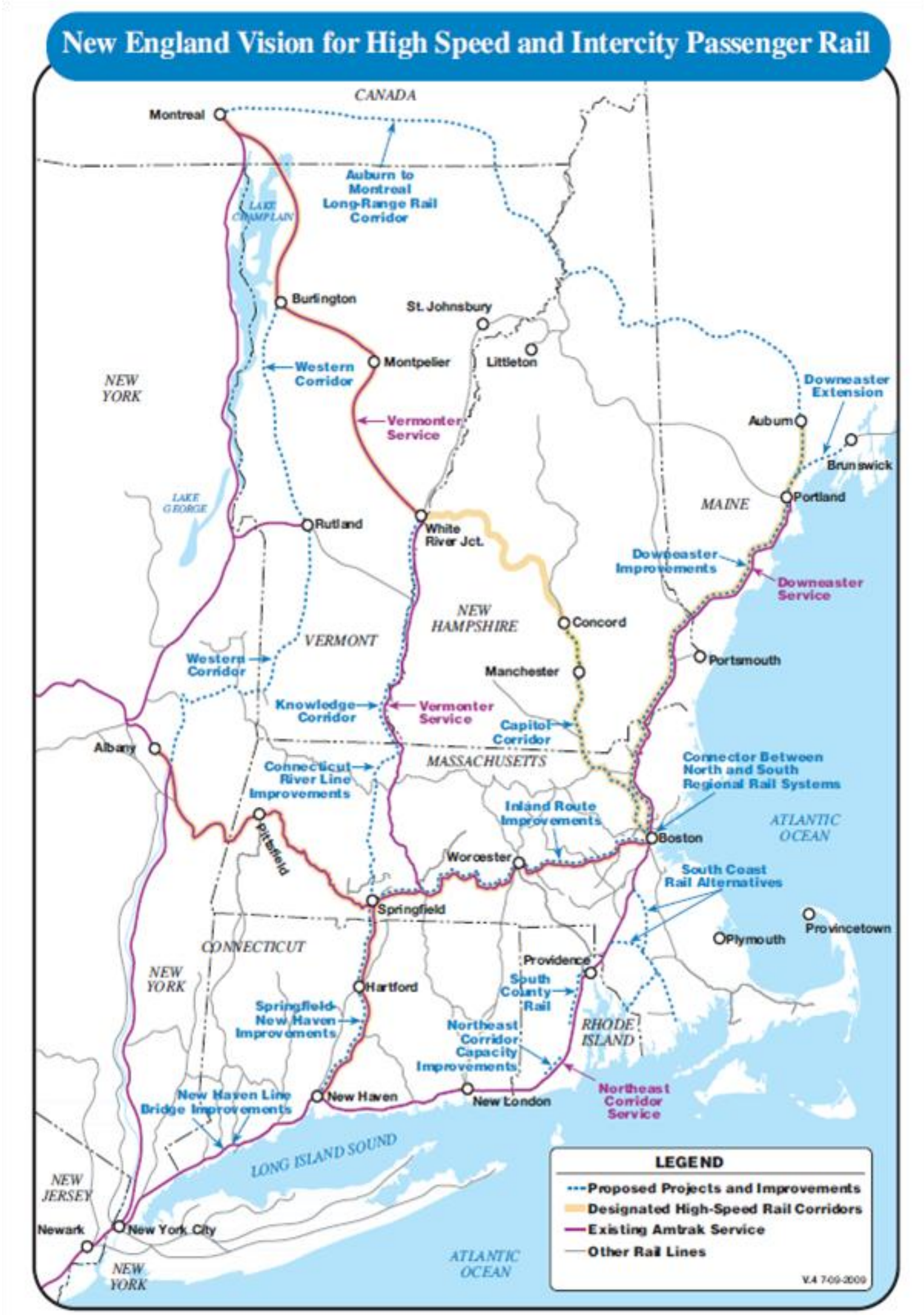
This corridor is included within the *Vision for the New England High-Speed and Intercity Rail Network* released in 2009[4] and thus is linked and connected with other New England rail initiatives (see Figure 3). Related potential improvements include:

- The proposed New Haven-Springfield commuter rail initiative;
- The Inland Route from Boston to New Haven by way of Springfield which emphasizes rail corridor improvements between Worcester and Springfield will be studied by MassDOT for feasibility in 2010;
- The Vermonter/New England Central Railroad Passenger Rail Improvement Project; and
- Station upgrades and linkages with the Union Station renovation and revitalization in Springfield, and the construction of the Greenfield Intermodal Transportation Center.

[3] The operations, ridership and benefit-cost analysis in this study include the assumption of a station in Holyoke. The HSIPR grant applications submitted to FRA discussed Holyoke as a potential station but assumed that the station location was still under consideration and development, and thus the application included a Holyoke station within the service development plan for the rail corridor rather than in the near-term stimulus construction project.

[4] http://www.mass.gov/Agov3/docs/PR071309.pdf

Figure 3 New England Vision for High Speed and Intercity Passenger Rail



The availability of American Recovery and Reinvestment Act (ARRA) stimulus funds through the Federal Railroad Administration's (FRA's) High Speed Intercity Passenger Rail (HSIPR) program provided MassDOT with an opportunity to submit two grant applications for funding to realign the Vermonter service to its historical route and lay the groundwork for the expansion of passenger service in the Knowledge Corridor.[5] The availability of the funding accelerated the environmental assessment (EA) and preliminary engineering, making the Vermonter restoration "shovel ready." The status of these applications is still pending, with the outcome of the grant applications is expected to be released in February 2010. A critical asset of the submitted applications as well as for future prospects for the Knowledge Corridor is the commitment and coordination with Vermont. VTrans is committed to improving the rail infrastructure and service for both passenger and freight rail in the corridor, and plans to continue its funding support for the Vermonter service.

Infrastructure Assessment and Rail Operations Analysis

A first step in the feasibility study was the assessment of the existing rail infrastructure and the consideration of several rail operations scenarios. The infrastructure assessment evaluated the rail corridor itself, as well as the current and potential station sites. The operations scenarios considered the three primary enhancements described in the previous section, as well as several other service variations. Details related to these evaluations are provided in Chapters 2 and 3 of the full study report.

Infrastructure Assessment

The current track condition reflects the levels of service on the line. Pan Am Southern (PAS) track has been maintained only to the level required to support the current limited volume of rail, five regular trains operating weekly, daily or as required at very limited speeds. The following describes the condition of the various railroad components, including rail stations.

Rail and ties are generally in fair to poor condition, with more overall rail wear on the curved sections of the track. It can be expected that there will be a need to add or replace a significant number of ties if passenger service is reintroduced in the corridor to facilitate increased train speed and improve the overall health and condition of the ties. Based on initial inspection, it appears that approximately 8 to 14 ties per rail length (1080-1900 ties/mile) would have to be replaced or added to sustain proposed passenger train speeds.

Ballast and drainage is generally in good condition on the line. Between 900 and 1,000 tons of ballast per mile will be needed, however, to raise, surface and align the track (3"–4") after the installation of ties, timber and/or rail. There also will be a need to spot undercut at locations where there is muddy and fouled ballast so that the ballast is capable of supporting higher train velocities in a safe and economical manner. A general ditching program is anticipated to clean and renew drainage structures in support of any passenger initiative.

If passenger rail service is enhanced, timber replacement will be required because passenger rail runs at much higher operating speeds than freight. Joint condition varies by type and age of rail and thus the selective replacement of jointed rail to address head and gage face wear, joint condition and weight and type of rail will also be needed. This will improve passenger ride quality and increase the reliability of the rail joints left in track. An evaluation of signals was not conducted as part of this assessment, but the railroad is expected to keep the signals in working

[5] See MassDOT website for submitted applications to FRA: http://www.eot.state.ma.us/recovery/HSR.htm

order. Finally, the serviceability of the grade crossings has remained adequate over the years, but a number of crossing surfaces should be replaced in anticipation of renewed passenger service. This will improve ride quality (both for railroad and highway users) and reliability, while reducing anticipated maintenance expenditures.

Railroad Stations

Ten past and potential passenger rail station stops in the corridor were evaluated: Chicopee, Holyoke, Northampton, South Deerfield and Greenfield and one existing Amtrak station stop in Springfield. Each site was assessed on the basis of accessibility; feasibility of railroad operations; the existence and condition of station facilities; transit, bike and pedestrian connections; the ability to deal with pending "level boarding" requirements at that site (see Chapter 2); and available/potential parking. Each site was given an overall evaluation of either "Ideal", "Very Good", "Good" or "Limited Potential." Details related to the evaluations are provided in Chapter 2 of the report and the following provides highlights of the four proposed stations for the Knowledge Corridor:

Greenfield, MA: Two sites were considered in Greenfield, but only one was assessed "Very Good." This preferable site is almost directly across the Connecticut River Main Line and adjacent to the old Toyota dealership, which is being constructed as a bus intermodal transportation terminal. This facility is anticipated to be completed prior to initiation of the proposed realigned passenger rail service.

Northampton, MA: Two sites were considered – Site A is "Good" for immediate implementation and Site B is "Very Good" for future expansion.

> ***Site A:*** This former Amtrak intercity passenger station location is adjacent to the town center, less than a quarter-mile from Route 9. While the former station building is now the Union Station Restaurant, much of the old platform is still intact (approximately four to five car lengths) and there is a considerable amount of parking, although it is not likely that all of it would be available for passenger use.
>
> ***Site B:*** The second location evaluated in Northampton is approximately the same distance to the north of the town center that the former Amtrak Station is to the south. Approximately 200 spaces are available near the site and, on the day on which the assessment was made less than half of these spaces were occupied. A new parking structure is being considered by the city and this would provide additional parking.

Holyoke, MA: In Holyoke, four potential station locations were assessed but the most promising site is the old railroad station, which is an HH Richardson (architect) building that was recently obtained by Holyoke Gas & Electric and could be renovated as the train station location. This location is in the downtown with nearby parking of at least 100+ parking spaces. It is walking distance from the new intermodal bus facility and within the City's urban renewal planning district.

Springfield Union Station: The existing Union Station is comprised of two adjacent and connected landmark structures in downtown Springfield – the three-story Terminal Building and the two-story Baggage Building situated on more than two acres of land. In the early 1970s, Amtrak initiated intercity passenger service to the Springfield area, but the Union Station building was not utilized. The vacated station complex has been owned by the Springfield Redevelopment Authority (SRA) since 1989. The Pioneer Valley Transit Authority (PVTA) and SRA completed an evaluation and conceptual redevelopment plan for the Union Station complex for use as an intermodal facility for bus and rail connections. That plan found that the current station in Springfield would be adequate to handle the increased number of trains and riders associated with the potential Connecticut DOT commuter service to New Haven. It is expected that the Springfield Station can function adequately to support the potential range of service options for the Knowledge Corridor. Additionally, Amtrak has suggested that with increased service levels associated with the proposed Connecticut DOT commuter rail and Knowledge Corridor passenger services, consideration should be given to placement of a station along the Amtrak Springfield Line that would directly serve the central business district of Springfield.

Rail Operations Analysis

The rail operations assessment considered the feasibility of different levels of service in the corridor, and estimates of train speeds and other variables were combined to develop realistic train schedules. The analysis also considered the shared use with freight rail and potential benefits and connections for freight shipping. The study used the Rail Traffic Controller (RTC) simulation tool[6] to observe trains operating on this rail line, both in its existing and proposed configurations over a representative one-week period.

The **realigned Vermonter** (Case 1) would offer passenger rail service daily in each direction between St. Albans, Vermont, and Washington, DC. It would feature a 25-minute reduction in travel time in the near term and as much as a 45-minute reduction in travel time longer-term if additional operational improvements can be implemented. On-time performance is expected to be improved from 55 percent to 90 percent. The realignment removes a time-consuming “reverse move” at Palmer, and the need to operate two locomotives or a cab car, to allow double-ended operation. Backup into Union Station is still required. Operating speeds would reach 60 miles per hour.

With **enhanced intercity service** (Case 2), a second daily round trip serving the entire length of the Knowledge Corridor would be offered in addition to the existing Vermonter service. This new round trip, running between White River Junction, Vermont, and New Haven, Connecticut, would depart southbound in the early morning from White River Junction and arrive in New Haven at noon. The northbound leg of this round trip would depart New Haven in the middle of the afternoon, arriving back in White River Junction in the evening. There would also be two extensions north to Greenfield in each direction of the existing Springfield-New Haven rail shuttle service. This means that four trains will run per day in each direction in the Massachusetts section of the Knowledge Corridor with service relatively evenly spaced throughout the day. Train speeds could reach 79 mph in this scenario.

Commuter service (Case 3) would be designed to integrate with the proposed New Haven-Springfield commuter service and concentrate on adding trains north of Springfield to Greenfield during commuting times. It would build upon the enhanced intercity service of four trains in the corridor adding three additional trains in each direction between St. Albans and New Haven, for

[6] Licensed to HDR, Inc. By Berkeley Simulation Software.

a total of seven trains per day (in each direction) south of Greenfield. The new trains are specifically added at commuter times, and likely with commuter rail equipment, to specifically serve the commuter market. Depending on equipment and infrastructure improvements, train speeds could exceed 80 mph.

Freight

The future of freight service on this rail line was also carefully considered. Detailed discussions were held with the owner of the line, Pan Am Southern, to ascertain the current levels of freight traffic on the line, the reasonably foreseeable future prospects for this traffic, the extent to which both the freight service and the proposed passenger service could be accommodated on the existing infrastructure and the capacity enhancements that would be required for each of the various passenger scenarios described above.

With the proposed rail corridor upgrades, freight rail carloads and tonnage are estimated to increase significantly with growth in cars per train from about 20-30 to 40 or more over the next 20 years and approximately doubling freight rail tonnage. Corridor improvements would directly connect to the recent Pan Am Railways and Norfolk Southern partnership to improve the rail infrastructure of the east-west main line between Albany, New York, and Ayer, Massachusetts. It also offers significant potential to expand and attract new freight rail customers in the region. Finally, improved north-south freight rail would also provide improved connections to the Pioneer Valley Railroad (PVRR) which directly serves industries in cities such as Westfield and Holyoke, as well as connections to the Connecticut freight rail market.

Passenger Rail Ridership Forecasts

One of the most critical elements of the feasibility assessment is the estimate of ridership for different service level alternatives. Ridership is the leading indicator of benefits for the benefit-cost analysis discussed later in this Executive Summary. For the purposes of understanding the affected market of trips, ridership estimates assessed opportunities for the entire through-length of the Amtrak Vermonter from St. Albans, Vermont, to Washington, DC with particular emphasis on the primary ridership market from New Haven, CT to White River Junction, VT.

The ridership estimates incorporate historical, current and projected population and employment data obtained from:

- US Census Bureau 2000 Census of Population & Housing;
- U.S. Census Bureau 2007 Population Estimates, released July 2008;
- FRCOG Regional Population Projections 2000-2030;
- Regional Transportation Plan for the Pioneer Valley MPO – 2007 Update;
- Pioneer Valley Regional Transportation Plan;
- Franklin County Regional Transportation Plan;
- Massachusetts Office of Workforce Development ES-202; and
- Population projections for the Vermont Department of Aging.

Ridership Model Development

A custom forecasting model was developed to estimate ridership for the proposed realignment of the current Vermonter, enhanced intercity, and commuter service scenarios. It utilized applicable data and network features where available from existing demand models and frameworks, such as the PVPC regional travel demand model, the Massachusetts Statewide Travel Demand model, intercity travel pattern models used by Amtrak, and the 2000 Census Journey to Work data. A complete discussion of the methodology is provided in Chapter 4 of the report. In general, the model was designed to be market-based by focusing on two groups of potential trip-makers in the corridor: intercity trips (those involving an origin or destination outside the primary study area); and work/commuter trips (those where origin and destination are both inside the primary study area or its nearby commuter markets).

The model specifically considers travel time comparisons between passenger rail and alternative modes on the highway. Other key factors include the frequency of rail service, and the level of jobs and population within walking distance of railroad stations. The ridership estimates assume that the current, low-cost high-frequency Amherst-Northampton bus service will be maintained as well as other PVTA bus connections in the region. Information and assumptions related to the price of gas, average fare price, and levels of highway congestion were also considered in the ridership analysis. Finally, the potential for induced development (transit-oriented development) near the stations for the enhanced intercity and commuter service scenarios was also incorporated.

Ridership Effects for the Three (3) Cases

The ridership estimates were derived for each service alternative based on the incremental changes to the level and type of passenger rail service in the region. The base case, Case 0, represents the present Amtrak system as it operates today, with one "Vermonter" train per day in each direction traveling over the CSX main line (Springfield to Palmer) and NECR (Palmer to East Northfield) with station stops at Springfield and Amherst. Cases 1 through 3 represent the scenarios considered in the feasibility study:

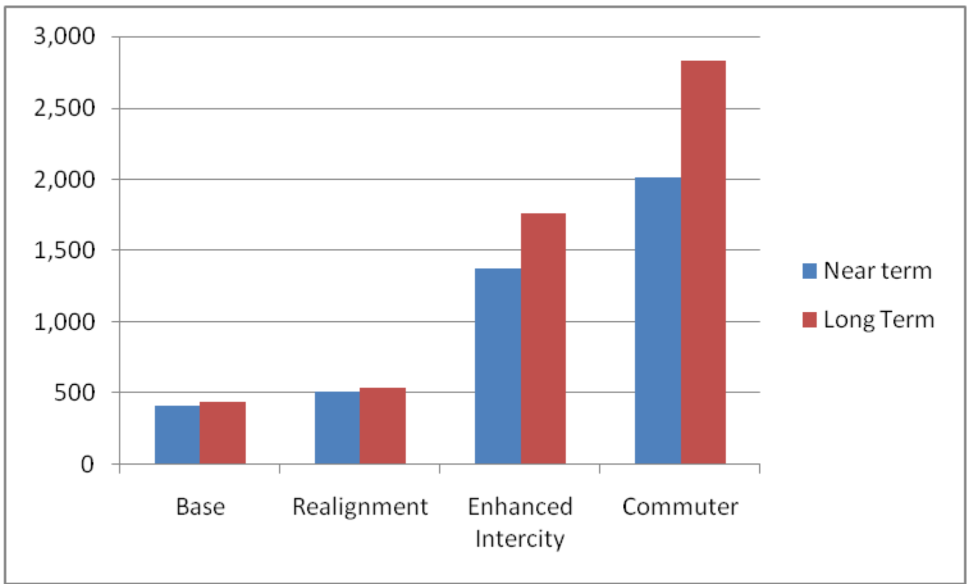
- Case 1 Realignment – Ridership effects in this scenario are primarily due to the faster and more reliable rail service of the restored Conn River Line, as well as the addition of new stations and increased accessibility to the region's larger population centers.
- Case 2 Enhanced Intercity – Similar to the successful Downeaster service between Portland, Maine, and Boston, Massachusetts, this service would offer flexibility and more options for existing and new users of passenger rail, and could be used for a mix of business, commuting, and personal travel.
- Case 3 Commuter Service – This scenario builds upon Cases 1 and 2 with emphasis on capturing daily commuters (the largest potential market for ridership in most regions) and integrating with the proposed New Haven-Hartford-Springfield commuter rail service.

Ridership Forecast Results

Ridership forecasts were generated for the opening/implementation years in the near-term (2012-2017) as well as a long-term (2030) forecast. Figure 4 presents the results for the near- and long-term ridership for each scenario. The differences between near-term and longer-term forecasts are modest for the Base (Case 0) and Realignment scenarios as they reflect the modest population and employment growth forecasts for the region. The more significant ridership increases for Enhanced Intercity and Commuter reflect the potential for induced demand and development as it takes some time to fully leverage changes in travel behavior and transit-oriented development opportunities.

If the Vermonter is restored to its historic alignment, daily ridership is projected to reach approximately 515 in the near term and 535 by 2030 about a 24% increase over the existing service. With the addition of at least three daily trains in the corridor, the enhanced intercity service is estimated to generate a significant increase in daily ridership – 1,370 riders in the near-term and 1,760 longer term. This represents a 200 to 300 percent increase in ridership. With the most frequent service, the commuter scenario is likely to generate the greatest number of riders, 1,900 in the near term and 2,680 by 2030.

Figure 4 Near-Term and Long-Term Daily Ridership by Case



Benefit-Cost and Economic Development Analysis

To better assess the feasibility of the three passenger rail scenarios considered for this study, two primary economic analyses were conducted. A benefit-cost analysis was conducted to compare the return on investment of the three scenarios, and an economic development analysis was performed to determine the likely impact on development and job impacts due to the proposed service enhancements. The economic development analysis serves three purposes. First, it provides estimates of the proposed rail improvements on population and job growth in the Knowledge Corridor. Second, it offers estimates of induced development which were used to adjust the ridership estimates. Finally, the analysis estimates the near term economic impacts of construction activities associated with the proposed realignment of the Vermonter service.

The incremental costs of project implementation include initial and recurring costs. Initial costs refer to the capital costs incurred for final design and construction of infrastructure enhancements that will increase the travel speed and improve/renovate rail stations along the corridor. Recurring costs include incremental operating costs, as well as administration expenses.

Benefits Measured

Five categories of benefits were measured for this analysis:

- **Benefits to Existing Riders:** These are the travel time savings that accrue to riders who currently travel on the Vermonter. The travel time savings benefits result from the time reduction that the rail improvement creates by reducing the distance of the trip and increasing the speed. Additionally, a benefit for reliability is calculated to account for the improvement in on-time performance.

- **Benefits to New Riders:** These are the benefits for induced rail passengers who are expected to use the service after the improvement. This benefit accounts for travel time, vehicle operating costs (i.e., fuel, oil, depreciation, tire wear, maintenance/repair), rail fare, and an amenity factor (i.e., comfort and quality associated with time spent traveling by rail).

- **Benefits to Freight:** These benefits stem from improved freight rail service (higher speeds) along the corridor and result in an increase in the amount of freight shipped by rail, which leads to decreased shipping costs as estimated by the change in costs per ton-mile between truck and rail (accounting for trade-offs with travel time and reliability). Significantly enhanced freight rail service in the region is expected to enhance economic development opportunities for industrial and warehousing companies that depend on rail.

- **Economic Development Benefits:** These benefits result from the increases in service levels along the Connecticut River Line in the enhanced intercity and commuter scenarios. It is expected that there will be induced economic development in terms of jobs and population, primarily in the Central Business Districts surrounding the station areas. Induced development leads to additional ridership, and increased user benefits, measured similarly to the benefits to "new riders" as described above.

- **Congestion Reduction Benefits:** These benefits are due to reduced auto and truck Vehicle Miles Traveled (VMT), based on estimates of increased passenger and freight traffic on rail. The reduction in VMT relieves congestion for those vehicles remaining on the highway, resulting in reduced travel time and fewer vehicle hours traveled (VHT). Additionally, there are emission savings produced from the reduction in auto and truck VMT. Emissions measured include volatile organic compound (VOC), carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxide (NOX), sulfur dioxide (SO2), and particulate matter (PM10), varying by auto and truck. Finally, the reduction in auto and truck VMT results in a savings of future highway pavement maintenance costs.

Benefit-Cost Analysis Results

Results of the benefit-cost analysis for all three scenarios are provided in Table 1. The estimated capital costs are the mid-point value for each scenario where the likely cost ranges for the needed infrastructure improvements are: 1) Realignment capital costs of \$35 to \$60 million; 2)

Enhanced inter-city capital costs of $70 to $90 million; and 3) Commuter service capital costs of $250 to $300 million (all in 2009 dollars).

The largest categories of benefit are for existing and new riders, highway congestion relief, and freight rail shipping cost savings. Based on the estimates, all three scenarios produce benefits that exceed costs with the enhanced intercity scenario expected to lead to the greatest future return on investment with a net present value (NPV) of $244.4 million and a return on investment with benefits 3.1 times greater than cost. The realignment scenario has by far the lowest costs, with no anticipated increase in operations and maintenance (O&M) costs and a positive NPV of $76.8 million and a benefit-cost ratio of 2.7. The commuter scenario has the largest total benefits but also the largest costs and the smallest benefit-cost ratio.

Table 1 Benefits and Costs of Rail Scenarios* (millions of 2009 dollars)

BENEFITS	Case 1 Realignment	Case 2 Enhanced Intercity	Case 3 Commuter
Travel Time Savings - Existing Riders	$32.7	$32.7	$32.7
User Benefits - Induced Riders	$16.7	$236.0	$289.1
Reduced Emissions	$5.9	$21.9	$17.8
Reduced Highway Maintenance	$32.6	$33.8	$33.9
Congestion Relief Benefits	$152.7	$608.5	$1,035.1
Freight Shipping Cost Savings	$69.2	$69.2	$69.2
TOTAL BENEFITS	$309.8	$1,002.2	$1,477.8
Present Value of Total Benefits	**$121.2**	**$362.1**	**$534.1**
COSTS	**Case 1 Realignment**	**Case 2 Enhanced Intercity**	**Case 3 Commuter**
Capital Costs	$47.5	$80.0	$275.0
Annual O&M Cost Increase	$0.0	$4.9	$22.0
TOTAL COSTS (cumulative)	$47.5	$203.4	$824.2
Present Value of Costs	**$44.4**	**$117.6**	**$431.0**
Net Present Value (NPV)	**$76.8**	**$244.4**	**$103.1**
Benefit-Cost Ratio (BCR)	**2.7**	**3.1**	**1.2**

*Analysis assumes a real (inflation adjusted) discount rate of 5% and assessed benefits for 30 years after completion of infrastructure improvements.

When conducting forecasts 30 years into the future, some level of uncertainty exists. To account for this uncertainty, the benefit-cost analysis incorporated a risk analysis process in the estimation to examine a likely range of possible benefits and costs over time based on factors such as fuel prices, the value of travel time, average speed on the highway, and freight shipping costs. Based on the risk analysis for the realignment scenario, the benefit-cost ratio ranges from 2.3 to 3.5, meaning, for example, that there is a 90% likelihood that the BCR will be at least as high as 2.3 providing more confidence that the results will produce a positive NPV. For the enhanced intercity scenario, there is a 90 percent chance that the return on investment for the expansion of services will exceed $2.41 for every $1 invested and a 90 percent chance that it will not exceed $4.31. The commuter service generates a median return on investment of $1.24 on every $1.00 invested, with a likely range between 1.0 and 1.6.

As required for the FRA ARRA grant applications, three and seven percent discount rates were also used to provide some indication of the sensitivity related to the choice of discount rate. In these cases, the benefit-cost ratios for the realignment are 3.9 and 2.3, respectively. The difference between the two discount rates is that with higher discount rates, the upfront costs are weighed more heavily against the future returns on the investment. In this analysis, using the lower discount rate will yield net benefits that will always exceed net costs.

Economic Development Analysis

Expanded passenger rail service will improve mobility to Knowledge Corridor residents and businesses, and it is also likely to generate economic development benefits. An assessment of the likely near-term and longer-term economic development impacts attributable to rail improvements is presented in this section.

The estimates represent the likely incremental economic development impacts due to passenger rail, focused on Hampden, Hampshire and Franklin counties and the four proposed station areas for expanded rail service in the cities of Springfield, Holyoke, Northampton, and Greenfield. "Incremental" refers to the additional economic and demographic growth beyond baseline growth forecasts for the region. In general, the mix of industries in the Pioneer Valley – with greater than average concentrations in healthcare, higher education, information technology, manufacturing, financial services and the creative economy – provides a relatively stable economy with less volatile peaks and valleys through the business cycle.

Induced Economic Development Analysis

The following process was followed to estimate the economic development potential in the region:

1) **Stakeholder Interviews** – As part of the information gathering process, interviews were conducted with twelve economic development organizations in the Pioneer Valley to assess development opportunities from a "real world" perspective, and gather relevant data on development initiatives, land use, and real estate.
2) **Data Collection and Review of other Studies** – Detailed data on historical and projected employment and population trends was collected, and other passenger rail and economic development studies were reviewed, including a recently completed analysis of the Downeaster rail service from Portland to Boston.[7]
3) **Model Development** – Based on the data collected, the information from stakeholder interviews and reviews of other studies[8], the economic development model was developed. It is a risk-based analysis that explicitly accounts for uncertainty in a number of key variables and produces a range of estimates. A complete description of the risk-based analysis is provided in Chapter 6 of the report.

[7] "Economic Benefits of Amtrak Downeaster Service" Economic Development Research Group and KKO Associates, February 2005.
[8] A listing of the studies reviewed can be found in Appendix D

4) **Results and Risk Analysis –** An initial set of economic growth assumptions and risk factors were generated and presented to the TAC[9] for review and scrutiny, leading to a refined set of economic development results.

Economic development estimates are presented in the following areas:

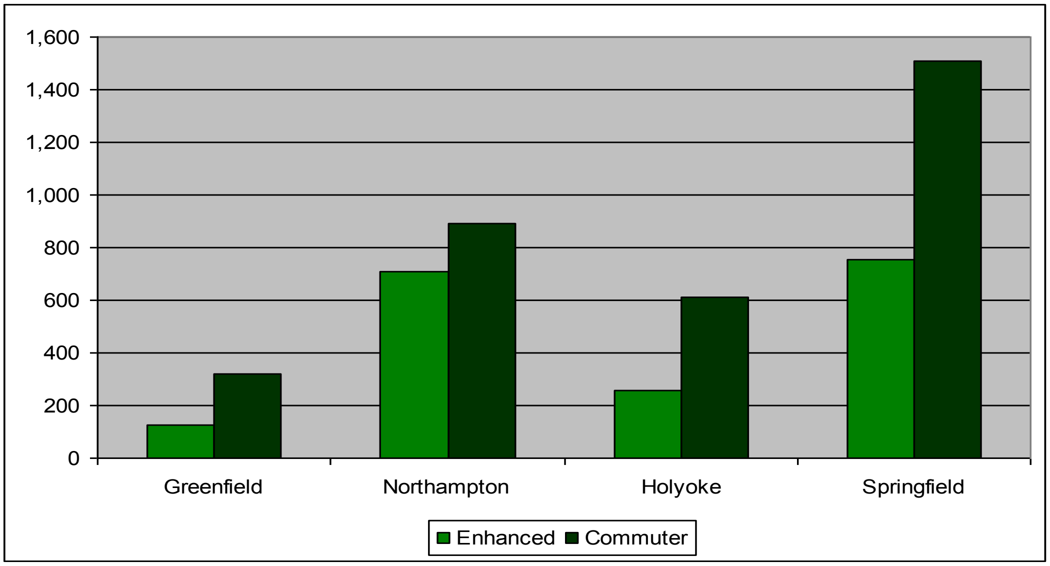
- **Level of Rail Service** – Economic Development estimates are presented for the enhanced intercity and commuter rail scenarios[10].
- **Geography** – Estimates of economic development gains are presented for Springfield, Holyoke, Northampton and Greenfield (with emphasis on development within 1 mile of the station locations). Estimates are also presented for the "rest of county" regions that reflect additional passenger demand outside each city due to passenger rail.
- **Future Year Planning Horizons** – Realizing economic development gains from rail or transit corridors typically takes many years, so estimates are provided for 2020 and 2030.
- **Jobs and Population** – The analysis estimates residential and commercial /industrial development potential from the enhanced passenger rail access proposed, as well as employment and population metrics.

A critical step to the economic development analysis is the determination of the square footage by land use type to be developed in each of the station cities. The existing conditions parcel data was available for four usage types – retail, industrial, office and residential – and the shares of development attributable to each use were calculated from this data. The level of development attributable to rail varies by the service level scenario and City. For the enhanced level of service, approximately 3.0 million square feet of development is estimated for Springfield, Holyoke and Northampton, with a larger 5.0 million square feet of development for the commuter rail scenario. For each city, more than 60 percent of the development is expected to be for residential uses as greater levels of rail service attract people to live near the stations. Retail development is highest for Northampton and Springfield, representing 18 to 20 percent of total development in those cities.

This assessment was converted to population and job opportunities in the region. Estimates indicate a most likely result of about 2,700 jobs and 7,200 population in the Pioneer Valley by 2030 under the enhanced passenger rail scenario with a range of 1,200 to 4,000 jobs and 2,500 to 10,000 population based on the risk analysis. The estimates for the commuter rail scenario are slightly more than 5,500 jobs and 13,400 residents. The economic development impacts are not immediate as the results are significantly lower for 2020, reflecting the time needed to fully realize and leverage the economic development opportunities provided by rail. Almost 70 percent of the job impact is in the four station cities for the enhanced scenario, with 42 percent of the population effect. The commuter scenario has a slightly lower share of jobs and population in the four station cities, as the effects are felt a bit more broadly throughout the region. Figure 5 presents estimated job impacts for the four Massachusetts station cities in 2030 for the enhanced intercity and commuter rail scenarios.

[9] A listing of TAC members can be found in Appendix B.
[10] Less frequent passenger rail service in the Pioneer Valley could also result in induced economic development but likely at significantly lower levels and thus was not estimated separately.

Figure 5 Employment Impacts by City and Rail Scenario: 2030



Economic Impacts of Rail Construction

Investment in the realignment of the Vermonter is also anticipated to produce significant near-term economic impacts in the Pioneer Valley region and nationally. The short-term construction activity will provide a variety of construction, manufacturing and supporting industry job opportunities and labor income. The results presented below were developed as part of the FRA HSIPR grant application process to demonstrate the economic stimulus and job creation benefits of restoring the Vermonter to the Conn River Line.[11] Higher levels of infrastructure construction in the enhanced intercity and commuter scenarios would result in even greater economic impacts.

The realignment construction is assumed to occur entirely in 2010 and 2011, with a total cost of $72.8 million. Direct jobs are estimated to be 209 in 2010 and 139 in 2011 for a total of 3,648 jobs during construction (See Table 2). The total short-term job creation, including multiplier effects, is estimated to be 721 jobs in 2010 nationwide with another 481 jobs in 2011 for a total of 1,202 jobs in those two years.

[11] The MassDOT application for the FRA HSIPR program requested approximately $72.8 million in funding for rail improvements which would be enough funding to restore the Vermonter to the Conn River Line as well as other infrastructure improvements in anticipation of potential enhanced inter-city service.

Table 2 Total Near-Term Job Creation Impacts

Year	Construction Cost ($ million)	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
2010	$43.7	209	216	297	721
2011	$29.1	139	144	198	481

In addition to the job impacts, the realignment will result in other national economic impacts shown in Table 3. Total sales are estimated to reach $215 million after construction is complete, with $129 million being generated in 2010 and $86 million in 2011. Labor income and value added are also provided.

Table 3 Total Near-Term Economic Impacts ($ Millions)

Total Economic Impacts	2010	2011	Total
Job Years	721	481	1,202
Output (Sales)	$ 129	$ 86	$ 215
Labor Income	$ 39	$ 26	$ 65
Value Added (GDP)	$ 59	$ 40	$ 99

Job opportunities for the Pioneer Valley region are expected to include 168 direct jobs in 2010 and 112 in 2011, largely due to construction labor. The full regional economic impact, including multiplier effects is approximately 742 new jobs in 2010 and 510 jobs in 2011.

Financing Opportunities

Based on the estimated return on investment and the practicality of obtaining capital and operating funding, the two most promising passenger rail scenarios are realigning the existing Vermonter service and offering enhanced intercity service. In fact, efforts to obtain funding are already underway. Two applications requesting funding to realign the Vermonter have been submitted by MassDOT to the Federal Railroad Administration (FRA) for the High-Speed Intercity Passenger Rail (HSIPR) program. The Track 1 application was to try to obtain immediate funding for shovel-ready projects, while the Track 2 application includes the near-term infrastructure improvements as well as a longer-term vision for passenger rail in the corridor consistent with the enhanced intercity scenario.

The award of HSIPR grant funding would provide capital support for restoring the Vermonter, but operational support would not be offered through the grant. The State of Vermont currently provides an operating subsidy to the Vermonter service to make up the difference between operating costs and fare revenue. The FY 2008 revenue was approximately $4.2 million with $2.8 million from the Vermont state subsidy. Because the realignment project would simply relocate part of the existing service to a shorter route, much of the Vermonter's current financial plan would remain unchanged. In fact, the shorter distance (and thus fewer rail miles) combined with the estimated increase in ridership and fare revenue could result in a lower future state subsidy compared to the existing service route.

If the enhanced service is pursued, additional funding sources for operations costs will be required as the incremental operating costs are estimated to increase by approximately $4.9 million per year. If fare revenue comprises 50% of the increase in cost, this implies a $2.4 million funding gap. One opportunity for funding that Massachusetts could consider would be the example from the Amtrak Downeaster which receives its operational subsidy by the State of Maine's Federal Congestion Mitigation Air Quality (CMAQ) funds.[12] Another option to consider for operational funding is a local or regional dedicated tax to be determined through a referendum or ballot measure. This is a common practice in many parts of the country as local residents and stakeholders recognize the importance of public transportation and are willing to help fund it.[13]

Funding options, as well as schedules and use of rail equipment will need to be closely negotiated with Amtrak, the railroad owning the infrastructure (Pan Am Southern), and FRA. Passenger rail funding options such as this should be evaluated, as PVPC and MassDOT continue to move forward in its consideration of passenger rail service enhancements in the Knowledge Corridor.

Public Participation and Communication

The restoration of the Vermonter passenger rail service to the Connecticut River rail corridor has broad and deep support locally, regionally and at the state-level. This study included a thorough public involvement planning process that involved three important aspects:

Public Awareness Campaign to educate the region about the study purpose, schedule, and activities. A project web site was developed to post presentation materials, TAC meeting notes, and newsletters. The PVPC project web site is: http://www.pvpc.org/corridor/about.html.

Coordination with Key Stakeholders in the region to obtain technical input into the study, and gain approval of the methodology used for making assumptions about the potential impacts of the various phases and aspects of the rail project. This was done through the establishment of a Technical Advisory Committee (TAC), which met frequently throughout the study.

Public Participation Efforts to create mechanisms to hear from the impacted communities about their reactions to the study and its recommendations. This was achieved through a series of public meetings, and through the collection and analysis of written comments from meeting participants and other community members. Public meetings were held in Springfield on May 19, 2009; in Northampton on May 20, 2009; and in Bellows Falls, Vermont, on May 27, 2009.

Based on the feedback from the public meetings and other written comments, there is strong support for this project. Of 96 written comments, 86 percent support the project. In addition to the public support for the project, this proposed rail improvement enjoys strong regional support from a number of key stakeholders, elected officials, economic development organizations, local colleges, and transportation providers in the region.

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[12] http://www.usatoday.com/travel/news/2008-07-21-amtrak-downeaster_N.htm
[13] According to the Center for Transportation Excellence, since 2000 approximately 70% of transportation measures have been approved about double the rate for ballot measures overall.

Summary of Findings and Recommendations

The feasibility analysis conducted for this study finds strong opportunities and benefits of restoring passenger rail to the Conn River Line and enhancing the level of passenger rail service. Based on the study findings and successful experiences elsewhere (e.g., the Downeaster), the study recommends a staged implementation of rail improvements over time. The first step is to complete the rail corridor and station improvements to realign the Vermonter service to the more direct, less mileage Conn River Line corridor. This critical first major initiative will reduce the travel time, substantially improve on-time performance, and re-connect the largest population centers and transit markets in the region. It will also provide the capital investment and infrastructure that can be leveraged to consider future enhancements to the rail service.

The feasibility study also finds that there is a strong return on investment from enhancing the current north-south passenger rail service in the region by adding to the daily Vermonter service. The three additional round-trip trains proposed for the corridor demonstrate strong potential for increased ridership and economic development in the mid-to-longer term. Implementing additional service will require negotiation and operating agreements between Amtrak, Pan Am Southern, and the states as well as funding for capital and operations.

The potential for commuter rail service was also explored, focused on extending and integrating with the proposed New Haven-Springfield initiative currently being led by Connecticut DOT. Given the relatively large costs and benefits of commuter rail service, this is likely a longer-term service option that can be explored in greater detail if/when: 1) the New Haven-Springfield commuter service is implemented; and b) enhanced intercity service in the Knowledge Corridor proves successful.

All three service rail improvement scenarios would provide significantly enhanced freight rail service for the region, linking with the state's primary east-west freight rail corridors as well as freight rail markets in Connecticut. The freight rail benefits are a significant component of the benefit-cost analysis as industries can move goods at lower per ton mile costs and at the same time remove freight trucks from the highway.

Greater details on the key findings of the three cases include:

Case 1 Realignment: Ridership is projected to increase 24 percent by 2015 compared to the existing Vermonter service and generally sustain this level of additional ridership through 2030. Based on assessing feasibility from the perspectives of infrastructure, operations, costs, and return on investment, restoring the Vermonter service to its historical alignment is justified. The benefit-cost analysis conducted for the study finds that a dollar invested in the project will generate $1.80 in return. In addition, the realignment alone will reduce the length of the current service by 11 miles, eliminate a time consuming reverse maneuver in Palmer and improve on-time performance from 55% to 90%.

Case 2 Enhanced Intercity: The feasibility study also suggests that enhanced intercity service will provide a strong public return on investment based on public benefits that are 2.6 times higher than costs. With the initiation of this expanded service, ridership is forecast to increase 231 percent from the current level by 2015 and 304 percent by 2030. In addition, 676 new jobs would be generated in the Knowledge Corridor by 2020, and 2,703 jobs by 2030. An increased level of infrastructure investment and operating costs would be required to accommodate this level of service.

Case 3 Commuter: The commuter rail scenario is estimated to generate the greatest ridership and economic benefits but also the largest capital and operating costs. In addition, commuter rail in the region would need to be integrated with the proposed New Haven-Springfield service. As this scenario provides the smallest return on investment based on current analyses and requires funding well-beyond current resources, it is recommended that it be considered a longer-term option. If and when the related regional rail improvements described in this document are successfully implemented, and opportunities to fund this level of service were available, then commuter rail service for the region could be re-examined.

Next Steps

Based on the results of the feasibility study, restoring the Vermonter to its historical alignment is recommended. The most immediate next step is the anticipation of a potential award grant from the FRA HSIPR program to implement the necessary infrastructure improvements. Grant awards are expected to be announced in February 2010. If awarded funding, final design and construction will commence almost immediately as the funding is intended to achieve economic stimulus benefits. Implementation of this change will require close coordination between VTrans, MassDOT, Amtrak, FRA, and the regional stakeholders. A key aspect of this process is an operating agreement with Pan Am Southern to restore passenger rail to the corridor.

Enhanced north-south intercity service in the corridor beyond the current Vermonter is also strongly supported by both local stakeholders and the feasibility analysis. Achieving additional passenger rail service can leverage the anticipated capital improvements for the rail corridor to restore service to the Conn River Line. It is also a bit more complex. As described in the financing opportunities section, this will require the identification of operational subsidies to make up the difference between expected operating costs and fare revenue. It is likely that the state of Massachusetts and the Pioneer Valley region will need to take leadership on this issue.

The PVPC should also start evaluating the opportunities and mutual benefits of integrating proposed rail service enhancements with the existing inter-city bus service in the region. For example, the Downeaster from Portland to Boston has strategically integrated bus and rail fares as well as honoring tickets on each mode to facilitate greater travel options. That experience demonstrates that inter-city rail and bus service can be complimentary and boost overall ridership by enhancing the convenience and mobility options for travelers.

To be successful and realize the positive return on investment identified in this study from enhanced intercity service, it is recommended that the state and region take action in 2010 to engage Amtrak, the FRA, and Pan Am Southern to develop a practical funding and operations strategy.

1. INTRODUCTION

The Connecticut River Valley has long served as a connection between New York and Eastern Canada and is a critical rail transportation corridor for New England. Some of the earliest north-south railroads in North America connected the cities and towns along the Connecticut River, providing the first rail links between Boston, New York, and Montreal. Different segments of the rail corridor were constructed and owned by different railroad companies, a condition that persists to this day.

The Knowledge Corridor describes a cluster of communities between Springfield, Massachusetts, and White River Junction, Vermont, located along I-91 within the Connecticut River Valley. This corridor consists of high-density communities, in addition to a multitude of important cultural, educational, business, and medical facilities. It is an important cultural and economic backbone for New England. Well into the last century, significant levels of both passenger and freight service were offered in the Knowledge Corridor.

1.1 Purpose and Need

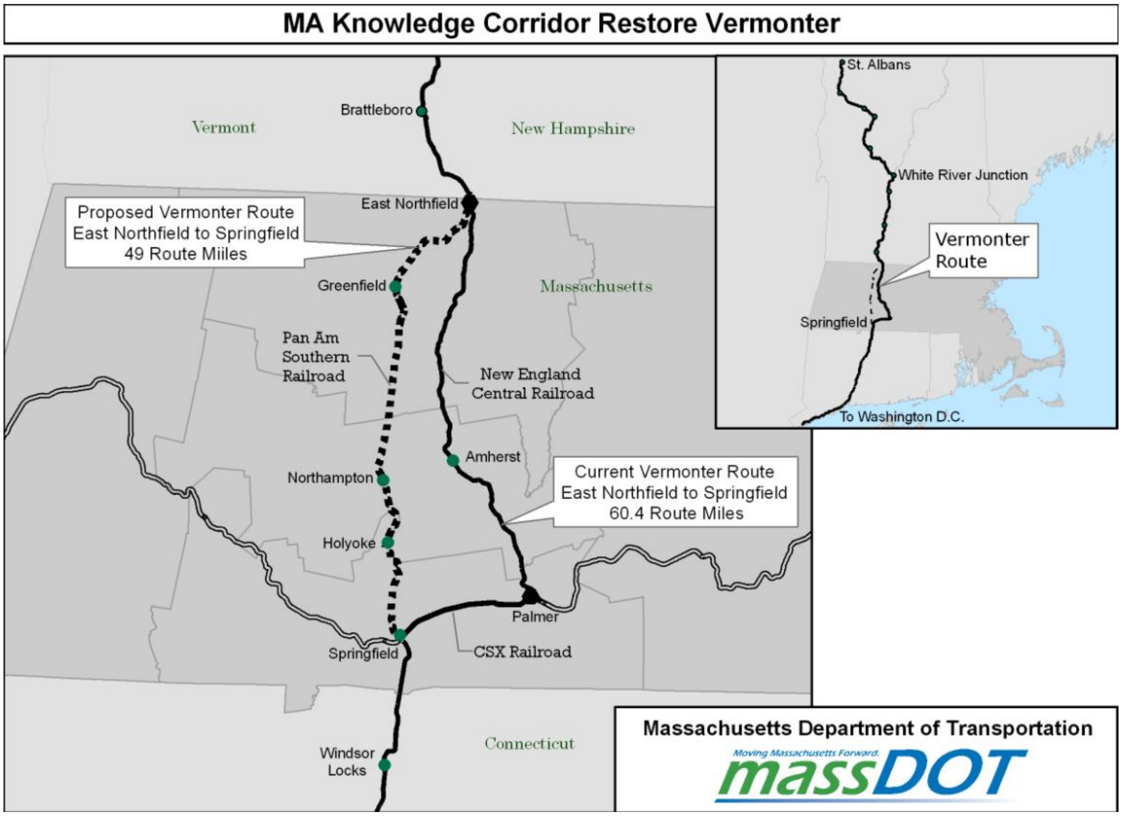
The Pioneer Valley Planning Commission (PVPC), with support of its partners, including the Vermont Agency of Transportation (VTrans), Massachusetts Department of Transportation (MassDOT), Amtrak, a technical advisory committee (TAC) and others, has led the Knowledge Corridor Passenger Rail Feasibility Study. The study's overarching objectives are to improve mobility and promote economic development. The study assesses the feasibility of possible future passenger rail improvements intended to reduce travel time, maximize accessibility, and provide viable transportation alternatives within the Knowledge Corridor. It also evaluates the impact to freight rail shipping costs and opportunities to move goods by rail rather than truck.

Amtrak's current service in the corridor is the Vermonter, which operates one scheduled train per day in each direction between Washington, DC, and St. Albans, Vermont[1]. Expansion and improvement of this limited service could benefit residents and businesses in the Knowledge Corridor by improving overall mobility. In addition, passenger rail enhancements are anticipated to promote economic development, improve air quality, and reduce traffic congestion.

Figure 1.1 shows the existing Vermonter Service, as well as the proposed realignment. For the study, it is assumed that any enhanced intercity or commuter service will utilize the restored alignment for passenger rail service along the "Conn River Line" route traditionally used for passenger service in the area.

[1] Additional Amtrak service in the region includes the east-west Lake Shore Limited service from Boston to Chicago with a station stop in Springfield, shuttle trains between New Haven and Springfield, and a daily Northeast Regional train between Springfield and Washington, DC.

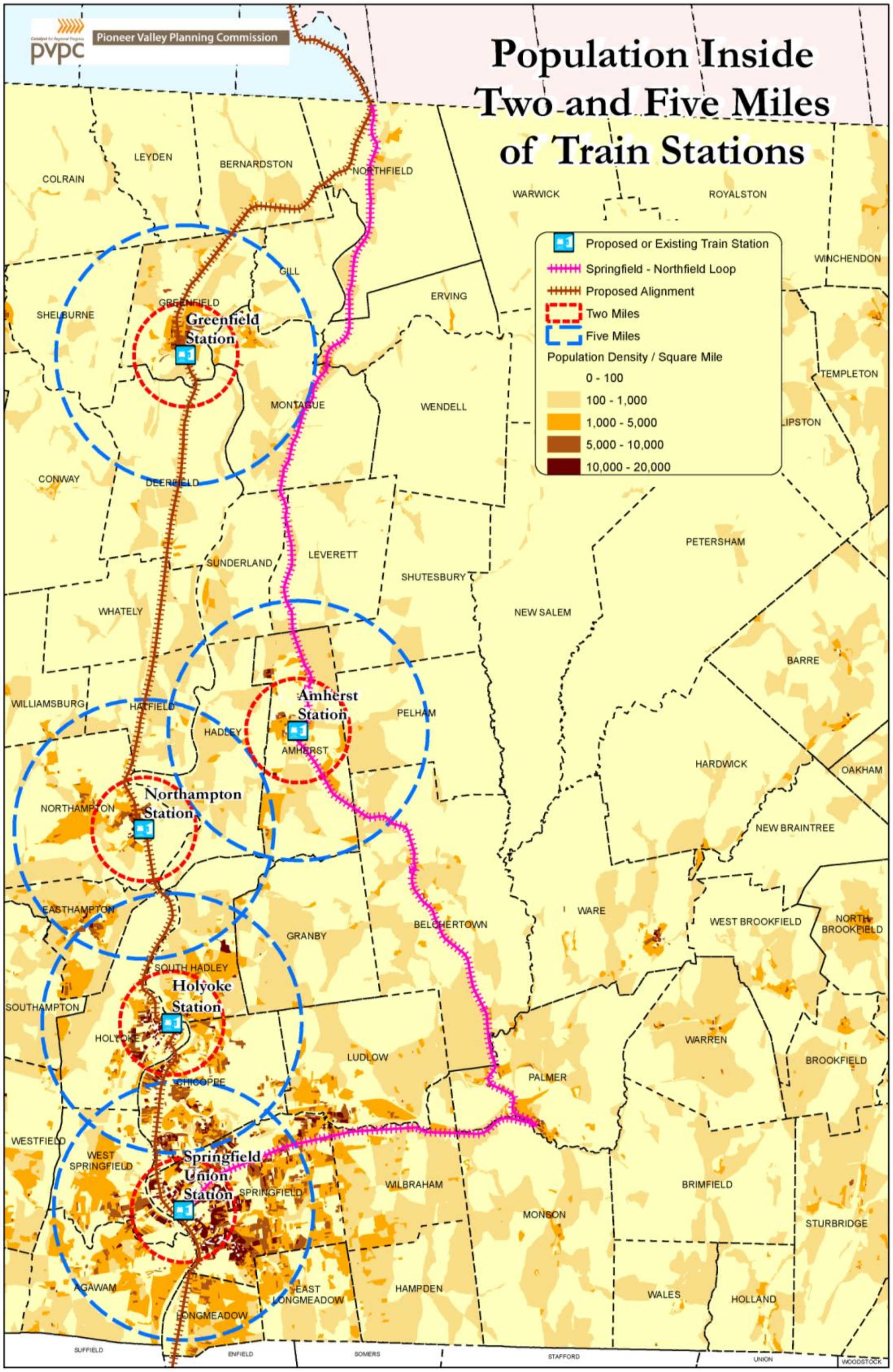
Figure 1.1 Knowledge Corridor Rail Alignment: Existing and Proposed



The restored route will provide stations or improved access to rail for the region's larger cities, including Greenfield, Northampton, Easthampton, Holyoke, and Chicopee (see Figure 1.2). The realigned rail corridor would provide improved rail access and connectivity to a population of 319,886 within five miles of the stations and a population of 138,233 within 2 miles.[2] Relocating the Amherst station to Northampton results in a 20 percent increase in population within 5 miles of the station, along with the potential to provide rail connectivity to more cities (Greenfield and Holyoke) while still improving the train travel time in the corridor. Re-connecting these cities to rail is anticipated to lead to greater ridership; improved pedestrian, bicycle and transit connectivity; and transit-oriented development opportunities.

[2] Analysis from the Pioneer Valley Planning Commission based on detailed 2000 U.S. Census Block data.

Figure 1.2 Population Inside Two and Five Miles of Train Stations



1.2 Passenger Rail Service

Three options for passenger rail service improvements for the Knowledge Corridor are considered in the feasibility study. They include:

Case 1 Realignment: Realignment along the Pan Am Southern (PAS) route that parallels Interstate 91 along the Connecticut River. This is a more direct route and it avoids use of the CSX main line, and a switching maneuver at Palmer. The current alignment in Massachusetts covers 60.4 miles between East Northfield and Springfield, with a station in Amherst. Under the new alignment, the trip length would be reduced to 49 miles and the stop in Amherst would be eliminated. A stop in Northampton would replace the Amherst stop. Pioneer Valley Transit Authority (PVTA) provides regularly scheduled bus service between Northampton and Amherst. A stop would also be added at the Greenfield Intermodal Facility with the expectation that another station would be developed in Holyoke.[3] The operational assumptions are that the existing round trip Vermonter service would operate on the Knowledge Corridor and associated improvements for the service would potentially support one additional intercity train.

Case 2 Enhanced Intercity: The proposed enhanced intercity rail service would comprise a total of 4 to 6 trains in each direction in the Knowledge Corridor. More specifically, the near-term expansion of service would likely mean that in addition to the Vermonter, three daily round trip trains that currently run between New Haven, Connecticut, and Springfield, Massachusetts, would extend northward. One train would travel to White River Junction, Vermont, and the other two would extend to Greenfield, Massachusetts.

Case 3 Commuter: The proposed commuter level service would offer more frequency of trains for the morning and evening commutes with 7-9 commuter focused trains per day in each direction, in addition to any intercity trains operated as potentially noted in Case 2. A specific operating plan would be required to be developed that could include integration of trains serving both commuter and intercity functions. A goal of this service would be to link to the proposed New Haven-Springfield Commuter service, anticipated to run between New Haven and Hartford in Connecticut and Springfield, Massachusetts.

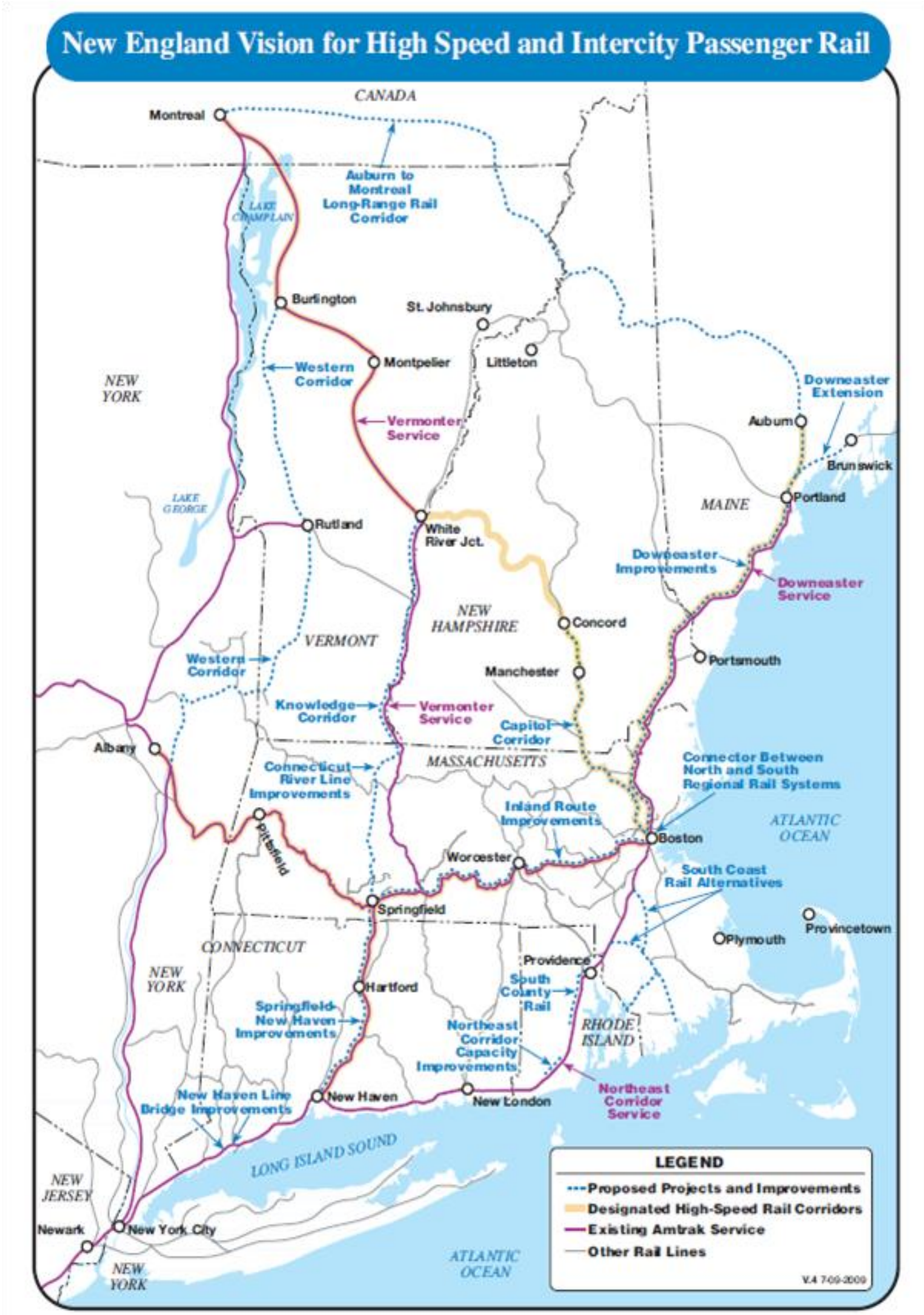
This corridor is included within the *Vision for the New England High-Speed and Intercity Rail Network* released in 2009[4] and thus is linked and connected with other New England rail initiatives (see Figure1.3). Related potential improvements include:

- The proposed New Haven-Springfield commuter rail initiative;
- The Inland Route from Boston to New Haven by way of Springfield which emphasizes rail corridor improvements between Worcester and Springfield. This route will be studied by MassDOT for feasibility in 2010;
- The Vermonter/New England Central Railroad Passenger Rail Improvement Project; and

[3] The operations, ridership and benefit-cost analysis in this study include the assumption of a station in Holyoke. The HSIPR grant applications submitted to FRA discussed Holyoke as a potential station but assumed that the station location was still under consideration and development, and thus the application included a Holyoke station within the service development plan for the rail corridor rather than in the near-term stimulus construction project.
[4] http://www.mass.gov/Agov3/docs/PR071309.pdf

- Station upgrades and linkages with the Union Station renovation and revitalization in Springfield, and the construction of the Greenfield Intermodal Transportation Center.

Figure 1.3 New England Vision for High Speed and Intercity Passenger Rail



The availability of American Recovery and Reinvestment Act (ARRA) stimulus funds through the Federal Railroad Administration's (FRA's) High Speed Intercity Passenger Rail (HSIPR) program provided MassDOT with an opportunity to submit two grant applications for funding to realign the Vermonter service to its historical route and lay the groundwork for the expansion of passenger service in the Knowledge Corridor.[5] The availability of the funding accelerated the environmental assessment (EA) and preliminary engineering, making the Vermonter restoration "shovel ready." The status of these applications is still pending, with the outcome of the grant applications expected to be released in February 2010. A critical asset of the submitted applications, as well as for future prospects for the Knowledge Corridor, is the commitment and coordination with Vermont. VTrans is dedicated to improving the corridor's rail infrastructure and service for both passenger and freight rail, and the agency plans to continue its funding support for the Vermonter service.

1.3 Organization of the Final Report

Eight chapters comprise the feasibility study, beginning with this introductory Chapter 1. The remaining report is organized as follows:

- Chapter 2: Infrastructure Assessment – Provides an assessment of the existing rail infrastructure, evaluating the rail corridor itself, as well as the current and potential railroad station sites.

- Chapter 3: Rail Operations Analysis – Details the results of various rail operations scenarios. The evaluation included the three primary rail expansion scenarios described in the previous section, as well as several other service variations.

- Chapter 4: Passenger Rail Ridership Forecasts – Describes the modeling involved in estimating ridership for each of the three primary scenarios. These estimates are the leading indicator of benefits for the benefit-cost analysis discussed in Chapter 5 of the study.

- Chapter 5: Benefit-Cost Analysis – Presents a summary of the benefit-cost analysis results for each of the three primary scenarios and describes the methodology utilized to estimate benefits and costs. Benefit-cost ratios measuring the return on investment are provided as well.

- Chapter 6: Economic Development Analysis – Offers an assessment of the likely near-term and longer-term economic development impacts attributable to rail expansion.

- Chapter 7: Public Participation – Details the public participation and communication efforts that were made throughout the course of the feasibility study.

- Chapter 8: Summary of Findings and Recommendations – Summarizes the results of the feasibility study and provides recommended next steps.

The final report documents also include a stand-alone executive summary and supporting technical appendices.

[5] See MassDOT website for submitted applications to FRA: http://www.eot.state.ma.us/recovery/HSR.htm

2. INFRASTRUCTURE ASSESSMENT

Assessing the existing rail infrastructure is a critical first step in the overall feasibility study. The team's analysis was primarily focused on the area between Springfield, Massachusetts, and White River Junction, Vermont. Along with site visits, information gathered for and presented in the "New Haven-Hartford-Springfield Commuter Rail Implementation Plan" prepared for the Connecticut Department of Transportation (ConnDOT) was used in the assessment.

The current condition of the Knowledge Corridor infrastructure and railroad stations is provided in the first section of this chapter. In addition, the results of an assessment of potential rail station sites are offered. The chapter concludes with a discussion of the infrastructure improvements likely to be required to accommodate expanded passenger rail service.

2.1 Existing Conditions Assessment

The existing rail corridor forming the spine of the study area is known as the Connecticut River Main Line. Pan Am Southern (PAS) owns and operates approximately 49 miles of track in the southern portion of the corridor running between Springfield and East Northfield, Massachusetts. New England Central Railroad (NECR) owns and operates approximately 74 miles of track in the northern portion of the corridor from East Northfield, Massachusetts, to White River Junction, Vermont. The two railroads' tracks join at the East Northfield interlocking, which is located just south of the Vermont border. Much of the infrastructure data used in this study was obtained through interviews with railroad personnel and by record documents provided by the railroads including track charts, time tables, valuation maps and other record information. Record information was supplemented through field investigations along the corridor and additional research with local, regional, state and federal agencies.

Operating speeds vary along the length of the corridor. Speeds are dependent upon a multitude of factors including physical condition of the track, maintenance practices, track curvature and superelevation, and profile grade.

The Federal Railroad Administration (FRA) has established track safety standards for railroad tracks. The FRA has developed a system to divide track into specific classes with associated geometry, track structure, inspection, operating requirements and allowable speeds. FRA track classes and operating speed limits are shown in the Table 2.1.

Table 2.1 FRA Track Classifications

Over track that meets the requirements prescribed for:	The maximum allowable speed for freight trains is:	The maximum allowable speed for passenger trains is:
Class 1 Track	10 mph	15 mph
Class 2 Track	25 mph	30 mph
Class 3 Track	40 mph	60 mph
Class 4 Track	60 mph	80 mph
Class 5 Track	80 mph	90 mph

Table 2.2, below, lists Track Class and the maximum allowable speeds based on timetable speeds and permanent speed restrictions.

Table 2.2 Existing Conditions Speed and Track Class Summary

Railroad	Limits (Milepost)	Track Class	Time-table Speed Freight (mph)	Time-table Speed Passenger (mph)	Comments
PAR	0.00-0.38	1	10	-	
PAR	0.38-2.00	2	20	-	Engine Restrictions: CPR1 (MP0.38) to Smiths Ferry (MP12.8) - Six axle engines must not be operated on other than main tracks
PAR	2.00-6.85	3	35	-	MP 2.40: Long Term Restriction (30 mph) at Plainfield Street Grade Crossing
PAR	6.85-8.00	1	10	-	
PAR	8.00-10.60	3	30	-	
PAR	10.60-32.70	3	35	-	Engine Restrictions: CPR18 (MP17.93) to MP37 - Six axle engines must not be operated on other than main tracks Stop Post: MP S23.80 - Depot St. Stop Post: MP S2.48 - North Hatfield Rd. Stop Post: MP S21.68 - Chestnut St. Stop Post: MP S22.80 - Plain Rd.
PAR	32.70-37.7	3	30	-	Engine Restrictions: Six axle engines must not be operated north of MP37
PAR	37.7-49.67	3	35	-	
NECR	110.5-114.0	3	40	55	Palmer Subdivision
NECR	114.0-114.8	3	30	40	
NECR	114.8-119.8	3	40	55	
NECR	119.8-121.0	3	25	35	
NECR	121.0-121.5	1	10	20	

Railroad	Limits (Milepost)	Track Class	Time-table Speed Freight (mph)	Time-table Speed Passenger (mph)	Comments
NECR	121.5-122.2	3	30	30	
NECR	122.2-125.5	3	40	55	
NECR	125.5-126.3	3	35	40	
NECR	126.3-127.7	3	35	55	
NECR	127.7-129.9	3	35	40	
NECR	129.9-135.0	3	40	55	
NECR	135.0-136.1	3	40	50	
NECR	136.1-141.2	3	40	55	
NECR	141.2-141.3	3	25	40	
NECR	141.3-143.1	3	40	55	
NECR	143.1-143.6	3	40	50	
NECR	143.6-144.1	3	40	55	
NECR	144.1-144.4	2	10	25	
NECR	144.4-145.0	1	10	10	
NECR	145.0-155.6	3	40	55	
NECR	155.6-155.7	3	40	55	
NECR	155.7-162.1	3	40	55	
NECR	162.1-163.0	3	40	50	
NECR	163.0-168.5	3	40	50	
NECR	168.5-168.6	3	40	50	
NECR	168.6-168.8	3	40	55	
NECR	168.8-169.4	3	30	30	
NECR	0.0-1.0	3	30	30	Roxbury Subdivision
NECR	1.0-4.1	3	40	59	
NECR	4.1-4.5	3	30	30	
NECR	4.5-9.9	3	40	59	
NECR	9.9-10.4	3	40	50	
NECR	10.4-11.1	3	40	59	
NECR	11.1-12.0	3	40	40	
NECR	12.0-14.5	3	40	59	
NECR	14.5-15.5	2	25	30	

2.1.1 Alignment and Track Condition

The following provides information related to the alignment and track condition for both the Pan Am Southern and the New England Central Railroad.

Pan Am Southern (PAS)

Alignment and Grade

The Connecticut River Main Line is approximately 49 miles in length and generally follows the Connecticut River as it proceeds from Springfield to East Northfield. In areas where the line is adjacent to the river, the line has numerous compound as well as back-to-back curves. When the railroad pulls away from the river, the alignment improves and there are several long tangents. Overall, the railroad alignment is made up of about 50% curves that range from 1° to about 4-30°. Places like Holyoke (MP 8) have significant permanent speed restrictions due to horizontal geometry along the Connecticut River.

The operation of freight and passenger trains on the existing alignment is more often constrained by the existing horizontal rather than vertical geometry.

Generally, the PAS track has gentle gradients that range between 0.1% and 0.8%. These gradients reflect those of the adjacent river. Steeper gradients (0.5% to 0.8%) are generally found between Greenfield and East Northfield as the railroad pulls away from the Connecticut River.

The operation of freight and passenger trains is seldom constrained by grades and vertical geometrics.

General Track Condition

The current track conditions and maximum authorized speeds reflect the levels of service on the line. PAS track has been maintained only to the level required to support existing traffic.

Rail and ties are generally in fair to poor condition. Ballast and drainage, however, are generally in good condition.

The line from East Northfield to Greenfield and Springfield has numerous temporary speed restrictions of 10 MPH. Most of the speed restrictions are allowed to remain, in effect for extended periods, reflecting the limited amount of traffic currently operating on the line.

Rail

There are numerous types of rail used on the Connecticut River Main Line today. Most of the line consists of jointed rail while there are short pieces of welded rail (CWR) in curves and through grade crossings.

The bulk of the jointed rail has a 5½” base and includes: 100 NH and 107 NH. There is some relay 112 RE welded rail on curves and on tangents north of Mt. Tom (MP 15). The track chart also shows a small amount of 85AS rail (Holyoke) and some 130RE rail (Greenfield). The jointed 85AS because of its weight and age should be replaced. The 130RE jointed rail, because of its joint condition (Neaftie 4 Hole Joints) and defect history, should also be considered for replacement.

The condition of rail varies. Significant amounts of the head and gage face wear appear in curves. This type of wear drives the replacement of existing jointed and welded rail in curves. On tangent track there is generally less head and gage face wear and the replacement of rail will be driven by the rail condition at joints, the age and type of rail (non-control cooled), along with the overall wear and condition of the rail head. It is anticipated that the need to replace rail in support of passenger service will be driven by the need to eliminate joints to reduce maintenance and improve ride quality.

Table 2.3 Rail End Condition

Location (By Milepost)	Condition
0.0 to 0.4	Fair
0.4 to 0.6	Poor
0.6 to 6.7	Fair to Good
6.7 to 8.5	Poor
8.5 to 11.0	Marginal
11.0 to 12.7	Poor
12.7 to 16.3	Fair
16.3 to 31.1	Fair to Good
31.1 to 31.5	Poor
31.5 to 45.8	Fair to Good
45.8 to 49.0	Poor
49.0 to 49.6	Fair to Good

Joints

As described below in Table 2.4, the joint condition varies because of type and age of rail and the tie condition maintained in the joint area. The selective replacement of jointed rail to address head and gage face wear, joint condition and weight and type of rail will improve the ride quality and increase the overall reliability of the rail joints left in track.

Table 2.4 Locations of Poor to Marginal Joint Conditions

Location (By Milepost)	Condition
8.5 to 9.3	Poor
9.3 to 11.0	Marginal
37.0 to 38.0	Poor

Anchors

Jointed track on the PAS alignment is generally anchored with 10-12 anchors per rail length. Increased speed should be accompanied by an anchoring program for jointed rail, which increases the number of anchors to 16 to 20 anchors per rail length (39' rail).

Special Trackwork

Most of the special work, that includes switches on the PAS track is jointed, quite old and in some cases has reached the end of its serviceable life. For that reason, special trackwork should be replaced with welded components of a standard rail weight that will be more reliable, reduce the amount of maintenance required and permit higher diverging speeds so as to improve operations and line velocity.

Switch Timber (Special Work)

Switch Timber condition on the PAS track again reflects current operating requirements. The need to run at much higher operating speeds for passenger rail, and to achieve a state of good repair, would necessitate the replacement of 30-40% of the existing switch timber in the special work or some 20 to 30 timber per turnout.

Cross Ties
Crosstie condition along the line generally reflects the type(s) of freight service provided at a particular location. The number of effective crossties per rail length is generally greater in curves than on tangent. Tie condition is maintained to meet the requirements of FRA 213.109 for the line speeds at which trains operate.

Crossties are generally mixed hardwoods with dimensions of 7” X 9” X 8½’ spaced from 19½” to 21”. Therefore, there are from 3018 to 3250 ties per mile.

It can be expected that there will be a need to add or replace a significant number of ties if passenger service were to be reintroduced in the corridor in order to increase train speed and improve the overall health and condition of the tie population.

From a cursory field inspection, it appears that approximately 8 to 14 ties per rail length would have to be replaced or added to sustain proposed passenger train speeds or some 1080 to 1900 ties/mile.

Table 2.5 Substandard Ties

Location (By Milepost)	Substandard Ties Per 39’ Section
0.0 to 4.0	9
4.0 to 7.0	12
7.0 to 9.0	14
9.0 to 19.0	10
19.0 to 20.0	12
20.0 to 22.0	12
20.0 to 20.5	14
22.0 to 25.0	12
25.0 to 26.0	11
26.0 to 27.0	12
27.0 to 33.0	10
26.5 to 27.0	14
33.0 to 36.0	9
36.0 to 37.0	10
37.0 to 39.0	9
39.0 to 41.0	8
41.0 to 42.0	10
42.0 to 43.0	8
43.0 to 44.0	9
44.0 to 46.0	12
46.0 to 47.0	10
47.0 to 48.0	8
48.0 to 50.0	10

Ballast
Ballast conditions are generally good on the Connecticut River Main Line as gravel ballast was replaced with granite ballast in the early 1950's. The Connecticut River Main Line is generally well drained with minimal subgrade issues. However, there are a limited number of spots where there is muddy and/or fouled ballast (i.e., Greenfield Arch MP 36.5). In addition, it has been some time since the corridor has been raised out-of-face.

Therefore, 900 to 1,000 tons of ballast per mile will have to be dumped to raise, surface and align the track (3"–4") after the installation of ties, timber and/or rail. This ballast will be used to raise track and establish desired shoulder widths (1').

There will be a need to spot undercut at locations where there is muddy and fouled ballast so that the ballast under conventional track and special work is capable of supporting higher train velocities in a safe and economical manner.

In addition, it may be necessary to clean shoulder ballast at select locations to provide for a clean, well drained ballast cross section.

Drainage
The Connecticut River Main Line is generally built on light fills and cuts. The railroad is supported on a mixture of glacial soils that consist of gravels, sands, silts and clays. Light fills are usually built from the more granular materials and are well drained. In most cases light cuts have ditches that provide adequate drainage.

However, there are some side hill cuts where there are unusual amounts of water flowing down into the uphill ditch that if not properly maintained create, at a minimum, fouled ballast and muddy track conditions and/or some local conditions of embankment instability located between MP 32 and 33.

Drainage is a very important factor in maintaining both the local and global health of the roadbed on the Connecticut River Main Line and it is expected that any general rehabilitation program would include a spot ditching program to address local problems.

It is expected that there will have to be a general ditching program established to clean and renew drainage structures in support of any passenger initiative.

Table 2.6 Locations of Fouled Ballast or Poor Drainage

Location (By Milepost)	Condition
29.5 to 30.0	Fouled Ballast and Poor Drainage
30.6 to 30.7	Poor Drainage
32.6 to 32.7	Poor Drainage
33.1 to 33.2	Poor Drainage
33.5 to 33.6	Poor Drainage
36.5 to 36.6	Poor Drainage
37.8 to 38.1	Poor Drainage
40.0 to 40.4	Poor Drainage

Grade Crossings (Surface)
In the 1970's and 1980's Pan Am Railways (and its predecessor, Boston & Maine) had an aggressive grade crossing reconstruction program that was funded in part by the Federal Highway Administration's (FHWA) 130 program. While the serviceability of these crossings has remained adequate over the years, a number of crossing surfaces have reached the end of their serviceable lives and should be replaced in anticipation of renewed passenger service to improve ride quality (both for railroad and highway users) and reliability while reducing anticipated maintenance expenditures.

Vegetation
Vegetation along the line is controlled by both an annual application of herbicides (weed spray) and periodic cutting and mulching of brush. Brush is removed to be compliant with the minimum requirements of FRA 213.37.

It is envisioned that if higher velocity passenger trains were introduced into this corridor, a general vegetation removal program would be required to improve sight lines and sight distances as well as to remove vegetation from drainageways and from around signal facilities.

It is anticipated that there would be additional vegetation removal required from the four (4) quadrants in the vicinity of highway grade crossings.

New England Central Railroad

Alignment and Grade
The New England Central Railroad (NECR) Main Line in the area of study consists of two subdivisions. The Palmer Subdivision is approximately 59.5 miles in length (MP 110.5 – MP 170.0). The Roxbury Subdivision is approximately 14.75 miles in length (MP 0.0 – MP 14.75). The track alignment of the NECR consists of both tangents and curves. As in Massachusetts where the Railroad is adjacent to the Connecticut River, the line has numerous compound as well as reverse curves. When away from the River, the track geometry generally improves. In fact, there are several tangents such as those at Claremont and Cornish. However, it should be noted that in general, the tangents are not as long as the PAS section. Overall, the railroad alignment is made up of about 45% curves that range from 0°-30' to about 6°-00'. Places like Bellows Falls (MP 144.6) have significant permanent speed restrictions due to curvature, alignment and grade. The operation of freight and passenger trains on the existing alignment is more often constrained by the existing horizontal rather than vertical geometry. However, Bellows Falls Tunnel is the exception, where the vertical geometry constrains the maximum speed of trains.

Generally, the NECR track has gradients that range between 0.05% and 0.9%. The gradients are generally controlled by both the adjacent river and manmade adjustments to obtain vertical clearance. Steeper gradients are generally found in the Bellows Falls area where the railroad runs through a tunnel and crossed from Vermont and New Hampshire.

The maximum length of freight trains operated on these subdivisions is constrained by both grade and vertical geometrics. The maximum speed of passenger trains on these subdivisions is often constrained by the horizontal geometry and the length of spirals in and between curves.

General Track Condition

The track conditions and maximum authorized speeds for both freight and passenger generally support the levels of service on the line. NECR maintains the existing track to a level that is required to support both the existing freight and passenger operating plans.

Rail and ties are generally in fair to good condition. However, there are specific locations where improvements to both rail and ties are needed to support passenger operations at higher speeds with better ride quality. Ballast and drainage are generally in fair to good condition. However, there are spot locations where there is fouled ballast and unstable subgrade where improvements will be needed to support higher train speeds.

The line from East Northfield to White River Junction has some permanent speed restrictions of 10 MPH. As previously discussed, these are in the Bellows Falls area. In general, the NECR has done a good job in addressing and removing temporary speed restrictions.

Higher line speeds may be possible to achieve at specific locations if additional work is done to the track infrastructure that would include track rehabilitation and track realignment.

Rail

There are numerous types of rail used on the NECR Main Line today. Most of the line consists of jointed rail, but there are short pieces of welded rail (CWR) in curves, through grade crossings and at other select locations.

The bulk of the jointed rail has a 5 ½" base and consists of two types of sections to include: 100 RA and 112 RE. There is some relay 112 RE welded rail on curves and tangents around Brattleboro to Dummerston and Westminster to Bellows Falls.

The jointed 100 RA, because of its weight and age, may have reached the end of its useful life and may be a candidate for replacement. Most of the rail joints in both the 100 RA and 112 RE are 4-hole bars. The rail defect history is affected by these 4-hole bars, which produce both bolt hole cracks and head web separations at the rail joint.

The condition of rail varies. Significant amounts of the head and gage face wear appear at some locations on the high rail in curves. Due to the number of curves on the NECR, there are locations where there is a significant amount of head wear on the low rail in curves. This type of wear drives the replacement of jointed and welded rail in curves. On tangent track there is generally less head and gage face wear and the replacement of rail will be driven by joint condition, the age and type of rail (non-control cooled), along with the overall rail defect history. It is anticipated that the need to replace rail in support of passenger service will be driven by the need to eliminate joints, reduce the number of rail defects per mile, reduce maintenance and improve ride quality.

Table 2.7 Rail Condition

Subdivision	Mile Post	Rail Condition
Palmer	113.9	Burns/Corrugations
Palmer	114.2	Burns/Corrugations
Palmer	115.4	Bent
Palmer	115.5	Bent
Palmer	115.8	Bent
Palmer	115.9	Bent
Palmer	118.6	Bent
Palmer	120.2	Bent
Palmer	120.4	Bent
Palmer	120.5	Corrugations - LR
Palmer	120.6	Bent
Palmer	120.8	Bent
Palmer	121.5	Corrugations - LR
Palmer	124.4	LR Corrugated
Palmer	126.0	HR Worn Out
Palmer	126.2	Corrugation - LR
Palmer	127.1	HR Worn Out
Palmer	127.2	Corrugations - LR
Palmer	127.8	Corrugations - LR
Palmer	128.6	Corrugations - LR HR Worn Out
Palmer	128.7	HR Worn Out
Palmer	135.4	Corrugations
Palmer	138.0	Corrugated - LR
Palmer	138.1	Corrugated - LR

Subdivision	Mile Post	Rail Condition
Palmer	138.2	Corrugated - LR
Palmer	138.3	Corrugated - LR
Palmer	138.4	Corrugated - LR
Palmer	138.5	Corrugated - LR
Palmer	143.2	Low Rail Worn Out
Palmer	143.3	Low Rail Worn Out
Palmer	143.4	Low Rail Worn Out
Palmer	143.5	Low Rail Worn Out
Palmer	143.6	Low Rail Worn Out
Palmer	149.3	Rail Chording
Palmer	149.5	Skewed Ties - Needs Anchors
Palmer	149.6	Skewed Ties - Needs Anchors
Palmer	149.7	Skewed Ties - Needs Anchors
Palmer	149.8	Skewed Ties - Needs Anchors
Palmer	149.9	Skewed Ties - Needs Anchors
Palmer	151.2	Corrugated Rail
Palmer	151.8	Wheel Burns, Bent Rail
Palmer	153.3	Bent Rail
Palmer	155.2	Corrugated
Palmer	155.6	Corrugated
Palmer	155.8	Bent Corrugated Rails
Palmer	156.2	Bent Corrugated Rails
Palmer	156.7	Bent Rails
Palmer	157.5	Engine Burns
Palmer	158.0	Skewed Ties - Needs Anchors
Palmer	159.0	Skewed Ties - Needs Anchors

Subdivision	Mile Post	Rail Condition
Palmer	159.2	Bent Rail
Palmer	160.2	Bent Rail, Corrugations
Palmer	162.7	Corrugations, Plugs
Palmer	168.9	Corrugations
Roxbury	2.6	Corrugations
Roxbury	3.5	Corrugations, Low Rail Worn
Roxbury	4.2	Low Rail Worn
Roxbury	11.9	Bad Rail Ends and Rail
Roxbury	13.8	Corrugated Worn Rail

Joints

As described above, there are mainly 4-hole joint bars in these track segments. The joint condition varies because of type and age of rail joints and the history of tie condition maintained in the joint area. The selective replacement of jointed rail, with 6-hole joint bars if possible, to address head and gage face wear, joint condition and overall rail condition will improve the ride quality and maintainability of the rail joints left in track. Wherever possible, rail joints should be eliminated to reduce maintenance costs on the line.

Table 2.8 Rail End/Joint Condition:

Subdivision	Mile Post	Rail End/Joint Condition
Palmer	110.8	Bent
Palmer	111.4	Loose
Palmer	111.7	Bent
Palmer	113.5	Bent
Palmer	116.9	Bent (LR)
Palmer	118.6	Bent
Palmer	119.4	Loose
Palmer	119.7	Bent

Subdivision	Mile Post	Rail End/Joint Condition
Palmer	120.6	Bent
Palmer	120.8	Bent - LR
Palmer	124.4	Bent
Palmer	130.1	Loose
Palmer	130.7	Loose
Palmer	131.1	Loose, Some Batter
Palmer	132.5	Loose
Palmer	132.6	Rough, End Batter
Palmer	132.7	Loose
Palmer	143.6	Loose
Palmer	146.2	Rough
Palmer	146.5	Bent
Palmer	147.0	Bolts Poor
Palmer	147.1	Bolts Poor
Palmer	147.2	Bolts Poor
Palmer	147.3	Bolts Poor
Palmer	147.4	Bolts Poor
Palmer	147.5	Bolts Poor
Palmer	147.6	Bolts Poor
Palmer	147.7	Bolts Poor
Palmer	147.8	Bolts Poor
Palmer	147.9	Bolts Poor
Palmer	148.2	Low Joints
Palmer	148.6	Bent
Palmer	148.8	Loose

Subdivision	Mile Post	Rail End/Joint Condition
Palmer	149.7	Low Joints
Palmer	150.6	Low Joints
Palmer	151.0	Chipped Ends
Palmer	151.2	Low Joints
Palmer	153.2	Low Joints
Palmer	153.3	Bent Ends, Bent Joint
Palmer	155.2	Bend Ends
Palmer	155.8	Low Joints, Bend Joints
Palmer	156.2	Bent Joints
Palmer	157.5	Bent Joints
Palmer	158.6	Bent Joints
Palmer	159.2	Low Joints
Palmer	159.5	Loose Joints
Palmer	161.6	Bent Joints
Palmer	163.6	Bent Joints
Palmer	169.0	Bent Joints
Roxbury	4.5	Plugs
Roxbury	12.5	Loose Joints
Roxbury	13.3	Loose Joints
Roxbury	13.8	Plugs in CWR w/Bad Rail Ends

Anchors
Jointed track on the NECR alignment is generally anchored with 8-12 anchors per rail length. Ties in welded rail (CWR) are generally box anchored on every other tie.

There are locations in track where the ties are skewed, which indicates the differential movement between rails. Skewed ties are a symptomatic condition of insufficient anchoring.

Therefore, it is recommended that additional anchors be added and defective anchors be removed and replaced with anchors. Increased speed should be accompanied by an anchoring program for jointed rail, which will increase the number of anchors to at least 16 anchors per rail length (39' rail).

Special Trackwork
The special trackwork on the NECR is jointed, and in some cases has reached the end of its serviceable life. There are both old and recently replaced turnouts. Special trackwork that is renewed should be replaced with welded components of a standard rail weight that will be more reliable, reduce the amount of maintenance required and permit higher diverging speeds so as to improve operations and line velocity.

Switch Timber (Special Work)
Switch timber condition on the NECR track reflects current operating speeds and requirements. The need to run at higher operating speeds for passenger rail, and to improve the existing timber condition (which is generally good), would necessitate the replacement of 10-15% of the existing switch timber in the special work or some 8 to 12 timbers per turnout.

Cross Ties
Cross tie condition along the line generally reflects the type of freight and passenger services currently being provided. The number of effective ties per rail length is generally greater in curves than on tangent as Federal rules and good operating practice requires. Cross tie condition has improved over the last few years under NECR management, as they have aggressively been replacing defective ties as time and money allows.

Ties are generally mixed hardwoods with dimensions of 7" X 9" X 8½' spaced from 19½" to 21". Therefore, there are from 3018 to 3250 ties per mile.

It can be expected that there will be a need to replace a number of defective ties if passenger train speeds in the corridor were to increase. This will improve the overall health and condition of the tie population. This would help to establish a state of good repair with respect to cross ties for higher train operating speeds.

From a cursory field inspection, it appears that approximately 2 to 8 ties per rail length (from 270 to 1080 ties/mile) would have to be replaced to support an increased number of passenger trains operating at higher speeds.

Table 2.9 Substandard Cross Ties

Subdivision	Location (By Mile Post)	Substandard Ties per 39' Section
Palmer	110.0 to 111.0	13
Palmer	111.0 to 112.0	9
Palmer	112.0 to 113.0	6
Palmer	113.0 to 114.0	6

Subdivision	Location (By Mile Post)	Substandard Ties per 39' Section
Palmer	114.0 to 115.0	4
Palmer	115.0 to 116.0	7
Palmer	116.0 to 117.0	6
Palmer	117.0 to 118.0	4
Palmer	118.0 to 119.0	5
Palmer	119.0 to 120.0	7
Palmer	120.0 to 121.0	4
Palmer	121.0 to 122.0	10
Palmer	122.0 to 123.0	6
Palmer	123.0 to 124.0	5
Palmer	124.0 to 125.0	10
Palmer	125.0 to 126.0	7
Palmer	126.0 to 127.0	9
Palmer	127.0 to 128.0	9
Palmer	128.0 to 129.0	9
Palmer	129.0 to 130.0	9
Palmer	130.0 to 131.0	4
Palmer	131.0 to 132.0	6
Palmer	132.0 to 133.0	9
Palmer	133.0 to 134.0	5
Palmer	134.0 to 135.0	6
Palmer	135.0 to 136.0	10
Palmer	136.0 to 137.0	7
Palmer	137.0 to 138.0	9
Palmer	138.0 to 139.0	9
Palmer	139.0 to 140.0	6

Subdivision	Location (By Mile Post)	Substandard Ties per 39' Section
Palmer	140.0 to 141.0	7
Palmer	141.0 to 142.0	6
Palmer	142.0 to 143.0	7
Palmer	143.0 to 144.0	6
Palmer	144.0 to 146.0	10
Palmer	146.0 to 147.0	4
Palmer	147.0 to 148.0	4
Palmer	148.0 to 149.0	6
Palmer	149.0 to 150.0	4
Palmer	150.0 to 151.0	7
Palmer	151.0 to 152.0	2
Palmer	152.0 to 153.0	3
Palmer	153.0 to 154.0	4
Palmer	154.0 to 155.0	6
Palmer	155.0 to 156.0	6
Palmer	156.0 to 157.0	5
Palmer	157.0 to 158.0	5
Palmer	158.0 to 159.0	4
Palmer	159.0 to 160.0	7
Palmer	160.0 to 161.0	3
Palmer	161.0 to 162.0	3
Palmer	162.0 to 163.0	2
Palmer	163.0 to 164.0	3
Palmer	164.0 to 165.0	4
Palmer	165.0 to 166.0	8
Palmer	166.0 to 167.0	6

Subdivision	Location (By Mile Post)	Substandard Ties per 39' Section
Palmer	167.0 to 168.0	9
Palmer	168.0 to 169.0	6
Palmer	169.0 to 170.0	5
Roxbury	1.0 to 2.0	7
Roxbury	2.0 to 3.0	11
Roxbury	3.0 to 4.0	12
Roxbury	4.0 to 6.0	9
Roxbury	6.0 to 7.0	5
Roxbury	7.0 to 8.0	6
Roxbury	8.0 to 9.0	4
Roxbury	9.0 to 10.0	11
Roxbury	10.0 to 11.0	2
Roxbury	11.0 to 12.0	11
Roxbury	12.0 to 13.0	6
Roxbury	13.0 to 14.0	12
Roxbury	14.0 to 15.0	11

Ballast

Ballast conditions are generally fair to good on the NECR Main Line as gravel ballast was replaced with granite ballast from the mid 1950’s to mid 1960’s. The NECR Main Line is generally well drained with minimal subgrade issues. However, there are some spots on both the Palmer and Roxbury subdivisions where there is muddy and/or fouled ballast (i.e., Grade Crossing at MP 151.5). Additionally, there are unstable embankment conditions primarily on the Palmer subdivision that may need to be addressed if additional trains at higher speeds are run over the NECR.

Therefore, 900 to 1,000 tons of ballast per mile will have to be dumped to raise, surface and align the track (3”–4”) after the installation of ties, timber and/or rail. This ballast will be used to raise track and establish desired shoulder widths (1’).

There will be a need to spot undercut at locations where there is muddy and fouled ballast so that the ballast under conventional track and special work is capable of supporting higher train velocities in a safe and economical manner.

It may be necessary to clean shoulder ballast at select locations to provide for a clean, well drained ballast cross section. Embankment stabilization may be required at specific locations to remove existing slow orders in order to maintain higher train velocities.

Drainage

The NECR Main Line is generally built on light fills and cuts. However, where the track is adjacent to the Connecticut River, there are locations of significant fills and side hill cuts. The railroad is supported on a mixture of glacial soils that consist of gravels, sands, silts and clays. Light fills are usually built from the more granular materials and are well drained. In most cases light cuts have ditches that provide adequate drainage.

However, there are some side hill cuts where there are unusual amounts of water flowing down into the uphill ditch that if not properly maintained create, at a minimum, fowled ballast and muddy track conditions and/or some local conditions of embankment instability.

Drainage is a very important factor in maintaining both the local and global health of the roadbed on the NECR Main Line and it is expected that any general rehabilitation program would include a spot ditching program to address local problems.

It is expected that there will have to be a general ditching program established to clean and renew drainage structures to address global drainage issues along the entire Line.

Table 2.10 Locations of Fouled Ballast or Poor Drainage

Subdivision	Mile Post	Fouled Ballast/ Poor Drainage
Palmer	115.5	Mud
Palmer	117.2	Mud - Low Joints
Palmer	118.5	Mud
Palmer	120.4	Mud
Palmer	125.3	Bank Slide (2005)
Palmer	128.1	Slides
Palmer	128.7	Slides
Palmer	133.5	2 Slides (2008)
Palmer	134.1	Slope Repaired (2008)

Subdivision	Mile Post	Fouled Ballast/ Poor Drainage
Palmer	141.1	Sinkhole
Palmer	143.5	Mud
Palmer	146.2	Mud
Palmer	151.5	Mud (Crossing)
Palmer	152.2	Mud
Palmer	168.6	Bank Slide
Roxbury	0.9	Mud (Crossing)
Roxbury	9.3	Mud
Roxbury	11.7	Mud
Roxbury	13.2	Mud

Vegetation
Vegetation along the Line is controlled by both an annual application of herbicides (weed spray) and periodic cutting and mulching of brush. Brush is cut on a periodic basis. Vegetation control is compliant with the requirements of FRA 213.37.

It is envisioned that if additional higher velocity passenger trains were introduced into this corridor, a general vegetation removal program would be required to improve sight lines and sight distances as well as to remove vegetation from drainageways and from around signal facilities.

It is anticipated that there would be vegetation removal required from the four (4) quadrants in the vicinity at selected highway grade crossings.

2.1.2 General Condition of Bridges and Tunnels

The following provides information related to the bridges and tunnels for both the Pan Am Southern and New England Central Railroad.

Pan Am Southern
Bridges are generally in adequate condition and are subject to a regular inspection program conducted by Pan Am Southern. As identified by the railroad, minor improvements such as replacement of rails, crossties, and other minor components are anticipated. Bridge repair will not require in-water work or alteration of the bridge's key structural components.

New England Central Railroad

Bridges are generally in adequate condition and are subject to a regular inspection. As identified by the railroad, minor improvements, such as replacement of rails, crossties, and other minor components, are anticipated. It is expected that at some locations some work will need to be accomplished at backwalls and wingwalls at bridge approaches. In addition, there may be a need to make additional bridge repair to sustain higher operating speeds.

NECR has one tunnel at Bellows Falls, VT. This tunnel has just undergone extensive clearance and drainage improvements and is in good condition. In fact, in 2009 the NECR has operated double stack trains through this structure.

2.1.3 General Condition of Signals and Control

Signals and controls are discussed in the following section for both the Pan Am Southern and NECR.

Pan Am Southern and New England Central Railroad

Railway signaling is used to control and/or monitor the movement of train traffic within a rail corridor. A number of different signaling systems is employed in the study corridor and is described below. Summary information for the study corridor is presented in Table 1.1.1.3.

Centralized Traffic Control (CTC): In a CTC system, trains are controlled from a remote centralized location (dispatcher's office) where the movement of trains, the operation of switches and setting of signals are all controlled. CTC signals provide for bi-directional train operations without the use of special written train orders. CTC signals provide the highest density of operations and flexibility of use for a railway track segment.

Automatic Block Signals (ABS): An ABS system provides for safe headways between trains operating in the same direction on the same track. Trains traveling against the traffic current cannot operate without written permission from the train dispatcher (see Track Warrant Control) and operate at restricted speeds.

Track Warrant Control (TWC) and Form D Control System (DCS): These systems are manual block traffic control systems where written permission from the train dispatcher is required for a train to operate on any track segment. Tracks controlled with manual block signal systems are commonly referred to as "dark territory" as no signal lamps are provided to assist with traffic control of train movements.

Table 2.11 Signals and Control Summary

Railroad	Milepost Range (Approximate)	Location	Signal and Control System
PAS	MP 0 to MP 35.9	Springfield, MA Chicopee, MA Holyoke, MA Easthampton, MA Northampton, MA Hatfield, MA Whately, MA Deerfield, MA Greenfield, MA	ABS (Rule 261)
PAS	MP 35.9 to MP 49.7	Greenfield, MA Bernardston, MA Northfield, MA	DCS
NECR	MP 110.5 to MP 122.2	Northfield, MA Vernon, VT Brattleboro, VT	TWC
NECR	MP 122.2 to MP 169.4	Brattleboro, VT Dummerston, VT Putney, VT Westminster, VT Bellows Falls, VT Walpole, NH Charlestown, NH Claremont, NH Cornish, NH	CTC
NECR	MP 0 to MP 13.4	Windsor, VT Hartland, VT	TWC/ABS
NECR	MP 13.4 to MP 14.8	White River Junction, VT	TWC

2.1.4 Existing Passenger Service – Amtrak Vermonter

Amtrak currently operates the Vermonter intercity service between Washington, D.C. and St. Albans, VT running one scheduled train per day in each direction. Traveling south to north, the Vermonter enters the study area at New Haven, CT and travels northward to Springfield, MA making five local stops along the way. From Springfield, the Vermonter leaves the Connecticut River Main Line corridor and travels eastward along CSX tracks to Palmer, MA where the Vermonter switches to NECR track for the remainder of its trip. In Palmer the Vermonter must proceed past the NECR interlocking then stop to prepare the train for a change of direction. This reverse move is required as a connection that allows a train traveling eastward on CSX track to directly access NECR track and continue northward does not exist. After changing direction, the Vermonter continues northward, along NECR's track, stops at Amherst, MA, passes the interlocking where the PAS track terminates, and then continues on to White River Junction, VT and eventually to its terminus at St. Albans, VT. In its current configuration, the Vermonter does not travel on the PAS right-of-way described above.

2.1.5 Existing Freight Service

Pan Am Southern (PAS)

PAS currently runs five regular trains in the study corridor. PAS's trains generally operate from their East Deerfield train yard located approximately one mile east of the Connecticut River Main Line on PAS's Freight Main Line. PAS's trains are summarized in the following table. The information provided by PAS is approximate and average.

Table 2.12 Pan Am Southern Existing Freight Traffic

Train	Service	Frequency	Schedule
ED-2	East Deerfield Yard/ Springfield Local	1 Round Trip Daily	Southbound - AM Northbound - PM
PL-1	East Deerfield Yard/ Connecticut	1 Round Trip Weekly	Southbound - Mon Northbound - Fri
Coal	East Deerfield Yard/ Mt. Tom Power Plant	1 Train Daily, Mon-Thur, or as required	Southbound - AM Northbound - PM
ED-4	East Deerfield/ Bernardston Local	3 Trains Weekly Mon, Wed, Fri	Northbound - AM Southbound - PM
EDWJ	East Deerfield/ White River Jct., VT	1 Train Weekly Days Vary	Northbound - Day 1 Southbound - Following Day

Annual tonnage where coal trains operate between Greenfield and Mt. Tom is estimated to be from 4 to 6 Million Gross Tons (MGT) while other segments of the Line with just local and through freight is estimated at 1 to 3 MGT.

New England Central Railroad

NECR currently runs four regular trains in the study corridor. NECR's trains generally operate from their main facility located in St. Albans, VT. Their main service in the study area runs between St. Albans, VT and Palmer, MA. Other services in the study area include: switcher service between White River Junction, VT and North Walpole, VT; switcher service between St. Albans, VT and Vermont Railway's yard in Burlington, VT; and a chip unit train operating between Swanton, VT and Burlington Electric. NECR's trains are summarized in the following table. The information provided by NECR is approximate and average.

Table 2.13 New England Central Railroad Existing Freight Traffic

Train	Service	Frequency	Schedule
NEMSTPA	Manifest Service St. Albans, VT to Palmer, MA	7 Days a Week Sunday through Saturday	Departs St. Albans at 5:30 PM, Southbound
NEMPAST	Manifest Service Palmer, MA to St. Albans, VT	7 Days a Week Sunday through Saturday	Departs Palmer at 4 AM , Northbound
NEUSWBU	Unit Chip Train Swanton To Burlington Electric	4 Days a Week Monday through Friday	Varies 8am - 5pm, Northbound & Southbound
NERSTBU	Road Switcher Service, St. Albans to VTR Burlington	5 Days a Week Monday through Friday	Varies Northbound & Southbound
NERWHBE	Road Switcher Service, White River Junction to North Walpole	5 Days a Week Monday through Friday	Departs at 6:30 PM, Returns Approximately 1:30 AM, North & South

2.2 Existing Plans for Facility and Service Changes and Improvements – AMTRAK Vermonter

Future enhancements would seek to improve the existing rail service and would include moving the alignment to the Connecticut River Main Line between East Northfield and Springfield and increasing the frequency of trips to provide commuter service during morning and afternoon peak periods. The Vermont Agency of Transportation (VTrans) is currently working with Amtrak towards the goal of providing new commuter service in the corridor between Vermont and Springfield, MA. At the start of the feasibility study, VTrans was interested in procuring Colorado Rail Car diesel multiple unit (DMU) trainsets to be used in the new service. It was envisioned that the Vermonter intercity trains would be replaced with DMU trainsets operated by Amtrak crews in a shuttle type of service between Vermont and Springfield, MA, or New Haven, CT. Through the progression of the study, however, the Colorado Rail Car has ceased its business operations. Should new DMU options become available, they will be considered. At this time, it is not an option. Any service proposed is assumed to be operated with conventional Amtrak intercity operating equipment.

Connecticut Department of Transportation - New Haven - Hartford- Springfield Commuter Rail
The Connecticut Department of Transportation (ConnDOT) is proposing to implement commuter rail service between New Haven and Hartford, CT and Springfield, MA. A commuter rail implementation study plan was completed in 2005. The project is currently in the environmental assessment phase.

The preferred start-up service outlined in the study calls for 30 minute peak hour service running bi-directionally and operating at least 14 one-way trips Monday through Friday.

2.2.1 Right of Way

Corridors

Pan Am Southern: Springfield to East Northfield, MA

Ownership:
The entire ROW is owned by Pan Am Southern. There are no rights or interests held by other parties. No leases of line segments or unexercised operating rights were identified by Pan Am representatives. The corridor is intact as assembled by the Boston & Maine. The freight railroad service on the corridor is operated by Springfield Terminal Company, a subsidiary of Pam Am Southern.

Occupations:
The only major utility occupation is an underground fiber optic cable (MCI) on the westerly side of the full length of the corridor. There are a few overhead wire crossings in the city and village areas. None would appear to impact any future rail plans for the corridor.

New England Central Railroad (NECR): Palmer, MA to White River Junction, VT
Ownership:
The entire corridor from New London, CT to East Alburg, VT is owned by Canadian National (CN) Railway. New England Central Railroad (NECR), part of the Rail America System, leases the operating property and owns and maintains all of the track and structures. NECR deals with all property management issues, including leases and licenses on its leased portion. CN owns and manages retained properties along the corridor. PanAm Railways has overhead rights from Millers Falls, MA to White River Junction, VT.

The only major utility occupation of the corridor is an underground Sprint fiber optic cable from Palmer, MA to White River Junction, VT.

Stations Existing Conditions

A search of local property ownership records was conducted together with discussions with railroad representatives to identify the ownership of existing or former stations. Parcels potentially suitable for future stations were also researched and lessees of stations were identified. Copies of Assessment Parcel maps were obtained for the station areas. They are attached herewith together with a list of owners corresponding to parcel numbers. The parcel sizes listed must be considered approximate.

Pan Am Southern Corridor

- *Springfield, MA*: The old Union Station and adjacent properties are owned by the City of Springfield Redevelopment Agency. The current Amtrak Station is owned by Amtrak. Amtrak also owns a strip adjacent to the full length of the old station that appears to include all or a portion of the old platform.

- *Holyoke, MA:* The former B&M station land and building on the easterly side of the tracks on the northwest corner of Bowes and Mosher Streets is privately owned. The building (address-12 Bowers Street) sits on a parcel containing 25,374 SF. It is currently used for storage. The adjacent parcel to the north (2 Bowers Street & corner of Lyman Street) contains 16,520 SF and houses a small building that appears to be used by a construction or service-related business.

- *Holyoke, MA, 170-190 Main Street, corner of Appleton*: An irregular shaped site running along Main Street, it contains 2.86 acres and is currently used for an automotive repair business. The configuration of the parcel would lend itself to use as a passenger rail station as it extends along the tracks for several hundred feet and is at track level.

- *Holyoke, MA, 107 Appleton Street, corner of Bowers Street*: A site similar in shape to 170 Main Street, it contains 3.36 acres. It extends for several hundred feet along the tracks and is level with the adjacent main track. It is currently being used for a scrap metal business.

- *Northampton, MA:* The former B&M Station is privately owned and used as a restaurant. It is located in town on the westerly side of the right-of-way just south of the Bridge Street/Main Street underpass. The former station itself is considered for reuse as a station.

- *Northampton, MA, north of Bridge Street/Main Street, along the westerly side of the tracks*: This would require acquisition of the rear of several parcels that front onto King Street (Rt. 5) and a former rail parcel adjacent to the Pan Am tracks and owned by Mass Electric running the full length from Bridge Street/Main Street to North Street. With the exception of a large parcel (280’ width) owned by the Commonwealth, all of the parcels that front to King Street are privately owned.

- *Northampton, MA, south of Bridge Street/Main Street*: Another potential location is along the westerly side of the tracks immediately beyond the former station building. It currently is a parking lot that appears to cover two parcels. One is owned by the City and the other is private. While there is some metered parking, a portion of it appears to be on the private parcel. The City parcel, 160 Pleasant Street a/k/a Railroad Avenue, contains 1.6 acres and the private parcel, 125 Pleasant Street has 2.4 acres.

The former passenger platform remains fairly intact along the rear of the restaurant and the parking areas. The platform canopy on the rear of the building appears to partially extend over the platform, which is on Pan Am property. The deed of transfer of the station from railroad ownership could not be located at the time of this writing.

- *North of North Street*: Another potential site is a large parcel on King Street, north of North Street opposite Church Street. It is vacant with a long stem approximately 55 feet wide running over 1600 feet along the railroad. It has a total area of 3.3 acres and could easily accommodate a parking lot.

- *Greenfield, MA*: Two potential sites were identified in the right of way assessment. One site was located at the Greenfield Energy Park. This was considered not viable because its use has changed since it was last used as a railroad station. The second site considered in Greenfield was the planned Franklin Regional Transportation Center. This site was formerly occupied by a Toyota dealership. The Administrator of the Franklin Regional Transit Authority (FRTA) reported that the site has been acquired and the footprint has been designed as a bus terminal with limited parking. This site is adjacent to the right of way. A large portion of the site remains uncommitted as to its final dedicated use, and it is anticipated that a rail passenger station may be part of that use.

New England Central Railroad Corridor

- *Brattleboro, VT*: The current Amtrak Station is essentially a small office in the basement level of the former Union Station building now owned by the Town of Brattleboro. Amtrak is a tenant. A design firm commissioned by the Town is completing design for redevelopment of Union Station and the platform level areas to accommodate rail passenger service. Local officials are optimistic that the project will commence in the near future.

- *Bellows Falls, VT*: The current station is owned by Green Mountain Railroad on land owned by the State of Vermont. The Village, in concert with the Windham Regional Planning Commission, is planning to purchase and rehab the station and convert to a multi-use facility with Amtrak, VTrans, and retail businesses as tenants. Green Mountain Railroad will continue to operate passenger excursions from the new facility. The Village will lease the land from the State.

- *Claremont, NH:* The station is essentially a whistle stop adjacent to the former station now privately owned. It is occupied by a bicycle shop and is in excellent condition. Portions of the old platforms still remain. There is a large parking lot. The lands on the other side of the tracks are owned and occupied by an automobile dealer.

- *Windsor, VT:* The former passenger station is privately owned and houses a pub and restaurant. Amtrak stops there and there are enclosed passenger facilities. A former freight building on the same side of the tracks about 400 feet north is owned by CN. There appears to be sufficient width alongside the tracks for an access drive. CN also owns a 56-acre site directly across the tracks that is accessed via a grade crossing next to the former station. A portion of the large tract is a suspected Brownfields site, but there should be sufficient area for a passenger parking lot if needed. The current station location is in the downtown area.

- *White River Junction, VT:* The current station is privately owned and has been restored. Amtrak and Green Mountain Railroad are tenants and a rail museum is there. There is currently adequate parking on the property and the owner is working with VTrans to expand to multi-modal, multi-use location. Plans include expanded parking, retail and residential, on adjacent properties.

Note: All of the Amtrak stops in Vermont are staffed and maintained by contract employees.

Grade Crossing Inventory

The locations of railroad-highway grade crossings are an important consideration in the evaluation of any rail corridor as they may affect the safety and efficiency of freight and passenger rail service running in the corridor. As such, a grade crossing inventory has been prepared for the corridor to catalog the number and location of existing grade crossings. The detailed inventory is presented in Appendix A of this final report.

The inventory was prepared using information available from the Federal Railroad Administration's Highway-Rail Crossing Inventory Database, railroad lists, track charts, and the crossing inventory prepared for the Vermont Agency of Transportation for the Boston to Montreal High Speed Rail Feasibility and Planning Study. Record information was augmented in the field during high-rail visual inspection of the existing corridor.

Grade crossings are classified as Public or Private, with private crossings being further classified as farm, recreational, or industrial where that information is available. Public crossings are established in accordance with state and federal government regulations to provide continuation of a public road or right-of-way over a rail line and may be used by the public without restriction. Private grade crossings are typically established by agreement between the railroad and the users of the grade crossing. Private grade crossing access is generally granted for a specific purpose.

Warning devices are employed at many grade crossings to identify the presence of a grade crossing and, in the case of active devices, to warn drivers and pedestrians of approaching train traffic. The type of warning device installed at a grade crossing is dependent on a number of factors, including the amount of vehicular and pedestrian traffic, the frequency of train crossings, expected train operating speeds, and the type of trains (freight, passenger, or both) operating on the railroad right-of-way. Passive type warning devices include railroad cross-buck signs, stop signs, and other warning devices that alert a driver or pedestrian that a grade crossing is present, but does not provide a warning that a train is approaching. Active warning devices indicate the approach of a train and include flashing lights, bells and gates that close as a train approaches the grade crossing.

A summary of the existing grade crossings follows:

Table 2.14 Grade Crossing Summary: Pan Am Southern (MA)

Crossing		Warning Device and Number						
Type	Number	None	Gates	Flashing Lights	Other Activated	Cross-bucks	Other Signs, Signals	Stop Signs
Public	22	0	14	6	0	2	0	0
Private	15	15	0	0	0	0	0	0
Total	37	15	14	6	0	2	0	0

Table 2.15 Grade Crossing Summary: NECR (VT and NH, To White River Junction, VT)

Crossing		Warning Device and Number						
Type	Number	None	Gates	Flashing Lights	Other Activated	Cross-bucks	Other Signs, Signals	Stop Signs
Public	28	2	6	16	1	2	0	1
Private	40	36	1	1	0	1	1	0
Total	68	38	7	17	1	3	1	1

Existing Conditions Summary

An existing conditions summary for infrastructure is provided below.

<u>Pan Am Southern</u>

The condition of grade crossings, located along the Pan Am Southern trackage, ranges from marginal to good condition with the majority falling in the fair to good range. In general, the condition of the existing grade crossings is adequate for the current use in the corridor. It is anticipated that if train speeds were increased on Pan Am Southern there would be some required upgrade work at grade crossings with active warning devices.

<u>New England Central Railroad</u>

The condition of grade crossings located along the NECR trackage ranges from marginal to excellent condition with the majority falling in the fair to good range. In general, the condition of the existing grade crossings is adequate for the current use in the corridor. It is anticipated that if train speeds were increased on the NECR Line there would be some required upgrade work at grade crossings with active warning devices.

A discussion outlining the improvements, which may be required to support expansion of passenger rail service, is included in the rail operations analysis technical memorandum.

Video Documentation of Rail Line

Video recordings of the trackway were produced during hi-rail inspections of the corridor and provide valuable documentation of the current state of the right-of-way. The video recordings were used as working documents to assist with inspection report verification. A summary of conditions video was prepared and presented to the Technical Advisory Committee.

2.3 Station Evaluation

A total of ten past and potential passenger rail station stops in Chicopee, Holyoke, Northampton, South Deerfield and Greenfield and one existing Amtrak Station stop in Springfield were evaluated. This section of the Infrastructure Assessment Technical Memorandum will discuss our findings and evaluation of the eleven potential sites and the existing Amtrak Station in Springfield.

Each site visited was evaluated on the basis of accessibility, suitability from a railroad operational perspective, the existence and condition of station facilities and components, the ability to deal with pending “level boarding” requirements, which are discussed in more detail below, at that site and available/potential parking. Each site’s potential as a “destination” (i.e., is this a location where passengers can get off the train and either be at or very near to their final destination) was assessed and then given an overall evaluation of either “Very Good,” “Good” or “Limited Potential.”

“Accessibility” was interpreted both as ease of accessibility for pedestrians and automobiles, as well as proximity to the regional transit networks provided by Pioneer Valley Transit Authority (PVTA) in Hampden and Hampshire Counties and Franklin Regional Transit Authority (FRTA) in Greenfield. Generally, it was assumed that something close to the existing transit route network for PVTA and FRTA would continue to exist; no significant expansion of service was assumed. Rather the potential station locations were evaluated assuming that existing transit routes could/would be minimally rerouted to serve the station (i.e. with only minimal change to operating cost). In most cases, the potential stations do not have significant differentiation with respect to transit routes between them to be a significant determining factor.

- In Greenfield, all FRTA services currently hub at Court Square, which is within blocks of either proposed station site. Since FRTA is planning to turn the second station site (former Toyota dealership) into its new regional transit hub, this site would have better transit accessibility than the Energy Park site, which is across Deerfield Street.
- In Northampton, the PVTA routes use Main Street near the Courthouse (within 1 block of the rail right-of-way). All bus routes could be easily diverted south or north two blocks to serve the train station with minimal cost. There is not significant differentiation in how service would need to change between the two proposed station sites.
- In Holyoke, only a few routes travel into the downtown area (there is more activity out near the Holyoke Mall), but the routes that exist use High Street near City Hall and Dwight Street. Thus, only approximately two blocks separate the routes from any of the four station sites, each of which could be accommodated with minimal operational changes.

- In Springfield, only one station location, Union Station, was evaluated, and it is slated to become a regional transit hub, so its accessibility is excellent.

2.3.1 The "Level Boarding" Issue

In 2006, the United States Department of Transportation (DOT) issued Notice of Proposed Rulemaking (NPRM) 49CFR Parts 27, 37 and 38, Docket OST-2006-23985, which addressed the desire to achieve "level boarding: throughout the entire length of a passenger train" at a station, not just an individual coach in that train as has been the standard since the early 1990's.

As stated in the NPRM, the purpose of achieving level boarding was to create universal accessibility for all passengers to all coaches in all trains, rather than the one-car-per-train accessibility for non-ambulatory passengers that has been the industry norm for accessibility.

Also as stated in the NPRM, the methodology for achieving level boarding was to mandate two (2) sets of required dimensions for passenger car floor height and for platform height:

- 48 inches Above-Top-of-Rail (ATR) in the Northeast Corridor and those areas where these so-called "high level" platforms can be accommodated.
- 15 inches ATR everywhere else.

This NPRM has generated a great deal of industry comment and industry concern about the impact of mandating such structures and the extent to which they would infringe upon required clearances for the safe movement of freight trains, which operate on the same tracks. In order to be close enough to a passenger car/train sitting next to such a platform for safe loading and unloading of passengers in compliance with the requirements of the Americans with Disabilities Act (ADA), the platform would have to be built no more than five feet, six inches from the centerline of the nearest track. To the freight railroads, such a structure at the proposed heights this close to the nearest track would not only limit the size of freight cars that could safely pass by those stations, it would also pose a potential safety hazard to any railroad employees working on those freight trains and riding on the outside of a freight car.

At the present time, the Final Rule in this matter has not been published by DOT. For purposes of conducting this study, the HDR team felt that the best course was to consider if it would be possible to achieve level boarding in the construction of a new station at each location. The analysis has been conducted accordingly. Furthermore, given the type of passenger rail equipment being utilized on those parts of the Knowledge Corridor that currently have passenger service, level boarding will most likely only be achievable through the construction of platforms at 48 inches ATR.

Descriptions of the potential station sites considered by HDR are provided in the following section.

2.3.2 Greenfield, MA

Two sites were visited in Greenfield:

Site A: The first was the former station stop, which is adjacent to Greenfield Energy Park. The badly-crumbled remnant of the former platform is really all that remains to indicate that this was once a passenger rail station. The evaluation indicated that there were a number of changes to the site since it was last used as a rail station. Accessibility to this location is not optimal, as it is located at the end of a short side street off Main Street right in the middle of downtown Greenfield.

This site is located on the western side of and adjacent to Pan Am Southern's Connecticut River Main Line. If a stop were to be reinstated at this location, the restored platform may, in all likelihood, be restricted to a height of no more than eight inches ATR, due to the anticipated clearance requirements of the rail freight service on this Line. Depending on the terms of the level boarding final rule, this could lead to the need for a time-consuming and uncertain waiver process.

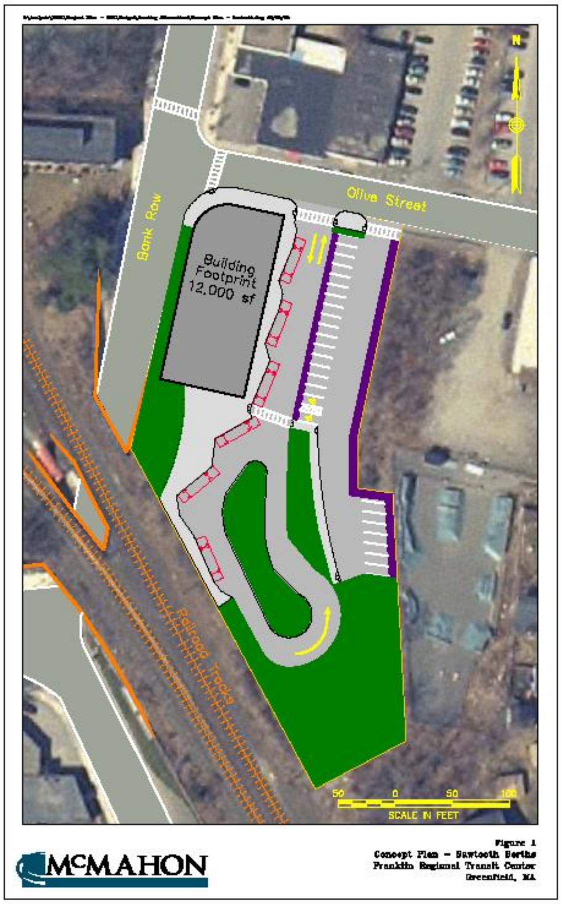
There is also the possibility that a location that was at one time a passenger rail station, such as this location in Greenfield, may be exempted through a "grandfather" clause from level boarding regulations if and when they are established.

In addition, the existing wrought iron fencing around Energy Park appeared to impose limitations on both platform width and the ability to construct any sort of station facility.

Finally, this site appeared to have very limited parking availability and potential. At present there are approximately 30 spaces of free public parking—about half of which were full on the day we visited—and there did not appear to be any room to either expand this parking or to construct any sort of station facility without taking some of the currently available parking spaces. ***Site A Overall Evaluation: Limited Potential***

Site B: Almost directly across the Connecticut River Main Line and adjacent to the line is a former Toyota dealership. During the feasibility study period, this site was acquired and is being designed for an intermodal transportation facility. The adjacent rail property could be configured to enable the connection of a rail station to the new intermodal facility. While not a requirement, this connection would provide rail passengers with some amenities offered at the intermodal facility. Based on the assessment, this site is more suitable in every regard to Greenfield Site A described above.

Figure 2.1 Concept Plan for Greenfield Intermodal Facility



Subsequently, the HDR team met with Mayor Forgey of Greenfield, Massachusetts, and found a great deal of enthusiasm for this Site B. The new intermodal transit center is being planned for occupancy in early 2011 and, while actual on-site parking for rail patrons will probably be limited to 30-35 spaces, plans are also well underway for a new parking garage approximately one block from the new facility. The Mayor also stressed, moreover, that passenger rail service to this new facility—and to Greenfield—is an important element of her plans for the city.

As to the intermodal transit center location, access is easier as the Toyota dealership is not located off Main Street but is still very close to downtown Greenfield (i.e., less than a quarter mile). Additionally, the width of the Pan Am right-of-way in this area appeared to be sufficient to accommodate a station track for future use by both commuter and intercity passenger trains. A station track (i.e., a track that would essentially be a siding off the Connecticut River Main Line for use by passenger trains stopping at this passenger station, often referred to as a "gauntlet track") at this new station location would allow for compliance with future level boarding requirements by creating the conditions to permit construction of the new station platform at 48 inches ATR. Station tracks can also prove very useful on a single track rail line such as the Connecticut River Main Line in that they can provide additional opportunity and capacity for the meeting and passing of trains (e.g., a passenger train sitting on a station track is clear of the main line, allowing a freight train to pass should that be necessary). ***Site B Overall Evaluation: Very Good***

2.3.3 South Deerfield, MA

Approximately eight miles south of the Greenfield station sites discussed above, is a potential site for a new commuter rail station in South Deerfield. This site is located approximately two-tenths of a mile east of Routes 5, 10 and 116 in the northwest quadrant of the Elm Street grade crossing and directly across Elm Street to the north from the former South Deerfield station. It is a large vacant field that, if it is available, is very easily accessible from a main highway and that appeared to have the potential for at least 200 parking spaces, again depending on how much of this open land would be available.

This location is approximately six to seven miles, via Route 116, from the main campus of the University of Massachusetts (UMass) and could serve as a secondary access point to service the UMass community. (Northampton is foreseen as the primary access point for the UMass community).

From a railroad operational perspective, the site is adjacent to an active siding (i.e., there were two covered hoppers sitting on the siding on the day that we visited) on the west side of the Connecticut River Main Line, but this siding appeared to have the potential to become a station track, again as a means of accommodating future level boarding regulations by connecting it onto the Main Line at the north end. There also appeared to be room available to the north of what would be the new platform location to provide an altered siding for the shipper at this location.

This station was considered as potential additional station after the implementation of North Hampton and Greenfield stations. One consideration is the increase of stations such as Greenfield will increase in travel time associated with the stopping at an intermediate station. Prior to any implementation of use of this station, further analysis of the ridership and comparison of operation impacts to the then operations should be undertaken including the availability of land.

Overall Evaluation: Good for second priority station

2.3.4 Northampton, MA

As was the case in Greenfield, the evaluation included consideration of two potential station sites in Northampton:

Site A: The former Amtrak intercity passenger station location in Northampton is adjacent to the town center, a short distance (i.e., less than a quarter-mile) off Route 9. While the former station building is now the Union Station Restaurant, much of the old platform is still intact (approximately four to five car lengths) and there is a considerable amount of parking, although it is not likely that all of it would be available for passenger use. It is estimated that currently there are approximately 200 paved, lit parking spaces at this location. However, over 100 of these are clearly identified as parking for the Union Station Restaurant. Of the remaining number, approximately 15 are metered and 75 to 80 are subject to a $0.15 per hour charge, payable at a drop box. The $0.15 per hour spaces, moreover, are currently utilized to a not-inconsiderable extent by shoppers, tourists and other visitors to downtown Northampton, creating somewhat of a limited situation when it comes to available parking at this location.

The platform is adjacent to a siding, currently out of service, on the west side of the Connecticut River Main Line. As discussed at earlier sites, this siding, if restored to service, could function as a station track and could accommodate level boarding requirements by means of a 48-inch ATR "high level" platform should that become a necessity, although, also as the case with the historic Greenfield Station location, this site's status as a former passenger rail station could cause it to be exempt from those requirements.

As discussed earlier in this Infrastructure Assessment, one of the primary objectives of the I-91 Knowledge Corridor study is to determine the feasibility of relocating the Amtrak "Vermonter" from its current route to the Pan Am Southern Connecticut River Main Line between East Northfield and Springfield, MA.

A consideration for the Northampton station is the ability to serve the existing Vermonter passenger station in Amherst, MA. The Amherst station, which is 7.9 miles to the east along Route 9, has an indoor waiting room, but a very small platform for passenger boarding (only a one to one and a half car lengths) and only about 20 parking spaces, none of them paved. The Northampton site is clearly preferable to the Amherst Station in regards to platform size and available parking. Improvements will be needed to locate an enclosed passenger shelter that is an Amtrak standard requirement for stations of this size and anticipated utilization. As one option, perhaps some of the restaurant parking spaces, which are adjacent to the old platform, could be made available.

Finally, in terms of the evaluation of this location, Northampton clearly presents itself as a potential "destination", especially for tourism and for the students at Smith College. The use of the station may be constrained based on the finite amount of available parking. It was deemed that sufficient parking would be available to support the relocation of the Vermonter. Implementation of additional Amtrak intercity trains will require the evaluation of parking based on refined ridership and existing conditions at the time of implementation of any additional service. ***Site A Overall Evaluation: Very Good for use with current Vermonter and potential increase in Intercity service***

Site B: The second location evaluated in Northampton is approximately the same distance to the north of the town center that the former Site A Amtrak Station is to the south. Running in a south-to-north direction behind the Hampshire County Court House, the Science and Learning Store and the Northampton Co-Operative Bank are a string of four parking lots, totaling approximately 200 spaces. During initial site visits it was observed that less than half of these spaces were occupied. Indications from further investigations were that the spaces would be filled in the near future and that now available spaces should not be deemed to be available for potential future train travelers if a station was constructed in the area.

Members of the evaluation team met with Mayor Higgins of Northampton and the City's Economic Development Coordinator, Teri Anderson, to discuss this location as a potential station site for Northampton. There is a project in the planning stages to replace the existing Registry of Deeds and Probate with a new Justice Center. Behind that new Justice Center and adjacent to the Connecticut River Main Line would be a new parking structure, with a train station of the second floor (so that the platform would be at grade with the rail line).

If this project is implemented, the parking structure would provide for more potential parking availability in the future than the Northampton Site A discussed above. This site is also adjacent to the unused siding on the west side of the Connecticut River Main Line described as part of the Northampton Site A, but the desired location for the new station platform for the proposed transportation terminal does sit on a curve if the existing main track alignment is used. One consideration was to use of land west of the tracks to improve and straighten station tracks. The newly constructed bikeway would need to be considered in the final design of the station. Accordingly, final design of this station will require evaluation if available land exists to construct a station platform on tangent track. ***Site B Overall Evaluation: Very Good Future station location***

2.3.5 Holyoke, MA

In Holyoke, the HDR team visited four potential station locations:

Site A: The first evaluated site was the former passenger rail station in Holyoke, located just off Main and Canal Streets, approximately four-tenths of a mile from downtown and City Hall, and located on the west side of the Connecticut River Main Line. The former station building is still there and, while we were not able to get access to it, it looked to be structurally intact from the outside. It also appeared to be one of the stations designed by legendary nineteenth century architect H. H. Richardson, a fact that was later confirmed for us when we met with the Mayor of Holyoke. There are two signs on and next to the building, one indicating that "Star Engines" is housed there and the other bearing the name "Perry's Auto Parts." In two visits to this site, no signs of commercial activity or occupancy where observed.

As mentioned earlier, this site is easily accessible, as it is removed from the heart of downtown by a short distance, and the land surrounding the structure appears to be capable of providing 50-60 parking spaces.

As is the case at several other station locations evaluated in other cities, this location has a siding adjacent to it, which could be extended, reconnected to the Main Line and rehabilitated to serve as a station track for a high level platform. A platform built at this location, however, would be on a curve, unless it was located to the south of the station building. By doing so, it appeared as though there was sufficient right-of-way to build a new platform on mostly tangent track. However, this may be another location exempt from future level boarding regulations due to its historic status.

Obviously, renovating and restoring an historic structure of this type can prove to be costly, a fact which has become a concern to funding agencies, such as the Federal Transit

Administration, in recent years. Also, the maintenance and upkeep on a structure of this type can be very costly. ***Site A Overall Evaluation: Good***

Site B: Just to the south of the former station location, there is an open piece of land adjacent to the railroad track with ample room for the construction of a new station. This parcel is adjacent to the Sullivan Scrap Metal Company and sits at the foot of Dwight Street, at the intersection of Dwight and Main Streets. This location, furthermore, is only three-tenths of a mile from the downtown mall, with excellent highway access and available land for at least 100+ parking spaces, if not more.

In meeting with Mayor Sullivan and Holyoke's Director of Planning and Development, Kathleen Anderson, the HDR team was told that Holyoke has several projects underway for the downtown area, including a multi-modal transportation center (which will include a campus of Holyoke Community College), a "canal walk" and a Transit-Oriented Development (TOD) project that will bring connecting transportation services within one block of this location.

From a railroad perspective, there appeared to be ample room at this site to construct a new station with a station track, if necessary, on tangent track. ***Site B Overall Evaluation: Very Good***

Site C: Further to the south from the so-called "junk yard" location is the site of a former Boston & Maine Railroad intermodal ramp with a large paved area that was formerly used for the marshalling of trucks carrying intermodal containers still intact. This location appears to have room for approximately 150-200 cars on the already-paved area, is only about a half-mile from downtown and very close to the Route 116-141 bridge over the Connecticut River. But it is a very remote location, where the security of vehicles and passengers could become a concern, and there are significant curves on the rail line at both ends. A major question would be how much of the paved area would have to be taken up trying to engineer a platform on tangent track, and whether the platform would be located adjacent to the main line or to a new station track. ***Site C Overall Evaluation: Limited Potential***

Site D: North of the former station is Pulaski Park, a large municipal park a corner of which is adjacent to the Connecticut River Main Line. It has been given some consideration as a potential station site. The site was visited and found that a platform could be constructed on tangent track at this location, although there would need to be some leveling to bring the adjacent area down to the grade level of the rail line and to create room for a station track if that proved to be necessary.

Of greater concern was that the only parking available at this location is a basketball court in the park and the 20+ parking spaces attendant to the court. Further, the access to the location is through an apartment complex that had a lot of pedestrian traffic and a number of children playing in and next to the street when we drove through. In our experience, after a commuter train departs a station, passengers tend to get into their cars and try to leave in a rush, often creating congestion and fast-moving traffic, which could pose a potential hazard in this neighborhood, particularly in the winter months when this traffic is usually leaving after dark. ***Site D Overall Evaluation: Limited Potential***

2.3.6 Chicopee, MA

Approximately six (6) miles south of Holyoke, at a location almost on the Springfield-Chicopee line just north of the Wason Avenue grade crossing, is a new structure nearing completion, identified as "3640 Main, Medical Arts and Conference Center." Behind that new facility is a large, new parking lot that appears to contain several hundred parking spaces. This parking area is so large that provisions have been made within it for shuttle buses to run through the lot. More importantly, this new structure sits just to the north of the sprawling Bay State Health Services campus. This facility is located on the west side of the Connecticut River Main Line, which is tangent through this area.

A new commuter rail station adjacent to 3640 Main's new parking lot could provide the opportunity for passengers to ride the train from all points north of this station, get off and have shuttle buses take them to destinations throughout the Bay State campus and its environs. This could prove to be a very well-utilized destination station for both employees and people coming for medical care.

There did not appear to be the opportunity for a station track at this location, so potential level boarding issues would have to be considered. Additionally, a station location this close to Springfield would not be considered optimal from an operational perspective and would need to have a very high potential ridership demand in order to be justified. ***Overall Evaluation: Good***

2.3.7 Springfield – Union Station

The existing Union Station is comprised of two adjacent and connected landmark structures in downtown Springfield – the 120,000 square foot, three-story Terminal Building and the 92,600 square foot, two-story Baggage Building situated on more than two acres of land. Both structures were built in 1926 by the Boston and Albany Railroad.

At one time, more than 130 passenger trains and 100 mail trains used to pass through the station on a daily basis. As with most passenger services, the number of rail passengers began to decline in the 1950's. As the financial situation took its toll on railroads in the 1970's, Union Station fell into disrepair and was eventually condemned.

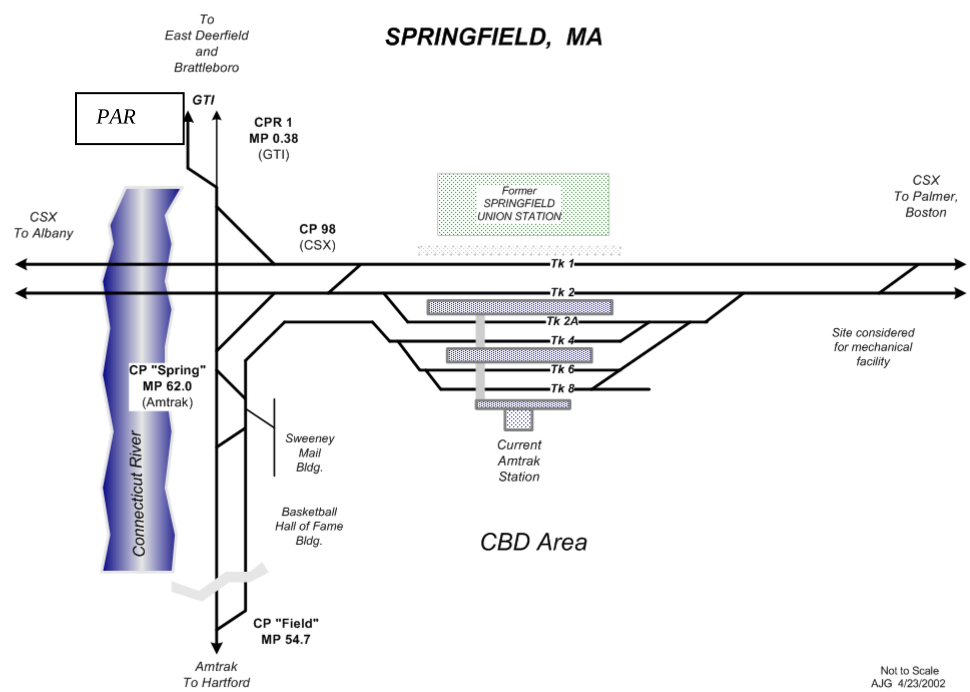
In the early 1970's, Amtrak initiated intercity passenger service to the Springfield area. A small modest facility accessible from Lyman Street for use by Amtrak passengers was constructed. The Union Station building was not utilized for the Amtrak Station.

The vacated Union Station complex has been owned by the Springfield Redevelopment Authority (SRA) since 1989. Currently, the Pioneer Valley Transit Authority (PVTA) and SRA are conducting an evaluation of the rehabilitation of the Union Station complex for use as an intermodal facility for bus and rail connections. The improvements to Union Station would provide an integration of transit modes that is deemed to improve and enhance the potential of rail use. The improvement of the station, while potentially beneficial to the overall transit experience, is not an absolute requirement to made rail improvements on the I-91 Knowledge Corridor presented herein.

The current Amtrak Station is located parallel to the Boston and Albany mainline track owned and operated by CSX. The mainline tracks, including the passenger tracks used by Amtrak, are located on a viaduct and oriented in an east-west direction. The existing Amtrak terminal is a building separate from Springfield's Union Station. These facilities are located on opposite sides of the railroad viaduct that crosses Columbus, Main, Dwight, and Chestnut Streets. Two tunnels extend at street level from Union Station under the elevated tracks to Lyman Street. The eastern/northernmost tunnel previously was the main passenger tunnel that went from the main lobby, under the tracks, to Lyman Street. Four pairs of stairwells connected this tunnel with four platforms at track level. This tunnel is blocked to through travel. The eastern/southernmost end, next to Lyman Street, is still open as the ground-level entrance to Amtrak's headhouse. One stairwell and one elevator are used to connect to the Amtrak Station headhouse located at track level.

The headhouse consists of the ticketing and baggage check facilities and the boarding lounge. The lounge includes three ticket counters and approximately 50 seats. Amtrak also uses some trailers at track level. A small crew base (approximately 725 square feet) is located in temporary buildings alongside the tracks.

As shown on the Amtrak-provided line diagram below, the existing Amtrak Station is located on the south side of the CSX mainline tracks.



It is just east of the track connections to Amtrak's Springfield Line for trips south to New Haven, Connecticut.

There are three pairs of tracks (six total). According to Amtrak, all six tracks are used at various times. The two tracks closest to the Union Station building are the mainline freight tracks, while the other two pairs are sidings located closer to Amtrak's headhouse. Four platforms are provided:

- One adjacent to the headhouse that serves a single track;
- Two platforms located between each pair of tracks that serve tracks on either side; and
- A fourth platform located adjacent to Union Station that serves a single track.

The platforms are raised approximately 6" above the top-of-rail, but are generally in fair condition. Closed stairwells are in place for each platform down to the closed passenger passageway, and closed stairwells and elevator towers are in place to the separate baggage tunnel. Passengers currently cross the tracks at grade to reach the appropriate platform location. Canopies are provided along most of the length of the platforms. There are no dedicated parking spaces for Amtrak, but parking is available at several surface lots and on street.

The track connections to the Amtrak passenger platforms are provided by tracks that connect to the Amtrak Hartford Line. The majority of passenger trains use the station access track that connects to tracks #4, 6, and 8.

A second connection to tracks #2 and #2a are made via a wye track that requires accessing the CSX mainline track. This wye track is also heavily used to move freight from southerly of Springfield to the CSX mainline and then westerly into West Springfield Yard on the west side of the Connecticut River.

The PAR tracks cross over the CSX main tracks via a diamond at-grade track crossing. A wye track connects the PAR tracks and the CSX northerly mainline track. It should be noted that this wye track cannot be used to access any station tracks.

This station facility is accessible by the "Vermonter" if that train is relocated onto the Pan Am Southern Connecticut River Main Line, and it would also be accessible by a new commuter rail service running north of Springfield, MA. These trains could access this station from the Connecticut River Main Line as follows:

From a Northerly Direction:
Passenger trains, either intercity or commuter, coming from the north could turn off the Connecticut River Main Line at a location referred to by Pan Am Southern as "CPR 1" and enter onto CSX main track #1 at "CP 98". These trains would then pull up to the currently-unused, but intact, platform adjacent to track #1 to load and unload passengers. While this was occurring, the train crew would change the controlling end of the train, so that once the station stop was completed, the train could proceed in a westerly direction, crossing over at "CP 98" to access the Amtrak Main Line to New Haven at Amtrak CP "Spring".

In order to employ this station utilization approach, commuter rail equipment obtained for this service will need to be bi-directional; that is, capable of running in the so-called "push-pull" mode, with controls for train operation located at each end of the train. The "Vermonter", for example, has to reverse direction in the manner described here at a point further east in Palmer, Massachusetts, and is already operating with bi-directional equipment.

From a Southerly Direction:
Again using Amtrak CP "Spring" for access, trains equipped for "push-pull" operation could use the platform adjacent to track #1 by crossing over at CSX "CP 98", reversing direction while in the station and continuing on to the north by going back to "CP 98" and accessing the Connecticut River Main Line at that point.

From either direction, a potential for maximizing of the use of the Union station facility, however, will be the restoration of the platform on track #1 and also the reopening of a now-closed pedestrian subway that runs under all of these platforms to the Amtrak Station and that would allow passengers to access the Amtrak Station without having to cross any active tracks. This improvement would is anticipated to be included in the Union Station rehabilitation proposal.

2.3.7.1 Existing Service and Ridership Levels Springfield Station

Amtrak operates routes that originate/terminate and pass through Springfield. Of the Amtrak operating trains that originate and terminate in Springfield, some trains operate as shuttles between Springfield and New Haven, and several trains continue southerly from New Haven on the Northeast Corridor.

The Vermonter operates one weekday train in each direction between St. Albans, Vermont, and Washington, D.C. Springfield is an intermediate stop on this route. East of the Springfield Station, the Vermonter operates on the CSX line to Palmer where it makes a connection with the New England Central.

The Lake Shore Limited travels east/west through Springfield. It operates one train in each direction from South Station in Boston to Albany-Rensselaer, New York. The Lake Shore Limited has the lowest ridership of the three routes, accounting for less than 15 percent of total ridership.

Springfield is the fifth most active train station in Massachusetts (the other four are in Boston). In 2006, Springfield had a combined total of 112,465 boardings and alightings on the routes serving the station. This level is estimated to be 271 daily boardings in the peak month and an estimated 41 boardings in the peak hour. A detailed discussion of existing trains is provided in the Appendix B of this final report.

To serve the passengers using these services, Amtrak has constructed a small waiting room and passenger facility adjacent to track 8 on the south end of the passenger station track on the upper portion of the existing viaduct. Within this facility is a small enclosed waiting area, a ticket counter staffed by Amtrak ticket agents and several amenities, including a "Quik Trak" ticketing machine, restrooms, and vending machines. Additionally, platforms for boarding have been constructed adjacent to each of the four Amtrak station tracks. The platform adjacent to Amtrak Station track #2A is also adjacent to CSX main track #2. There is also a historic platform and canopy adjacent to CSX main track #1 on the north side of the facility, next to Springfield Union Station.

2.3.7.2 Future Service and Ridership Estimates for Commuter Rail Service

The States of Connecticut and Massachusetts are studying the implementation of commuter rail service from New Haven, Connecticut, to Springfield's Union Station. The 2005 New Haven-Hartford-Springfield commuter rail study[1] examined the 62-mile corridor, owned by Amtrak. The start-up service was recommended to be at a 30-minute frequency during peak periods on weekdays. Service would operate in both directions during both morning and evening peaks. Commuter rail service times would be coordinated with Amtrak service on the corridor. A total of 15 trips in each direction were assumed between Springfield and New Haven; seven in each direction are new commuter rail trips and eight are adjusted for existing Amtrak trips. Total end-to-end travel time was estimated to be 90 minutes. Nine existing stations and three new stations were assumed to be served. No new parking spaces were assumed to be constructed at Union Station.

The study estimated that the total daily ridership at Springfield would be 169 weekday boardings and 169 weekday alightings. Subsequent to the initial ridership estimate, the study Steering Committee requested the development of a maximum ridership alternative of 5,000 daily riders on the entire line. At this ridership level, the Springfield Station was estimated to have an additional 73 daily boardings and alightings, for a total of 242 daily boardings and alightings.

2.3.7.3 Design/Space Considerations - Station/Platform Location

According to the commuter rail study, the existing four platforms are adequate for the current and projected level of trains and passengers. While Amtrak officials indicated they use all six tracks for passenger boarding, observations indicate that the four siding tracks are used for the majority of passenger trains. According to the train schedules, no more than two trains are scheduled to be in Union Station during any one hour period throughout the day. One outstanding question is whether any improvements to Amtrak facilities, or the introduction of new commuter rail service, will require modification of the boarding platforms. The Americans with Disabilities Act (ADA) requires that accommodations be made to allow passengers in wheelchairs to use passenger trains. In many station locations, this accommodation has been accomplished through the use of movable platform lifts, or the construction of mini high platforms. A platform height of approximately four feet above the top of rail is needed to bring the platform height in line with the floor height of most passenger cars.

The U.S. Department of Transportation (USDOT) Office of the Secretary is promulgating more stringent requirements, particularly along the Northeast Corridor. USDOT considers the Springfield line and Union Station to be located along the Northeast Corridor, primarily because Amtrak owns both corridors. The proposed regulations, which appear to be enforced in actual practice, are contained in a Notice of Proposed Rulemaking (NPRM), Docket ID OST-2006-23985. This NRPM was issued in 2006 and is still "pending."

[1] New Haven-Hartford-Springfield Commuter Rail Implementation Study, prepared by Wilbur Smith Associates, June 2005.

As the issue of whether station platforms will need modification to be high level is still pending, this feasibility study will assume that the existing station tracks will remain as is, and sufficient station track capacity will be available to operate potential additional service.

2.3.7.4 Operational Consideration of Springfield Track Configuration

The existing track configuration supports the current operation that focuses on trains that originate and terminate at Springfield and the operation of the Vermonter that utilizes the CSX mainline west of Springfield. The use of the PAR tracks for the relocation of the Vermonter and potential additional service will need to consider how connections will be made to access the station from the tracks northerly of the CSX mainline.

Discussions with Amtrak staff indicate that for initial relocation of the Vermonter, the use of the track as configured can be made to succeed. The positive benefit is that the relocation of the Vermonter, and potentially an additional intercity train on the PAR tracks, can be operated in the current track configuration. The negative of this is that a reverse move will be necessary to access the PAR Conn River line.

The solution would be to enable a train to access the northerly wye track from CSX to PAR. This would require reconfiguration of the crossovers west of the station tracks. It appears that this would be feasible based on the available distances between the wye track and leads of the station tracks. By assuming that tracks can be configured to allow direct connections between the PAR and Springfield Station track, the estimation of potential train schedules used in the study can exclude a time penalty of approximately 15-20 minutes. This time penalty would need to be associated with the reverse move that would be included in any schedules of trains accessing the PAR Conn River Line tracks using the current configuration of track.

Regarding the adequacy of the existing station building, Amtrak staff have indentified that the existing capacity of the station is reached during periods of high track. For this reason it is concluded that improvement for the Springfield station headhouse would need to be made to accommodate increased to passenger boardings and departures.

2.3.7.5 Springfield Station Summary

The current Amtrak Station platform track and approach track configuration at Springfield would be adequate to handle the increased number of trains and riders associated with the potential number of trains being planned as part of the ConnDOT expansion of trains. The options for expansion of trains on the PAR Conn River line within this study are based on the extension of many or all of the ConnDOT trains. Thus it is concluded that the Springfield Station can function adequately to support the potential range of service options for the I-91 Knowledge Corridor. Additionally, Amtrak has suggested that with increased service levels associated with the proposed Connecticut DOT and Conn River passenger services, consideration should be given to placement of a station along the Amtrak Springfield line that would serve directly the central business area of the City of Springfield. This consideration should be evaluated in concert with final design for use of any future rail improvements.

2.4 Infrastructure Improvements for Three Operational Cases

To accommodate passenger service level increases in the Knowledge Corridor, several infrastructure improvements were evaluated to facilitate the indentified three potential operating scenarios. See Chapter 1 for further discussions of the three case scenarios.

Case 1 would support the relocating of the Vermonter to the Conn River Line. A range of cost for improvements would require approximately $35-60 million in capital improvements. Improvements would include:

- Replacement of existing ties that have reached the end of their life expectancies;
- Replacement of existing jointed rail with continuously welded rail;
- Refurbishment of existing switches where required;
- Rehabilitation of grade crossings;
- Construction of station sidings at the proposed Northampton and Greenfield station locations;
- Continued use of the existing station platform at Northampton in its current condition;
- Construction of a basic platform with limited amenities at the proposed Greenfield station; and
- Improvement of signal system to facilitate the relocation of the service.

The range of the estimate is based on assumptions that the low capital investment would provide adequate improvements to support the service. A more aggressive annual maintenance program would need to be included in the associated operating agreements between the host railroad and Amtrak. The higher capital investment of the range would support a potential lowered initial operating cost associated with the improved overall condition of the completed facility. This higher condition level of infrastructure would have longer service life, potentially reducing initial operating costs. Additionally, the higher level of investment would include rail improvements to mainline and siding track conditions. This would support the implementation of increased intercity service as envisioned in Case 2 below, with a lower level of capital investments required.

Case 2, Enhanced Intercity Service, would require the following additional improvements:

- Construction of a passing siding at East Northfield;
- Improvements to the interlocking at Springfield Station;
- Construction of a new station platform at Holyoke; and
- Implementation of Positive Train Control.

These improvements would accommodate the proposed speeds of 79 mph and the addition of service at Holyoke. It is expected that the costs to realign the Vermonter and make these enhancements would range from $70 to $90 million.

Case 3, Commuter Service, would build on the improvements needed for Case 1 and 2 and would include the following additional upgrades:

- Installation of a complete double track section from Springfield to Greenfield;

- Upgraded stations to accommodate increased level of ridership;
- Provisions for additional parking to accommodate the level of service envisioned with the commuter scenario; and
- Implementation of signal upgrades for operating speeds of 80 mph and greater.

Overall, costs to reach this level of service would be $250-$300 million. A major component of this case is the costs associated with the purchase of train equipment required for use in the commuter service. The assumed cost for equipment is $90 million and consists of three train sets of one locomotive and five cars each.

The overall infrastructure requirements would include the following:

- 55,000-100,000 new ties;
- 19-29 new turnouts, depending on the level of service;
- Between 12 and 50 miles of continuous welded rail;
- Rail siding of 11.4 miles for enhanced intercity and commuter service, none for the realignment;
- One half mile of track for the realignment, 4 miles for enhanced intercity, and 27 miles for the commuter level of service;
- General improvements to existing signaling control systems for the realignment and enhanced intercity service levels, costing approximately $3.6 million. The restoration of signal systems to support double tracking and multi-directional operation would be necessary to support commuter service ($25 million is estimated to cover these improvements).
- Bridge modification to allow greater density of trains for all service levels ($2.5-$15.8 million);
- Improved stations ($0.5-$32.4 million depending on service level);
- Equipment: For the commuter service, equipment expenditures are estimated to be $90 million. It is assumed that no equipment purchases would be required for either the realignment or the enhanced intercity level of service. It is further assumed that Amtrak would supply the equipment, and that costs for the equipment would be included in the operating costs. Consideration during specific development of any intercity service plan may include the payment of capital improvements related to train equipment. Upfront contributions related to intercity train equipment could then result in lower operating costs for the service.

3. RAIL OPERATIONS ANALYSIS

The rail operations assessment considers the feasibility of different levels of service in the corridor, and estimates of train speeds and other variables are combined to develop realistic train schedules. Moving the Vermonter to the Conn River Line and adding enhanced intercity and commuter rail service are three of the scenarios evaluated in this analysis. The shared use with freight rail and potential benefits and connections for freight shipping are also considered. The study used the Rail Traffic Controller (RTC) simulation tool[1] to observe trains operating on this rail line, both in its existing and proposed configurations over a representative one-week period.

This chapter of the feasibility study provides the results of the operations analyses and describes the methodology utilized to evaluate several rail service opportunities, including the three primary scenarios described in previous chapters. Specifically, this chapter is comprised of the following sections:

- Descriptions of rail service considerations;
- Assumptions for the operational analysis; and
- Discussion of scenarios modeled and opportunities to enhance rail service.

3.1 Service Considerations

Several different service options were considered, including the three options included in the feasibility study and described below.

The **realigned Vermonter** (Case 1) would offer passenger rail service daily in each direction between St. Albans, Vermont, and Washington, DC. It would feature a 25-minute reduction in travel time in the near term and as much as a 45-minute reduction in travel time longer-term, if additional operational improvements can be implemented. On-time performance is expected to be improved from 55 percent to 90 percent. The realignment removes a time-consuming “reverse move” at Palmer, and the need to operate two locomotives or a cab car, to allow double-ended operation. Backup into Union Station is still required. Operating speeds would reach 60 miles per hour.

With **enhanced intercity service** (Case 2), a second daily round trip serving the entire length of the Knowledge Corridor would be offered in addition to the existing Vermonter service. This new round trip, running between White River Junction, Vermont, and New Haven, Connecticut, would depart southbound in the early morning from White River Junction and arrive in New Haven at noon. The northbound leg of this round trip would depart New Haven in the middle of the afternoon, arriving back in White River Junction in the evening. There would also be two extensions north to Greenfield in each direction of the existing Springfield-New Haven rail shuttle service. This means that four trains will run per day in each direction in the Massachusetts section of the Knowledge Corridor with service relatively evenly spaced throughout the day. Train speeds could reach 79 mph in this scenario.

[1] Licensed to HDR, Inc., by Berkeley Simulation Software.

Commuter service (Case 3) would be designed to integrate with the proposed New Haven-Springfield commuter service and concentrate on adding trains north of Springfield to Greenfield during commuting times. It would build upon the enhanced intercity service of four trains in the corridor adding three additional trains in each direction between St. Albans and New Haven, for a total of seven trains per day (in each direction) south of Greenfield. The new trains are specifically added at commuter times, and likely with commuter rail equipment, to specifically serve the commuter market. Depending on equipment and infrastructure improvements, train speeds could exceed 80 mph.

The future of **freight service** on this rail line was also carefully considered throughout the rail operations analysis. Detailed discussions were held with the owner of the line, Pan Am Southern (PAS), to ascertain the current levels of freight traffic on the line, the reasonably foreseeable future prospects for this traffic, the extent to which both the freight service and the proposed passenger service could be accommodated on the existing infrastructure, and the capacity enhancements that would be required for each of the various passenger scenarios described above.

3.2 Operational Assumptions

The following assumptions were made for the rail operations analysis, which included the scenarios described above and several other service alternatives. Each simulation is run for five days.

Train Schedules:
Freight train schedules were provided by Pan Am Southern (PAS) and New England Central (NECR) for service on each respective section of the rail network.

Passenger train schedules for each scenario were developed using proprietary scheduling software[2] and running times developed by the RTC software. Scheduling parameters were:

- Even distribution of trains through the service day for through trains;
- 30 and 60 minute headways for passenger trains;
- Eight percent end-loaded recovery time; and
- No track resource conflicts among passenger trains.

Starting capacity research with a timetable of conflict-free passenger train schedules allows subsequent research to focus on the infrastructure needed to accommodate additional traffic.

Infrastructure:
All scenarios were run on the same RTC network infrastructure. This network, between Springfield, Massachusetts, and White River Junction, Vermont, was developed from available track charts and timetables and with the following assumptions regarding existing and future conditions:

[2] Developed by and for Transit Safety Management, Inc.

- Freight traffic will operate at a maximum operating speed of 40 mph with the following exception:

  - Springfield running track and Holyoke (Westover Railhead to Holyoke) will be operated at prevailing track speed (35MPH). There are no "yard limits" speed restrictions in this area.

- Passenger train speed limits are set to a maximum 60MPH for Scenarios 1, 2 and 5, and to 79MPH maximum operating speed for Scenarios 3, 4, 6 and 7 (see section 3.3).

- The existence of 4 inches of superelevation on curves and 3 inch unbalance for passenger rail equipment. All network curves have been assigned geometrically-determined passenger speed limits.

- Signaling systems have not been modeled. The segment of the line between White River Junction, Vermont, and Windsor, Vermont, is equipped with Automatic Block Signals. The segment of the line between Windsor and Riverbank, Vermont, is equipped with CTC. The signal systems on these segments of the network have virtually no effect on capacity or delay given the current light traffic density.

Given the light traffic density and straightforward nature of the scenarios, supplemental simulation testing of modified infrastructure was employed only as described in the discussion of each scenario. Simulation output in Appendix B represents the last simulation run for each scenario.

The Springfield passenger station is located on CSX trackage. Trains moving to or from the Pan Am Southern line between Springfield, Massachusetts, and East Northfield, Massachusetts, must cross the CSX line at Springfield and reverse direction for access to the station. The simulation does not represent the trackage leading into the Springfield station. All trains originate or terminate at Springfield in the simulation at the PAS crossing with CSX. In developing schedules, there is a ten minute allowance between the beginning/end point of the simulation network and the station for the additional movements that are required to move between Pan Am Southern and the station.

Supplementary Information

Appendix B of this report provides supporting documentation for the operations analysis and includes the following:
- Train equipment make-up.
- Original schedules for freight and passenger trains in all scenarios.
- Stringline diagrams (Time-distance plots, stringlines) for all scenarios.
- Delay statistics for all scenarios.

Each of the documents within the appendix shows the scenario considered.

Delay is defined for these simulation scenarios as the difference between the ideal transit time of an unimpeded train and the likely transit time of that train after adjusting for its interactions with all other trains. The RTC model calculates this delay value for all trains in the system, summing them to derive a "True Delay" number for the network as a whole.

Waiting time is time added to the schedule of a train for the specific purpose of waiting for the arrival of a train that it is scheduled to meet or pass.

3.3 Modeled Scenarios

The following cases were modeled in this analysis.

- **Base Case**: Existing freight operations only (current speed limits)
- **Scenario 1**: Relocation of current Amtrak Vermonter service (passenger train speed on PAS as allowed by track geometry not exceeding 60MPH, current speed limits on NECR).
- **Scenario 2**: Two daily passenger round trips between New Haven and White River Junction in lieu of Vermonter service (passenger train speed on PAS as allowed by track geometry not exceeding 60MPH, current speed limits on NECR).
- **Scenario 3**: Five daily AM peak hour commuter trains from Greenfield to Springfield; four daily PM peak hour trains from Springfield to Greenfield; three daily mid-day commuter train trips between Springfield and Greenfield; one daily evening commuter train round trip, and two round trips between Springfield and White River Junction in lieu of the current Vermonter service (passenger train speed not exceeding 79MPH as allowed by track geometry).
- **Scenario 4**: Five daily commuter round trips between Greenfield and Springfield; five daily passenger round trips between New Haven and White River Junction (passenger train speed not exceeding 79MPH as allowed by track geometry).
- **Scenario 5**: Relocation of current Amtrak Vermonter service; five daily commuter round trips between Greenfield and Springfield (passenger train speed on PAS as allowed by track geometry not exceeding 60MPH, current speed limits on NECR).
- **Scenario 6**: Five daily passenger round trips between New Haven and White River Junction (passenger train speed not exceeding 79MPH as allowed by track geometry).
- **Scenario 7**: Relocation of current Amtrak Vermonter service and extension of current Amtrak New Haven – Springfield shuttle service including: one round trip extended from Springfield to White River Junction and two round trips extended from Springfield to Greenfield, all with passenger stops at Holyoke, Northampton, and Greenfield (passenger train speed not exceeding 79MPH as allowed by track geometry).

3.3.1 Base Case

The Base scenario models existing freight operations, which is provided in Appendix B of this report.

Discussion:
Stringlines for the existing freight traffic are shown on pages 1-2 of the stringline diagrams section of Appendix B. The network operates with minimal delay. Over a five (5) day period representing typical operations, the Base scenario operated with only 3½ hours of delay in total (see the delay statistics section of the appendix for greater detail).

3.3.2 Scenario 1 – Realignment of the Vermonter

Scenario 1 represents the current Amtrak Vermonter service relocated from NECR to PAS between Springfield and East Northfield, MA. Relocation of the southward train requires the same departure time at Springfield in order to retain the current assigned New Haven – New York slot. Relocation of the northward train requires the same arrival time at Springfield in order to retain the current New Haven – New York slot.

Discussion:
Stringlines for Scenario 1 are shown on pages 3-4 of the stringline diagrams document. The route via PAS between Springfield and East Northfield is ten miles shorter than the current route. Running time between Springfield and East Northfield is substantially reduced by the route change. The new St. Albans – Springfield time of 5 hours 30 minutes is 26 minutes less than the current time of 5 hours 56 minutes. The current running time includes changing direction at Palmer, MA. This time is offset by the time needed to change direction at Springfield. The ten minute scheduled time for this movement at Springfield is added between the time at the station platform and the time of crossing the CSX line.

Conclusions:
All running time savings results from the reduction in distance associated with the change of route between Springfield and East Northfield. Operation of the revised schedules on NECR north of East Northfield does not change. On PAS, the route change re-introduces passenger trains**,** which have not operated on this line since the late 1980s. Conflicts involve local trains unable to clear the main track while switching. These conflicts can be resolved with minor changes in the day-to-day operation of the freight trains. Freight trains do not generally operate on a precise day-to-day schedule, so the nature of the conflict and the resolution will vary (e.g., a change in the order of the work performed, clearing the main track to allow a passenger train to pass then resuming work, or waiting for a passenger train to pass before moving on to the next work station), but the impact on freight operation should not be significant.

3.3.3 Scenario 2 – Vermonter Expansion

Scenario 2 represents two daily passenger train round trips between New Haven and White River Junction in lieu of the current Amtrak Vermonter schedule. These schedules were developed by Amtrak for a proposed replacement of the current Amtrak Vermonter service with regional DMU service operating between New Haven and White River Junction / St. Albans, Vermont, connecting with Northeast Corridor trains at New Haven.

Discussion:
Stringlines for Scenario 2 are provided in Appendix B. The existing rail network has minimal flexibility. Freight trains must operate within specific work windows between trains and must

clear the main line before passenger train arrival, a situation that is common where traffic mixture includes passenger and/or important time-sensitive freight trains and other traffic. These delays can be mitigated using auxiliary tracks at Holyoke and Northampton of sufficient length to hold the through cars of the local freight trains, as well as sidings at South Deerfield and East Northfield. Local freight train EDWJ typically needs about three hours between Greenfield and East Northfield. There are only two industrial tracks and the amount of work is not as substantial as it appears from the time consumed. However, the train must be left on the main track while industry switching is performed. Also, the grain elevator track at North Hatfield opens only to the north, making switching more time-consuming than it might be if the elevator track were double ended.

Conclusions:
In addition to a siding at East Northfield, connecting the south end of the elevator track at North Hatfield to the main track will significantly reduce delays for this train by facilitating switching. Restoration of the auxiliary track at Hartland, VT 4.4 miles north of Windsor, to service as a siding that can accommodate freight trains of the length being operated on the line would also provide substantial benefit.

The final version of this scenario, shown in stringline diagrams portion of the appendix, includes the addition of:

- Siding at East Northfield, MA
- Siding at South Deerfield, MA
- Siding at Hartland, VT (4.4 miles North of Windsor, VT)

3.3.4 Scenario 3 – Commuter Service

Scenario 3 employs a Pro Forma passenger train schedule developed by team members,[3] featuring five (5) AM peak hour southbound commuter trains, five (5) PM peak hour northbound commuter trains, three (3) mid-day commuter train trips and one (1) evening commuter train round trip between Springfield and Greenfield. There are also two round trips between Springfield and White River Junction in lieu of the current Vermonter service. Note that only trains running between Bellows Falls and Springfield were modeled. Those running between Springfield and New Haven were not included, as they are beyond the scope of this analysis. Minimally modified freight schedules are carried over from Scenarios 1 and 2.

Discussion:
The combination of proposed network configuration and frequency of commuter rail traffic creates an extraordinary number of conflicts without enough network flexibility to recover. Delay figures for Scenario 3 represent substantial increases over previous scenarios: cumulative totals of nearly 7.5 hours for passenger traffic and nearly a day-and-a-half for freight trains illustrate how strained the network has become.

Conclusions:

[3] Transit Safety Management (Tom White)

Analysis is based on the simulation output represented by the stringlines in Appendix B, which do not include any of the infrastructure changes discussed above.

Analysis of the simulation output indicates that constructing double track between Springfield, Massachusetts, and Greenfield, Massachusetts, is required in order to ensure adequate capacity for reliable operation of the freight and passenger service.

3.3.5 Scenario 4 – Combined Intercity/Commuter Service

Scenario 4 represents five (5) daily round trip commuter trains running between Greenfield and Springfield, and five (5) daily intercity trains operating in each direction between New Haven, Connecticut and White River Junction. Note that only trains running between White River Junction and Springfield were modeled – those running between Springfield and New Haven were not included, as they are beyond the scope of this study.

Discussion:
Travel time is an important consideration in providing commuter service. For that reason, the configuration of the station in Springfield causes a degree of concern. The travel time between Springfield and Holyoke is increased by ten minutes by the change of direction that is included in accessing the station. A train departing Springfield must leave toward the south onto the Amtrak line from New Haven before continuing to the north. A train arriving in Springfield reverses this process. Therefore, the travel time for the 7.8 miles between Springfield and Holyoke is 24 minutes.

The combination of limited network infrastructure and frequency of passenger rail traffic creates an extraordinary number of conflicts without enough network flexibility to recover. As in Scenario 3, delay figures for Scenario 4 represent substantial increases over the Base case and Scenarios 1 and 2: cumulative totals of over 10 hours for passenger traffic and nearly a day-and-a-half for freight trains illustrate how strained the network becomes, thus demonstrating the need for improvements to infrastructure.

The passenger service plan is constrained by infrastructure. In order to operate a five train service that is evenly distributed throughout the service day, opposing trains must meet at Brattleboro and at White River Junction. Other options for passenger and freight meets have two disadvantages. First, meeting can involve significant waiting time for one of the two passenger trains involved. Second, passenger trains are meeting at long sidings that would otherwise allow freight trains to clear for passenger trains.

In order to operate this service plan, the West River siding at Brattleboro must be restored to service (it has been out of service since 2004). Restoration includes rehabilitation to allow the same (20-30MPH) speed limit as the main track, extension of CTC to the south siding switch, and replacing the current hand throw crossover at the south end of the siding with a crossover of suitable length to allow 35MPH passenger train speed.

Based on the 79MPH speed limits that are the anticipated result of improvements to the line, the passenger trains will also meet at White River Junction. There are two important considerations. If the northward train arrives exactly on time, it will arrive at the same time that the southward train is scheduled to leave. The current station configuration has a single platform adjacent to the main track and does not support two passenger trains simultaneously. It would be possible to accommodate two trains simultaneously by utilizing the track on the east side of the station that was once a connection between Central Vermont and Boston and Maine. An arriving train would stop at the platform on the east side of the station and remain there until just before time to begin boarding the southward trip. Although it may be possible to use the siding west of the main track to accommodate the second train, that use would preclude its use by freight trains. The sidings that can accommodate a freight train are limited in number and pose a capacity constraint when all are available. Making use of the White River Junction siding for passenger trains would limit line capacity and severely restrict the ability to accommodate passenger traffic without extensive delay to freight service.

There are 14 minutes of recovery time (eight (8) percent of the total running and dwell time between Springfield and White River Junction) in the northward schedules between Windsor and White River Junction. If a northward passenger train has not been delayed, it will arrive at White River Junction 14 minutes early. If it arrives exactly on time, it will have been delayed 14 minutes compared to a run time without any slow downs en route.

Reliability is important to operation as well as passenger service. When service is planned to operate as constrained by limited infrastructure, deviations can cause extensive delays. The delays may propagate among several trains, exacerbating the situation. Without sufficient flexibility to limit the effect of delays, the service may not be able to recover until the next service day. For example, if one of the two trains meeting at Brattleboro is late and the intent is to keep the other train operating on time, the late train will be delayed at least 30 minutes~~,~~ because of the running time between Brattleboro and East Northfield or Putney North. Delays of more than 14 minutes (the recovery time) to a southward train may have many collateral effects between Springfield and New Haven, including effects on passenger connections at New Haven as well as traffic and equipment effects. Therefore, it is preferable to keep the southward trains on time to the extent possible.

To do this, and avoid extensive additional delays for trains meeting at White River Junction, additional accommodations exclusively for the passenger service should be made using existing infrastructure. These include:

- An existing freight yard at Bank, Vermont, about 1.5 miles south of White River Junction, can have a track rehabilitated or restored to accommodate passenger train meets. A siding at Bank for passenger train meets would allow a northward passenger train that has been delayed 20 minutes to meet an on-time southward train without additional delay. A northward train that has been delayed up to 30 minutes could meet the southward train without incurring additional delay. The southward train would be delayed for a recoverable 10 minutes. A delay of 10 minutes to the next northward train at Brattleboro would also be recoverable. There should be no further collateral effects from the initial delay.
- The second contingency enhancement to the infrastructure could be accomplished by restoring the siding at Hartland, MP 5.0. Hartland is approximately 17 minutes running time south from White River Junction. Without the presence of the siding, a delayed

northward train meeting an on-time southward train at Hartland would arrive in White River Junction about 40 minutes late.

At Brattleboro, the platform must extend across the main track to also serve the siding. Although this is not a typically preferred arrangement, it is suitable for this application. Since there is a scheduled meet occurring at the passenger station, it is a relatively simple matter to safeguard the movement of passengers to and from the train on the siding. The first train to arrive uses the main track. The second train to arrive uses the siding. The passenger path to and from the train on the siding is blocked by the train on the main track. When the train on the main track leaves, the path between the station and the train on the siding is safe for passenger use.

The simulation indicates that the Amtrak trains do not operate as scheduled between Windsor and White River Junction. The simulation shows trains meeting at the Hartland siding, using hand throw switches and sustaining substantial delay. However, subsequent inspection of the equipment, speed limits, and running times of the passenger trains and investigation of the details of the White River Junction passenger station generated the results discussed above.

South of Brattleboro, a contingency siding is required at East Northfield to accommodate on-time operation of a southward passenger train when the northward passenger train scheduled to meet it at Brattleboro is late. A siding at this location is also specified as necessary for freight delay mitigation in the following discussion, as it is in the discussion of freight delay mitigation in Scenario 2. In Scenarios 3 and 4, CTC should be extended south from Brattleboro to include the siding at East Northfield.

There are two significant sources of freight delay. One can be mitigated with infrastructure; one cannot. Local freight train EDWJ typically needs about three hours between Greenfield and East Northfield. There are only two industrial tracks and the amount of work is not as substantial as it appears from the time consumed. However, the train must be left on the main track while industry switching is performed. Also, the grain elevator track at North Hatfield opens only to the north, making switching more time-consuming than it might be if the elevator track were double-ended. Constructing a siding at East Northfield and connecting the south end of the elevator track at North Hatfield to the main track will significantly reduce delays for this train by facilitating switching and providing a nearby track in which to leave through cars while switching. Accommodation of the through cars clear of the main track allows the locomotive to clear in the industry for a passenger train to pass, without delay to the passenger train or substantial delay to the freight train.

Train NEMPSTA can sustain substantial delays at Claremont waiting for passenger trains before proceeding to Bellows Falls, where it stops at the junction with Green Mountain Railroad to deliver interchange. It is not practical to mitigate this delay with the construction of new infrastructure. The delay instead can be mitigated using different operating methods. The through cars of this train can be left in the Walpole siding while the interchange is delivered. This change can reduce the main track occupancy of this train to two periods of approximately fifteen minutes instead of a single period of 45 minutes. Alternatively, with the cooperation of Green Mountain Railroad, this train can pull entirely past the connection to Green Mountain Railroad, make the delivery while clear of the NECR main track, then leave. Main track occupancy at

Bellows Falls would be approximately fifteen minutes. If the second approach to mitigation is chosen, the connection switches to GMR must be power switches to eliminate delays restoring hand throw switches to the main track route after use. Since all train employees are located on the engine, the delay (and main track occupancy) associated with a crew member restoring the switch and returning to the locomotive can be substantial. Manually restoring the switch for the main track may result in substantial delay to the freight train because of inadequate time to perform the work in advance of an approaching passenger train or inadvertent delay to the passenger train if the process of restoring the switch and returning to the locomotive takes longer than anticipated.

CTC should be extended from the current north end of CTC at Windsor to White River Junction in order to achieve the intended benefit of the Hartland siding, Bank siding, and the second passenger station track at White River Junction.

Conclusions:
Analysis is based on the simulation output represented by the stringlines, which do not include any of the infrastructure changes discussed above.

Analysis of the simulation output indicates that constructing double track between Springfield, Massachusetts, and Greenfield, Massachusetts, is required in order to ensure adequate capacity for reliable operation of the freight and passenger service. Most of the freight traffic is performing local pickup, delivery, and switching. The through cars of these trains must be left clear of the main track while working if other traffic is to pass. The density of the combined passenger service would preclude switching activity while holding the main line for extended periods even if there were a number of sidings constructed to hold the through cars while switching.

The track configuration at Springfield generates running times between Springfield and the nearby stations of Holyoke, Northampton, and Greenfield that are greater than commercially desirable running times for commuter service. Eliminating the ten minutes needed for backing into or out of the Springfield station could make a significant improvement in the commercial desirability of the commuter service. This can be accomplished by constructing crossovers to connect tracks 4, 6, and 8 to the north-facing PAS connecting track west of the station. The only change in direction and the control of the train occurs while it is stopped in the Springfield station. No running time is lost to changing direction a second time. These crossovers would also be beneficial to the improvement of long distance train service. In a program of increasing speeds and reducing running times of regional and long distance train service, the crossovers are an inexpensive cost for a ten minute running time reduction, roughly the equivalent of improving 40 miles of line to allow passenger train speed to increase from 60MPH to 79MPH.

3.3.6 Scenario 5 – Relocation of Vermonter and Limited Commuter Service

Scenario 5 represents the Amtrak Vermonter relocated to the PAS route between Springfield and East Northfield and five commuter trains between Springfield and Greenfield. Freight service represents the service plan used in each of the cases. Commuter trains suffer the same running time penalty at Springfield that is described in Scenario 5.

Discussion:
As in Scenario 1, no significant changes in infrastructure or operation are required north of Greenfield. As in Scenario 4, the mixture of local freight trains needing to leave through cars while working and moderate density passenger service require two main tracks and CTC between Springfield and Greenfield.

Conclusions:
Analysis is based upon the simulation output represented by the stringlines, which do not include any of the infrastructure changes discussed above.

Two main track CTC also provides the flexibility necessary to develop commercially desirable commuter train schedules without the constraints imposed by the single track configuration.

3.3.7 Scenario 6 – Significant Vermonter Service Expansion

Scenario 6 represents five round trip Amtrak trains between New Haven and White River Junction. Minimally modified freight schedules are carried over from earlier scenarios. Important infrastructure inadequacies were identified that would need to be addressed to operate the proposed passenger and freight services.

Discussion:
Analysis is based upon the simulation output represented by the stringline diagrams in the appendix, which does not represent any of the infrastructure changes discussed above except the siding at Greenfield.

Conclusions:
The infrastructure and operation north of Greenfield that is described in Scenario 4 applies to Scenario 6.

3.3.8 Scenario 7 – Enhanced Intercity Service

Scenario 7 represents the relocation of the current Amtrak Vermonter service to PAS between Springfield and East Northfield and extension of current Amtrak New Haven – Springfield shuttle service including: one round trip extended from Springfield to White River Junction and two round trips extended from Springfield to Greenfield, all with passenger stops at Holyoke, Northampton, and Greenfield (passenger train speed not exceeding 79MPH as allowed by track geometry). Minimally modified freight schedules are carried over from earlier scenarios.

Discussion:
The generally even distribution of 8 passenger trains between Springfield and Greenfield over 16 hours allows the passenger service and almost normal operation of freight service on the existing infrastructure.

North of Greenfield, operation of the proposed passenger service combined with the current freight service on the existing infrastructure is normal except for recurring conflicts involving freight trains NEMPAST and NEMPSTA and extended shuttle train 493. In the NECR operating plan, train NEMPAST arrives in White River Junction before train NEMPSTA leaves. The introduction of train 493 to the current infrastructure would cause train NEMPAST to wait at

Claremont for train 493, a delay of about 45 minutes. This delay is not extraordinary and might be acceptable, except that it would also generate a significant secondary delay to train NEMPAST waiting for train NEMPSTA or train NEMPSTA waiting for train NEMPAST.

Conclusions:
Analysis is based upon the simulation output represented by the stringlines, which represents the existing infrastructure. No significant infrastructure construction beyond that needed for the desired passenger train speeds would be needed to accommodate this service between Springfield and Greenfield.

Improvement of the auxiliary track at Hartland that would result in restoring it to service as a siding that would accommodate typical-length freight trains would provide substantial mitigation of the delays involving train 493, virtually eliminating the secondary delays.

4. PASSENGER RAIL RIDERSHIP FORECASTS

One of the most critical elements of the feasibility assessment is the estimate of ridership for different service level alternatives. Ridership is the leading indicator of benefits for the benefit-cost analysis conducted as part of this feasibility study. For the purposes of understanding the affected market of trips, ridership estimates assessed opportunities for the entire through-length of the Amtrak Vermonter from St. Albans, Vermont, to Washington, DC, with particular emphasis on the primary ridership market from New Haven, CT, to White River Junction, VT.

This chapter describes the method, data sources, assumptions, alternatives and forecast results developed in forecasting various scenarios for the I-91 Knowledge Corridor Rail Realignment Feasibility Study. The forecasting method applied here was designed to be applicable for evaluating the feasibility of a variety of proposed passenger rail mobility improvements along the Conn River Line (Pan Am Railways between Springfield and East Northfield, MA). Proposed improvements include realignment of the existing intercity service (Amtrak's "Vermonter") expansion of intercity service, provision for North-South commuter service, and combinations of all these elements.

The chapter is comprised of the following sections:

- Discussion of the study area;
- Model design and methodology employed;
- Description of scenarios evaluated; and
- Results and summary of findings.

4.1 Study Area

The feasibility study area for many purposes (e.g. engineering, costing, etc.) concerns only the Conn River Line between Springfield and East Northfield, a distance of 49 miles entirely within the Commonwealth of Massachusetts. For the purposes of understanding the affected market of passenger rail trips and to accurately model ridership, however, the study area coverage needed to include the entire through length (i.e. one-seat ride) of the Amtrak Vermonter from St. Albans, Vermont, to Washington, DC.

The forecasting methodology needed to be applied to a geographically large enough area to account for the size of the area potentially affected by the scenarios considered. The intercity service today extends north to St. Albans, Vermont, and south to New Haven, New York, and ultimately, Washington, D.C. At the same time, the forecasts needed to be detailed enough to be sensitive to local or regional changes in demographic characteristics and trip-making patterns. The ridership analysis was developed to account for the enlarged nature of the project market study area, as differentiated from the "engineering study area."

4.2 Model Design

Several different elements were established prior to developing the ridership model.

4.2.1 Determination of Trips

Since some of the service improvements being considered involve improvements in travel times in Massachusetts, travelers on the intercity service traveling from points south of Springfield to points north of Springfield (or, in fact, anyone traveling from points in Vermont to any point south of Brattleboro (i.e. into Massachusetts and beyond) would be impacted by the potential improvements. As a result, these travelers warranted analysis in the model. In order to keep the analysis manageable, however, the trips on the Vermonter and other intercity services not entering Massachusetts were not included. For example, the model makes no attempt to model all rail trips between New York City and Hartford, although the model does take into account the travelers physically on the train between those two points who are heading to or from Springfield and points north.

4.2.2 Station Universe

The model displays results expressed for each and all of the station cities along the proposed route. For simplicity's sake, all stations between Washington, DC, and New York City are grouped into one station describing "New York and South." Similarly, the Vermont stations between St. Albans and Bellows Falls are grouped into one station known as "Bellows Falls and North." The remaining stations are treated individually, so that the universe of stations analyzed in the model, and for which a station-to-station trip matrix is developed, is as follows:

- Bellows Falls, VT and North
- Brattleboro, VT
- Greenfield, MA (proposed)
- Northampton, MA (proposed to replace present Amherst station)
- Amherst, MA (proposed for replacement by Northampton)
- Holyoke, MA (proposed)
- Springfield, MA
- Windsor Locks, CT
- Hartford, CT
- Berlin, CT
- Meriden, CT
- Wallingford, CT
- New Haven, CT
- Bridgeport, CT
- Stamford, CT

- New Rochelle, NY
- New York, NY (and points south)

4.2.3 Key Point-to-Point Markets

Within the overall study area, several key point-to-point travel markets are of interest. A fundamental principle of most travel demand analysis, including this model, is that a traveler's decision to use a particular mode between two points is a function of their *perceived* time from origin to destination over each of the available mode choices. It is therefore not sufficient to analyze the station-to-station travel time of the proposed rail service without taking into account some understanding of the time on competing travel modes (bus, auto, etc.), and also taking into account some evaluation of access and egress between the stations and the ultimate origin or destination. Table 4.1 shows a sample of anticipated point-to-point travel times from a number of different sources for a representative sample of key origin-destination pairs.

Table 4.1 Modal Travel Time Comparison, Representative Sample O/D Pairs

Between Points		Distance	Drive Time		Bus Service		Rail Service	
		Miles	Estimated	Modeled	Peter Pan	PVTA/FRTA	Present	Proposed
Springfield	Holyoke	8	**12**	24	*15/25*	25/60	n/a	14
Holyoke	Northampton	10	**16**	28	*20/30*	30	n/a	13
Northampton	Greenfield	20	**22**	44	30	50	n/a	23
Springfield	Northampton	18	**22**	34	30	60/90	n/a	27
Springfield	Greenfield	39	**45**	61	55	120/150	n/a	50
Amherst	Springfield	26	**34**	39	50	90/120	80	n/a
Greenfield	New Haven	103	**110**	135	180	n/a	n/a	144
White River Jct	New Haven	183	**190**	215	300	n/a	323	258

Notes:
Estimated Drive Time: Based on distance, facility type
Modeled: 2010 PVPC demand model
Peter Pan: Based on current Peter Pan Timetables, averaged
Transit: Based on PVTA and FRTA schedules, including transfers
Current Rail Service: Summer 2008 Vermonter schedule
Proposed Rail Service: As discussed

4.2.4 Data Sources and Models Utilized

The ridership estimates incorporate historical, current and projected population and employment data obtained from:

- US Census Bureau 2000 Census of Population & Housing;
- U.S. Census Bureau 2007 Population Estimates, released July 2008;
- FRCOG Regional Population Projections 2000-2030;
- Regional Transportation Plan for the Pioneer Valley MPO – 2007 Update;
- Pioneer Valley Regional Transportation Plan;
- Franklin County Regional Transportation Plan; and
- Massachusetts Office of Workforce Development ES-202.

- MISER (Massachusetts Institute for Social and Economic Research) projections for the Vermont Department of Aging

A custom forecasting model was developed to estimate ridership for the proposed realignment of the current Vermonter, enhanced intercity, and commuter service scenarios. It utilized applicable data and network features where available from existing demand models and frameworks, such as the PVPC regional travel demand model, the Massachusetts Statewide Travel Demand model, intercity travel pattern models used by Amtrak, and the 2000 Census Journey to Work data. In general, the model was designed to be market-based by focusing on two groups of potential trip-makers in the corridor: intercity trips (those involving an origin or destination outside the primary study area); and work/commuter trips (those where origin and destination are both inside the primary study area or its nearby commuter markets).

The model specifically considers travel time comparisons between passenger rail and alternative modes on the highway. Other key factors include the frequency of rail service, and the level of jobs and population within walking distance of railroad stations. The ridership estimates assume that the current, low-cost high-frequency Amherst-Northampton bus service will be maintained as well as other PVTA bus connections in the region. Information and assumptions related to the price of gas, average fare price, and levels of highway congestion were also considered in the ridership analysis. Finally, the potential for induced development (transit-oriented development) near the stations for the enhanced intercity and commuter service scenarios was also incorporated.

4.2.5 Intercity Market

The intercity market is seen as one for longer-distance trips to and from the Pioneer Valley/Knowledge Corridor region along the general route of today's Vermonter service, which provides a one-seat ride between Washington, DC, and St. Albans, Vermont. The potential east-west market (East to Boston, west toward Albany) is served by one train daily, the Boston Section of the Lake Shore Limited, and is not analyzed as part of this analysis.

The intercity market includes all of the stations defined above, and is largely calibrated based on current Amtrak trip patterns, which indicate that Springfield is still the most important station in the study area for the present Vermonter service, even accounting for the fact that there are other trains serving Springfield. It is still the highest ridership station, with approximately one fourth of all the boardings and alightings between New York and St. Albans.

Forecasting Methodology

Between Washington and New Haven, the present-day Vermonter service operates on the Amtrak Northeast Corridor similarly to other Northeast Corridor "regional" services. The Vermonter functions as one of three daily Washington-Springfield through trains (i.e. no change at New Haven); all other Springfield-bound services consist of a shuttle train between New Haven and Springfield. While the Vermonter continues north into Vermont, all other regional trains terminate at Springfield.

The present Vermonter, along with these other through trains, are now the only trains that experience an engine change at New Haven. This process requires a stop of approximately 30 minutes, largely offsetting the benefits of the one-seat ride. The other "shuttle" services between New Haven and Springfield operate diesel-only and are timed to meet mainline Northeast Corridor trains with a cross-platform timed-transfer. Presently, the Vermonter is the only service traveling North of Springfield once a day in each direction, currently stopping only in Amherst before entering Vermont. Proposed changes include rerouting the train to serve Northampton instead of Amherst, which improves total running time for all travelers over this segment, and adding station stops at Greenfield and Holyoke. Service changes to other portions of the Vermonter service, such as ending the Vermonter at New Haven where it would interface with Northeast Corridor trains or adding additional service, are able to be analyzed as well.

The forecasting tool for the intercity market was developed to be an incremental (pivot point) type model based off of current 2008 Amtrak ridership statistics for the Vermonter service. The intercity market is more episodic than the relatively consistent commuter market, as intercity passengers with some rare exceptions do not generally travel the same trip every day. Moreover, the existing service provides the best proxy for how the service can be expected to operate in the near future.

4.2.6 Commuter Market

The commuter market is seen as the market for relatively consistent short- to medium-distance trips on the rail service, chiefly during traditional work hours (from home to work in the morning peak, and from work to home in the afternoon peak). The existing Vermonter service does not travel through the region at commuter times to serve this market with any effectiveness, but proposed service enhancements featuring progressively more commuter-oriented services suggest the ability of the service to capture some of the commute market. The commuter market consists of those trip-makers who live and/or work in one of the three Massachusetts counties of Hampden, Hampshire, or Franklin.

To evaluate the size of this market overall, the 2000 Census Journey-to-Work (JTW) files were used to develop a town-to-town table of work-commute trips in the region, and ultimately a stop-to-stop table for each of the proposed stops. Census JTW data was obtained for each town. To do this, some assumptions had to be made about station catchment areas; specifically, the universe of towns from which the station would draw its home-end trip ends. Overall, the study area within Massachusetts accounts for a total of approximately 300,400 trips in the Census JTW table to all destinations, with about 93,500 trips "eligible" for using the rail line (i.e., within home-end and attraction-end catchment areas).

The model does allow commuter trips into Vermont, Connecticut, and even New York, along the rail route, although it is calibrated to reflect the patterns illustrated in the 2000 Census Journey-to-Work data, which shows a significant fall-off in trips (on all modes) south of Hartford, and especially beyond New Haven. Nevertheless, the sheer size of New York City does still induce some commuters in the Census to live in the Pioneer Valley and commute to New York.

In all likelihood, trips between the Pioneer Valley and New York occur fewer than 5 days per week, but the model was set up to allow these trips to occur even in limited numbers. The model does not analyze trips between stations entirely within Connecticut or New York (e.g. between New Haven and New York, between Hartford and Stamford, etc.), since these are not candidates for the commuter service as proposed between Greenfield and Springfield, and are provided for by other commuter services. Therefore the significant added complexity in forecasting in these markets is not warranted for the purposes of this study.

For the commute-trip market, the following assumptions were made:

1. Patrons may or may not have a car available to them on the home end of the trip (i.e. home to station park-and-ride).
2. Patrons generally will travel to the nearest station to them.
3. Patrons will feed a station from a wider geographic area when using a car.
4. Patrons will not generally have a car available to them on the work end of the trip, and therefore only trips which are a reasonable walking distance (or short bus ride) from the station are good candidates.
5. Each station, therefore, has a relatively large production (home-end) catchment area, and a small attraction (work-end) catchment, focused on the area immediately around the station.

The home-end catchment area was defined generally as including zones for which a reasonable drive of 15-20 minutes or less could access the station. In order to give maximum opportunity for towns in Hampden, Hampshire, and Franklin counties to access stations, each town in these three counties was connected to one of the stations on the home-end. On the attraction end, however, a reasonably tight area generally representing approximately 15 minutes walking or 5 minutes shuttle bus/taxi ride was used as the reasonable catchment area.

Census Journey-To-Work data were available to the Traffic Analysis Zone (TAZ) level of detail (sub-town geography) within the PVPC modeling region (Hampden and Hampshire counties), and to the town level elsewhere (in Franklin County, Massachusetts, and in Vermont, Connecticut, and New York).

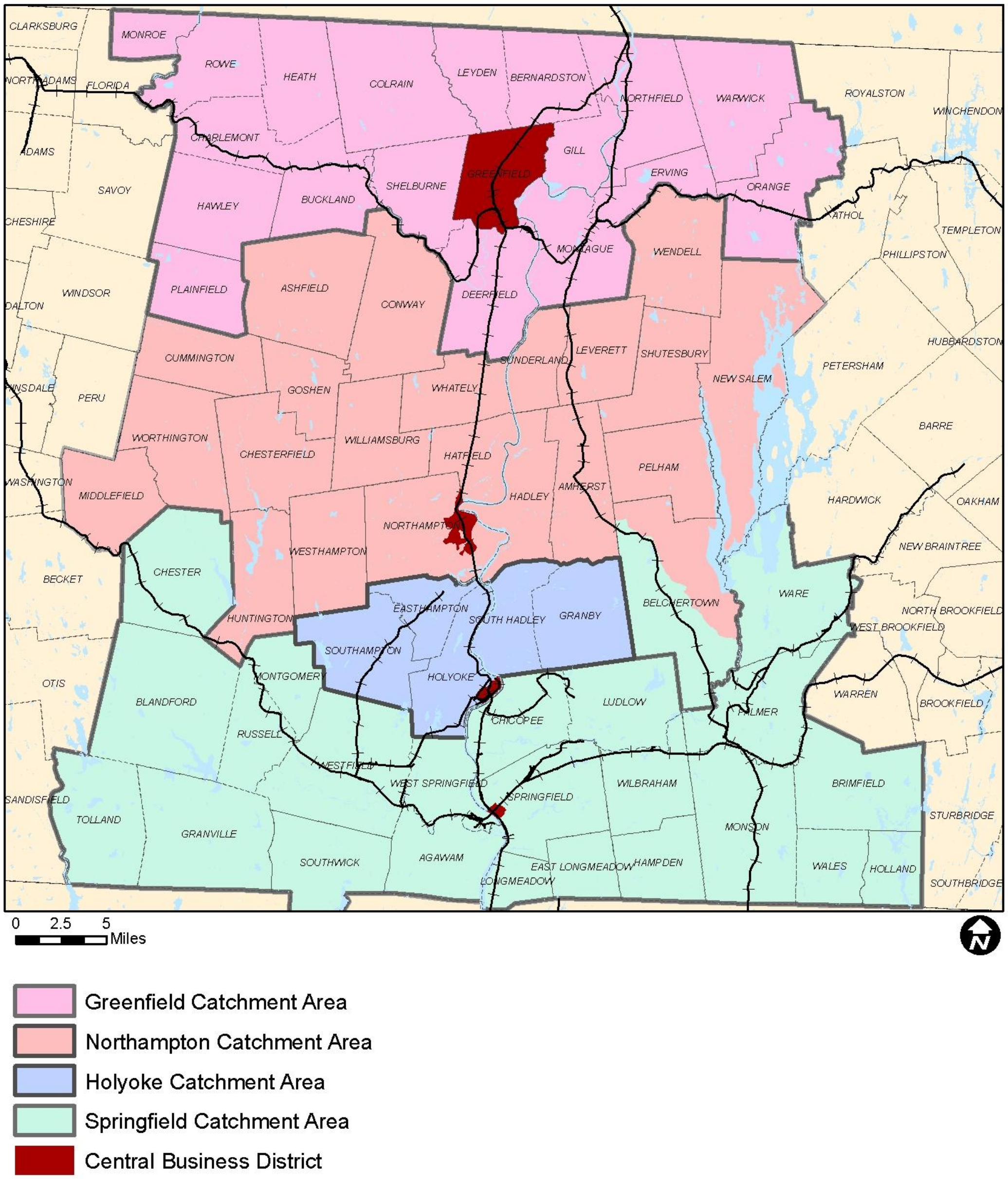
In the interest of keeping the analysis size manageable, only those locations reasonably along the route were included, along with: Windham County, Vermont; Hartford, New Haven, and Fairfield counties in Connecticut; and, Westchester County, New York.

All of New York City’s five counties and boroughs were treated as one combined location for the purposes of developing a station-to-station trip table, and there were measurable numbers of JTW (i.e. regular commute-to-work) trips from locations in the Pioneer Valley to New York. Locations beyond New York (e.g. Philadelphia, Washington, etc.) were not seen as candidates for the commuter market from the Pioneer Valley, as the Census JTW trip table to these locations is almost nonexistent.

As with the intercity markets, the analysis did not attempt to quantify or evaluate commute trips not traveling from, to, or through the Pioneer Valley; for example, the analysis did not attempt to model the considerable commuter traffic between New Haven and New York.

The station catchment areas for the central region of the study area are shown in Figure 4.1. In this diagram, the smaller areas around the stations in Northampton, Holyoke, and Springfield represent the smaller "attraction end" catchment areas, whereas the larger boundaries (generally along town lines) indicate the "production" catchment areas.

Figure 4.1 Station Catchment Boundaries for Central Portion of Study Area



4.3 SCENARIOS ANALYZED

For the purposes of the feasibility study, several alternatives or "cases" were conceived and enumerated. These cases were developed to represent generally incremental changes to the level and type of passenger rail service in the region. The forecasting tool needed to be sensitive to the types of service changes implemented in each case. In order to best understand the markets for service improvements to the region's rail network, a stepwise, incremental approach to developing the cases was used. Each of these cases is described below.

4.3.1 Case 0 – Base Line

This case represents the current Amtrak service as it operates today, with one "Vermonter" train per day in each direction traveling over the CSX (Springfield to Palmer) and NECR (Palmer to East Northfield) with station stops at Springfield and Amherst. Based on data obtained from Amtrak, annual ridership was 72,655 for fiscal year 2008. This figure, plus additional ridership from Springfield going south, was utilized in the estimation. The Vermonter presently operates through all the way to Washington. This case provides no additional commuter-oriented service beyond what is in place today, which consists solely of eight Amtrak "Inland Shuttle" services per day providing service from Springfield south to New Haven. Please note that two of these trains are through services beyond New Haven. This case is useful primarily to establish a baseline point of comparison.

Existing ridership data (boardings/alightings by station) from Amtrak from 2006, 2007, and 2008 were used to provide calibration targets, and a trip distribution process was implemented to develop a station-to-station trip table. The trip distribution process computed travel impedances (the "cost" of travel between each station-to-station pair) based on station-to-station travel time, anticipated fare, and service characteristics. The process factored those impedances iteratively, until the trip tables yielded the target on and off values for each station to a reasonable degree (sum-of-squares difference is only 295 on a base of 9,404 trips in the entire study area). Since the service does not occur during "commuter" hours in the Pioneer Valley, the commuter market was assumed not to be served by this service.

4.3.2 Case 1a – Vermonter Realignment to the Connecticut River Line

This case represents the single change to the system of re-routing the present day Vermonter service to use the Pan Am Railways Connecticut River line between Springfield and East Northfield. This change realigns the service onto its pre-1989 routing. The train operated all the way to Montreal as the Montrealer, and replaces the station stop at Amherst with one in Northampton last used in 1987. The name of the service was changed in 1995 from the Montrealer to the Vermonter to reflect the discontinuation of service to Montreal. In addition, new station stops at Holyoke and Greenfield are proposed and tested in this case. The route is 11 miles shorter and the assumed operating speeds of 60 mph allow a time savings of up to 43 minutes versus Case 0 between Springfield and Brattleboro. Service is assumed to continue operating all the way through (one-seat ride) to Washington. The realignment removes a time-consuming "reverse move" at Palmer, and the need to operate two locomotives or a cab car, to allow double-ended operation although a relatively short backup into Union Station is still required in Springfield.

The model is constructed to build on the existing Case 0 ridership by applying an elasticity to the travel time savings between the two cases. A relatively elastic value of -1.35 is applied to the percentage travel time change between each station pair to compute a percentage change in trips (the negative sign ensures a faster trip will generate more trips). This figure is based on similar elasticity values used on other intercity corridors nationwide. Additionally, all trips formerly using Amherst are redistributed among the three new stations, Northampton, Holyoke, and Greenfield, with the majority assigned to Northampton. Additional trips are generated at each of these three stations to represent the latent demand that would now be served, and these trips are distributed to destination stations in proportion to the existing trips.

4.3.3 Case 1b – Vermonter Expansion

This case expands on Case 1a by adding a second Vermonter train per day in each direction, but changes the Vermonter service for both trains to only travel between Vermont and New Haven, with timed connections to Northeast Corridor services at New Haven. Thus, the one-seat ride to New York and Washington is eliminated, although the timed-transfer at New Haven shortens overall travel time as no engine change is required. Today's (Case 0) service requires a 30 minute engine change at New Haven; the net effect of the required transfer is an additional 5 minutes of effective run time, when the impacts of the transfer and the engine change are compared.

The two New Haven-to-St. Albans trains would not be likely to have schedules well-suited to the commuter market, the model is set up to pivot off of the Case 1a ridership by applying two elasticities. The same travel time elasticity of -1.35 is applied to the differential travel times (essentially 5 minutes longer than Case 1a for all trips south of New Haven), resulting in minimal change. The second elasticity of 0.95 accounts for the improved service frequency between stations offered by the second Vermont train. The elasticity value of 0.95 on frequency suggests that the ridership can be expected to just slightly less than double, because of the presence of the additional train. For station pairs that see a change from one to two trains per day, this is a reasonable assumption, since typically service improvements from one daily frequency to two tend to see just slightly less than doubling of ridership.

4.3.4 Case 2 – Expanded Intercity Service

This case expands on Case 1b by adding one additional "Vermonter Lite" service train between New Haven and White River Junction, as well as two additional trains Greenfield to New Haven and significant additional service provided between Springfield and New Haven as proposed by ConnDOT. With a total of four trains per day north of Springfield, relatively evenly spaced throughout the day, a modest amount of the commuter market can be expected to respond to the level of service provided in this case.

With the total service profile of four [roundtrip] trains per day, the forecast for this case contains three major elements: Intercity market trips, commuter market trips, and induced demand trips.

First, the intercity market builds off (or "pivots") off the Case 1b ridership by applying an elasticity to the frequency change. For most stations, this means two to four trains per day. Unlike the earlier cases, however, the elasticity applicable varies by the level of service, according to the Law of Diminishing Returns. The marginal rate of ridership growth resulting from each additional train added can be expected to diminish as more trains are added; while the second train, a 100 percent increase in service, might merit almost a doubling of ridership, the fifth train cannot be expected to sustain this kind of increase. As applied in the model, the percent change in frequency (change in trains per day, expressed as a percentage) is multiplied by an elasticity to obtain a percent change in ridership. Not only does the percent change in frequency vary (in Case 2 Greenfield, Northampton, and Holyoke see a 100 percent increase in service from two to four), but the elasticity value itself varies by the number of trains as well, diminishing as the base number of trains increases. The elasticity is applied to station boardings and alightings and then an iterative trip distribution step is performed to balance these boardings and alightings across all stations, using a modified Fratar-method[1] process to expand the Case 1b station-to-station trip table.

Additionally, with four trains per day north of Springfield, the commuter market also begins to become detectable, especially considering commuter trips generally occur every day. The basic Census Journey-to-work station-to-station trip table developed earlier is used as a starting point. It represents all trips, regardless of mode. A series of adjustment factors based on station/area characteristics are applied to estimate an overall mode share for passenger rail. A unique share percentage is developed for each station-to-station pair in the region, except that trips with both ends south of Springfield are not analyzed, and is based on features of the boarding station/area, features of the alighting station/area, and assumed time, distance, and cost between the two. Specific variables included in this analysis are listed below, although it should be noted that every variable does not necessarily apply for every station:

System Variables:

- Average per-mile rail fare for intercity service — $0.30/mile
- Average per-mile rail fare for commuter service — $0.17/mile
- Average fuel price per gallon — $3.00/gallon
- Value of time, dollars per hour — $6.00/hour
- Average speed for intercity service — 43 miles/hour
- Average speed for commuter service — 43 miles/hour
- Average speed on highway system between stations — 47 miles/hour
- Average commute trips per week — 9.2 trips/week
- Default additional non-work commuter trips — 2% additional trips

Station/Area specific variables/factors:

- Default rail share
- Annualized growth in population for station production catchment area (future years)

[1] The "successive approximation" iterative method for proportionally estimating growth in traffic or trips was developed by Thomas J. Fratar in 1954. It is still considered a "standard" method for such analysis, and is almost universally known as the "Fratar" method.

- Annualized growth in employment for station attraction catchment area (future years)
- *Destination parking cost*
- *Boarding station parking supply and cost index*
- *Feeder transit service at boarding station*
- *Station amenities (factor for each boarding and alighting station)*
- *Station service frequency (trains per day)*
- *Station stopping time-spread ("peakness" factor)*
- *Induced development factors (discussed separately, below)*

Station-to-station pair-specific variables:

- Total person work trips, from Census Journey-to-Work data
- Rail travel time
- Rail travel distance
- Rail fare (distance * system fare value)
- Additional nonwork commuter trips (overriding default)
- Special generator trips (station-to-station specific)

A series of adjustment factors (shown in *italics* above) are applied to a computed default rail share for each station-to-station pair to arrive at a final adjusted share. This adjusted share is then applied to the total station-to-station trips for that station pair (from the Census JTW data) to arrive at a forecast commuter trips estimate for that station pair. The results for all station pairs are then summarized into boardings and alightings by station and can be added to the corresponding results for intercity trips.

The third element of the forecasts is ridership resulting from induced development demand, or more specifically, the demand for rail trips that is generated specifically by the increased development, which is itself spurred on by the implementation of rail service. Other technical memoranda have discussed the induced development estimated to occur as a result of the implementation of rail service, and the specifics of that methodology will not be repeated here. It is worth noting, however, that these additional induced economic impacts (in terms of additional employment or population attracted to the area near the stations as a result of the service) themselves contribute to the ridership over and above the markets described previously.

These riders can be expected to behave differently with respect to the rail service than the population as a whole, since their very reason for existing in the Pioneer Valley region is by definition a direct result of the presence of the rail service. It is likely, for example, that the rail mode choice of such induced populations is much higher than the population at large, even if they are a relatively small population for any particular station. Even though they are strongly oriented toward the rail service, however, it does not necessarily mean we can assume 100 percent rail share for this population. As an example, a couple or family may be induced to move to Greenfield because the presence of the train means the husband can ride the train to his job in Hartford. The wife, however, may choose to change jobs and work locally, commuting via car in the process. As applied, the forecast tool conservatively estimates the default station-to-station share to be three times that of the overall commuter market, as described above. The induced economic development analysis produced estimates of percentage growth in population and employment for each station area; these are used to factor the commuter market station-to-station trip table using an iterative Fratar-method process to obtain a station-to-station trip table of economically induced trips.

The induced trips are also only significant for trips in the future forecast years (i.e. those beyond the opening years), since the development needs some time to occur after the service is implemented. Therefore, for the purposes of this study, this market is only analyzed for the years beyond 2012. Moreover, this market is only analyzed for cases where significant alterations in service occur. This means that Case 0, Case 1a, and Case 1b are assumed not to have enough significant measurable economically induced market to justify explicit analysis.

4.3.5 Case 3 – Enhanced Commuter

This case differs from Case 2 by building differently off of Case 1b. In this scenario, two daily intercity-type trains travel in each direction between St. Albans and New Haven. In addition, there are eight additional commuter-style trains per day (in each direction) from Greenfield south. It is anticipated that these trains would be focused on the commuter market, with 5 southbound in the AM Peak, and the remaining three in the midday and PM peak times (reverse-commute market). This case assumes the ConnDOT 24-train scenario between Springfield and New Haven; it is likely that the Greenfield trains would be through extensions of some of the ConnDOT trains, which would give a commuter a one-seat ride all the way to Hartford and even New Haven.

As with Case 2, the ridership forecast was devised to comprise three elements—the intercity market, the commuter market, and the economically induced add-on trips (for future years only). The forecasts are developed for each element in the same way as for that of Case 2, although many of the input variables and assumptions are different for this more elaborate service case. In particular, values for the Station service frequency (trains per day) and station stopping time-spread ("peakness") for stations north of Springfield are different from those of Case 2.

4.4 Results and Summary of Findings

A set of forecasts was produced for the opening/implementation years and for the long-term year 2030. It should be noted that the 2030 forecasts include not only the effects of the changes in regional demographics between 2015 and 2030, but also the impact of the economically induced trips. Additionally, it should also be noted that the calculations are based on the entire study area routing, from St. Albans, Vermont, to Washington, D.C., although the table aggregates stations north of Brattleboro as “Bellows Falls and North,” and points beyond New York into “New York and South.”

4.4.1 Results

The initial relocation of the Vermonter service to the Connecticut River Line (i.e., Case 1a versus Case 0) suggests a 48 percent increase in ridership over existing for the near term (2012 to 2017) and a 47 percent increase in the longer term using Amtrak’s standard definition of the “Vermonter Corridor” service (i.e. only trips with an origin and/or destination north of Springfield).

Table 4.2 Daily Ridership Forecast Results, Near-Term

Station	0. Base (Existing)	1a. Vermonter Realignment	1b. Vermonter Expansion	2. Enhanced Intercity	3. Enhanced Commuter
Brattleboro	16	21	41	39	41
Greenfield	0	12	23	41	179
Northampton	0	28	54	114	369
Amherst	19	0	0	0	0
Holyoke	0	13	25	46	123
Springfield	101	101	109	438	582
Total St. Albans to NY	415	513	826	1,371	2,014
% Increase Over Existing		24%	99%	231%	386%

Source: HDR calculations

Table 4.3 Daily Ridership Forecast Results, Long-Term

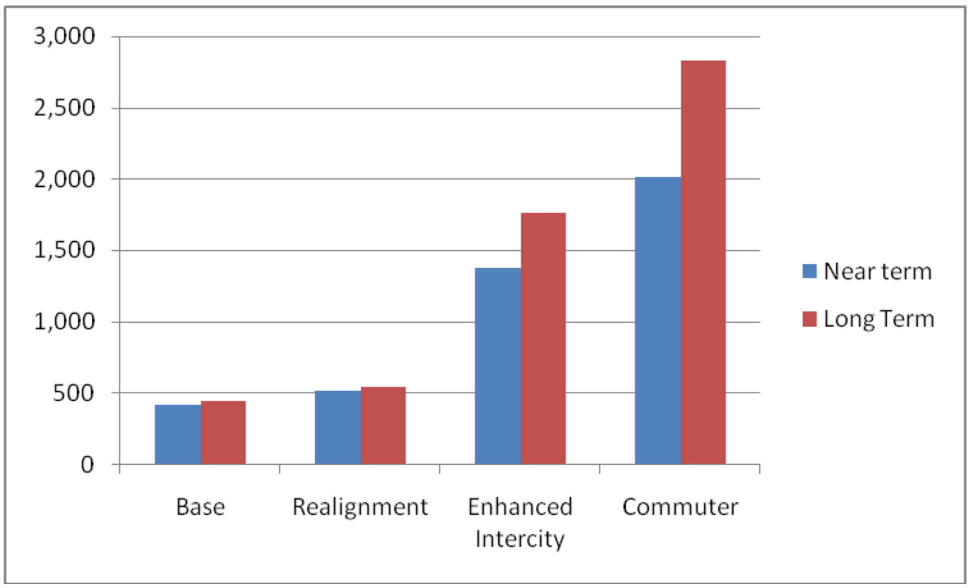
Station	0. Base (Existing)	1a. Vermonter Realignment	1b. Vermonter Expansion	2. Enhanced Intercity	3. Enhanced Commuter
Brattleboro	17	22	40	41	40
Greenfield	--	12	23	70	342
Northampton	--	29	52	195	561
Amherst	21	--	--	--	--
Holyoke	--	13	24	65	173
Springfield	106	106	110	519	847
Total St. Albans to NY	436	536	822	1,760	2,829
% Increase Over Existing		23%	89%	304%	549%

Source: HDR calculations

The near- and long-term ridership results for each scenario are provided in Figure 4.2. The differences between near-term and long-term forecasts are modest for the base (Case 0) and realignment scenarios as they reflect the modest population and employment growth forecasts for the region. The more significant ridership increases for enhanced intercity and commuter services reflect the potential for induced demand and development as it takes some time to fully leverage changes in travel behavior and transit-oriented development opportunities.

If the Vermonter is restored to its historic alignment, daily ridership is projected to reach approximately 513 in the near term and 536 by 2030, a 23-24 percent increase over the existing service. With the addition of at least three daily trains in the corridor, the enhanced intercity service is estimated to generate a significant increase in daily ridership – 1,371 riders in the near-term and 1,760 longer term. This represents a 200 to 300 percent increase in ridership.

Figure 4.2 Near-Term and Long-Term Daily Ridership by Case



Detailed station ridership summaries (ons/offs) for all stations for each of the cases and forecast years appear in Tables 4.4 and 4.5. Please note that these tables represent total station activity by showing both boardings and alightings. Consequently, single one-way trips are actually counted twice. For example, a single trip from Northampton to New Haven would show a boarding in Northampton and an alighting in New Haven.

Table 4.4 Daily Ridership Forecast Results for All Stations Near Term (2012-2017)

Existing			
CASE 0 Station Activity	FROM (Boardings)	TO (Alightings)	TOTAL ACTIVITY
Bellows Falls and Nor	73	73	147
Brattleboro	16	16	32
Greenfield	0	0	0
Amherst	19	17	37
Northampton	0	0	0
Holyoke	0	0	0
Springfield	101	99	200
Windsor Locks	2	8	11
Hartford	34	34	68
Berlin	4	4	7
Meriden	6	5	10
Wallingford	2	1	3
New Haven	18	18	36
Bridgeport	2	2	5
Stamford	6	6	12
New Rochelle	0	0	1
New York and South	131	132	263
TOTAL	415	416	831

Realignment			
CASE 1a Station Activity	FROM (Boardings)	TO (Alightings)	TOTAL ACTIVITY
Bellows Falls and Nor	97	97	194
Brattleboro	21	21	42
Greenfield	12	12	24
Amherst	0	0	0
Northampton	28	25	53
Holyoke	13	13	25
Springfield	101	99	200
Windsor Locks	3	9	12
Hartford	44	44	88
Berlin	4	4	9
Meriden	7	6	13
Wallingford	2	2	4
New Haven	22	22	44
Bridgeport	3	3	6
Stamford	7	7	14
New Rochelle	0	0	1
New York and South	150	148	298
TOTAL	513	513	1,027

Realignment and 2nd Vermonter			
CASE 1b Station Activity	FROM (Boardings)	TO (Alightings)	TOTAL ACTIVITY
Bellows Falls and North	188	190	379
Brattleboro	41	41	82
Greenfield	23	23	46
Amherst	0	0	0
Northampton	54	49	103
Holyoke	25	25	49
Springfield	109	107	216
Windsor Locks	7	15	22
Hartford	83	83	166
Berlin	8	8	17
Meriden	13	12	25
Wallingford	4	4	7
New Haven	38	38	75
Bridgeport	5	5	10
Stamford	12	11	23
New Rochelle	0	0	1
New York and South	217	214	431
TOTAL	826	826	1,652

Note: Trips include Vermonter-related trips PLUS Inland Route-related trips to/from Springfield and Windsor Locks only. Does not include trips entirely within CT or between CT and NY.

Enhanced Intercity			
CASE 2 Station Activity	FROM (Boardings)	TO (Alightings)	TOTAL ACTIVITY
Bellows Falls and Nor	184	186	371
Brattleboro	39	40	79
Greenfield	41	40	81
Amherst	0	0	0
Northampton	114	116	230
Holyoke	46	56	101
Springfield	438	239	677
Windsor Locks	29	51	80
Hartford	158	292	450
Berlin	17	30	47
Meriden	24	23	48
Wallingford	9	8	17
New Haven	37	46	82
Bridgeport	5	6	11
Stamford	11	13	24
New Rochelle	0	0	1
New York and South	216	229	446
TOTAL	1,371	1,375	2,745

Commuter			
CASE 3 Station Activity	FROM (Boardings)	TO (Alightings)	TOTAL ACTIVITY
Bellows Falls and North	188	190	379
Brattleboro	41	42	83
Greenfield	179	149	328
Amherst	0	0	0
Northampton	369	413	782
Holyoke	123	146	269
Springfield	582	321	903
Windsor Locks	36	58	94
Hartford	167	324	490
Berlin	18	33	51
Meriden	25	25	50
Wallingford	9	8	18
New Haven	38	45	83
Bridgeport	5	6	11
Stamford	12	13	24
New Rochelle	1	0	1
New York and South	221	234	456
TOTAL	2,014	2,007	4,021

Table 4.5 Daily Ridership Forecast Results for All Stations Long Term (2030)

Existing			
CASE 0	FROM	TO	TOTAL
Station Activity	Boardings)	(Alightings	ACTIVITY
Bellows Falls and Nor	76	76	152
Brattleboro	17	16	33
Greenfield	0	0	0
Amherst	21	19	40
Northampton	0	0	0
Holyoke	0	0	0
Springfield	106	105	211
Windsor Locks	2	8	11
Hartford	34	35	69
Berlin	4	4	7
Meriden	6	5	11
Wallingford	2	2	3
New Haven	20	20	39
Bridgeport	3	3	5
Stamford	6	6	13
New Rochelle	0	0	1
New York and South	139	139	278
TOTAL	436	437	873

Realignment			
CASE 1a	FROM	TO	TOTAL
Station Activity	Boardings)	(Alightings	ACTIVITY
Bellows Falls and Nor	100	101	201
Brattleboro	22	22	44
Greenfield	12	12	24
Amherst	0	0	0
Northampton	29	26	56
Holyoke	13	13	26
Springfield	106	105	211
Windsor Locks	3	9	12
Hartford	44	44	89
Berlin	5	5	9
Meriden	7	7	14
Wallingford	2	2	4
New Haven	23	23	47
Bridgeport	3	3	6
Stamford	8	8	15
New Rochelle	0	0	1
New York and South	158	156	314
TOTAL	536	536	1,073

Realignment and 2nd Vermonter			
CASE 1b	FROM	TO	TOTAL
Station Activity	Boardings)	(Alightings	ACTIVITY
Bellows Falls and North	188	191	379
Brattleboro	40	40	80
Greenfield	23	22	45
Amherst	0	0	0
Northampton	52	48	100
Holyoke	24	24	48
Springfield	110	108	219
Windsor Locks	6	14	20
Hartford	80	80	160
Berlin	8	8	17
Meriden	13	12	25
Wallingford	4	4	8
New Haven	37	37	75
Bridgeport	5	5	10
Stamford	12	12	23
New Rochelle	0	0	1
New York and South	219	216	435
TOTAL	822	822	1,644

Note: Trips include Vermonter-related trips PLUS Inland Route-related trips to/from Springfield and Windsor Locks only. Does not include trips entirely within CT or between CT and NY.

Enhanced Intercity			
CASE 2	FROM	TO	TOTAL
Station Activity	Boardings)	(Alightings	ACTIVITY
Bellows Falls and Nor	195	193	388
Brattleboro	41	40	81
Greenfield	70	55	125
Amherst	0	0	0
Northampton	195	279	474
Holyoke	65	66	132
Springfield	519	288	807
Windsor Locks	33	56	89
Hartford	168	326	494
Berlin	18	35	54
Meriden	28	25	52
Wallingford	10	8	18
New Haven	46	53	99
Bridgeport	7	7	14
Stamford	15	16	31
New Rochelle	1	0	1
New York and South	348	316	664
TOTAL	1,760	1,764	3,525

Commuter			
CASE 3	FROM	TO	TOTAL
Station Activity	Boardings)	(Alightings	ACTIVITY
Bellows Falls and North	190	203	393
Brattleboro	40	44	84
Greenfield	342	240	583
Amherst	0	0	0
Northampton	561	751	1,312
Holyoke	173	192	365
Springfield	847	499	1,346
Windsor Locks	42	66	108
Hartford	169	379	548
Berlin	18	41	59
Meriden	27	27	54
Wallingford	10	9	19
New Haven	44	56	101
Bridgeport	6	7	14
Stamford	15	16	31
New Rochelle	1	0	1
New York and South	343	334	677
TOTAL	2,829	2,865	5,694

4.4.2 Key Findings

The forecasts appear to produce reasonable estimates of the anticipated ridership for each of the cases presented. As with any forecasting tool, especially one involving a large number of differing input variables and assumptions, there is considerable uncertainty associated with the forecasts. The risk analysis process framework was used to provide some common-sense checks on several of the inputs, especially those dealing with the demographic growth assumptions. As part of that process, a range of likely values for each input assumption was developed by consensus of the Technical Advisory Committee. Each variable had a "low," "likely," and "high" value chosen. The results tables shown in the previous section represent the "likely" values for each of the input variables. The following are the key findings of the ridership analysis:

- There is significant opportunity to improve Vermonter service simply by re-aligning the route to its original path using the Connecticut River Line. Even with no other services added, the improvements in running time for those headed north of Springfield, combined with the opportunity to serve three significant activity nexus while losing service to only one, generate respectable ridership gains and set the important basis for future growth.
- The net impact of re-configuring the Vermonter service to transfer to Northeast Corridor regional trains at New Haven (i.e. implementing an efficient cross-platform timed transfer and replacing a time-consuming engine change) does not appear to have a significant impact on user perception of train performance or corresponding ridership. While it remains to be seen exactly how the market will react to such a change, it is likely that the increased displeasure associated with the transfer can be offset by improvements in running time and frequency. The impact of improved on-board amenities or space availability were not explicitly analyzed as part of this effort, but could also offset the negativity of a transfer. That said, there is a significant enough market from Springfield and points North to New York that the retention of some limited through service could be considered
- Improvements to the line in Connecticut, in terms of service frequency and speed, have been proposed by ConnDOT. The implementation of these services could have a significant positive impact on the viability of passenger service North of Springfield as well. Both intercity and commuter services should be coordinated with those efforts so as to maximize the ability to improve services all along the line.
- There appears to be significant latent demand for improved mobility in the Knowledge corridor, based on the forecast results showing respectable numbers of commuters who would use the proposed commuter service to travel to employment centers such as Northampton, Springfield, and Hartford (where no commuter rail riders exist today). Moreover, induced development could be achieved in several of these station areas to generate additional ridership in the future.
- Although a head-to-head mode comparison was not part of the analysis, there is nothing in the above analysis to suggest that the rail service will prosper at the expense of private intercity or transit bus service in the region. There are opportunities and mutual benefits of integrating proposed rail service enhancements with the existing inter-city bus service in the region. For example, the Downeaster from Portland to Boston has strategically integrated bus and rail fares as well as honoring tickets on each mode to facilitate greater travel options. That experience demonstrates that inter-city rail and bus service can be

complimentary and boost overall ridership by enhancing the convenience and mobility options for travelers.

- One key overall idea of the project as a whole has been the idea that passenger rail service is critical to the economic viability of the Pioneer Valley region, as is the connectivity which it provides. Given the existing data from Amtrak, PVPC, and the Census, the analysis showing significant potential for ridership gains essentially indicates concurrence with this concept.
- Overall, the project corridor seems to lend itself toward the propensity for passenger rail service. The major activity centers in the region (with the notable exception of Amherst/U-Mass) are generally concentrated along the historical alignment of the Connecticut River. It is not without accident that both the Connecticut River Line railroad, the Connecticut River Way (New England Route 2/Presently US5), and Interstate 91 all travel North-South within a mile or two of the river, as that is where the activity is. The ridership forecasts concur with this contention, showing a significant preference over the current alignment with strong growth potential beyond current service levels.

5. BENEFIT-COST ANALYSIS

To better assess the feasibility of the three passenger rail scenarios considered for this study and described in previous chapters, a benefit-cost analysis was conducted to compare the return on investment. This chapter of the feasibility study is structured as follows:

- Brief description of the passenger rail service scenarios evaluated;
- Methodology of the benefit-cost analysis;
- Discussion of the benefits and costs estimated; and
- Results and summary of findings.

5.1 Passenger Rail Service Scenarios

The Amtrak Vermonter services areas between St. Albans, Vermont, and Washington, D.C., serving two station stops in Massachusetts along the way. The existing service in Massachusetts runs along the New England Central Railroad south from East Northfield, to Palmer where the train reverses direction to access the CSX track to Springfield.

This benefit-cost analysis covers three future investment scenarios:

1) **Realignment:** Realignment along the Pan Am Southern (PAS) route that parallels Interstate 91 along the Connecticut River. This is a more direct route from East Northfield, and it avoids the switching maneuver at Palmer. The current alignment covers 60.4 miles between East Northfield and Springfield, with a stop in Amherst. Under the new alignment, the trip length would be reduced to 49 miles. The stop in Amherst would be eliminated, and replaced with a stop in Northampton with a continuation of bus service from Amherst to Northampton. A station would also be added at the Greenfield Intermodal Facility with the expectation that another station would be developed in Holyoke.[1]

2) **Enhanced Intercity:** Additional rail service and station development in Holyoke. The proposed enhanced intercity rail service would consist of extending northward three round-trip trains that currently run between New Haven, Connecticut, and Springfield, Massachusetts. One train would travel to White River Junction, Vermont, and the other two would extend to Greenfield, Massachusetts.

3) **Commuter:** Commuter level service providing more frequent service, one additional round trip from New Haven, CT, to White River Junction, VT, and eight round trip extensions of the New Haven-Springfield shuttle north to Greenfield with concentrations in the morning and evening commute periods.

[1] The operations, ridership and benefit-cost analysis in this study include the assumption of a station in Holyoke. The HSIPR grant applications submitted to FRA discussed Holyoke as a potential station but assumed that the station location was still under consideration and development, and thus the application included a Holyoke station within the service development plan for the rail corridor rather than in the near-term stimulus construction project.

The proposed passenger rail realignment was evaluated as compared to the current system, which is considered the baseline or no-build alternative. The enhanced intercity and commuter scenarios were then analyzed. Highway capital projects are not included in this analysis, but the analysis does assess the impact of the realignment on both passenger service and on the primary alternative transportation mode, highways, through diversion of both passengers and freight.

5.2 Methodology

To be economically feasible, projects should meet one or more value benchmarks: the total benefits must exceed the total costs of the project on a present value basis; and/or the rate of return on the funds invested should exceed the cost of raising capital, often defined as the long-term treasury rate or the social discount rate. A fundamental assumption of the benefit-cost analysis approach is that only those benefits that are directly attributable to the implementation of the proposed action and are incremental to that service are incorporated in the analysis.

5.2.1 Benefit-Cost Analysis

In the analysis, benefits are estimated for current and future users of the realigned rail service on an incremental basis; that is, the change in welfare that passengers and, more generally, the region derive from access to the realigned passenger rail service as compared to the current situation. Specifically, the reduction of travel costs due to improved passenger rail service benefits users differently, depending on their preferences and the way the project changes their individual transportation costs.

Generally, benefits are measured as the creation of economic value from changes in the quantity of final uses and the quality (time spent, comfort, reliability, among other factors) of the services provided to the users. For example, the total transportation costs for riders between Greenfield and Springfield include the value of the total time spent commuting, plus the expenses associated with operating the vehicles used for the commute, plus other externalities, such as the cost of pollution generated by the specific level and composition of traffic. The benefits of a project are, therefore, the cost reductions that may result from its implementation. These cost reductions may come in the form of average time saved by users, reductions in the operating expenses, improved on-time performance, reduction of pollution, or more generally, a combination of these effects.

5.2.2 Valuation

All benefits and costs are estimated in 2009 dollars. The valuation of benefits makes use of a number of assumptions that are required to produce monetized values for all non-pecuniary benefits. The different components of time, for instance, are monetized by using a “value of time” that is assumed to be equivalent to the user’s willingness to pay for time savings in transit. For the analysis, the “value of time” varies depending on trip purpose. Premiums to the value of time are also measured by incorporating comfort, reliability and other characteristics associated with the quality of the trip. Other estimates used in the monetization of benefits include, for example, the cost of operating a vehicle (e.g., maintenance, repair, and depreciation) and the cost per ton of pollution.

Annual costs and benefits are computed over a long-term planning horizon and summarized by a lifecycle cost analysis. The project is assumed to have a useful life of at least 30 years. Consequently, this is the time horizon of the analysis. Construction costs are assumed to occur within the first two years of implementation of the project, but operating costs are incurred throughout the project's time horizon. Similarly, benefits accrue during the full operation of the project.

5.2.3 The Opportunity Cost of Capital

The opportunity cost associated with the delayed consumption of benefits and the alternative uses of the capital for the implementation of the project is measured by the discount rate. All benefits and costs are discounted to reflect the opportunity costs of committing resources to the project. Calculated real discount rates are applied to all future costs and benefits as a representation of how the public sector evaluates investments. A 5 percent real discount rate is used in the analysis.[2]

5.2.4 Risk Analysis

When conducting forecasts 30 years into the future, some level of uncertainty exists. To account for this uncertainty, the benefit-cost analysis incorporated a risk analysis process in the estimation to examine a likely range of possible benefits and costs over time based on factors such as fuel prices, the value of travel time, average speed on the highway, and freight shipping costs.

Risk analysis principally involves quantifying the uncertainties in the variables that affect the costs and benefits associated with the project. Quantification involves defining probability distributions of possible values for each of these variables. Data used to quantify uncertainty comes in part from research and in part from discussions with experts. The distributions of cost and benefit factors are inputs to the benefit-cost model, which is then solved using statistical simulation. The results include all possible estimates according to their probability of occurrence as defined by the input distributions. In addition, the analysis identifies which parameters are the key influences on result uncertainty.

Both a formal risk analysis of all key parameters and assumptions, as well as sensitivity testing to determine the impact of a few key variables in the analysis, were conducted. Examples of the risk variables that use low-to-high ranges include the value of travel time, average speed on rail and highway corridors, fuel prices, cost of emissions, shipper costs and tons per car for freight benefits. A complete discussion of the risk analysis process is provided in Appendix C of this final report.

5.3 Benefits from Transportation Improvements

Five categories of benefits were measured for this analysis, including important benefits to riders generated as a result of the realignment. In addition to rider related benefits, however, the study measured the secondary congestion reduction benefits. These benefits are significant and include reduced highway maintenance costs, reduced emissions and environmental benefits, as well as reduced highway congestion by removing autos and freight trucks from the roadway.

[2] Real, in this sense, means that future flows of costs and benefits are discounted by 5% annually *after accounting for inflation*. Discount rates of 3% and 7% were also applied as sensitivity tests.

All benefits are measured in comparison to the baseline scenario keeping the rail service on the existing alignment. The categories of benefits, due to the proposed transit investments, include the following:

- **Benefits to Existing Riders:** These are the travel time savings that accrue to riders who currently travel on the Vermonter. The travel time savings benefits result from the time reduction that the rail improvement creates by reducing the distance of the trip and increasing the speed. Additionally, a benefit for reliability is calculated to account for the improvement in on-time performance.

- **Benefits to New Riders:** These are the benefits for induced rail passengers who are expected to use the service after the improvement. This benefit accounts for travel time, vehicle operating costs (i.e., fuel, oil, depreciation, tire wear, maintenance/repair), rail fare, and an amenity factor (i.e., comfort and quality associated with time spent traveling by rail).

- **Benefits to Freight:** These benefits stem from improved freight rail service (higher speeds) along the corridor and result in an increase in the amount of freight shipped by rail, which leads to decreased shipping costs as estimated by the change in costs per ton-mile between truck and rail (accounting for trade-offs with travel time and reliability).

- **Economic Development Benefits:** These benefits result from the increases in service levels along the Connecticut River Line in the enhanced intercity and commuter scenarios. It is expected that there will be induced economic development in terms of jobs and population, primarily in the Central Business Districts surrounding the station areas. Induced development leads to additional ridership, and increased user benefits, measured similarly to the benefits to "new riders" as described above.

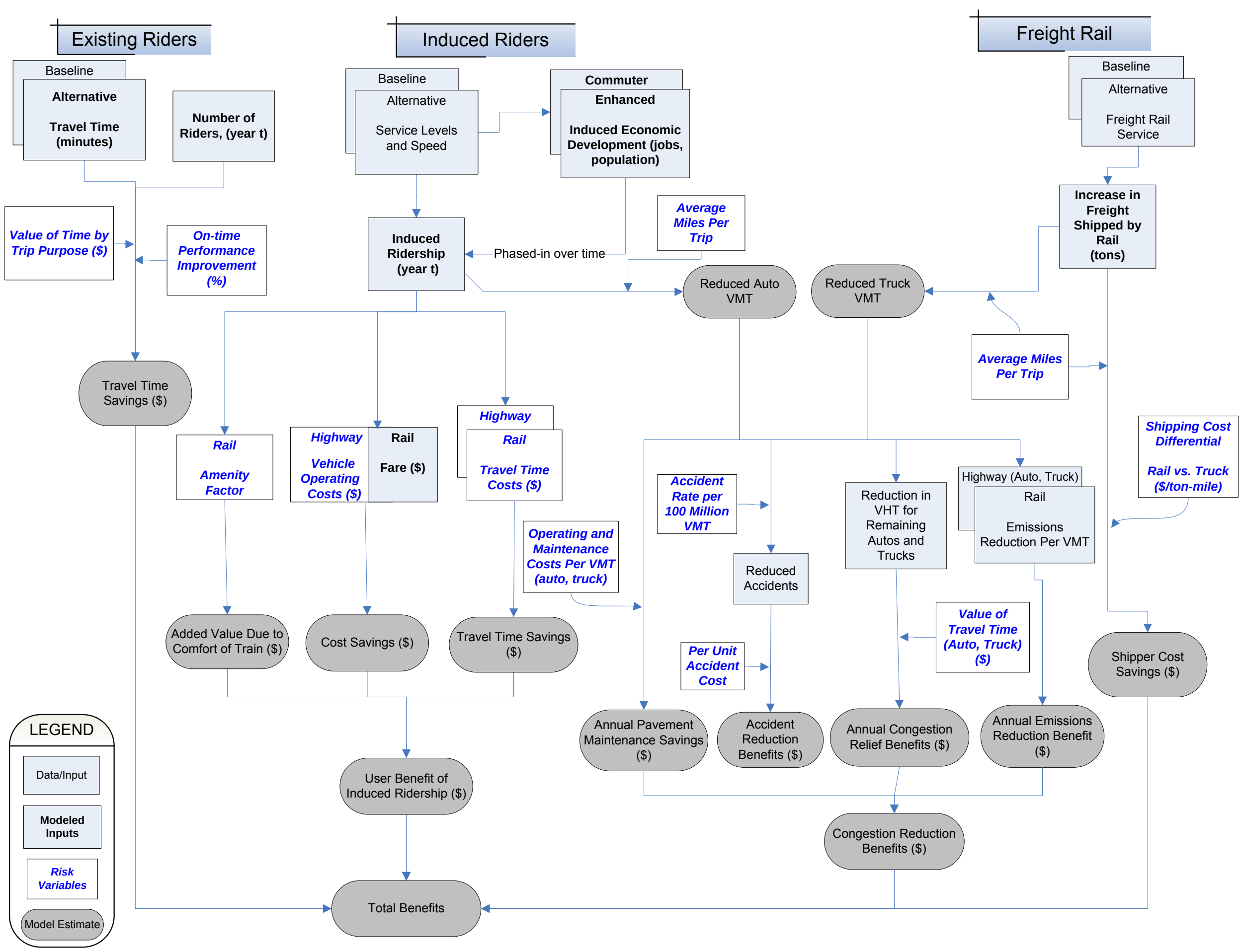
- **Congestion Reduction Benefits:** These benefits are due to reduced auto and truck Vehicle Miles Traveled (VMT), based on estimates of increased passenger and freight traffic on rail. The reduction in VMT relieves congestion for those vehicles remaining on the highway, resulting in reduced travel time and fewer vehicle hours traveled (VHT). Additionally, there are emission savings produced from the reduction in auto and truck VMT. Emissions measured include volatile organic compound (VOC), carbon monoxide C(O), carbon dioxide (CO2), nitrogen oxide (NOX), sulfur dioxide (SO2), and particulate matter (PM10), varying by auto and truck. Finally, the reduction in auto and truck VMT results in a savings of future highway pavement maintenance costs.

The benefit-cost model developed for this study measures the impact on existing riders, induced riders, and freight rail that would result from the proposed rail realignment. Data from numerous sources are combined using a variety of relationships to develop benefit and cost estimates. The structure and logic diagram below (Figure 5.1: Benefits of Passenger Rail Service) visually illustrates the modeling process.

When conducting a benefit-cost analysis, a baseline scenario is compared to an alternative or alternatives. For this study, the current alignment and Vermonter service is considered the baseline condition. This analysis examines three different alternatives: the realignment, an enhanced service level, and a commuter level service. The realignment is the passenger rail alternative, which reflects the change in physical alignment of the tracks along the Connecticut River. The existing service frequency (one train in each direction per day) is maintained in the passenger rail alternative. The enhanced and commuter level alternatives offer increased service along the realignment.

In Figure 5.2 below, three categories of rail users are included: existing riders, induced riders, and freight rail. Existing riders are those passengers who currently use the available service. Induced riders are those who choose to take the train because of the service improvements. For the study, there are two types of passenger rail service improvements evaluated. The enhanced intercity service offers more service, and the increased frequency will induce more individuals to use the rail, which will in turn lead to economic development, further contributing to additional ridership. The commuter service will have a similar effect, but with more development and more ridership, as the additional frequency will make passenger rail a more convenient option. Freight rail users are those railroads that transport cargo on the rail lines, and the improved track quality will allow for more efficient freight rail transport.

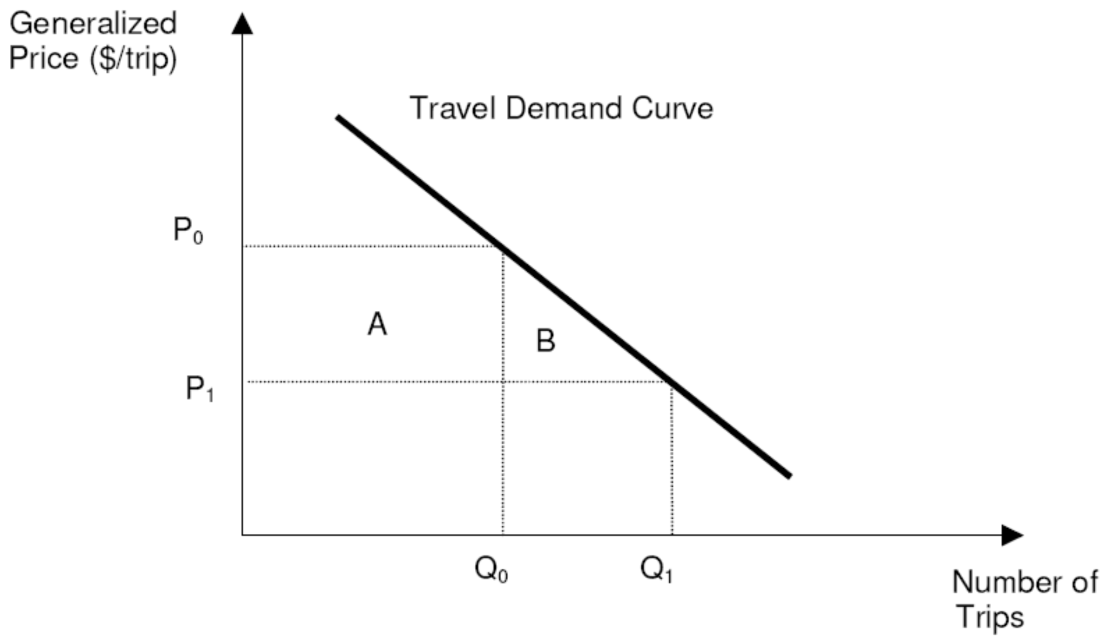
Figure 5.1: Benefits of Passenger Rail Service



5.3.1 Conceptual Approach to Estimate Benefits to Existing Riders

The economic benefits of transportation investments can be illustrated with a simple graph relating the generalized cost of travel to the demand for travel, measured as the total number of trips per time period. The generalized cost of travel includes the value of travel time under different comfort and quality of service levels, the costs of unreliability, and any out-of-pocket expenses such as fares for transit. For car users, the generalized costs include fuel, oil and depreciation costs. This relationship, known as the travel demand "curve," is illustrated in Figure 5.2.

Figure 5.2: The Demand for Travel



In the diagram, the number of trips is represented on the horizontal axis and the generalized price of travel on the vertical axis. Demand is downward sloping. As the generalized price of travel decreases (from P_0 to P_1), the number of trips increases, reflected in a movement along the demand curve (from Q_0 to Q_1). Similarly, a change in the number of trips demanded will change the generalized price per trip. Investment in new rail systems, or new routes, can be evaluated by estimating the change in the generalized price of travel brought about by the investment and the associated change in trip making.

5.3.2 Benefits to Existing Users

Based on data provided by Amtrak, 72,655 passengers utilized the existing Vermonter service in 2008. The realignment will provide benefits in the areas of travel time savings and increased reliability to most of these existing riders. Using Amtrak data for ridership on the Vermonter Service, projections were made regarding future ridership if there is no service change. The primary benefits to most of these existing riders are in the travel time savings over the current alignment, and increased reliability/on-time performance due to the service improvements. The detail of these benefits estimates are provided in subsequent paragraphs.

Travel Time Savings

Travel time savings are estimated by measuring the difference between projected travel time costs in the base case (existing alignment), and travel time costs for rail riders under the realignment. The number of existing riders is estimated based on Amtrak data for the Vermonter Service and projected out to future years assuming no change in service. A full discussion of the ridership estimation is provided in Chapter 4.

The realignment will decrease mileage and increase speed, therefore reducing travel time. Travel times were calculated based on the existing Amtrak timetables and preliminary timetables for the proposed service. Travel time for the existing rail users was valued at half of the average hourly wage. Ridership was calculated on a daily basis, and then annualized to determine the benefits per year.

Reliability/On-Time Performance Improvement

In addition to the benefit of the travel time savings, it is expected that the realignment will lead to an increase in reliability/on-time performance due to improved track conditions. This provides an additional benefit to the existing riders. Given the expected increase from 55 percent on-time performance to 90 percent on-time performance under the realignment,[3] it is particularly important to incorporate this benefit.

The cost of travel time only considers average commuting time, with no regard to travel time reliability. It has been widely documented, however, that if a commuter has to choose between passenger rail and a personal car, and these two services have the same cost and average commuting time, in many situations the commuter will choose the passenger rail service because it is significantly more reliable. This effect is magnified when the car trip is particularly unreliable, because reliability is so highly valued by travelers. Estimates from the transportation literature indicate that changes in the reliability of travel time are valued at between 50 percent and 200 percent of the value of travel time. Reliability is an important and significant benefit, and it is therefore accounted for in this analysis.

5.3.3 Benefits to New Riders

There are benefits and costs to both rail and highway travel. In order to be induced to switch from highway travel to rail, the net benefits of riding rail must exceed the net benefits of traveling by automobile. A complete discussion of the methodology utilized to develop ridership estimates is provided in Chapter 4. According to the analysis, in 2012, 20,266 new passengers would choose to take the train under the realignment. Enhanced or commuter service is not expected to commence until 2017, after further track improvements are made. According to the analysis, 200,614 new riders would choose to take the Vermonter service due to the enhanced level of service in the first year of operation, and 300,645 new riders would be induced to take

[3] On-time percentages are from Amtrak and future estimates based on the improvements to be made, the railroad over which the line will be operating, and the incentive program applied to the operation.

the commuter service in its first year of operation compared to ridership under the current alignment.[4] To calculate the incremental benefit to these new riders, three categories of benefits were examined: travel time, cost, and convenience. Each of these is explained below. The individual benefits are then aggregated annually to generate the total benefit to new users.

Travel Time Savings for New Riders

In order to calculate the travel time for auto travel, it was first necessary to measure the length of the highway between each of the origin-destination pairs. For purposes of this analysis, HDR did not include access and egress time to the highway or the rail stations.

To generate the travel time between origin and destination, the average speed along the corridor was estimated based on average congestion levels. A risk analysis was applied, to account for variation in speed due to differing levels of congestion. Additionally, due to generally heavier congestion south of New Haven, Connecticut[5], a slower travel speed parameter was used for those segments of each trip. The travel time for new rail riders was generated as it was for the existing users, based on the average rail speed and the distance of the trip between the origin and destination station points.

The general cost of travel time is monetized by assuming a value of time for each type of user by mode. This value of time intends to capture the user's valuation of the time spent in transportation activities in relation to the user's wages. The value of time that monetizes travel time, therefore, does not take into account any benefits or discomforts associated with the trip.

The values of in-vehicle travel time as a percentage of the average wage rate, which is used in this study, are presented in Table 5.1. The average wage rate used to calculate value of personal travel time within the area is $20.33.[6] Both business and personal trips were considered, assuming that business travel costs more as a percentage of wages than personal travel. It was assumed that the share of business travel would increase at the enhanced service level and increase further at the commuter level, as more frequent service makes business trips on rail more convenient.

Table 5.1: Median Cost of In-Vehicle Travel Time as a Percent of the Wage Rate

	Personal	Business
Auto	50%	100%
Rail	35%[7]	70%

[4] This excludes passengers who originate in Springfield and travel south, due to the fact that under the proposed service arrangements, they would not be impacted by the changes.
[5] While the study area is focused on trips in Massachusetts, many of the passengers travel beyond Massachusetts to points in Connecticut, New York City or beyond. Thus, for those trips that originate or terminate outside of Massachusetts, average speeds are important to calculate travel time of rail alternatives.
[6] Bureau of Labor Statistics May 2008 Metropolitan and Non-Metropolitan Area Occupational Employment and Wage Estimates, May 2008, Springfield MA-CT
[7] These rates are based on information in *Evaluating Public Transit Benefits and Costs,* Victoria Transport Policy Institute.

Cost Savings

There are differing costs for highway and rail travel. For highway travel, vehicle operating costs include fuel, oil, and depreciation costs, while the primary cost of rail is the fare and parking. Vehicle operating costs (VOC) are an integral element of the generalized cost of traveling. These costs are typically the most recognized of user costs because they usually include some out-of-pocket expenses associated with owning, operating, and maintaining a vehicle. The cost components of VOC measured in this analysis include: fuel and oil consumption, maintenance and repairs, tire wear, and vehicle depreciation. Even though the operating cost is only associated with personal vehicles, fares may be considered equivalent components of cost for rail users to the extent that they affect mode choice decision-making in almost the same way as vehicle operating costs. Additionally, a parking fee has been implemented for a fraction of passengers boarding in Springfield, as that is the only station in the study corridor that has a parking lot with a fee. The fee has only been assessed to a portion of the riders because it is assumed that some passengers will be dropped off, walk, or arrive by other means.

The estimation of vehicle operating costs (VOC) is based on consumption and depreciation rate tables from the Federal Highway Administration's (FHA's) Highway Economic Requirement System (HERS).

Amenity/Convenience Factor

It has been documented in the transportation literature that the opportunity cost that users place on an hour spent commuting depends heavily on the comfort of the trip. Different estimates indicate, for instance, that if a passenger is standing during a trip, the cost of the travel time may be as high as twice the cost of the travel time of a comparable seated trip. Passenger rail ridership, in particular, is heavily influenced by the additional leisure activities and working options provided during the ride. Comfort is then an important component of the travel choice decision making, and this analysis incorporates it as such. To account for this, a convenience factor was added to rail trips. The convenience factor increases for the enhanced level service, and increases further for the commuter level service, as greater train frequency results in more convenient travel time options for passengers, especially during commuting and business hours.

Benefits to Freight

The improvements along the realigned corridor will also benefit freight service by increasing reliability and speed on the Springfield to Northfield segment of the rail line. This will lead to some diversion from truck to rail. Pan Am Southern has estimated future carloads after the improvements to the current track that are associated with the passenger realignment. These estimates were combined with an average tonnage per rail car to calculate the approximate number of trucks removed from the road because of these freight benefits.

The removal of trucks results in reduced vehicle miles traveled (VMT), the benefits of which will be further explored in the congestion relief section. Incremental benefits to the shippers, in terms of cost savings per ton mile were calculated. These benefits take into account the time and reliability difference between rail and truck. Even under improved conditions, rail may still be less reliable than individual trucks. Additionally, for a more conservative estimate, a benefits adjustment factor has been applied to the total shipper cost savings as it is not entirely certain that the full value of the benefits will be attained.

Economic Development Benefits

The enhanced intercity and commuter scenarios consist of an increased level of service along the Knowledge Corridor which is anticipated to generate induced economic development benefits. Improved transit service tends to increase development, particularly in the Central Business District areas that surround rail stations, as described fully in Chapter 6. Over time, additional jobs and population located near the train stations will produce additional ridership and associated benefits from the passenger rail improvements.

Congestion Reduction Benefits

The realignment and repair of the rail infrastructure along the I-91 Corridor will induce passenger ridership and diversion of freight from truck to rail along the corridor, reducing both auto and truck VMT. This reduction in VMT produces four categories of benefits: environmental, maintenance, accident reduction and congestion relief benefits to remaining users.

Environmental costs have gained increased acceptance as an important component in the economic evaluation of transportation and infrastructure projects. The main environmental impacts of vehicle use can impose wide-ranging social costs on people, material, and vegetation. The negative effects of pollution depend not only on the quantity of pollution produced, but on the types of pollutants emitted and the conditions into which the pollution is released.

- **Emission benefits** are calculated as the difference between emissions cost per commuter, before and after the implementation of the project, for riders that diverted from auto to rail, as well as the difference in emission costs per ton-mile for freight traveling via truck and rail. Emission rates used were from the Environmental Protection Agency values of grams per mile of emission, and were converted to a dollar value based on Victoria Transportation Policy Institute's and FHA's HERS values of dollars per ton of emission. While the diversion from auto to passenger rail does reduce vehicle emissions, adding train service slightly increases the amount of emissions per train mile. This counteracts a small portion of the emissions benefits, though the savings from removing autos exceeds the cost of emissions from the rail. Thus, the emission benefits are considered in terms of dollars per mile savings.

- **Pavement maintenance** cost reduction is another benefit of reduced vehicle traffic. In addition to the costs that individual drivers incur for auto and truck trips, there are costs in terms of damage to the road surface. Based on the Federal Cost Allocation study of 1997, a pavement maintenance cost of $0.001 (in 2009 dollars) was used for autos and $0.l3 per mile for trucks. A reduction in traffic leads directly to a reduction in these maintenance costs.

- **Accident reduction** benefits accrue from a reduction in vehicle-miles. The reduction in vehicles on the road is combined with a multiplier or per-unit cost of accident. This multiplier is a weighted average of fatal, injury and property damage only (PDO) accidents. The rate of fatalities and injuries per 100 million VMT are from the NHTSA "Economic Impact of Crashes 2000." The benefits from the reduction in accidents are accrued based on the removal of autos and reduction in VMT due to passenger rail improvements. The larger the reduction in VMT, the less likely accidents are to occur and thus the larger the savings.

- **Congestion relief** benefits accrue to the users that remain on the highway, both auto and truck. The reduction in VMT due to diversions reduces congestion on the road generally allowing for a higher speed and therefore reducing travel time. The highway demand to capacity ratio indicates the number of highway users that are on the roads compared to the space available for their vehicles. As with those who switched from auto to rail, there is a value of time that is used to compute the benefit of this reduction in vehicle hours traveled. The Massachusetts Highway Department (MHD) travel demand model data were used in this portion of the analysis.

5.4 Project Life Cycle Costs

The costs of the projects being considered include initial construction costs and operation and maintenance (O&M) costs.

5.4.1 Construction Costs

Capital costs for construction of the realignment are those costs that will be incurred to replace rail ties and make the Pan Am Southern corridor viable for passenger service, and potentially high speed rail in the future. It is estimated that construction will cost between $35 and $60 million over two years and will allow for the current service level of one train in each direction daily with average speeds increasing from 10 miles per hour to 60 miles per hour. Of these costs, 60 percent will be incurred in 2010 and 40 percent in 2011.

For longer term plans, in order to bring the track up to standards for additional usage and potentially higher speeds, further construction improvements need to be made, costing an additional $22.5 to $42.5 million. Total investment for enhanced intercity service is anticipated to range from $70 to $90 million. These costs potentially include construction of a siding at East Northfield, interlocking improvements at Springfield Station, construction of a new platform at Holyoke, and implementation of Positive Train Control. The necessary upgrades are expected to occur in 2015 and 2016 to commence operation of the enhanced service in 2017.

In order to further increase service levels to serve the commuter market, improvements costing an additional $202.5 to 252.5 million, above the costs associated with the Vermonter realignment, must be undertaken. Total investment is expected to be $250 to $300 million. For comparison purposes, the commuter scenario improvements are assumed to have a similar timing of future investments.

5.4.2 Operating Cost

Operation and maintenance costs are those expenses associated with the annual operation of the passenger rail service. These costs include the costs of labor to operate the system, leasing of the vehicles and machinery, routine and special maintenance of the tracks, among others.

As the benefit-cost analysis examines information from an incremental perspective, the reduction in length of the trip will actually lead to a reduction in operating costs. This is measured in terms of the reduction in the roughly one million dollar annual subsidy that Vermont pays for operations of the service. The realignment reduces the length of the trip by approximately 11 miles in each direction. While the reduction in mileage will save on operating costs per train mile, there is also a fee to be paid for usage of the Pan Am Southern track. These offsetting impacts are assumed to net out to approximately zero. The assumed operating and maintenance costs for the realignment are also zero.

Based on an assessment of Amtrak existing service, the expected cost of the enhanced service is approximately $45 per train mile. Operations and maintenance costs for the enhanced intercity level of service are anticipated to be $4.9 million. The service would provide an extension of existing shuttles, one all the way to White River Junction, Vermont, which is approximately 124 train miles, and two extensions north to Greenfield, which is approximately 36 miles. These will each be a daily roundtrip, 365 days per year, resulting in an increase of slightly more than 106,000 train miles annually.

An assessment of Massachusetts Bay Transportation Authority (MBTA) services was made to estimate operations and maintenance costs for the commuter level of service. These costs are expected to be $22.0 million per year. This is based on a cost of $65 per train mile, one additional round-trip long-distance train extending from New Haven to White River Junction – approximately 186 miles, and the extension northward of eight New Haven-Springfield shuttles in each direction to Greenfield, approximately 36 miles. Each of these would operate 365 days per year adding nearly 338,000 train miles.

5.5 Results and Summary of Findings

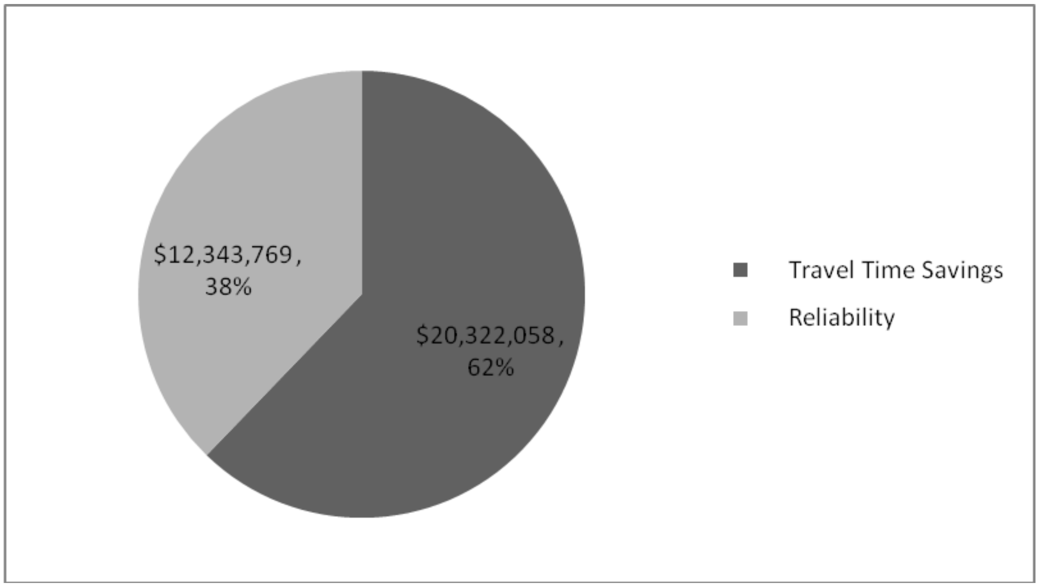
The following section provides detail on the benefits to existing riders, new riders, shippers, and automobile and truck travelers. In addition the overall benefit-cost analysis results and findings are provided.

5.5.1 Benefits to Existing Riders

Total cumulative benefits to existing riders for the realignment scenario amount to $32.7 million. These benefits include $20.3 million in travel time savings and $12.3 million in on-time/reliability improvements. Figure 5.3 indicates the share of benefits to existing riders in travel time savings and reliability savings. After discounting, the total benefits to existing riders are $15.0 million. The average benefit per rider in time savings and cost savings is projected to be $6.94 in 2015. Benefits to existing users remain the same under enhanced and commuter levels of service, as there is no difference between existing riders under these scenarios.

As is evident in Figure 5.3, most of the benefits accrued to existing riders are attributable to their savings in travel time (62 percent). Reliability benefits account for 38 percent of the total benefits to existing riders.

Figure 5.3: Share of Benefits by Type to Existing Riders



5.5.2 Benefits to New Riders

The total cumulative benefits to new users after the realignment are $60.1 million. As seen in Figure 5.4Figure , these benefits are divided into three categories: travel time savings; vehicle operating cost savings; and, the benefits of amenities.

Vehicle operating cost savings account for the largest share of benefits to new users, 56 percent of the benefits or $33.7 million in savings. This accounts for the savings on fuel, oil, tires, maintenance and repair, and depreciation costs. Travel time savings account for 28 percent of the benefits, and the amenity factor benefit is the remaining 16 percent.

Figure 5.5 demonstrates the cumulative stream of discounted benefits for likely new users. As discussed previously, the benefits to new users are incremental, so the cost of ridership, including parking and train fare, are subtracted from the benefits to using passenger rail. These ridership costs amount to a cumulative total of $43.4 million, leaving net benefits to new riders of $16.7 million.

Figure 5.4: Share of Benefits by Type for New Users

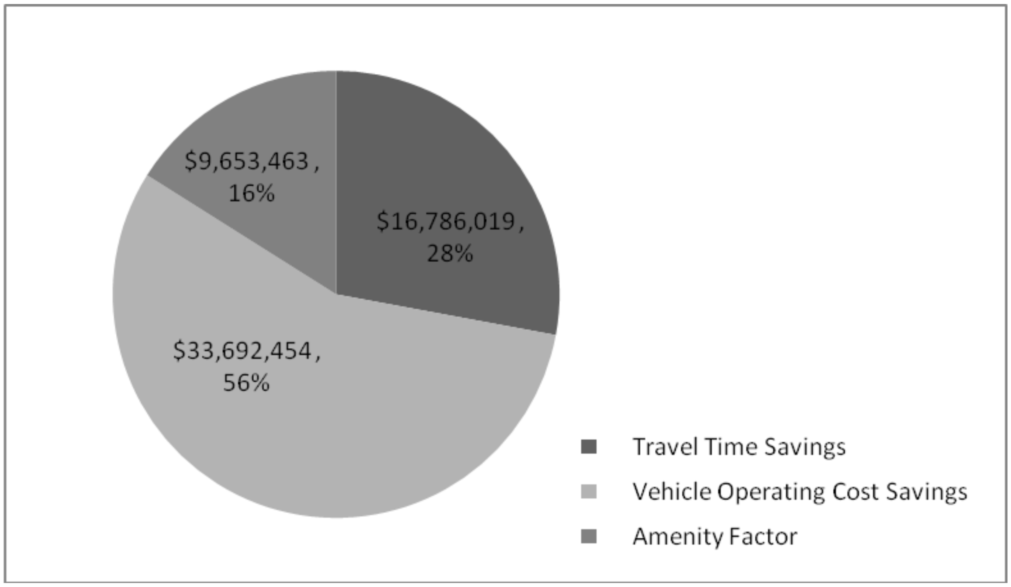
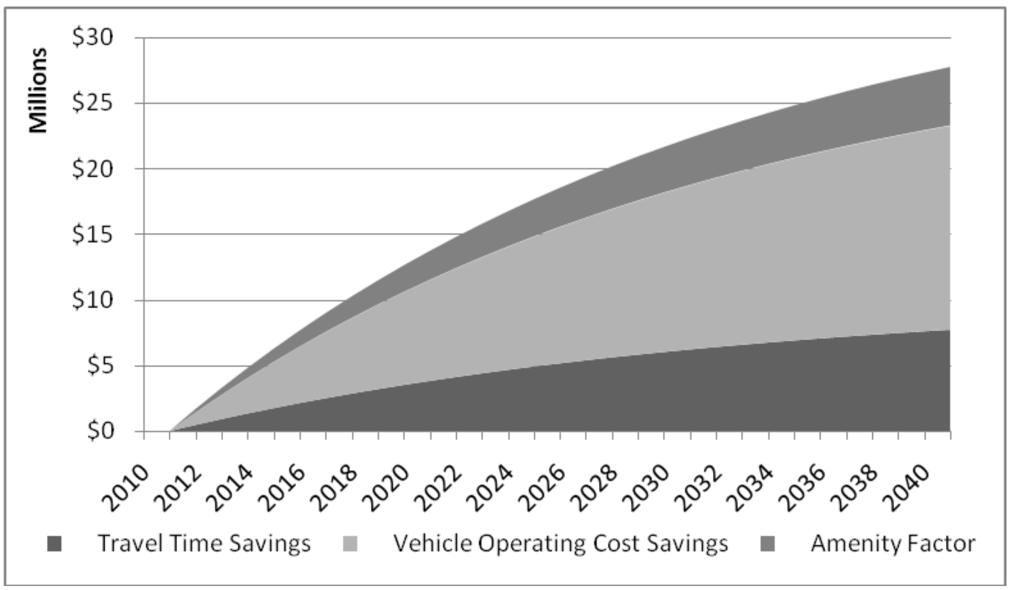


Figure 5.5: Cumulative Discounted Benefits to New Passengers Using Proposed Amtrak Vermonter Service



The benefits to new riders of the long-term service enhancements are even greater than the benefits to new users under the realignment. A higher level of service leads to a higher level of ridership. Additionally, the benefits of economic development – in terms of increasing ridership – are also included here. As the level of service increases, the number of induced riders increases as well. Figure 5.6 below shows the share of benefits attributable to each category under the enhanced service, and Figure 5.7 indicates the cumulative discounted benefits to new users. Figure 5.8 and Figure 5.9 display the same concepts for the commuter level service. As can be seen, the benefits to new users of the commuter service are even greater than the enhanced service, due to the further inducement of ridership.

Figure 5.6: Share of Benefits by Type for New Users, Enhanced

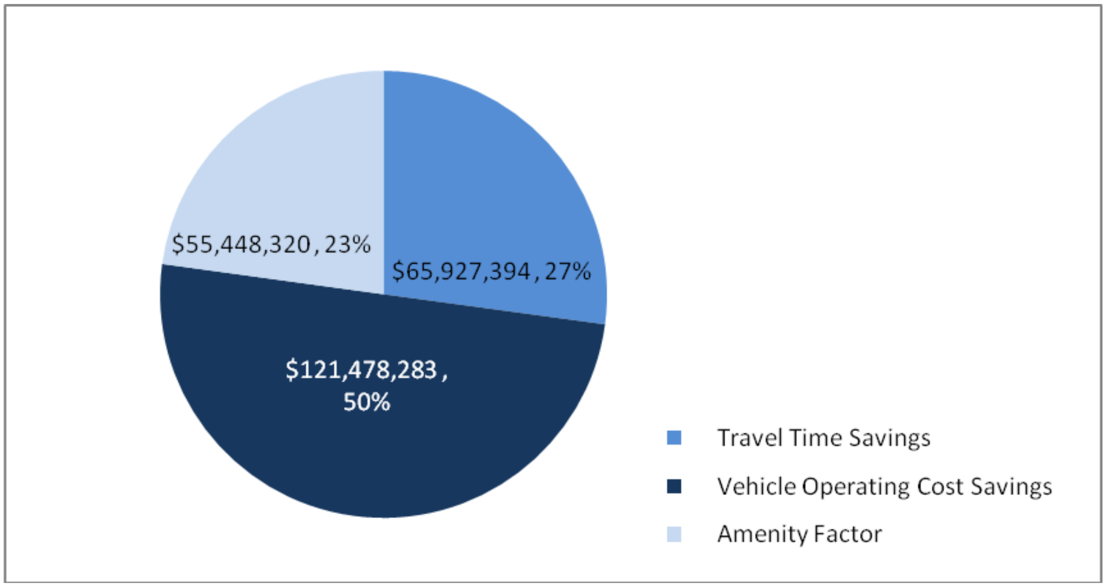


Figure 5.7: Cumulative Discounted Benefits to New Passengers of Enhanced Service

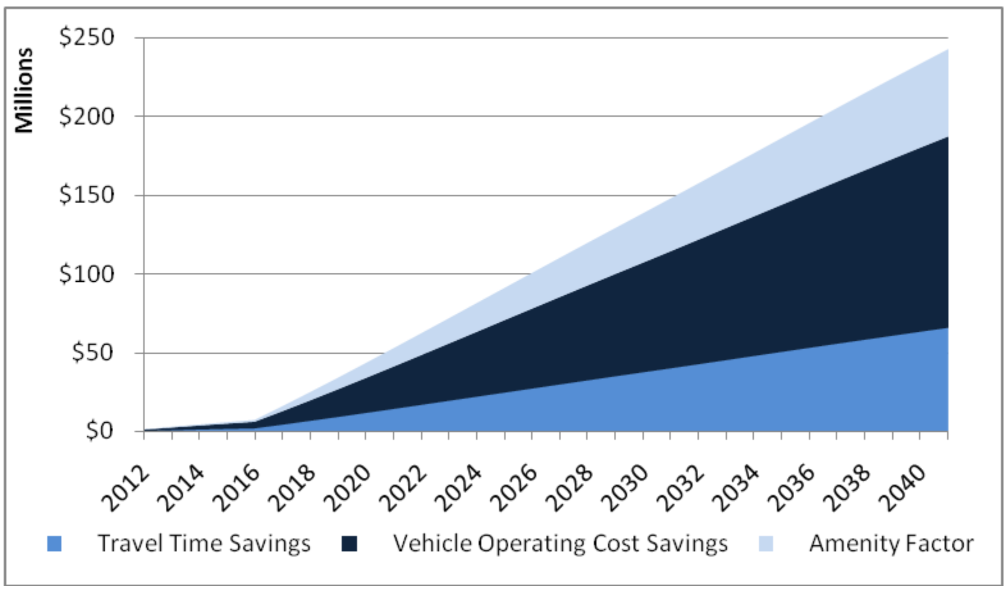


Figure 5.8: Share of Benefits by Type for New Users, Commuter

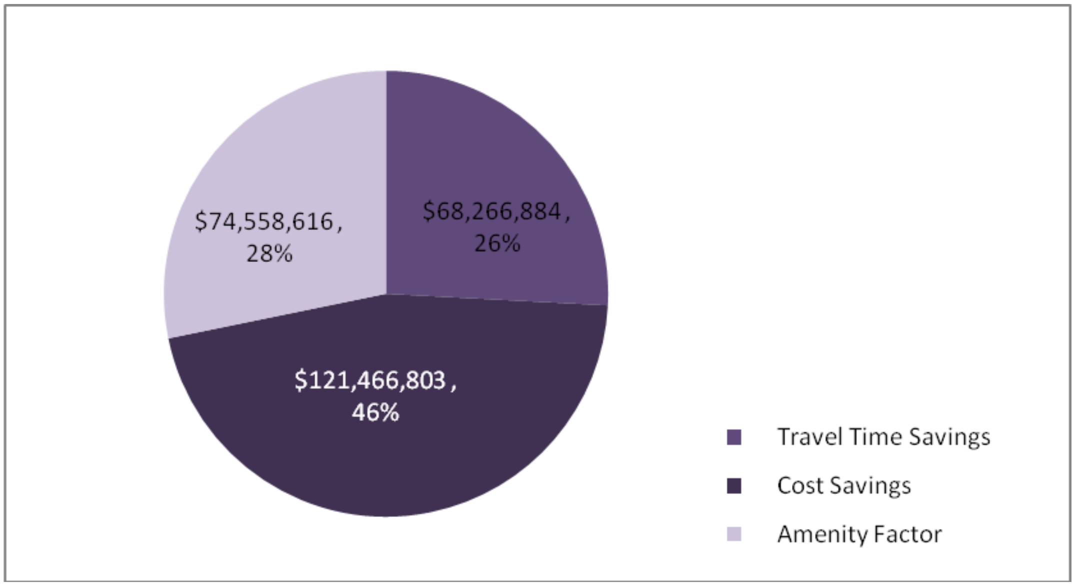
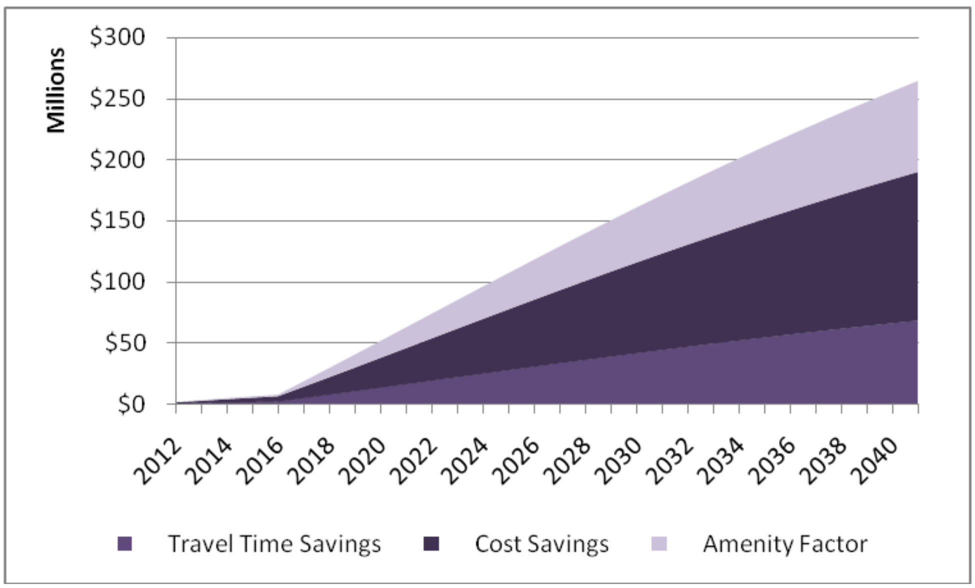


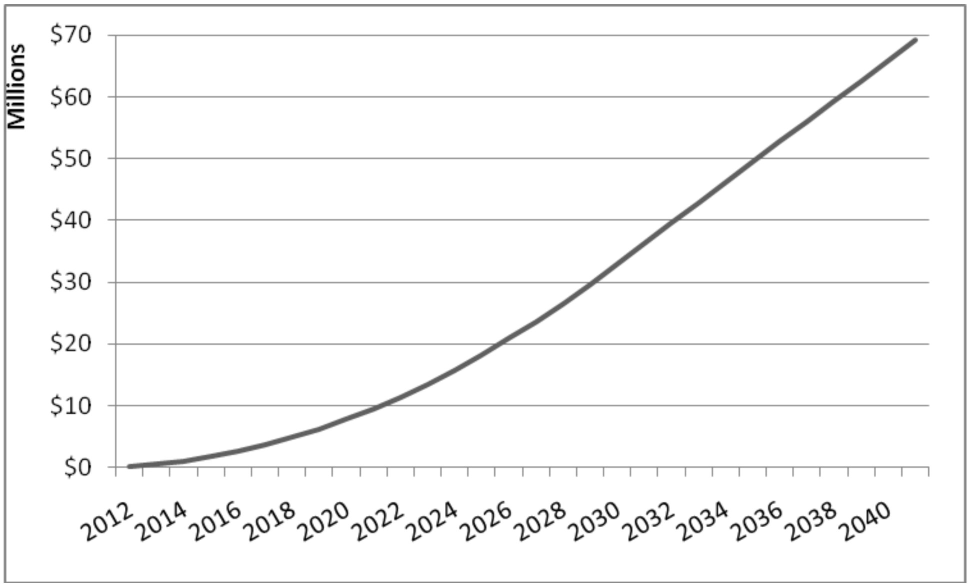
Figure 5.9: Cumulative Discounted Benefits to New Passengers of Commuter Service



5.5.3 Benefits to Freight

With the betterment of the rail line, freight service will also benefit through improved speeds along the line, and thus be better suited to serve shippers. The improvements to the rail line are anticipated to create benefits by diverting some freight movement from highway to rail, which will lead to a reduction in shipper costs. The cumulative benefits of the track improvements are identified below in Figure 5.10. The total cumulative value of the shipper cost savings is $69.2 million. Additionally, the diversion of trucks to rail will reduce congestion on the regional roadway network and improve safety on the road for highway users, benefits that are discussed in the next section. Due to the relatively slow transition from truck to rail shipments, as well as the timing of the additional freight service, the early benefits to shippers are relatively small, and increase over time. It is not expected that the additional service in the longer-term will have any impact on the planned freight improvements.

Figure 5.10: Cumulative Shipper Cost Savings from Rail Improvements to the Realigned Amtrak Vermonter



5.5.4 Congestion Relief Benefits

Congestion relief benefits are comprised of benefits to both autos and trucks, determined by the number of induced passengers and amount of freight removed from trucks onto rail. There are four types of these benefits: environmental, maintenance, accident reduction benefits, and benefits to remaining highway users. Total cumulative congestion relief benefits total $191.2 million under the realignment scenario. Figure 5.11indicates the share of total benefits to each of these categories under the realignment. The largest share of benefits accrues to the users remaining on the highway, with 66 percent of the congestion relief benefits. This is because the removal of automobiles from the highway reduces traffic congestion significantly. Emissions reduction and pavement repair account for three and 17 percent of the benefits, respectively. Due to the large cost associated with the wear on pavement from trucks, the pavement maintenance savings is relatively large due to the anticipated diversion of freight from truck to rail. Accident reduction benefits account for 14 percent of the congestion relief, or $27.5 million. Congestion relief benefits also grow substantially over time due to the growth in ridership and freight rail transport. The total discounted congestion relief benefits are $57.6 million.

Figure 5.11: Share of Congestion Relief Benefits by Type for Realignment

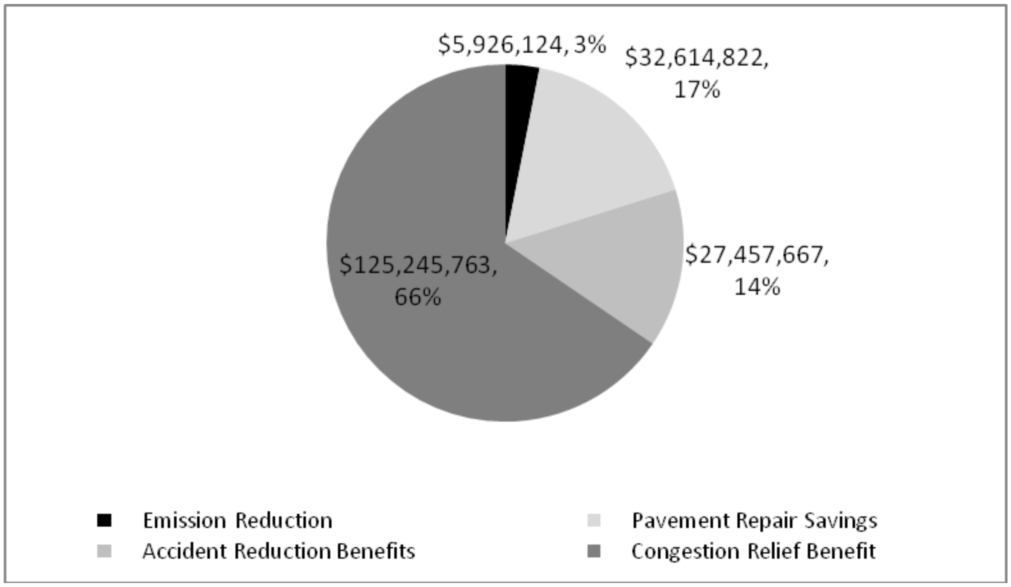
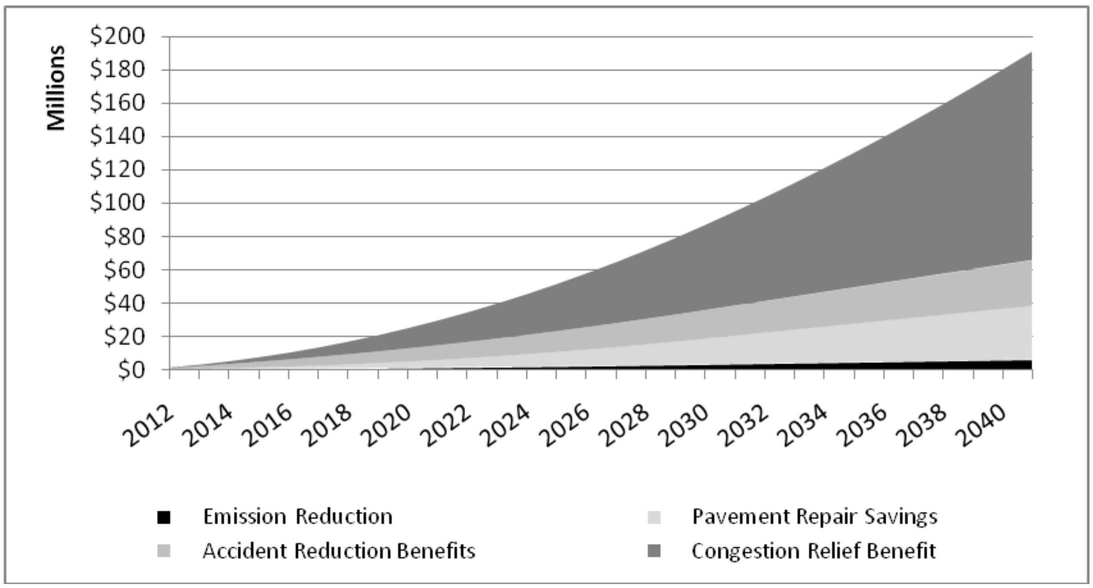


Figure 5.12: Cumulative Congestion Relief Benefits by Type for Realignment



The benefits of the enhanced level of service are even greater, due to the significantly higher projected ridership. Calculated the same way as for the realignment, total cumulative congestion relief benefits of the enhanced service total $664.3 million. Figure 5.13 demonstrates the share of total benefits of each category under the enhanced service. Similar to the realignment, congestion relief accounts for the largest share representing 51 percent of the benefits. The next largest benefit is accident reduction, accounting for 41 percent or $274.2 million in benefits. Emissions and pavement damage account for three and five percent, respectively. Figure 5.14 indicates that the benefits grow substantially over time due to further induced passengers. The total discounted congestion relief benefits under the enhanced service are $236.5 million.

Figure 5.13: Share of Congestion Relief Benefits by Type for Enhanced Service

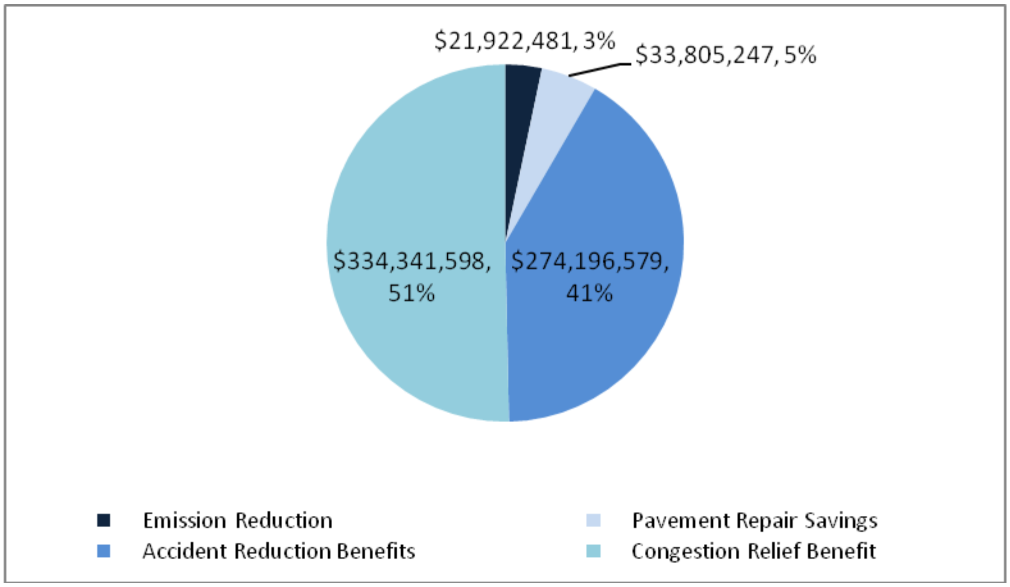
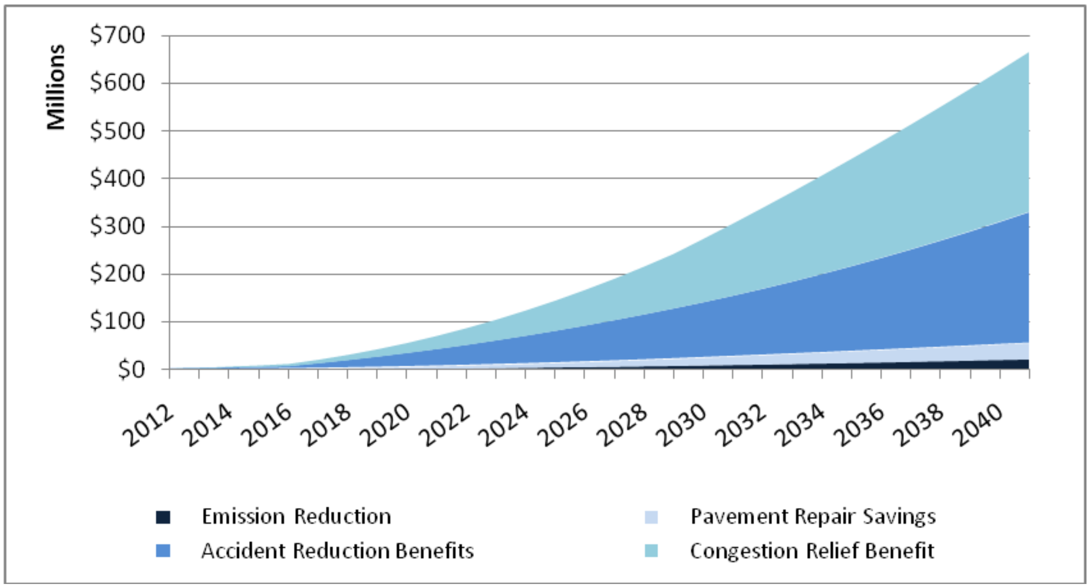


Figure 5.14: Cumulative Congestion Relief Benefits by Type for Enhanced Service



Congestion relief benefits for commuter level service include further ridership increases, and thus higher benefits than enhanced or realigned service. The total non-discounted benefit of congestion relief under commuter service is $1,086.8 million. As with the other levels of service, the highest benefit is that to remaining highway users, at 71 percent of all congestion relief benefits (Figure 5.15). The benefits are more substantial than in the other scenarios due to the larger number of induced passengers in the commuter scenario removing even more cars from the road. An added benefit is the accident reduction benefit, accounting for 24 percent of benefits in the commuter scenario. Emissions reductions and pavement repair account for two and three percent respectively. The benefits grow over time, as is shown in Figure 5.16, as more riders are induced to use the commuter service. The total discounted benefits are $386.6 million over the time horizon.

Figure 5.15: Share of Congestion Relief Benefits by Type for Commuter Service

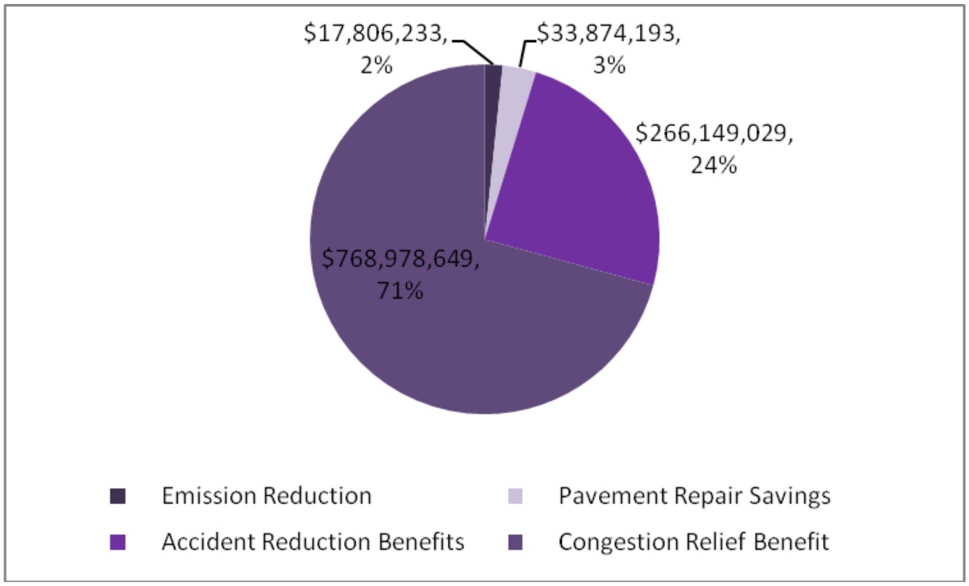
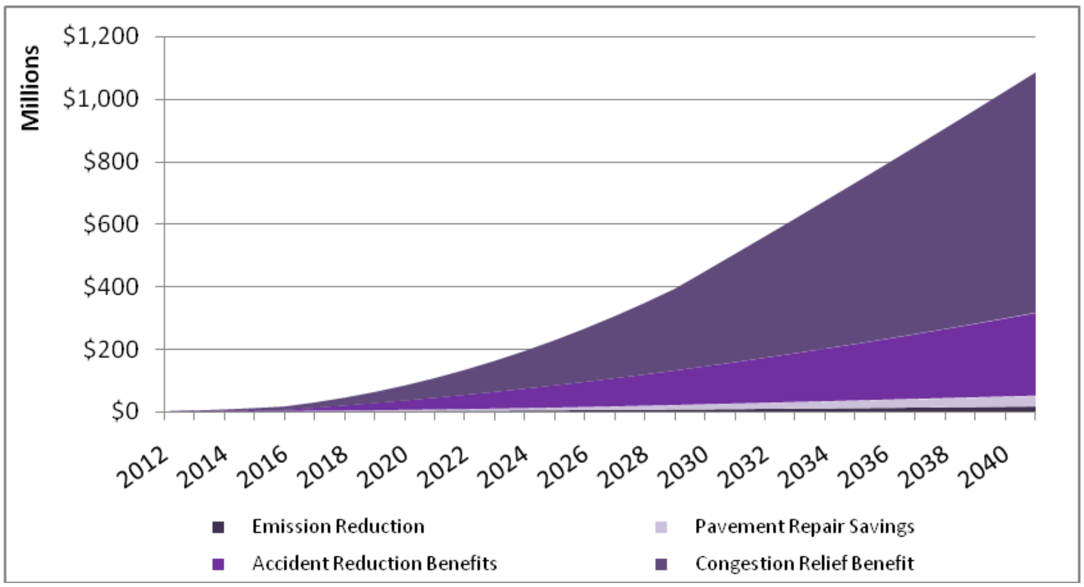


Figure 5.16: Cumulative Congestion Relief Benefits by Type for Commuter Service



5.5.5 Total Benefits and Costs

Total benefits and costs are the aggregation of each of the individual categories of benefits and costs discussed previously. These totals are used to give an indication of the feasibility of the project. The expected benefits exceed the costs when the benefit-cost ratio is greater than one, and net benefits begin to accrue once the benefits of the project surpass the costs in a given year.

Benefits increase in proportion to increases in the number of riders who switch to rail, as well as with the amount of savings each rider achieves on average by switching from other modes. As the savings of using the rail service increase over time, so does ridership. Due to relatively flat population growth, the increase in ridership due to the realignment is not as high as it might otherwise be. As presented in Chapter 4, ridership is expected to increase based on the realignment and greater service levels.

5.5.6 Benefit-Cost Analysis Results

Results of the benefit-cost analysis for all three scenarios are provided in the three tables that follow. The present value (PV) of benefits and costs reflect a discounted 30-year time horizon after completion of the rail improvement projects. The ratio of discounted benefits to discounted costs measures the value of each dollar invested in the project.

The largest categories of benefit are for existing and new riders, highway congestion relief, and freight rail shipping cost savings. Based on the estimates, all three scenarios produce benefits that exceed costs with the enhanced intercity scenario expected to lead to the greatest future return on investment with a net present value (NPV) of $244.4 million and a return on investment with benefits 3.1 times greater than cost. The realignment scenario has by far the lowest costs, with no anticipated increase in operations and maintenance (O&M) costs and a positive Benefit Cost Ratio (BCR) of 2.7. The commuter scenario has the largest total benefits but also the largest costs and the smallest benefit-cost ratio (1.2).

Table 5.2 summarizes the most likely results of the benefit-cost analysis for the Realignment. Total benefits have a present value of $121.2 million while total costs have a present value of $44.4 million, providing a benefit-cost ratio that greatly exceeds 1.0. The risk-adjusted median net present value of the realigned passenger service is $79.5[8] million from construction beginning in 2010, carrying through operations to 2041. The risk-adjusted benefit-cost ratio for the realignment is 2.8 implying a $2.80 return on every $1 invested.

Risk adjusted total benefits of the realignment are $315.6 million at the median value, with a 10 percent probability that total benefits will exceed $367.9 million and a 90 percent probability that they will exceed $268.1 million. There is a 10 percent probability that the value per dollar invested in the realignment project is above $3.46 and a 90 percent probability that it is above $2.27. According to the benefit-cost analysis using a five percent discount rate, there is a 99 percent probability that there will be a positive return on the investment in the realignment.

[8] The median risk adjusted results are slightly different than the median ("most likely") results which are also presented. The net present value is $79.5 million in the risk analysis, and $76.8 million as the non-risk median. The benefit-cost ratio is 2.79 in the risk adjusted analysis, and 2.73 not accounting for all of the risks. The differences arise primarily due to the non-symmetric ranges on some variables. The same applies for enhanced and commuter service ratios.

Table 5.2 Benefit-Cost Summary for Realignment

BENEFITS	
Travel Time Savings - Existing Riders	$32.7
User Benefits - Induced Riders	$16.7
Reduced Emissions	$5.9
Reduced Highway Maintenance	$32.6
Congestion Relief Benefits	$152.7
Freight Shipping Cost Savings	$69.2
TOTAL BENEFITS	$309.8
PV of Total Benefits	$121.2
COSTS	
Capital Costs	$47.5
Annual O&M Cost Change	$0.0
TOTAL COSTS (Cumulative)	$47.5
PV of Costs	$44.4
Net Present Value (NPV)	$76.8
Benefit-Cost Ratio (BCR)	**2.7**

Table 5.3 summarizes the "most likely" results of the enhanced service benefit-cost analysis. The total discounted benefits are $362.1 million and costs at $117.6 million, resulting in a benefit cost ratio of 3.1. For the enhanced service level, the risk-adjusted median net present value of benefits is $264.2 million accounting for operations along the realigned service from 2012 to 2016, necessary improvements taking place in 2015 and 2016, and enhanced service beginning in 2017 and carrying through until the end of the benefit period in 2041. The risk-adjusted benefit cost ratio of the enhanced service is 3.24, implying a return of $3.24 on every $1.00 invested in the project.[9]

Risk adjusted total benefits of the enhanced service are $1,055.8 million at the median value, with a 10 percent probability that total benefits will exceed $1,395.7 million and a 90 percent probability that they will exceed $788.1 million. There is a 90 percent chance that the return on investment for the enhanced services will exceed $2.41 for every $1.00, and a 10 percent chance that it will exceed $4.31.

[9] As with the realignment, the median risk adjusted results are slightly different than the general median results that are presented in Table 3, primarily due to the non-symmetric ranges on some variables. The net present value of benefits is $264.2 million in the risk analysis, and $244.4 million as the non-risk median. The benefit-cost ratio is 3.2 in the risk analysis and 3.1 not accounting for risk.

Table 5.3 Benefit-Cost Summary for Enhanced Service

BENEFITS	
Travel Time Savings - Existing Riders	$32.7
User Benefits - Induced Riders	$236.0
Reduced Emissions	$19.0
Reduced Highway Maintenance	$33.8
Congestion Relief Benefits	$608.5
Freight Shipping Cost Savings	$69.2
TOTAL BENEFITS	$1,002.2
PV of Total Benefits	$362.1

COSTS	
Capital Costs	$80.0
ANNUAL O&M Cost	$4.9
TOTAL COSTS (Cumulative)	$203.4
PV of Costs	$117.6

Net Present Value (NPV)	$244.4
Benefit-Cost Ratio (BCR)	**3.1**

Table 5.4 below shows the summary of the "most likely" benefit-cost analysis for commuter service. The total discounted benefits amount to $534.1 million and the present value of costs is $431.0 million resulting in a benefit-cost ratio of 1.2. The costs in the commuter scenario are much higher than in the enhanced scenario, due to the increased number of trains and the greater wear-and-tear on the tracks.

The risk-adjusted median net present value of benefits for the commuter service is $707.3 million. The risk adjusted benefit-cost ratio is 1.29, implying a $1.29 return on every $1 of investment into the project. Risk adjusted total benefits of the commuter service are $1,532.3 million at the median value, with a 10 percent probability that total benefits will exceed $1,869.5 million and a 90 percent probability that they will exceed $1,255.8 million. Based on the risk analysis, the Commuter service has a likely benefit-cost ratio range of 1.0 to 1.6.

Table 5.4 Benefit-Cost Summary for Commuter Service

BENEFITS	
Travel Time Savings - Existing Riders	$32.7
User Benefits - Induced Riders	$289.1
Reduced Emissions	$17.8
Reduced Highway Maintenance	$33.9
Congestion Relief Benefits	$1,035.1
Freight Shipping Cost Savings	$69.2
TOTAL BENEFITS	$1,477.8
PV of Total Benefits	$534.1
COSTS	
Capital Costs	$275.0
ANNUAL O&M Cost	$22.0
TOTAL COSTS (Cumulative)	$824.2
PV of Costs	$431.0
Net Present Value (NPV)	$103.1
Benefit-Cost Ratio (BCR)	**1.2**

As required for the Federal Railroad Administration American Recovery and Reinvestment Act (ARRA) grant applications, three and seven percent discount rates were also used to provide some indication of the sensitivity related to the choice of discount rate. In the case of the realignment, the benefit-cost ratios are 3.9 and 2.3 at the median, respectively, indicating a $3.90 return for every dollar input with a three percent discount rate and a $2.30 return with a seven percent. For the enhanced service, the median return on one dollar of investment using a 3 percent discount rate is $3.94 with a 10 percent probability that the value per dollar invested will exceed $5.25 and a 90 percent probability that it will exceed $2.94. At the seven percent discount rate, the median return on investment for the enhanced service is $2.83 with a 10 percent chance of exceeding $3.83 and a 90 percent chance of exceeding $2.11. For the commuter level of service, the median return on investment at the 3 percent level is expected to be $1.50, with a 10 percent likelihood of exceeding $187 and a 90 percent likelihood of exceeding $1.21. At the 7 percent discount rate, the median commuter return on investment is $1.16 with a 10 percent chance of exceeding $1.46 and a 90 percent chance of exceeding $0.93. At the seven percent discount rate, there is a 20 percent chance that the return on investment will not be greater than 1. The difference between the two discount rates is that with the higher discount rate, the upfront costs are weighed more heavily against the future returns on the investment. In this analysis, using the lower discount will yield net benefits that will always exceed net costs.

6 ECONOMIC DEVELOPMENT ANALYSIS

The proposed realignment of passenger rail service along the I-91 Knowledge Corridor between Springfield, Massachusetts, and White River Junction, Vermont, has the potential to provide positive economic development impacts for the region. In order to assess the economic development potential related to the proposed rail improvements, a thorough examination of the conditions in the region, as well as the potential for development based on available land and other resources was considered. This document provides a detailed explanation of the process and methodology undertaken to estimate economic development impacts in terms of employment and population within the region. An estimation of the economic impacts attributable to the construction expenditures related to the realignment is also provided.

6.1 Purpose and Objectives

There are two main objectives of the economic development analysis:

- Estimate economic development induced by rail service improvement for input into ridership estimates.
- Identify opportunities for economic development throughout the region related to the rail realignment and service enhancement projects.

The analysis was conducted to gauge the range of possible changes to population and employment due to expanded passenger service for the years 2020 and 2030. Because most of the infrastructure improvements associated with the realignment and expanded service are anticipated to be made primarily in Massachusetts, the economic development analysis focuses on this area. This document also presents the results of an economic impact study conducted as part of the Federal Railroad Administration’s High Speed Intercity Passenger Rail Track 2 application. The economic impact analysis provides information related to job creation and economic stimulus.

In order to assess the economic development potential related to the proposed rail improvements, a thorough examination of the conditions in the region, as well as the potential for development based on available land and other resources was considered. The estimates represent the likely incremental economic development impacts due to passenger rail, focused on Hampden, Hampshire and Franklin counties and the four proposed station areas for expanded rail service in the cities of Springfield, Holyoke, Northampton, and Greenfield. “Incremental” refers to the additional economic and demographic growth beyond baseline growth forecasts for the region. The results of this analysis are used to supplement baseline estimates of ridership for the passenger rail scenarios (i.e., additional residential and business development leading to higher levels of ridership).

The proposed infrastructure improvements associated with expanded passenger rail also facilitate the retention of existing freight rail customers. In addition, an improved infrastructure is a significant selling point in efforts to obtain new customers. The retention and expansion of industrial customers in the region is also expected to contribute to the economic development of the area.

This chapter of the feasibility study describes the process utilized to make estimates of employment and population that will be generated with the expansion of passenger rail service in the Knowledge Corridor. The results of the realignment construction economic impact analysis are also provided.

The chapter is comprised of the following sections:

- Purpose and objectives of the economic development analysis;
- Economic trends discussion for each of the study area communities;
- Stakeholder interview findings;
- Method and data used to conduct the economic development and economic impact analyses; and
- Results and a summary of findings.

6.2 Existing Economic Conditions and Opportunities

Prior to conducting the economic development analysis, information was gathered related to the regional economy. Included in this process were stakeholder interviews designed to learn more about the potential for economic development in the region and other related issues.

6.2.1 Existing Economic Conditions

Table 6.1 lists some of the top employers in each of the station municipalities while Table 6.2 indicates the relative concentration of industries in each city compared to Massachusetts as a whole. In addition to a relatively stable economy, the lower cost of living and large presence of higher education add to the draw of the region.

Overall, the region has suitable physical infrastructure for further development but has lacked a true catalyst to accelerate growth. In particular, each of the four station cities already has a downtown infrastructure suitable to Transit Oriented Development (TOD), including dense development patterns, historically active downtown centers, and nearby mixed use development. Also, statewide Chapter 40R incentives increase the development potential of urban sites such as these.

Table 6.1 Major Employers in Potential Station Municipalities

Employer	City
Bay State Medical Center	Springfield
Hartford Hospital	Springfield
Mass Mutual	Springfield

Mercy Medical Center	Springfield
Cooley Dickinson Hospital	Northampton
Smith College	Northampton
Holyoke Medical Center	Holyoke
Sisters of Providence Health	Holyoke
Greenfield Community College	Greenfield
Phoenix Life Insurance	Greenfield

Source: Massachusetts Executive Office of Labor and Workforce Development, Largest Employers by Area.

Table 6.2 Relative Industry Concentration in Massachusetts

	Relative Concentration in MA			
Industry	**Greenfield**	**Northampton**	**Holyoke**	**Springfield**
23 - Construction	0.4	0.7	0.6	0.6
31-33 - Manufacturing	0.7	0.7	**1.2**	**1.2**
22 - Utilities	0.0	0.8	6.8	6.8
42 - Wholesale Trade	0.9	0.4	0.5	0.5
44-45 - Retail Trade	**1.5**	**1.0**	**1.7**	**1.7**
48-49 - Transportation & Warehousing	0.3	0.3	0.3	0.3
51 - Information	**1.2**	0.7	0.2	0.2
52 - Finance & Insurance	0.7	0.4	0.4	0.4
53 - Real Estate	0.5	0.5	**1.0**	**1.0**
54 - Professional & Technical Services	0.3	0.4	0.3	0.3
55 - Management of Companies	**1.5**	0.5	0.6	0.6
56 - Admin. & Waste Services	0.7	0.3	0.4	0.4
61 - Educational Services	**1.0**	**1.5**	**1.2**	**1.2**
62 - Health Care	**1.5**	**1.8**	**1.5**	**1.5**
71 - Arts & Entertainment	0.6	**1.2**	0.4	0.4
72 - Accommodation & Food Services	**1.1**	**1.3**	**1.0**	**1.0**
81 - Other Services	**1.4**	**1.2**	**1.4**	**1.4**
92 - Public Administration	**1.6**	**1.3**	**1.0**	**1.0**

Source: Massachusetts Executive Office of Labor and Workforce Development, ES-202.
Note: The industry concentration is compared to industries in Massachusetts, not industries throughout the U.S.

6.2.2 Stakeholder Interview Findings

As part of the information gathering process, interviews also were conducted with twelve economic development organizations[1] in the Pioneer Valley to assess development opportunities from a "real world" perspective, and gather relevant data on development initiatives, land use, and real estate. Questions focused on two main categories: 1) economic development potential; and 2) commuting patterns/transit-oriented development (TOD) policies and opportunities. More specifically, economic development questions covered recent development trends, strengths of

[1] See Appendix A for a list of organizations and interviewees.

the region, and obstacles or constraints to growth. The TOD and commuting questions served to establish the likely impacts of commuter service, the capacity for transit-oriented development in terms of available land, and development initiatives necessary to support the rail service once implemented.

Feedback was gathered for each of the potential station cities (Greenfield, Northampton, Holyoke, and Springfield) and the region as a whole. Springfield and Northampton will be the first cities to have stations developed, followed by Greenfield and Holyoke at some time in the near future. In general, the mix of industries in the Pioneer Valley – with greater than average concentrations in healthcare, higher education, information technology, manufacturing, financial services and the creative economy – provides a relatively stable economy with less volatile peaks and valleys through the business cycle.

Limitations identified include a shortage of startup funding available in the region, a relatively stagnant underlying growth rate of development and private sector investment, and real estate construction costs in excess of market rates for real estate. Construction costs in excess of market rates pose problems as it becomes exceedingly difficult to attract private investment and construct new buildings when the return on investment is not sufficient.

While the broader regional concerns are important to understanding the impact of rail service, it was critical to gather information on each of the potential station cities. These findings are presented in the sections below.

6.2.3 Springfield

The redevelopment plan for the Union Station rail facility improves the practicality and feasibility of enhanced rail while potentially providing a catalyst to development in the surrounding area. Further development in the area related to the station renovation is possible, but likely not financially feasible without public subsidies for the conversion of former office buildings to residential uses near the station. Though the $63 million investment will bring both short-term and long-term employment to the city and the pieces seem to be falling into place for Springfield, the catalyst to push development forward is still missing.

Springfield is the final station city in Massachusetts, and would provide the connection south to Hartford, New Haven, and New York City. Springfield is the largest city in western Massachusetts and has both positive and negative attributes for potential economic development related to passenger rail. While there is currently rail service in Springfield, greatly enhanced service to new locations to the north could benefit the city. The strengths of Springfield include a fairly stable economy due to the mix of industries present in the city, and low cost of living relative to other areas of the Commonwealth. Other potential strengths include a possible expansion of UMass-Amherst academic/research facilities into downtown Springfield as well as the planned commuter rail connection to Hartford and New Haven.

Main constraints to development include a lack of truly Class A office space downtown, and lingering concerns about the city's fiscal stability, public safety and the education system. The level of activity downtown in terms of office workers and residents continues to be a challenge as anecdotal evidence suggests that some tenants are moving out of downtown for other locations within the region. One essential piece to contribute to growth is the re-use of the existing space as well as parking improvements. Since the area has construction costs that are generally above market lease or sales rates, private investment to build new or restored buildings has been lacking in recent years.

6.2.4 Northampton

Northampton was recently named one of the best small cities in America. Northampton has an active and vibrant bicycle trail network and is well-served by the Pioneer Valley Transit Authority buses. Northampton residents are responsible for the success of the current alternative modes of transportation and one would expect passenger rail to thrive as well. The Sustainable Northampton Master Plan already calls for Transit Oriented Development, and given the potential office and commercial development opportunities in the downtown area, passenger rail could have a positive impact on these initiatives. Northampton has a stable population and strong economy including a large retail and service sector with the presence of higher-end jobs, such as Cooley Dickinson Hospital. New developments are already taking place in the downtown area, including a new Urban Outfitters store and a 100-room Hilton hotel. Additionally, since the arts and creative economy has a very large presence in Northampton, a strong rail connection south to New York City has great potential. Northampton is also home to numerous cultural events as well as a vibrant nightlife which attracts a variety of visitors that might take advantage of rail connections. Possible barriers to development related to rail include the relatively high cost of land compared to other areas in the region, a relative lack of developable land in close proximity to the station, and the lingering need for some infrastructure and broadband improvements.

6.2.5 Greenfield

Greenfield is the first proposed station town in Massachusetts when traveling southbound from Vermont. Greenfield is the largest town in Franklin County, and while the municipality adopted the mayoral form of government, Greenfield remains a town. Greenfield's economic strengths include an educated labor force due to the presence of numerous colleges within the region, low housing prices, and a reasonable cost of living. The affordability of Franklin County in general and Greenfield in particular, makes the downtown area an attractive place to live. If passenger rail is reintroduced to the area, the municipal infrastructure to support TOD is present. The new Regional Transit Center, currently in the design process, will be located immediately adjacent to the rail line and will become Franklin County's major bus hub providing synergy with the proposed rail service. Operations at the Regional Transit Center should create 180-200 new jobs in the immediately surrounding area once completed.[2]

Greenfield has experienced relatively slow growth and development in the past. The town has recently lost many of the major industrial employers that had made the town a hub for manufacturing of taps and dies. While many of these larger companies (e.g., Greenfield Tap and Die) that were in the area have left Greenfield, smaller businesses such as the Green Fields Natural Foods Cooperative Market and Wilson's remain in downtown Greenfield. These smaller independent businesses, along with traditional business services, have helped to maintain

[2] These estimates are from the "Bank Row Urban Renewal Plan" released by the Town of Greenfield, updated in March 2007.

Greenfield's downtown business district. Downtown revitalization efforts also are being pursued, including the preservation and reuse of specific neglected historical properties and the removal of some structures and redevelopment of those parcels.[3] The loss and lack of large employers, lack of high paying jobs, and limited access to public funding, however, are constraining growth in the area.

Impacts from enhanced or commuter rail service in Greenfield are likely to be concentrated on: a) more residential development opportunities as Greenfield becomes a more attractive place to live given rail connections to the south; and b) a modest boost to downtown development opportunities in a mix of retail, restaurant and other businesses. A combination of public and private funding sources is being used to undertake a major downtown revitalization project within a block of the proposed new intermodal center.

6.2.6 Holyoke

Holyoke's economy has suffered from the loss of key companies, the abandonment of many downtown mill buildings, and slow moving efforts to re-build and re-develop them. Like Springfield, it has been identified as a "gateway city" by MassInc and the Brookings Institute reflecting relatively low per capita income, slow and declining growth, higher unemployment rates, and lower educational achievement. There are, however, some promising revitalization efforts taking place, including the development of an urban renewal plan for Holyoke focusing on development in the downtown area. More specifically:

- The downtown Canal Walk project is expected to help revitalize areas along the canal and has broken ground for construction.
- The Open Square space serves as artist loft, live/work space, and potential condos. It represents a successful private developer initiative in downtown Holyoke to attract a mix of uses and residents.
- The multimodal transportation center at Veterans Park is moving forward and should be completed in mid 2010. It is in relative proximity to the proposed rail station. This transportation center will bring Peter Pan bus service back to the city for the first time in 20 years. It will also include a child care facility to aid working parents, and Holyoke Community College (HCC) is planning to hold classes and offer job training for the first time in a downtown location.
- The recently announced Green High Performance Computer Center and Advanced Computing Initiative is a cooperative agreement between Massachusetts Institute of Technology (MIT), the University of Massachusetts, Cisco, EMC and other interested institutions to locate a world-class computing center in downtown Holyoke. On October 21, 2009, Governor Deval Patrick announced the go-ahead for this project in a special "innovation district" in Holyoke. The estimated $100 million facility could break ground within the next year and is expected to create upwards of hundreds of jobs directly at the Center as well as businesses located nearby.

While these development plans advance in the downtown area, passenger rail could be a crucial component of fully achieving the revitalization potential of the city. In particular, a passenger rail

[3] *Bank Row Urban Renewal Plan, Greenfield, Massachusetts*, prepared by Hayes Development Services, September 2005 with an update in March 2007.

station in downtown Holyoke could be a major asset in the city's efforts to direct future development back into the downtown area rather than continuing recent trends of commercial development near the Holyoke Mall and away from downtown.

Holyoke's other strengths include low electric rates as the city produces its own power, a major draw for the Computing Center initiative. In addition, the city has Chapter 43D sites, Tax Increment Financing (TIFs) options, a foreign trade zone, and Industrial Park Zoning that offer a wide range of business development incentives.

Constraints to potential growth include relatively high business tax rates, an education system with a poor perception and relatively weak test score performance, and lingering negative perceptions of the area. In addition, some recent projects now underway (Canal Walk and multimodal center) have been in the planning and development phase for a long-time, which (even if no-fault of the city) has created a perception that it takes a long time to achieve progress. Both a challenge and an opportunity, the abandoned mill buildings would need to be converted since manufacturing companies typically do not want to locate on the second and third floors of buildings. Taking these factors into account, Holyoke presents both a relatively large potential opportunity given current initiatives, with a history of slow revitalization and lagging economic performance that it is striving to overcome.

6.3 Methodology and Assumptions

Several data sources, reports and other information were utilized for the economic development analysis. These include:

1) **Stakeholder Interviews** – As described previously, HDR conducted interviews with 12 economic development organizations in the Pioneer Valley[4] to assess development opportunities from a "real world" perspective, and gather relevant data on development initiatives, land use, and real estate.
2) **Data Collection and Review of other Studies** – Historical and projected employment and population trends data was collected, and other passenger rail and economic development studies were reviewed, including a recently completed analysis of the Downeaster rail service from Portland to Boston.[5]
3) **Model Development** – Based on the data collected, the information from stakeholder interviews and reviews of other studies,[6] the model for this analysis was developed. It is a risk-based analysis that explicitly accounts for uncertainty in a number of key variables and produces a range of estimates.
4) **Results and Risk Analysis –** HDR generated an initial set of economic growth assumptions and risk factors that were presented to the TAC[7] for review and scrutiny, leading to a refined set of economic development results.

[4] A listing of the individuals who were interviewed can be found in the Appendix.
[5] "Economic Benefits of Amtrak Downeaster Service" Economic Development Research Group and KKO Associates, February 2005.
[6] A listing of the studies reviewed can be found in Appendix D
[7] A listing of TAC members can be found in Appendix B.

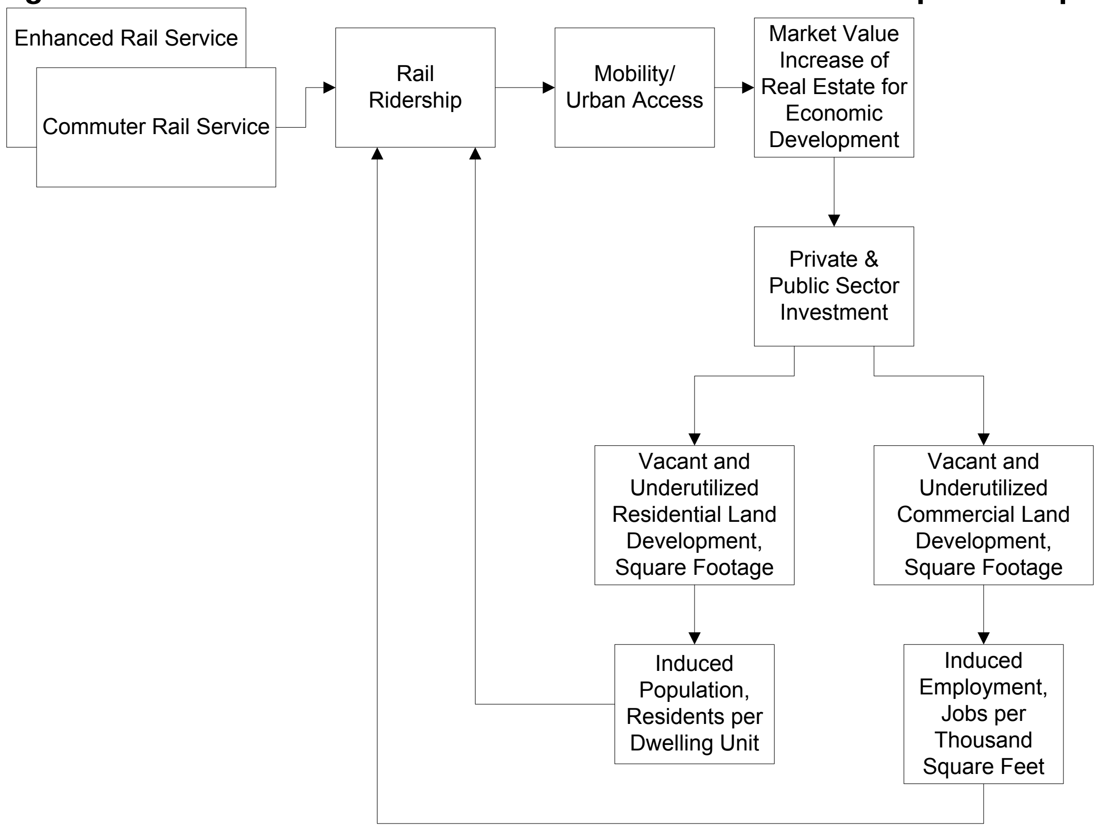
Economic development estimates are presented in the following areas:

- **Level of Rail Service** – Economic Development estimates are presented for two levels of expanded passenger rail service: 1) "Enhanced" rail service that would be similar in nature to the current Portland-Boston Downeaster service (i.e., 4-6 trains a day in each direction), and 2) "Commuter" rail service that would provide more frequent service for the morning and evening commutes with particularly strong connections to Connecticut.[8]
- **Geography** – Estimates of economic development gains are presented for Springfield, Holyoke, Northampton and Greenfield (with emphasis on development within 1 mile of the station locations). Estimates are also presented for the "rest of county" regions that reflect additional passenger demand outside each city due to passenger rail.
- **Future Year Planning Horizons** – Reaching total economic development gains from rail or transit corridors typically takes many years, so estimates are provided for 2020 and 2030.
- **Jobs and Population** – The analysis estimates residential and commercial /industrial development potential from the enhanced passenger rail access proposed as well as employment and population metrics.

The information and data generated in the above areas were used to create a model based on the assumption that increased passenger rail service will lead to increased access to the station cities. This access, in turn, is assumed to make the areas more appealing for public, private, and non-profit investments, thereby stimulating development of vacant and underutilized properties. This development will support increased population and employment which can be expected to generate additional rail ridership potential. This model is diagramed below in Figure 6.1.

[8] Less frequent passenger rail service in the Pioneer Valley could also result in induced economic development but likely at significantly lower levels and thus was not estimated separately.

Figure 6.1 Framework Model to Estimate Economic Development Impacts



The methodology used to estimate induced economic development from the two improved passenger rail scenarios in the Pioneer Valley used a risk analysis framework, which consists of developing a range of input assumptions for each variable, presenting them to stakeholders and development experts with detailed knowledge of the study area, and modifying based on feedback. The analysis is then re-run, using key development assumptions and data related to residential, commercial and office growth.

6.3.1 Risk Analysis Framework[9]

Economic development forecasts traditionally take the form of a single "expected outcome" supplemented with alternative scenarios. The limitation of a forecast with a single expected outcome lies in the fact that while it may provide the single best statistical estimate, it offers no information about the range of other possible outcomes and their associated probabilities. This problem becomes more serious when there is uncertainty in the underlying assumptions and these uncertainties are not accounted for.

A common approach to bracket the central estimate is to create a "high case" and "low case" scenario. This scenario approach can exacerbate the problem of dealing with risk, because it gives no indication of the likelihood associated with the alternative outcomes. The commonly

[9] The Risk Analysis Framework is an HDR|HLB standard that has been used in many other transit and transportation related projects, including "Initial Regulatory Impact Analysis of the Proposed Revised Regulations Implementing Titles II and III of the ADA, Including Revised ADA Standards for Accessible Design" May 9, 2008.

reported “high case” may assume that most underlying assumptions deviate in the same direction from their expected value, and likewise for the “low case.” In truth, the likelihood that all underlying factors will shift in the same direction simultaneously is just as remote as everything in the central scenario turning out as forecast.

Another common approach to providing added perspective on probability of outcomes is “sensitivity analysis.” Key assumptions of the forecast are varied one at a time in order to assess their relative impact on the expected outcome. The problem here is that the assumptions are often varied by arbitrary amounts. A more serious concern with this approach is that, in the real world, assumptions do not veer from actual outcomes one at a time. It is the impact of simultaneous differences between assumptions and actual outcomes that is needed to provide a realistic perspective on the reliability of a forecast.

Risk Analysis avoids the problems outlined above. It helps avoid the lack of perspective in “high” and “low” cases by estimating the probability or “odds” that an outcome will actually materialize. This is accomplished by attaching ranges (probability distributions) to the forecasts of each input variable. The approach allows all inputs to be varied simultaneously within their distributions, thus avoiding the problems inherent in conventional sensitivity analysis. This approach also recognizes interrelationships between variables and their associated probability distributions.

The Risk Analysis Process (RAP) involves three key steps:

1. Assign Central Estimates and Conduct Probability Analysis: RAP participants assign each key factor or variable a central estimate and a range (a probability distribution) to represent the degree of uncertainty.
2. Conduct Expert Evaluation: An informed panel is established to elicit risk and probability beliefs about the structure of the forecasting framework and the uncertainty attaching to each variable and forecasting coefficient within the framework.
3. Issue Risk Analysis: Using a statistical simulation technique that allows each variable and forecasting coefficient to vary simultaneously according to its associated probability distribution, a central forecast, together with estimates of the probability of achieving alternative outcomes given uncertainties in underlying variables and coefficients, is created.

A complete description of the Risk Analysis Process (RAP) is provided in the Appendix C of this report.

6.4 Model Development

Several steps were taken to ensure that the most reliable estimates of potential economic development along the Knowledge Corridor in the Pioneer Valley were generated. After conducting interviews, gathering data and reviewing studies on similar projects, three broad scenarios were developed: 1) baseline population “no action” and employment growth; 2) enhanced service; and 3) commuter service. Enhanced service would provide a level of service similar to the Portland-Boston Downeaster service (approximately 4-6 trains daily in each direction) and commuter service would provide more frequent service particularly in the morning and afternoon commutes. The model assumes that the higher the level of service, the more economic development would occur. In addition, the following factors were considered in the analysis:

- The geographic location of the station and the proximity of the potential development;
- Planned commercial and residential development projects;
- Land available for development by zoning;
- The typical ratio of jobs and people per building square feet and use in the region;
- The relative size of a building compared to the size of the available parcel; and
- The results of similar studies to provide context and comparison.

For the no-action baseline scenario, the population and employment forecasts for the region were examined to provide a baseline of projected growth to the year 2030, given no change in service. These estimates were then used as a level of comparison for potential development attributable to different levels of service. Both the Pioneer Valley Planning Commission and the Franklin County Transportation Planning Organization released Regional Transportation Plans (RTPs) in 2007. These plans include forecasts of employment and population at the municipality level to 2030. For the purposes of this analysis, seven different geographic areas were examined: the four station cities - Greenfield, Northampton, Holyoke, and Springfield - and the three "rest of county" areas - Franklin, Hampshire and Hampden. The "rest of county" areas do not include the station cities, and while the impacts will not be as large as the municipalities with stations, similar studies show that there will likely be some level of "spill over" development.[10]

Both the Pioneer Valley and Franklin County population forecasts used year 2000 U.S. Census data as the base for their projections. In order to incorporate the most recently available data, the growth rates that were developed in the RTPs were applied to 2007 U.S. Census population estimations. Because the 2007 population estimates are slightly lower than the 2000 populations for some of the municipalities, the projected 2030 populations that are presented in this report are somewhat lower than those presented in the RTPs.

Similarly, the employment forecasts to 2030 use the year 2000 employment data as a base. The Pioneer Valley RTP uses 2000 Covered Employment and Wage data and Franklin County uses U.S. Census Bureau and Bureau of Labor Statistics data from the year 2000 as the base. Again, to ensure that the projections are using the most recently available data, 2007 employment data from the Massachusetts Office of Workforce Development was used as the base for calculations in this report. Similar to the population estimates, the growth rates used in the RTPs were applied to this updated data to calculate employment projections to 2030.

Once the growth rates for population and employment were calculated, a risk factor was applied to the growth rates in order to generate a range of feasible projection estimates. These population and employment projections were also used to estimate impacts for increased service by

[10] See: "Economic Benefits of Amtrak Downeaster Service", February 2005.

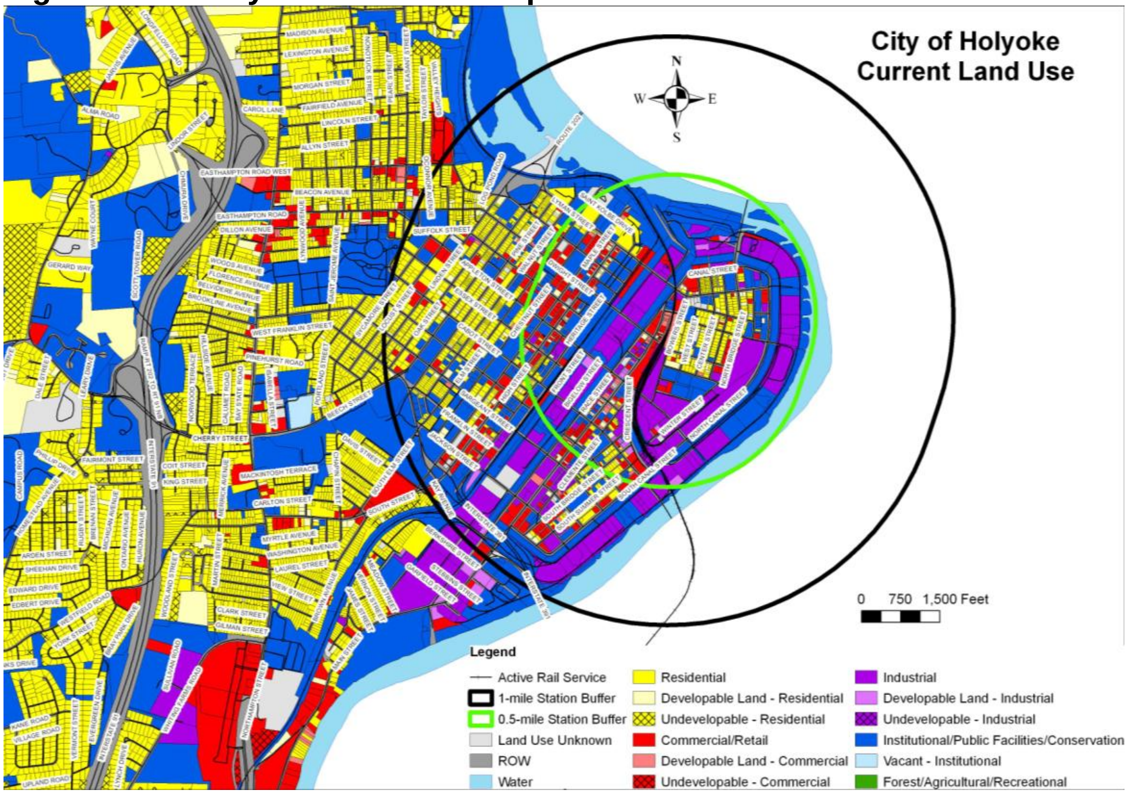
calculating a percentage of the growth attributable to rail service for each of the station and rest of county areas. A risk range was also applied to these "growth attributable to rail" scenarios to account for possible variations in the future. The percentage of growth attributable to rail was greater in the commuter rail scenario than the enhanced rail scenario. The growth tended to be larger in the station cities rather than in the "rest of county" areas due to proximity to rail.[11] These results were used as a basis for comparison in some cases, and in Greenfield and the "rest of county" areas, they were used as the final projections of development and growth (given a lack of detailed, comprehensive land use data[12]). Due to the additional land use data available in Northampton, Holyoke, and Springfield, the baseline growth estimates were used as an input, along with other factors that are described below, to generate more detailed induced development results.

For the more detailed analyses and where possible, the station cities were further broken down by proximity to the proposed station location. The planned development projects provided by each city and the assessor data on available land were allocated by parcels within a radius of ½ mile of the station, within 1 mile of the station, and more than 1 mile from the station. See Figure 6.2 for an example from Holyoke. Because the greatest amount of transit-oriented development typically occurs within walking distance of a station, approximately a ½ mile radius, it is important to distinguish the available parcels by distance from the station. While development is not as intense beyond the half-mile walking distance, there is still increased potential within 1 mile, and this diminishes in areas beyond 1 mile from the station consistent with a gravity model approach.

[11] Transit oriented development occurs more readily and at a higher level in areas that are closest to the transit. As distance from the rail or other transit mode increases, the impacts of transit-oriented development decrease.

[12] Note that the available GIS data layer for Greenfield and Franklin County provided only partial information and did not indicate the size or use of individual parcels. As a result, it was not used for this analysis.

Figure 6.2 Holyoke Land Use Map



Source: Holyoke Assessor's Data

Economic development professionals provided lists of planned development projects for the cities of Greenfield, Northampton, and Holyoke. From these project lists, details were provided on the geographic proximity to the proposed station location (within ½ mile, within 1 mile and beyond 1 mile), and the type of development (residential, office, retail, or industrial). This data, along with the number of jobs or population per 1,000 square feet and other factors, was entered into the model to estimate the potential employment and population generation from the realization of these projects. The number of jobs or population per 1,000 square feet was calculated based on usage rates as shown in Table 6.3. While these projects are all planned, risk factors are applied to the data to estimate the potential development that is attributable to rail.

Data on vacant but developable land was provided for the cities of Northampton, Holyoke and Springfield. This data was analyzed similarly to that of the planned development projects: it was first broken down by land use type and geographic proximity to the station, and then risk factors were applied to account for development attributable to rail, as well as the ratio of the parcel size to the building square footage. Since the data provided were simply for the parcels and not planned buildings, it was necessary to create a ratio of building square-footage to parcel size, otherwise known as the floor to area ratio or FAR. Since zoning requirements are different for buildings of different usage types and in different locations – i.e. central business district or industrial park – several ratios were calculated. Generally, the farther away the parcel was from the station, the smaller the ratio. These FARs were then used to estimate the size of the building to be used as an input for jobs or residents per 1,000 square feet of development. Further explanation of the risk analysis can be found in Section6.3.1.

Table 6.3 Economic Development Model Inputs

Inputs	Mean	Low	High
Baseline Population Growth			
Greenfield	2.0%	0.8%	3.0%
Northampton	1.8%	-0.5%	2.4%
Holyoke	-4.0%	-5.8%	0.0%
Springfield	1.7%	0.0%	3.0%
Rest of Franklin County	25.3%	19.2%	31.4%
Rest of Hampshire County	8.0%	4.2%	10.5%
Rest of Hampden County	6.1%	3.0%	9.0%
Baseline Employment Growth			
Greenfield	10.0%	4.0%	12.0%
Northampton	1.0%	-1.0%	4.0%
Holyoke	-4.0%	-7.3%	0.0%
Springfield	-7.0%	-11.9%	0.0%
Rest of Franklin County	10.1%	4.1%	14.1%
Rest of Hampshire County	1.4%	0.0%	3.0%
Rest of Hampden County	3.5%	1.2%	6.4%
Jobs and Population per 1,000 Square Feet of Development			
Retail	1.7	1.2	2.5
Industrial	0.8	0.5	1.2
Office	2.8	2.0	3.5
Residential	1.5	1.2	1.8
Building Square Feet to Parcel Size Ratio (FAR)			
Distance Less than 0.5 Miles from Station			
Retail	1.1	0.9	1.5
Industrial	0.8	0.6	1.1
Office	1.1	0.9	1.5
Residential	1.6	1.3	2.3
Distance Between 0.5 and 1 Mile from Station			
Retail	0.8	0.7	1.1
Industrial	0.6	0.4	0.8
Office	0.8	0.7	1.1
Residential	1.4	1.2	2.0
Distance Greater than 1 Mile from Station			
Retail	0.7	0.6	1.0
Industrial	0.5	0.4	0.7
Office	0.7	0.6	1.0
Residential	0.7	0.5	1.0

Source: HDR calculations based on information gathered and feedback from TAC.

6.4.1 Induced Growth Assumptions

Risk analysis-based estimates of jobs and population from the scenarios described previously were then compared and contrasted (as available) to derive low, median and high development potential growth attributable to passenger rail estimates. As a point of comparison, the method from the Downeaster economic impact study[13] was applied to the Knowledge Corridor study area to ensure that the results obtained from the analyses were reasonable and not overly optimistic. After the draft results were generated, the key assumptions and risk factors were presented to the TAC for review (see Appendix for participants in the Risk Analysis Process workshop). Revised risk factors were used to generate the final results presented in this document. The estimates that were based on actual planned development projects in each city were lower than the total estimate when all available development opportunities were considered, and thus we consider the development effects to be a composite of planned development projects as well as longer-term development of vacant and underutilized properties.

The additional population and employment growth attributable to rail based on differing service levels was used for Greenfield and the "rest of county" areas due to the data constraints. Since more specific land use data was available for Northampton, Holyoke, and Springfield, these results were primarily based on the detailed land use data with comparison to the planned projects and employment and population growth attributable to rail data. The assumptions on the proportion of development of all vacant and developable land attributable to rail in terms of population and employment for both enhanced and commuter service are presented in Table 6.4 and Table 6.5.

Table 6.4 Enhanced Service Assumptions

Enhanced Population				
	Distance from Station	**Median**	**Low**	**High**
Greenfield		1.0%	0.5%	2.5%
Northampton	Less than 0.5 miles	15.0%	15.0%	30.0%
	0.5 to 1 mile	7.5%	7.5%	15.0%
	Greater than 1 mile	1.0%	1.0%	2.0%
Holyoke	Less than 0.5 miles	10.0%	10.0%	17.0%
	0.5 to 1 mile	8.0%	8.0%	14.0%
	Greater than 1 mile	1.1%	1.1%	2.0%
Springfield	Less than 0.5 miles	8.0%	8.0%	13.0%
	0.5 to 1 mile	6.0%	6.0%	11.0%
	Greater than 1 mile	3.0%	3.0%	6.0%
Rest of Franklin County		0.75%	0.5%	2.0%
Rest of Hampshire County		1.0%	0.5%	2.5%
Rest of Hampden County		0.5%	0.25%	1.0%
Enhanced Employment				
	Distance from Station	**Median**	**Low**	**High**
Greenfield		1.0%	0.5%	2.0%
Northampton	Less than 0.5 miles	15.0%	5.0%	30.0%
	0.5 to 1 mile	10.0%	2.5%	25.0%
	Greater than 1 mile	2.0%	1.0%	4.0%
Holyoke	Less than 0.5 miles	8.0%	3.0%	12.0%

[13] "Amtrak Downeaster: Overview of Projected Economic Impacts" for the Northern New England Passenger Rail Authority by the Center for Neighborhood Technology, March 2008.

	0.5 to 1 mile	6.0%	3.0%	9.5%
	Greater than 1 mile	3.0%	1.0%	6.0%
Springfield	Less than 0.5 miles	9.5%	4.0%	17.0%
	0.5 to 1 mile	7.5%	2.0%	14.0%
	Greater than 1 mile	1.0%	0.4%	1.2%
Rest of Franklin County		0.7%	0.3%	1.5%
Rest of Hampshire County		1.5%	0.75%	2.5%
Rest of Hampden County		0.3%	0.2%	0.5%

Source: HDR calculations.

Table 6.5 Commuter Service Assumptions

Commuter Population				
	Distance from Station	**Median**	**Low**	**High**
Greenfield		3.0%	1.5%	6.0%
Northampton	Less than 0.5 miles	20.0%	7.0%	35.0%
	0.5 to 1 mile	12.0%	5.0%	25.0%
	Greater than 1 mile	1.3%	0.7%	2.0%
Holyoke	Less than 0.5 miles	22.0%	12.0%	30.0%
	0.5 to 1 mile	20.0%	10.0%	27.0%
	Greater than 1 mile	2.5%	0.3%	3.5%
Springfield	Less than 0.5 miles	23.0%	12.0%	36.0%
	0.5 to 1 mile	21.0%	10.0%	33.0%
	Greater than 1 mile	6.0%	3.0%	10.5%
Rest of Franklin County		2.5%	1.5%	4.0%
Rest of Hampshire County		2.0%	1.0%	3.0%
Rest of Hampden County		1.0%	0.5%	2.5%
Commuter Employment				
	Distance from Station	**Median**	**Low**	**High**
Greenfield		2.5%	1.25%	5.0%
Northampton	Less than 0.5 miles	20.0%	7.0%	35.0%
	0.5 to 1 mile	12.0%	5.0%	25.0%
	Greater than 1 mile	3.0%	2.0%	5.0%
Holyoke	Less than 0.5 miles	20.0%	10.0%	27.0%
	0.5 to 1 mile	18.0%	8.0%	22.5%
	Greater than 1 mile	8.0%	3.0%	12.0%
Springfield	Less than 0.5 miles	17.0%	5.0%	25.0%
	0.5 to 1 mile	11.0%	3.0%	22.0%
	Greater than 1 mile	3.0%	1.5%	5.0%
Rest of Franklin County		2.0%	1.0%	3.5%
Rest of Hampshire County		2.0%	1.0%	3.0%
Rest of Hampden County		0.75%	0.5%	1.5%

Source: HDR calculations with input from the TAC.

All of the factors presented above were reviewed at the RAP workshop and refined, as appropriate, based on TAC member feedback and data. Of note, the development growth differences for Northampton between the enhanced and commuter scenarios is relatively small compared to the other cities, reflecting the economic opportunities that are less tied directly to commuting markets and more focused on the creative economy. The risk ranges for Holyoke tend to be largest when taking into account recent and current economic market conditions balanced against the promising urban renewal initiatives currently underway.

6.5 Results and Summary of Findings

This section presents the modeled anticipated future economic development induced by passenger rail in the Pioneer Valley. Results are presented for three future scenarios:

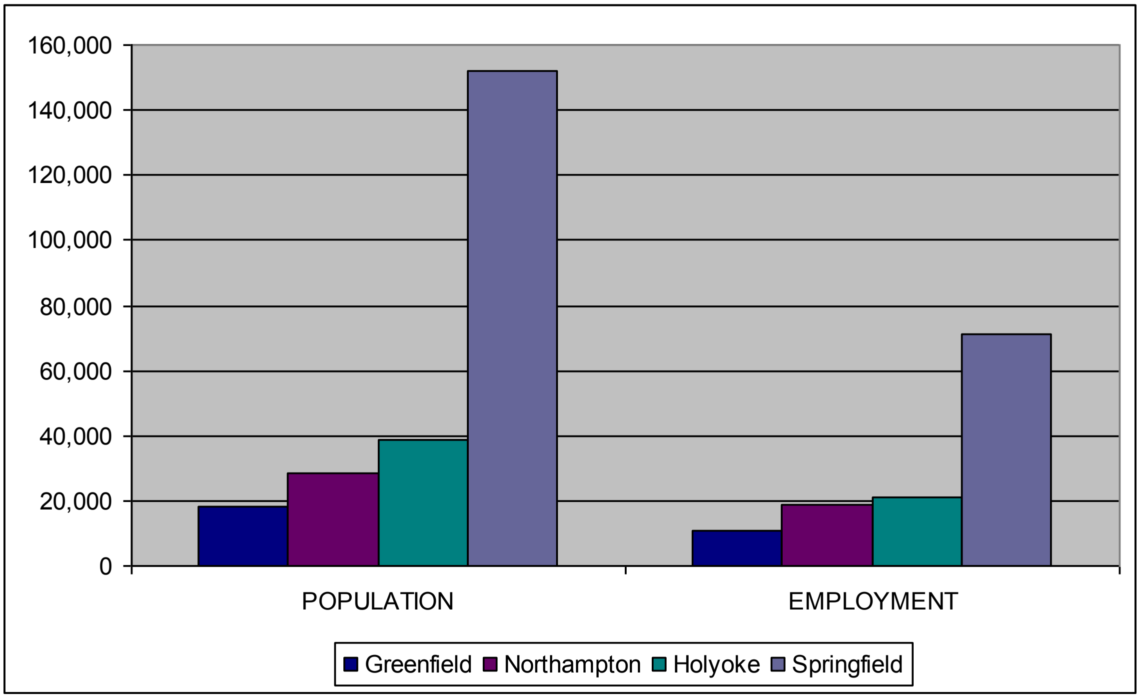
1. A baseline scenario with no change to the current passenger rail alignment.
2. Enhanced Passenger Rail service, providing approximately 4-6 daily trains in each direction.
3. Commuter Service providing more frequent service, particularly during the morning and evening rush hours.

For each scenario, results are presented based on the risk analysis model discussed previously. Each set of results will indicate the "most likely" predicted result (50 percent) as well as 10 percent (Low) and 90 percent (High), which are the upper and lower ends of the confidence interval. For the purposes of interpretation, the 10 percent or Low result means that there is a 10 percent chance that the growth in population or employment will be less than the reported value (i.e., 90 percent chance that it will be at least that large). The 90 percent or High value means that there is a 90 percent chance that the population or employment growth will not exceed that value.

6.5.1 Baseline Employment and Population Growth

Regardless of whether or not the realignment and enhancement of passenger rail service along the Knowledge Corridor occurs, there will be changes to both population and employment between now and 2030. Based on the information presented previously, forecast growth in both population and employment are relatively flat throughout the region. Massachusetts' population is growing more slowly than most other states and the Pioneer Valley Region tends to grow even more slowly than the statewide average. In some areas, such as Holyoke and Springfield, the actual forecast employment growth is negative. The results of the baseline analysis reflect the traditionally slow growth of the area as well as a range of options that considers the potential benefits from planned projects in the area contributing to growth. The most likely results from the baseline growth scenario are presented in Figure 6.3. Additionally, Table 6.6 below shows the results of the risk range accounting for uncertainty in the future.

Figure 6.3 Baseline Population and Employment for Station Cities, 2030



Source: HDR calculations based on Franklin County and Pioneer Valley Regional Transportation Plan Forecasts.

Table 6.6 Range of Population and Employment Estimates

Geographic Area	POPULATION 2030	EMPLOYMENT 2030
Greenfield	17,848 - 18,237	10,530 - 11,340
Rest of Franklin County	64,243 - 70,819	17,454 - 19,131
Northampton	28,269 - 29,093	18,190 - 19,109
Rest of Hampshire County	129,974 - 137,832	40,570 - 41,787
Holyoke	37,432 - 39,737	20,368 - 21,972
Springfield	149,938 - 154,436	66,863 - 75,894
Rest of Hampden County	276,278 - 292,372	102,050 - 107,293
TOTAL	703,982 - 742,526	276,025 - 296,526

Source: HDR calculations based on Franklin County and Pioneer Valley Regional Transportation Plan Forecasts and Risk Analysis.

6.5.2 Development Attributable to Rail

A critical step to the economic development analysis is the determination of the square footage by land use type to be developed in each of the station cities. The existing conditions parcel data was available for four usage types – retail, industrial, office and residential – and the shares of development attributable to each use were calculated from this data. The level of development attributable to rail varies by the service level scenario and city. For the enhanced level of service, approximately 3.0 million square feet of development is estimated for Springfield, Holyoke and Northampton, with a larger 5.0 million square feet of development for the commuter rail scenario (see Table 6.7). For each city, more than 60 percent of the development is expected to be for residential uses as greater levels of rail service attract people to live near the stations. Retail development is highest for Northampton and Springfield, representing 18 to 20 percent of total development in those cities.

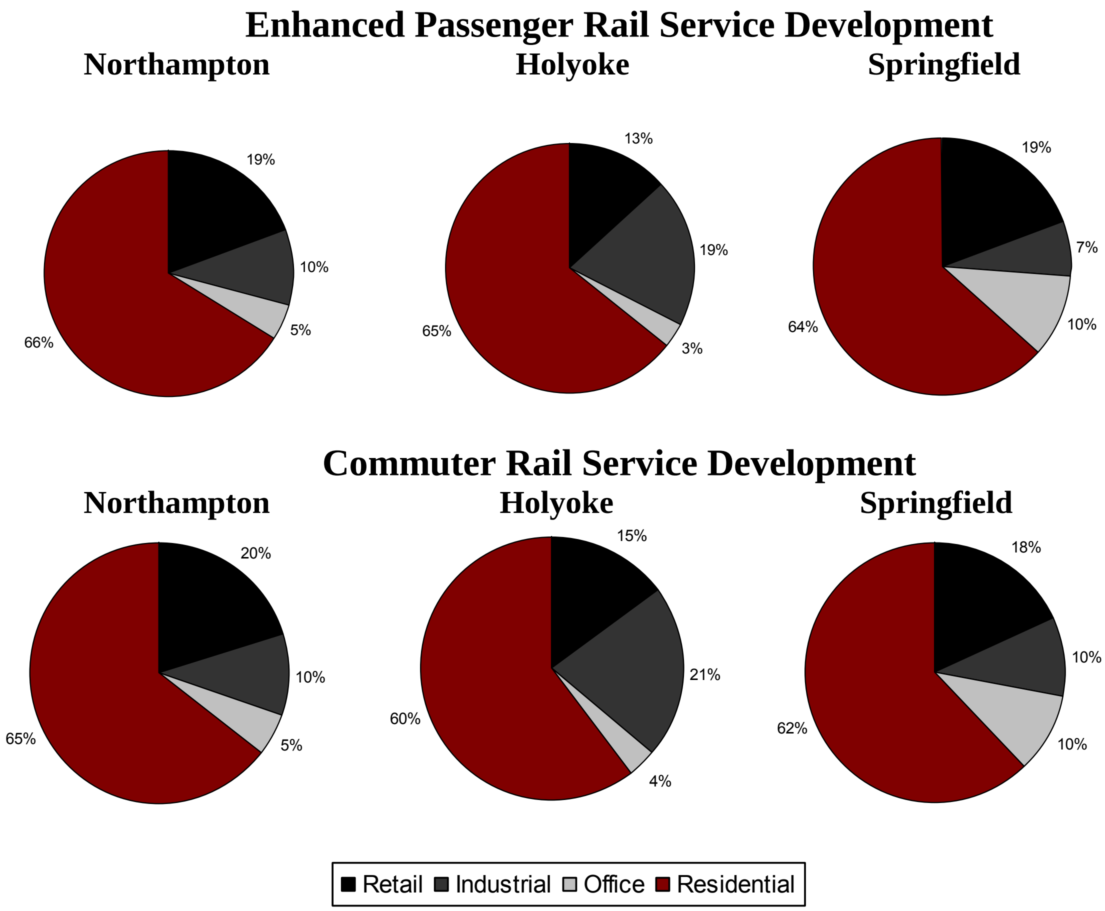
The total square feet of development amounts shown in Table 6.7 and Figure 6.4 were used as an input to calculate total employment and population impacts. Of note, the estimates provided below represent the median results with a low to high range used to generate the risk range of economic development impacts.

Table 6.7 Square Footage of Development by Service Level, City, and Land Use, 2030

	Enhanced Service			Commuter Service		
	Northampton	Holyoke	Springfield	Northampton	Holyoke	Springfield
Retail	257,611	76,065	220,023	318,938	174,858	421,195
Industrial	129,732	110,074	80,180	158,980	247,815	224,031
Office	64,403	19,016	118,474	79,735	43,714	226,797
Residential	881,565	366,859	719,472	1,014,742	707,666	1,434,393
TOTAL	*1,333,312*	*572,014*	*1,138,149*	*1,572,394*	*1,174,053*	*2,306,416*

Source: HDR Calculations

Figure 6.4 Shares of Development by Scenario and City, 2030



Source: HDR calculations.

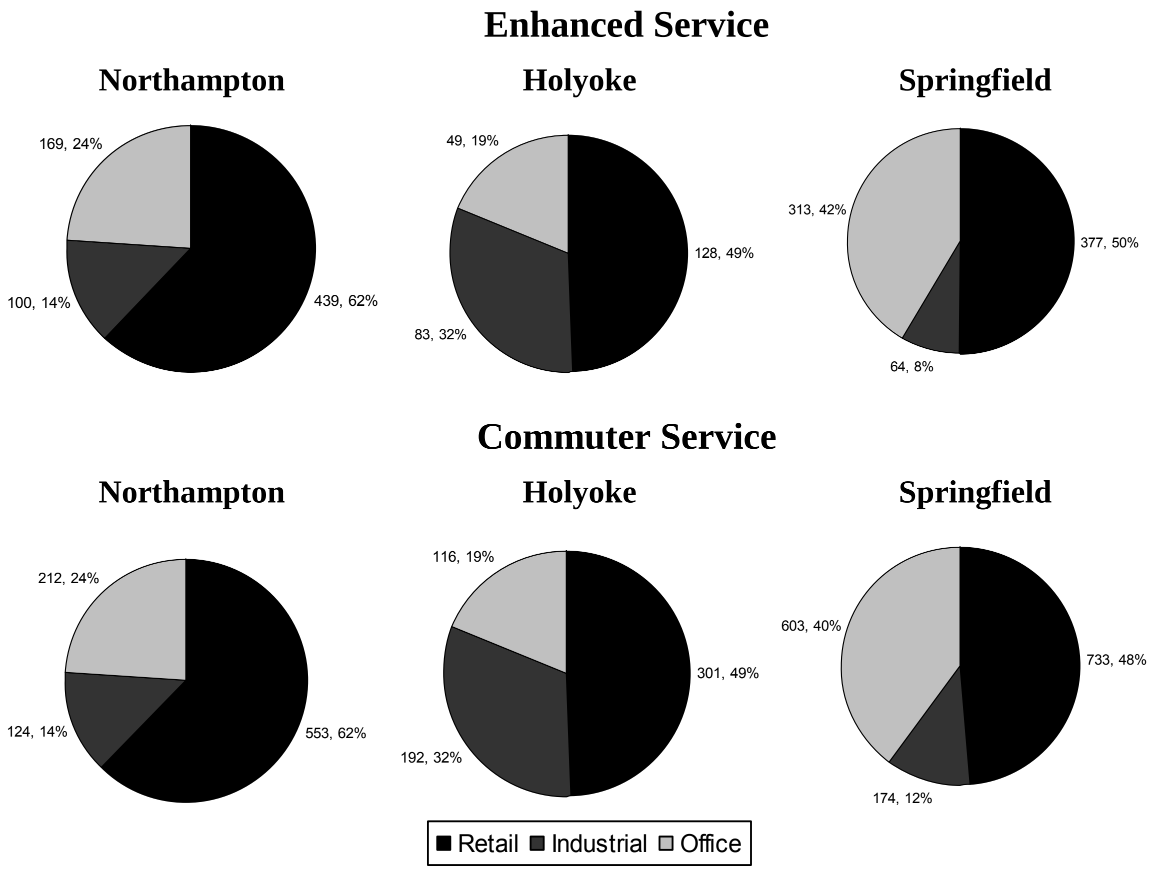
As is shown in Table 6.7, the amount of anticipated induced development in square footage varies by service level and city. Northampton is expected to experience the most development of new building space due to the presence of enhanced passenger rail service, with a most likely estimate of 1.3 million additional square feet by 2030. While commuter rail service is expected to generate additional development in Northampton, the majority of growth would likely occur under the enhanced passenger rail scenario due to the significant young college population, the high level of concern about green issues, and the strong desire for transportation alternatives. Stakeholders have emphasized the importance of intercity travel to Connecticut, New York City, and other destinations for tourism and cultural activities on the weekends. It is also estimated that Springfield would experience a fairly significant level of development under the enhanced passenger rail scenario, with more than 1.1 million square feet of total development anticipated. While the level of development under the enhanced passenger rail scenario is substantial, commuter rail service is expected to approximately double development, generating about 2.3 million square feet of total development. These results are generated from the development potential ranges found in Table 6.6 above, and while the percentage development impacts in Springfield are relatively conservative (about 8 to 17 percent), it is worth noting that this long-term impact would represent a somewhat significant jump in office space absorption (in particular) compared to recent trends of about 20,000 square feet per year across Hampden County.

It is expected that Holyoke will take a slightly higher level of service to fully trigger development, which results in only slightly more than 0.5 million square feet of rail related development by 2030 for an enhanced service level. Similar to Springfield, Holyoke is expected to see the greatest benefits from commuter level service, with development approximately doubling in the presence of commuter service, to approximately 1.2 million square feet of development.

While development in each of the cities is primarily residential, as shown in Figure 6.4, there is still expected to be a high level of commercial development in both enhanced and commuter scenarios. For both Springfield and Holyoke, in particular, this analysis and the risk ranges used to derive overall development results attempts to balance the *potential* for re-development with recent market conditions. In other words, the estimates are well within estimated impacts of development along the Downeaster rail corridor and other national case studies of transit-oriented development, but they also assume that the presence of rail service will be supplemented with other coordinated efforts to revitalize these cities, including public subsidies and public-private-university initiatives like the Computing Center in Holyoke.

The square footage of development is translated into population and jobs by using the population and jobs per 1,000 square feet factor discussed in Section 6.4. This step generates the most likely estimates for population and employment level, and furthers understanding of potential employment opportunities based on building and land use type. The differences in land availability across cities result in variation of types of employment as well, as demonstrated in Figure 6.5. Approximately two-thirds of Northampton commercial development is expected to be in retail space, with approximately one-quarter office and the remainder industrial, regardless of rail service level. Holyoke and Springfield are anticipated to each have about half of development in retail. Holyoke has more industrial space and less office, with approximately one-third of development anticipated to be industrial. Under an enhanced service level Springfield can expect very little industrial development and a larger amount of office development. The composition of development and employment is projected to change slightly with commuter level service, with a slight reduction in the shares of retail and office jobs and a slight increase in industrial employment.

Figure 6.5 Employment by Rail Service Scenario, City, and Land Use: 2030



Source: HDR calculations from Northampton (2009), Holyoke and Springfield (2008) Assessor Data.

6.5.3 Summary Economic Development Results

The two scenarios examined for consideration of economic development impacts were enhanced passenger rail and commuter rail service. Both of these scenarios are expected to generate induced economic development, and as can be seen in Table 6.8. Aggregate results indicate a most likely result of about 2,700 jobs and 7,200 population in the Pioneer Valley by 2030 under the enhanced passenger rail scenario with just over 5,500 jobs and 13,400 population in the commuter scenario. As shown, the economic development impacts are not immediate as the results are significantly lower for 2020, reflecting the time needed to fully realize and leverage the economic development opportunities provided by rail. Almost 70 percent of the job impact is in the four station cities in the enhanced scenario with 42 percent of the population effect, roughly consistent with current development patterns. The commuter scenario has a slightly lower share of jobs and population in the four station cities, as the effects are felt a bit more broadly throughout the region.

Table 6.8 Summary Induced Employment and Population Results by Scenario

	Enhanced				Commuter			
	Employment		Population		Employment		Population	
	2020	2030	2020	2030	2020	2030	2020	2030
Greenfield	32	128	61	243	80	321	159	634
Northampton	177	707	307	1,227	222	889	361	1,444
Holyoke	65	260	131	522	152	609	256	1,022
Springfield	189	754	250	998	378	1,510	502	2,006
Rest of Franklin County	38	153	187	746	99	396	451	1,802
Rest of Hampshire County	88	352	452	1,806	206	823	671	2,682
Rest of Hampden County	87	349	416	1,662	242	967	959	3,837
TOTAL	**676**	**2,703**	**1,804**	**7,204**	**1,379**	**5,515**	**3,359**	**13,427**

Source: HDR calculations

6.5.4 Results for Enhanced Service Scenario

The employment and population impacts for the enhanced scenario are presented in Table 6.9 below for 2020 and 2030, including the low to high risk ranges. Additionally, Figure 6.6 provides a comparison with the most likely employment impacts for year 2030.

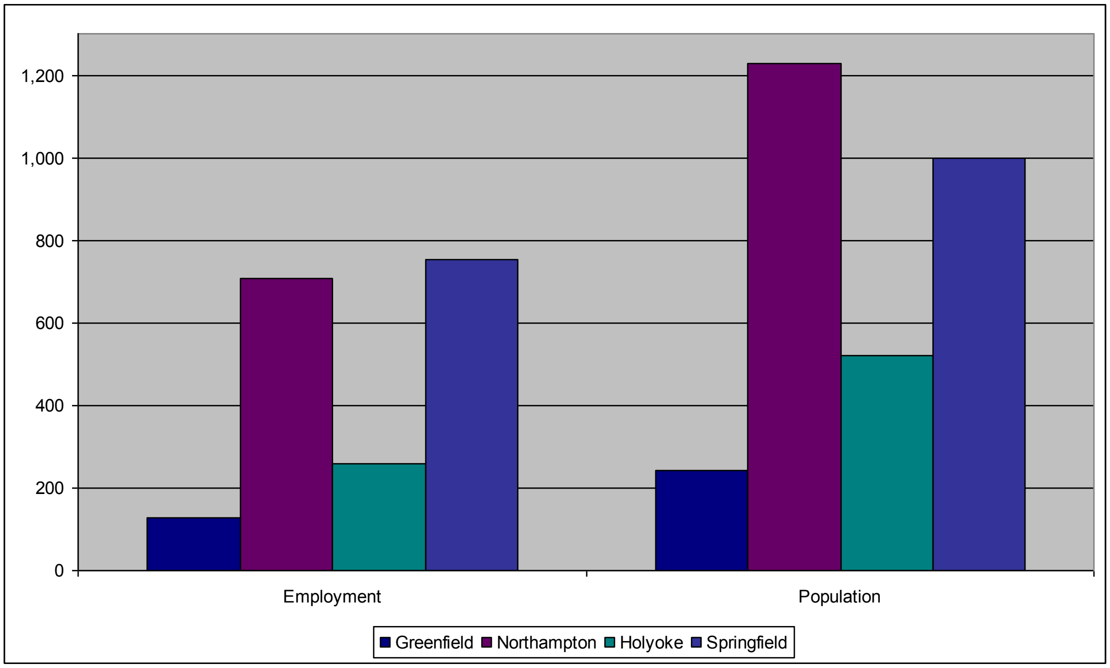
In terms of most likely development, Northampton is expected to have the largest population impacts, partly due to the strong desire for alternative transportation in the area, attracting a range of 558 to 2,210 new residents by 2030. Springfield is also expected to see a fairly large impact with nearly 1,000 new residents under the most likely scenario, while Holyoke and Greenfield are expected to experience slightly less population growth attributable to rail service. Considering the results of the risk analysis, enhanced level rail service is estimated to induce between 3,057 and 12,579 new residents for the Corridor region as a whole by 2030, and between 1,517 and 4,998 jobs.

Table 6.9 Induced Employment and Population Attributable to Enhanced Service

	Employment						Population					
	2020			2030			2020			2030		
	10%	50%	90%	10%	50%	90%	10%	50%	90%	10%	50%	90%
Greenfield	14	32	55	55	128	219	23	61	113	90	243	451
Northampton	91	177	306	365	707	1,224	140	307	553	558	1,227	2,210
Holyoke	29	65	122	114	260	486	55	131	229	221	522	915
Springfield	102	189	311	409	754	1,242	118	250	452	472	998	1,807
Rest of Franklin County	14	38	69	55	153	274	84	187	338	337	746	1,353
Rest of Hampshire County	77	88	258	309	352	1,030	168	452	839	670	1,806	3,356
Rest of Hampden County	53	87	131	210	349	523	177	416	712	709	1,662	2,487
TOTAL	*380*	*676*	*1,252*	*1,517*	*2,703*	*4,998*	*765*	*1,804*	*3,236*	*3,057*	*7,204*	*12,579*

Source: HDR Calculations.

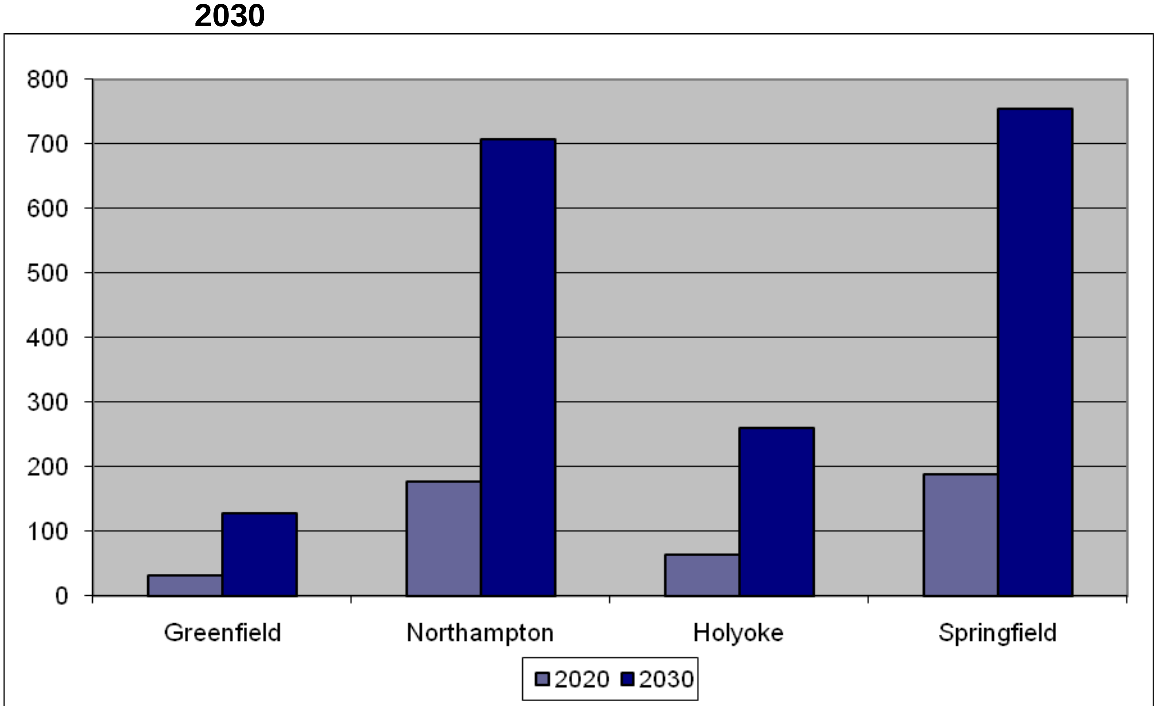
Figure 6.6 Induced Employment and Population in the Enhanced Scenario: 2030



Source: HDR calculations.

The figure below presents the most likely job results in 2020 and 2030 for the four station cities. Northampton and Springfield are expected to experience the highest increase in employment, with a most likely estimate of more than 700 new jobs in each city attributable to enhanced rail service by 2030.

Figure 6.7 Induced Employment Impact in the Enhanced Scenario: 2020 and 2030



Source: HDR calculations

Table 6.10 Development Impacts of Enhanced Service as Percent of Baseline Numbers

	Employment 2030	Population 2030
Greenfield	1.2%	1.3%
Northampton	3.8%	4.3%
Holyoke	1.2%	1.4%
Springfield	1.1%	0.7%
Rest of Franklin County	0.8%	1.1%
Rest of Hampshire County	0.9%	1.3%
Rest of Hampden County	0.3%	0.6%
TOTAL	0.9%	1.0%

Source: HDR calculations.

While the "rest of county" areas appear to show substantial growth, when compared to the percentage of the baseline values, as shown in Table 6.10, the impacts for the station cities in their respective counties account for a larger percentage of the baseline than the "rest of county" areas do. On a percentage basis, the impacts for the enhanced scenario are clearly the largest for Northampton with just impacts at about 4 percent of future levels. Impacts in the other areas are all approximately at or below one percent.

6.5.5 Results for Commuter Service Scenario

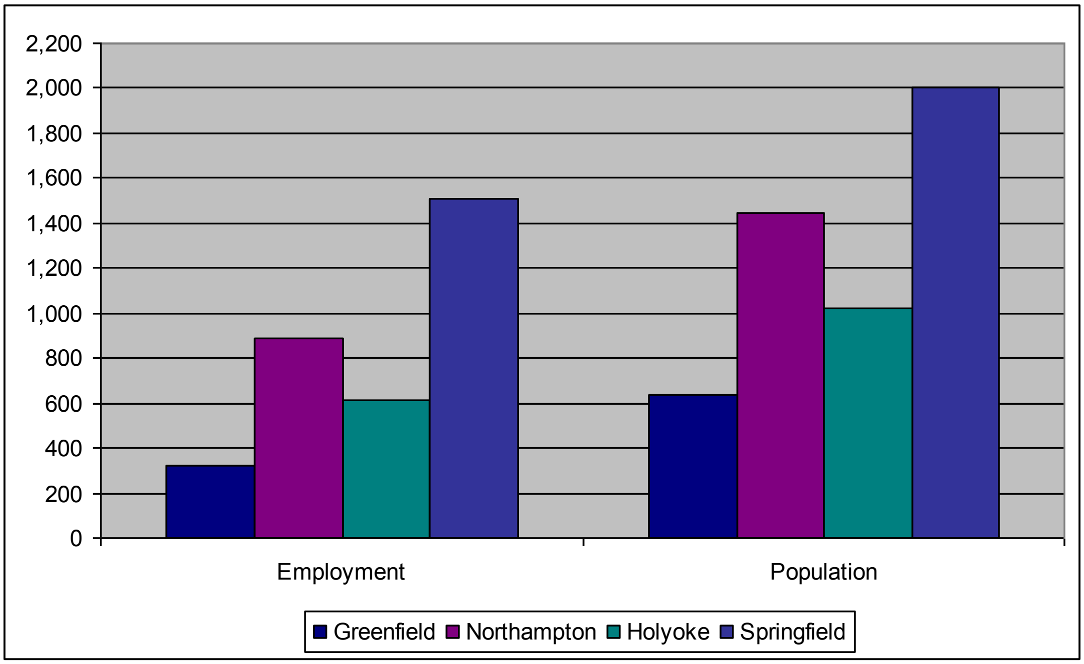
This section presents the results for the commuter rail service scenario. In terms of most likely development, Springfield is expected to have the largest population impacts, due to its location and connections, attracting more than 2,000 new residents by 2030 with a range between 1,080 and 3,432 (Table 6.11 and Figure 6.8). Northampton and Holyoke are also expected to see fairly large impacts with more than 1,400 and 1,000 new residents, respectively. While the anticipated 600 new residents seems relatively low compared to the other cities, this is considerable growth for Greenfield. The impacts for the region are nearly double over the enhanced service level, with a range of 6,379 to 22,405 new residents by 2030.

Table 6.11 Induced Employment and Population Attributable to Commuter Service

	Employment						Population					
	2020			2030			2020			2030		
	10%	50%	90%	10%	50%	90%	10%	50%	90%	10%	50%	90%
Greenfield	34	80	137	137	321	548	68	159	270	270	634	1,080
Northampton	124	222	360	496	889	1,440	198	361	590	792	1,444	2,360
Holyoke	76	152	264	305	609	1,057	117	256	423	469	1,022	1,691
Springfield	207	378	612	827	1,510	2,447	270	502	858	1,080	2,006	3,432
Rest of Franklin County	46	99	160	182	396	640	252	451	677	1,009	1,802	2,709
Rest of Hampshire County	103	206	309	410	823	1,234	334	671	1,007	1,337	2,682	4,026
Rest of Hampden County	131	242	393	523	967	1,570	356	959	1,777	1,422	3,837	7,107
TOTAL	*721*	*1,379*	*2,235*	*2,880*	*5,515*	*8,936*	*1,595*	*3,359*	*5,602*	*6,379*	*13,427*	*22,405*

Source: HDR calculations

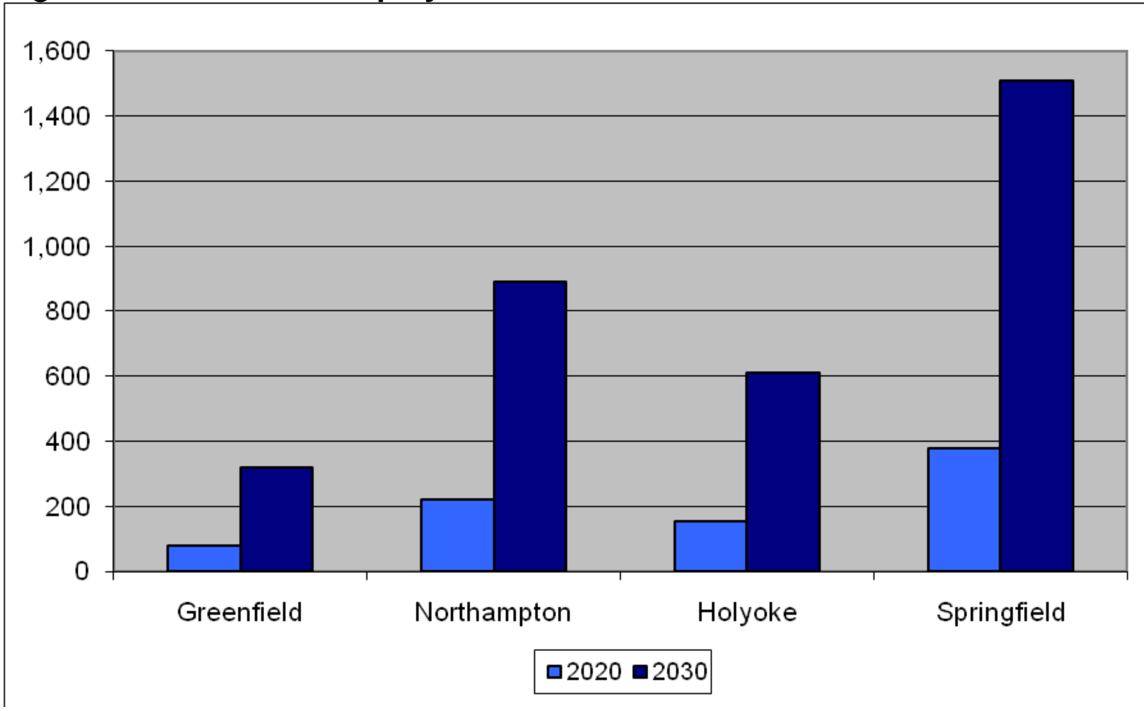
Figure 6.8 Induced Employment and Population in the Commuter Scenario: 2030



Source: HDR calculations.

In addition to considering the development impacts on population, the introduction of commuter rail service is expected to generate additional employment opportunities. The overall employment impacts in 2020 and 2030 can be seen in Table 6.11 (above) and Figure 6.9. Springfield is expected to experience the largest growth in employment, with a 2030 most likely estimate of 1,510 new jobs and a likely range between 827 and 2,447. This is approximately double the number of jobs generated in Springfield by the enhanced level of rail service. In Northampton, the additional employment generated by commuter service is slightly higher than in the enhanced scenario but not as large as that in Springfield. As a whole, the region is estimated to see between 2,880 and 8,936 new jobs by 2030 due to a commuter level of service, slightly less than double the enhanced results.

Figure 6.9 Induced Employment Given Commuter Service: 2015 and 2030



Source: HDR calculations

Table 6.12 presents the employment and population results as a percentage of baseline growth. While impacts compared to the baseline are still the largest in Northampton, the other station cities are all expected to experience additional benefit with the upgrade to commuter level of service, with a regional average impact of about two percent.

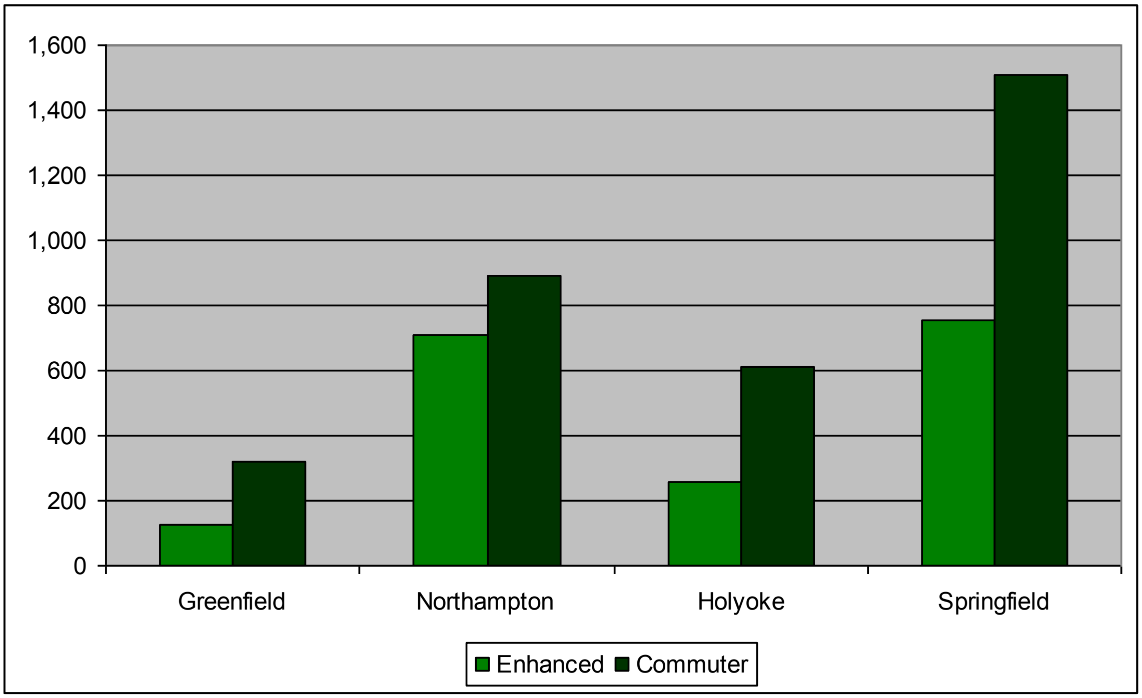
Table 6.12 Development Impacts of Commuter Service as Percent of Baseline

	Employment	Population
	2030	2030
Greenfield	2.9%	3.5%
Northampton	4.8%	5.0%
Holyoke	2.9%	2.7%
Springfield	2.1%	1.3%
Rest of Franklin County	2.2%	2.7%
Rest of Hampshire County	2.0%	2.0%
Rest of Hampden County	0.9%	1.3%
TOTAL	**1.9%**	**1.9%**

Source: HDR calculations.

Figure 6.10 provides a side-by side comparison of the most likely estimates of employment impacts in 2030 for the enhanced and commuter scenarios.

Figure 6.10 Induced Employment, Enhanced and Commuter Service: 2030



Source: HDR calculations.

6.5.6 Summary of Economic Development Findings

The economic development results presented are based on multiple sources of information (economic and land use data, prior studies, stakeholder interviews) and a risk analysis modeling approach that: 1) explicitly accounted for uncertainty and risk factors; 2) incorporated refinements and review by local stakeholders and experts; and 3) generated most likely results along with a confidence-interval based range of low to high impacts. These impacts were developed to serve two key objectives: providing induced development growth as an input to ridership estimates; and identifying and measuring the near- and long-term local and regional job and population effects of rail development initiatives. The key findings of this economic development impact forecasting process for passenger rail service in the I-91 Knowledge Corridor include:

- In terms of square footage of development attributable to rail, the economic modeling estimates that there is a 90 percent chance that the square footage of development in Northampton, Holyoke, and Springfield will total at least 581,421 square feet under enhanced service, and a ten percent chance that it will not exceed 1,599,638 square feet. The square footage attributable to commuter rail in the same three cities has a 90 percent chance of exceeding 1,108,439 and a ten percent chance of exceeding 2,719,529 square feet in 2030.
- The economic modeling estimates that there is a 90 percent chance that the region as a whole can expect development impacts in terms of employment and population of at least 1,500 jobs and 3,000 new residents by 2030 under enhanced service and at least 2,800 jobs and 6,300 residents under commuter service.

- Enhanced passenger rail service will most likely have the greatest impact in Northampton due to the characteristics of the city, while the other station cities are expected to incur greater development impacts from commuter level service.
- The development impacts in 2020 are likely to be significantly smaller than those in 2030, due to the amount of time it generally takes for development to occur as well as the necessary time for the region to overcome its broader development and growth obstacles to fully leverage the benefits of rail.
- These economic estimates are consistent with the region's broader set of development initiatives (with rail being one component of broader plans). The induced job and population growth potential related to rail could help the region become more in line with growth in the rest of Massachusetts, and is consistent with the state's efforts to boost economic opportunities in Gateway Cities.

While the impacts may seem relatively large, when they are compared to the expected baseline employment and population in each of the cities and "rest of county" areas, the impacts attributable to the rail service are actually relatively modest, not exceeding 5 percent of the total for any area in the commuter scenario, and less for the enhanced scenario.

6.6 Economic Impacts of Rail Construction

Investment in the realignment of the Vermonter is also anticipated to produce significant near-term economic impacts in the Pioneer Valley region and nationally. The short-term construction activity will provide a variety of construction, manufacturing and supporting industry job opportunities and labor income. The results presented below were developed as part of the FRA HSIPR grant application process to demonstrate the economic stimulus and job creation benefits of restoring the Vermonter to the Conn River Line.[14] Higher levels of infrastructure construction in the enhanced intercity and commuter scenarios would result in even greater economic impacts.

A customized economic impact analysis was conducted for the proposed realignment of the Vermonter investment, tailoring the expenditure categories to the major construction labor and material expenditures, consistent with the capital cost budget. Major expenditures include steel rail, ties (wood products), pavement, and ballast. This analysis was conducted using the IMPLAN economic impact modeling system. IMPLAN is a nationally-recognized economic model – for example, it was selected by the US Department of Agriculture to estimate job creation due to ARRA investments. The economic impact analysis includes estimates of multiplier and total impacts based on direct, indirect, and induced impacts.

The realignment construction is assumed to occur entirely in 2010 and 2011, with a total cost of $72.8 million. Direct jobs are estimated to be 209 in 2010 and 139 in 2011 for a total of 3,648 jobs during construction (See Table 6.13). The total short-term job creation, including multiplier

[14] The MassDOT application for the FRA HSIPR program requested approximately $72.8 million in funding for rail improvements which would be enough funding to restore the Vermonter to the Conn River Line as well as other infrastructure improvements in anticipation of potential enhanced inter-city service.

effects, is estimated to be 721 jobs in 2010 nationwide with another 481 jobs in 2011 for a total of 1,202 jobs in those two years.

Table 6.13 Total Near-Term Job Creation Impacts

Year	Construction Cost ($ million)	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
2010	$43.7	209	216	297	721
2011	$29.1	139	144	198	481

In addition to the job impacts, the realignment will result in other national economic impacts shown in Table 6.14. Total sales are estimated to reach $215 million after construction is complete, with $129 million being generated in 2010 and $86 million in 2011. Labor income and value added are also provided.

Table 6.14 Total Near-Term Economic Impacts ($ Millions)

Total Economic Impacts	2010	2011	Total
Job Years	721	481	1,202
Output (Sales)	$ 129	$ 86	$ 215
Labor Income	$ 39	$ 26	$ 65
Value Added (GDP)	$ 59	$ 40	$ 99

Job opportunities for the Pioneer Valley region are expected to include 168 direct jobs in 2010 and 112 in 2011, largely due to construction labor. The full regional economic impact, including multiplier effects is approximately 742 new jobs in 2010 and 510 jobs in 2011.

7. PUBLIC INVOLVEMENT

The restoration of the Vermonter passenger rail service to the Connecticut River rail corridor has broad and deep support locally, regionally and at the state-level. As part of the Pioneer Valley Planning Commission's Knowledge Corridor Passenger Rail Feasibility Study, a thorough public involvement planning process was conducted. This effort has had three important elements: 1). a public awareness campaign; 2). coordination with key stakeholders in the region; and 3). public meetings and other mechanisms to facilitate public feedback to the feasibility study and its recommendations. These elements are described below and additional detail is provided in the Appendix D of this final report.

The feasibility study team created a Public Involvement Plan, approved in June 2008. The plan proposed a partnering session, group meetings, public meetings, web site, and newsletters. It was designed to offer a mechanism to hear the reactions to the study and its recommendations from the communities most likely to be impacted by the passenger rail proposals.

7.1 Public Meetings

Public feedback was provided through a series of public meetings, and through the collection and analysis of written comments from meeting participants and other community members. Public meetings were held in the following locations:

1. **Springfield, Massachusetts**
   Date: May 19, 2009
   Location: TD Banknorth Conference Center, 1441 Main Street
   Attendees: 120
2. **Northampton, Massachusetts**
   Date: May 20, 2009
   Location: Clarion Hotel, 1 Atwood Drive
   Attendees: 28
3. **Bellows Falls, Vermont**
   Date: May 27, 2009
   Location: Waypoint Center, 17 Depot Street
   Attendees: 26

7.2 Coordination with Key Stakeholders

"Partners" or stakeholders to the project were invited for a daylong group convention on June 26, 2008, in Northampton, Massachusetts. The Partnering Session served as an introduction and understanding to the feasibility project. Its purpose was to gather input and develop a "cohesive, cooperative, and collaborative approach" to the feasibility study.

After an introductory presentation outlining the study area and general goals, three teams or breakout groups were used to further develop the goals and issues related to the study. The breakout sessions developed: goals and objectives, issues and concerns, and a plan of action. The final product was to write and sign a charter pledging to work together with commitment to the goals and objectives outlined during the breakout sessions.

7.3 Technical Advisory Committee (TAC)

Another element to the public involvement portion of the study was the coordination of key stakeholders in the region to obtain technical input into the study and gain approval of the methodology used for making assumptions about the potential impacts of the various phases of the rail project. This was accomplished through the establishment of a Technical Advisory Committee, which met frequently throughout the study.

Five TAC meetings and one TAC subcommittee meeting were held during the feasibility study. The TAC is composed of advisors to the project, including railroads, transportation providers, political representatives, government agencies, and major businesses. This group of stakeholders was invited to review and respond to material and findings generated by the study. This helped the project team ensure the quality of work produced.

- **TAC Meeting 1**
  The first TAC meeting was held on September 24, 2008 at the PVPC headquarters and served as an introduction to the project. The meeting covered purpose and need, infrastructure assessment, service considerations, interview results, and an overview of the ridership and economic development forecasting tools.

- **TAC Meeting 2**
  The second TAC meeting was held on November 19, 2008 at the Pan-Am Railway Headquarters at Deerfield Yard in Deerfield, MA. The meeting included a discussion of initial economic development and ridership findings as well as operations planning. There was also discussion of funding and progress on various related transportation initiatives.

- **TAC Economic Development/Ridership Subcommittee**
  On January 22, 2009, a subcommittee of the Technical Advisory Committee (TAC) met at the PVPC's offices in West Springfield, MA for a working session to review, discuss, and refine the factors and assumptions for the ridership and economic development model. The subcommittee was chosen for their expertise and input to ensure locally informed, extensively reviewed, and credible estimates for the study.

- **TAC Meeting 3**
  On April 15, 2009, the PVPC hosted the third meeting of the Technical Advisory Committee (TAC) for the Study. With the feedback from the subcommittee, revised ridership and economic development analysis findings were presented. In addition, the public meetings were announced.

- **TAC Meeting 4**
  The fourth meeting of the TAC was held on June 29, 2009 at the PVPC headquarters. The meeting addressed feedback from the public meetings as well as cost-benefit analysis

results of the alternative rail scenarios, operational issues, and a status update on funding initiatives.

- **TAC Meeting 5**
  On December 17, 2009, the final TAC meeting was held. The findings of the Knowledge Corridor Passenger Rail Feasibility Study were presented, and the study's Executive Summary was discussed. In addition, updates were provided on the Federal Railroad Administration (FRA) American Recovery and Reinvestment Act (ARRA) High-Speed Intercity Passenger Rail (HSIPR) grant application for the realignment of the Vermonter. Next steps for PVPC and MassDOT for rail in the region also were discussed.

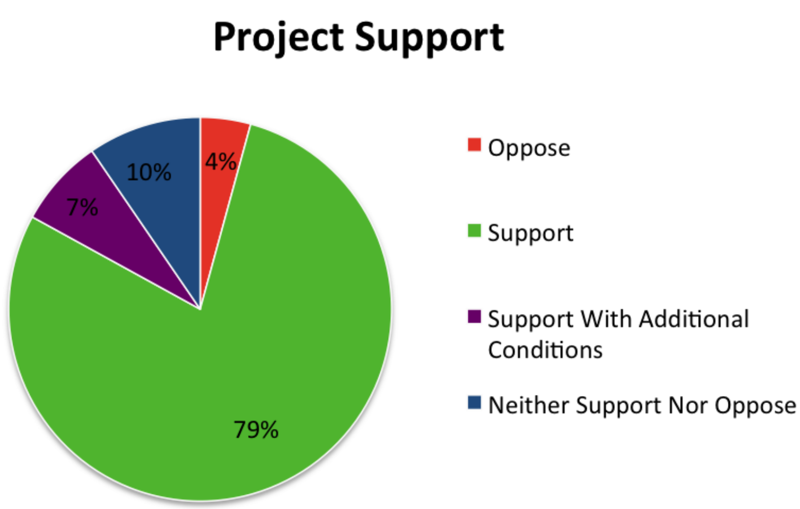
7.4 Public Participation Efforts

Efforts were made throughout the feasibility study to provide the public with information about the study, as well as solicit public comments. A public awareness campaign was initiated to educate the region about the study purpose, schedule, and activities. A project web site and prepared presentation materials and newsletters were posted for this purpose. The web site is hosted by the PVPC at: http://www.pvpc.org/corridor/about.html. The website also offered the public an opportunity to submit comments electronically, furthering the goal of public participation throughout the study.

7.5 Results of Public Involvement Feedback

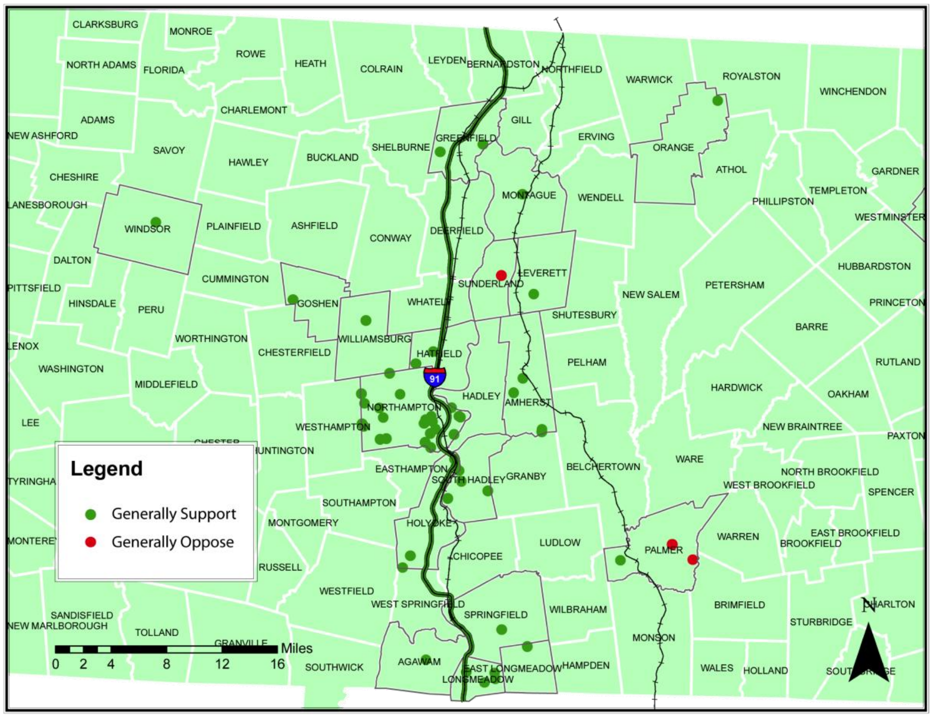
Based on the feedback from the public meetings and other written comments, there is strong support for this project. Of 96 written comments, 86 percent support the project. Figures 7.1 and 7.2 present the community stakeholder feedback as a pie chart and map depicting the location of respondents.

Figure 7.1 Knowledge Corridor Passenger Rail Project Support



Source: Howard/Stein-Hudson

Figure 7.2 Geographic Location of Support and Opposition for Knowledge Corridor Passenger Rail



Source: Howard/Stein-Hudson

In addition to the public support for the project, this proposed rail improvement enjoys strong support from a number of key stakeholders, elected officials, economic development organizations, local colleges, and transportation providers in the region. As part of the ARRA HSIPR grant application, letters of support for the project were obtained from:

- Mayor of Greenfield, William F. Martin
- Mayor of Northampton, Mary Clare Higgins
- Mayor of Holyoke, Michael J. Sullivan
- Massachusetts Executive Office of Housing and Economic Development, Secretary Greg Bialecki
- Economic Development Council of Western Massachusetts, President and CEO Alan Blair
- Pioneer Valley Transit Authority, Administrator Mary MacInnes
- Franklin Regional Transit Authority, Administrator Tina Cote
- Franklin Regional Council of Governments, Executive Director Linda Dunleavy
- Smith College, President Carol Christ
- Mount Holyoke College, President Joanne Creighton
- Greenfield Community College, President Robert Pura
- Holyoke Office of Planning and Development, Director Kathleen Anderson
- Northampton Ward 3 Neighborhood Association, Gerald Budgar
- Northampton Transportation and Parking Commission, David Narkewicz

8. SUMMARY OF FINDINGS AND RECOMMENDATIONS

The feasibility analysis conducted for this study finds strong opportunities and benefits of restoring passenger rail to the Conn River Line and enhancing the level of passenger rail service. Based on the study findings and successful experiences elsewhere, the study recommends a staged implementation of rail improvements over time. The first step is to complete the rail corridor and station improvements to realign the Vermonter service to the more direct, less mileage Conn River Line corridor. This critical first major initiative will reduce the travel time, substantially improve on-time performance, and re-connect the largest population centers and transit markets in the region. It will also provide the capital investment and infrastructure that can be leveraged to consider future enhancements to the rail service.

The feasibility study also finds that there is a strong return on investment from enhancing the current north-south passenger rail service in the region by adding to the daily Vermonter service. The three additional round-trip trains proposed for the corridor demonstrate strong potential for increased ridership and economic development in the mid-to-longer term. Implementing additional service will require negotiation and operating agreements between Amtrak, Pan Am Southern, and the states as well as funding for capital and operations.

The potential for commuter rail service was also explored, focused on extending and integrating with the proposed New Haven-Springfield initiative currently being led by Connecticut DOT. Given the relatively large costs and benefits of commuter rail service, this is likely a longer-term service option that can be explored in greater detail if/when: 1) the New Haven-Springfield commuter service is implemented; and b) enhanced intercity service in the Knowledge Corridor proves successful.

All three service rail improvement scenarios would provide significantly enhanced freight rail service for the region, linking with the state's primary east-west freight rail corridors as well as freight rail markets in Connecticut. The freight rail benefits are a significant component of the benefit-cost analysis because industries can move goods at lower per ton mile costs while simultaneously removing freight trucks from the highway.

Greater details on the key findings of the three cases include:

Case 1 Realignment: Ridership is projected to increase 24 percent by 2015 compared to the existing Vermonter service and generally sustain this level of additional ridership through 2030. Based on assessing feasibility from the perspectives of infrastructure, operations, costs, and return on investment, restoring the Vermonter service to its historical alignment is justified. The benefit-cost analysis conducted for the study finds that a dollar invested in the project will generate $2.70 in return. In addition, the realignment alone will reduce the length of the current service by 11 miles, eliminate a time consuming reverse maneuver in Palmer and improve on-time performance from 55 percent to 90 percent.

Case 2 Enhanced Intercity: The feasibility study also suggests that enhanced intercity service will provide a strong public return on investment based on public benefits that are 3.1 times higher than costs. With the initiation of this expanded service, ridership is forecast to increase

231 percent from the current level by 2015 and 304 percent by 2030. In addition, 676 new jobs would be generated in the Knowledge Corridor by 2020, and 2,703 jobs by 2030. An increased level of infrastructure investment and operating costs would be required to accommodate this level of service.

Case 3 Commuter: The commuter rail scenario is estimated to generate the greatest ridership and economic benefits but also the largest capital and operating costs. In addition, commuter rail in the region would need to be integrated with the proposed New Haven-Springfield service. As this scenario provides the smallest return on investment based on current analyses and requires funding well-beyond current resources, it is recommended that it be considered a longer-term option. If and when the related regional rail improvements described in this document are successfully implemented, and opportunities to fund this level of service become available, then commuter rail service for the region could be re-examined.

8.1.1 Next Steps

Based on the results of the feasibility study, restoring the Vermonter to its historical alignment is recommended. The most immediate next step is the anticipation of a potential award grant from the FRA HSIPR program to implement the necessary infrastructure improvements. Grant awards are expected to be announced in February 2010. If awarded funding, final design and construction will commence almost immediately as the funding is intended to achieve economic stimulus benefits.

The award of HSIPR grant funding would provide capital support for restoring the Vermonter, but operational support would not be offered through the grant. The State of Vermont currently provides an operating subsidy to the Vermonter service to make up the difference between operating costs and fare revenue. The FY 2008 revenue was approximately $4.2 million with $2.8 million from the Vermont state subsidy. Because the realignment project would simply relocate part of the existing service to a shorter route, much of the Vermonter's current financial plan would remain unchanged. In fact, the shorter distance (and thus fewer rail miles) combined with the estimated increase in ridership and fare revenue could result in a lower future state subsidy compared to the existing service route.

If the enhanced service is pursued, additional funding sources for operations costs will be required as the incremental operating costs are estimated to increase by approximately $4.9 million per year. If fare revenue comprises 50 percent of the increase in cost, this implies a $2.4 million funding gap. One opportunity for funding that Massachusetts could consider would be the example from the Amtrak Downeaster which receives its operational subsidy by the State of Maine's Federal Congestion Mitigation Air Quality (CMAQ) funds.[1] Another option to consider for operational funding is a local or regional dedicated tax to be determined through a referendum or ballot measure. This is a common practice in many parts of the country as local residents and stakeholders recognize the importance of public transportation and are willing to help fund it.[2]

[1] http://www.usatoday.com/travel/news/2008-07-21-amtrak-downeaster_N.htm
[2] According to the Center for Transportation Excellence, since 2000 approximately 70% of transportation measures have been approved about double the rate for ballot measures overall.

Funding options, as well as schedules and use of rail equipment will need to be closely negotiated with Amtrak, the railroad owning the infrastructure (Pan Am Southern), and FRA. Passenger rail funding options such as this should be evaluated, as PVPC and MassDOT continue to move forward in its consideration of passenger rail service enhancements in the Knowledge Corridor.

Implementation will require close coordination between VTrans, MassDOT, Amtrak, FRA, and the regional stakeholders. A key aspect of this process is an operating agreement with Pan Am Southern to restore passenger rail to the corridor.

The PVPC should also start evaluating the opportunities and mutual benefits of integrating proposed rail service enhancements with the existing inter-city bus service in the region. For example, the Downeaster from Portland to Boston has strategically integrated bus and rail fares as well as honoring tickets on each mode to facilitate greater travel options. That experience demonstrates that inter-city rail and bus service can be complimentary and boost overall ridership by enhancing the convenience and mobility options for travelers.

Enhanced north-south intercity service in the corridor beyond the current Vermonter is also strongly supported by both local stakeholders and the feasibility analysis. Achieving additional passenger rail service can leverage the anticipated capital improvements for the rail corridor to restore service to the Conn River Line. It is also a bit more complex. As described in the financing opportunities section, this will require the identification of operational subsidies to make up the difference between expected operating costs and fare revenue. It is likely that the State of Massachusetts and the Pioneer Valley region will need to take leadership on this issue. To be successful and realize the positive return on investment identified in this study from enhanced intercity service, it is recommended that the state and region take action in 2010 to engage Amtrak, the FRA, and Pan Am Southern to develop a practical funding and operations strategy.

Appendix A

Grade Crossings

Grade Crossings - Massachusetts

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
BM	CONN RIVER ML	000210	052613W		WASON AVE	SPRINGFIELD	HAMPDEN	MA	US 42-1 MAP 2	PUB	GRD	All Other Gates	4
BM	CONN RIVER ML	000241	052615K		PLAINFIELD ST	CHICOPEE	HAMPDEN	MA	VS 42-1 MAP 3	PUB	GRD	All Other Gates	4
BM	CONN RIVER ML	000608	052623C	PRIVATE	INDUSTRIAL	CHICOPEE	HAMPDEN	MA	US 42-1 MAP 7	PRI	GRD		
BM	CONN RIVER ML	000808	052638S		GATEHOUSE RD	HOLYOKE	HAMPDEN	MA	VS 42-1 MAP 9	PUB	GRD	All Other Gates	
BM	CONN RIVER ML	001280	052668J		OLD FERRY RD	HOLYOKE	HAMPDEN	MA	VS 42-1 MAP 13	PUB	GRD	All Other Gates	3
BM	CONN RIVER ML	001302	052669R		COLLINS CROSSING	HOLYOKE	HAMPDEN	MA	US 42-1 MAP 13	PRI	GRD		
BM	CONN RIVER ML	001313	052670K	PRIVATE	FARM	HOLYOKE	HAMPDEN	MA	US 42-1 MAP 14	PRI	GRD		
BM	CONN RIVER ML	001355	052671S	PRIVATE	FARM	HOLYOKE	HAMPDEN	MA	US 42-1 MAP 14	PRI	GRD		
BM	CONN RIVER ML	001377	052672Y	PRIVATE	INDUSTRIAL	HOLYOKE	HAMPDEN	MA	US 42-1 MAP 14	PRI	GRD		
BM	CONN RIVER ML	NONE00	052673F	RT 5		NORTHAMPTON	HAMPSHIRE	MA	US 42-1 MAP 16	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	100000	052674M	PRIVATE	INDUSTRIAL	NORTHAMPTON	HAMPSHIRE	MA	US 42-1 MAP 16	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	001851	052681X		DAMON RD	NORTHAMPTON	HAMPSHIRE	MA	VS 42-1 MAP 19	PUB	GRD	All Other Gates	3
BM	CONN RIVER ML	002168	052687N		CHESTNUT ST	HATFIELD	HAMPSHIRE	MA	VS 42-1 MAP 23	PUB	GRD	All Other Gates	4
BM	CONN RIVER ML	002280	052688V	4	PLAIN RD	HATFIELD	HAMPSHIRE	MA	VS 42-1 MAP 24	PUB	GRD	All Other Gates	
BM	CONN RIVER ML	500000	052689C	PRIVATE	FARM	HATFIELD	HAMPSHIRE	MA	US 42-1 MAP 24	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	002348	052690W		NO HATFIELD RD	HATFIELD	HAMPSHIRE	MA	VS 42-1 MAP 24	PUB	GRD	All Other Gates	4
BM	CONN RIVER ML	900000	052691D	PRIVATE	FARM	HATFIELD	HAMPSHIRE	MA	US 42-1 MAP 24	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	900000	052692K	PRIVATE	FARM	HATFIELD	HAMPSHIRE	MA	US 42-1 MAP 25	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	002379	052693S		BRADSTREET DEPOT RD	HATFIELD	HAMPSHIRE	MA	US 42-1 MAP 25	PUB	GRD	Flashing Lights	2
BM	CONN RIVER ML	002423	052694Y		EGYPT RD	HATFIELD	FRANKLIN	MA	VS 42-1 MAP 24	PUB	GRD	Crossbucks	2
BM	CONN RIVER ML	002615	052695F		MAIN ST/CHRISTIAN LN	DEERFIELD	FRANKLIN	MA	VS 42-1 MAP 27	PUB	GRD	All Other Gates	4
BM	CONN RIVER ML	002839	052698B		ELM ST	DEERFIELD	FRANKLIN	MA	VS 42-1 MAP 29	PUB	GRD	All Other Gates	4

General Condition Codes:
1 - Poor, 2 - Marginal, 3 - Fair, 4 - Good, 5 - Excellent

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
BM	CONN RIVER ML	002868	052699H		PLEASANT ST	DEERFIELD	FRANKLIN	MA	VS 42-1 MAP 30	PUB	GRD	All Other Gates	3
BM	CONN RIVER ML	800000	052700A	PRIVATE	FARM	DEERFIELD	FRANKLIN	MA	US 42-1 MAP 30	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	800000	052702N	PRIVATE	FARM	DEERFIELD	FRANKLIN	MA	US 42-1 MAP 30	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	003059	052703V		NO HILLSIDE RD	DEERFIELD	FRANKLIN	MA	VS 42-1 MAP 32	PUB	GRD	All Other Gates	3
BM	CONN RIVER ML	100000	052704C	PRIVATE	FARM	DEERFIELD	FRANKLIN	MA	US 42-1 MAP 32	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	600000	052705J	PRIVATE	FARM	DEERFIELD	FRANKLIN	MA	US 42-1 MAP 33	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	003244	052706R		PLEASANT AVE	DEERFIELD	FRANKLIN	MA	VS 42-1 MP 133	PUB	GRD	Crossbucks	3
BM	CONN RIVER ML	003416	052708E		KEETS RD	DEERFIELD	FRANKLIN	MA	VS 42-1 MAP 35	PUB	GRD	All Other Gates	3
BM	CONN RIVER ML	300000	052719S	PRIVATE	RECREATIONAL	GREENFIELD	FRANKLIN	MA	US 42-1 MAP 39	PRI	GRD	No Signs or Signals	
BM	CONN RIVER ML	004238	052723G		CROSS ST	BERNARDSTON	FRANKLIN	MA	VS 42 MAP 43	PUB	GRD	Flashing Lights	3
BM	CONN RIVER ML	004344	052726C		MERRIFIELD RD	BERNARDSTON	FRANKLIN	MA	VS 42-1 MAP 44	PUB	GRD	Flashing Lights	3
BM	CONN RIVER ML	004395	052727J		SHAW RD	BERNARDSTON	FRANKLIN	MA	VS 42-1 MAP 45	PUB	GRD	Flashing Lights	4
BM	CONN RIVER ML	004437	052728R		GILL RD	BERNARDSTON	FRANKLIN	MA	VS 42-1 MAP 45	PUB	GRD	Flashing Lights	2
BM	CONN RIVER ML	004625	052730S	RT. 142	MT HERMON RD	NORTHFIELD	FRANKLIN	MA	VS 42-1 MAP 47	PUB	GRD	All Other Gates	3
BM	CONN RIVER ML	004870	052733M		RIVER RD	NORTHFIELD	FRANKLIN	MA	VS 42-1 MAP 50	PUB	GRD	Flashing Lights	2

General Condition Codes:
1 - Poor, 2 - Marginal, 3 - Fair, 4 - Good, 5 - Excellent

Grade Crossings - Vermont/New Hampshire

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		011110	247357A		OLD DEPOT RD	VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011128	247358G			VERNON	WINDHAM	VT	PALMER	PRI	GRD	No Signs or Signals	
NECR		011160	247359N			VERNON	WINDHAM	VT	PALMER	PRI	GRD	No Signs or Signals	
NECR		011268	247363D	TH17	NEWTON RD	VERNON	WINDHAM	VT	PALMER	PUB	GRD	Flashing Lights	
NECR		011319	247369U			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011362	247368M			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011401	247372C			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011417	247373J			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011512	247375X			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011538	247367F			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011545	247366Y			VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011580	247371V		LUMBER MILL	VERNON	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011597	247370N	VT142	VERMONT 142	VERNON	WINDHAM	VT	PALMER	PUB	GRD	Flashing Lights	
NECR		011990	247377L		CUMMER'S ROAD	BRATTLEBORO	WINDHAM	VT	PALMER	PRI	GRD	All Other Gates	
NECR	PVT SDG	011993	247378T		POWER PLANT	BRATTLEBORO	WINDHAM	VT	PALMER	PRI	GRD		
NECR		011996	247379A		CUMMER'S ROAD	BRATTLEBORO	WINDHAM	VT	PALMER	PRI	GRD	Other Signs or Signals	
NECR		012010	247380U	VT142	VERNON ST	BRATTLEBORO	WINDHAM	VT	PALMER	PUB	GRD	Crossbucks	
NECR		012112	247794V	VT119	BRIDGE STREET	BRATTLEBORO	WINDHAM	VT	PALMER	PUB	GRD	All Other Gates	
NECR	CONN RIVER ML	012367	052743T	TH46	BRUNDIES RD	BRATTLEBORO	WINDHAM	VT	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	012936	052747V	PRIVATE	FARM	WEST DUMMERSTON	WINDHAM	VT	PALMER	PRI	GRD		
NECR	CONN RIVER ML	012995	052748C	TH63	DEPOT RD	BRATTLEBORO	WINDHAM	VT	PALMER	PUB	GRD	HWY Traf Sigs, Wigwags, Bells, Other Activated	
NECR	CONN RIVER ML	013334	052751K	PRIVATE	FARM	PUTNEY	WINDHAM	VT	PALMER	PRI	GRD		

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR	CONN RIVER ML	013513	052754F	PRIVATE	FARM	PUTNEY	WINDHAM	VT	PALMER	PRI	GRD		
NECR	CONN RIVER ML	013910	052755M	PRIVATE	FARM	WESTMINSTER	WINDHAM	VT	PALMER	PRI	GRD		
NECR	CONN RIVER ML	014018	052757B	PRIVATE	FARM	WESTMINSTER	WINDHAM	VT	PALMER	PRI	GRD		
NECR	CONN RIVER ML	014027	052758H	PRIVATE	FARM	WESTMINSTER	WINDHAM	VT	PALMER	PRI	GRD		
NECR	CONN RIVER ML	014058	052759P	PRIVATE	FARM	WESTMINSTER	WINDHAM	VT	PALMER	PRI	GRD		
NECR	CONN RIVER ML	014453	052763E	TH422	MILL ST	ROCKINGHAM	WINDHAM	VT	PALMER	PUB	GRD	Flashing Lights	
NECR		014474	052765T	TH448	DEPOT ST	ROCKINGHAM	WINDHAM	VT	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	014498	052767G	VHIZ	KILEEN ST	WALPOLE	CHESHIRE	NH	PALMER	PUB	GRD	All Other Gates	
NECR	CONN RIVER ML	014893	052781C	TOWN	LAWRENCE RD	CHARLESTOWN	SULLIVAN	NH	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	014942	052782J	PRIVATE	FARM	CHARLESTOWN	SULLIVAN	NH	PALMER	PRI	GRD	No Signs or Signals	
NECR	CONN RIVER ML	015000	052783R	PRIVATE	BOWEN XING RD	CHARLESTOWN	SULLIVAN	NH	PALMER	PRI	GRD	Flashing Lights	
NECR	CONN RIVER ML	015149	052785E	TOWN	LOWER LANDING RD	CHARLESTOWN	SULLIVAN	NH	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	015182	052786L	TOWN	RAILROAD ST/DEPOT	CHARLESTOWN	SULLIVAN	NH	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	015198	052787T	TOWN	RIVER ST	CHARLESTOWN	SULLIVAN	NH	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	015654	052793W		UNITY RD	CHARLESTOWN	SULLIVAN	NH	PALMER	PED	GRD	No Signs or Signals	
NECR	CONN RIVER ML	015673	052791H	TOWN	GOWENS XING RD	CHARLESTOWN	SULLIVAN	NH	PALMER	PUB	GRD	Stop Signs	
NECR	CONN RIVER ML	015842	052794D	TOWN	OX BROOK RD	CHARLESTOWN	SULLIVAN	NH	PALMER	PUB	GRD	All Other Gates	
NECR	CONN RIVER ML	015989	052795K	CITY	GRISSOM LANE	CLAREMONT	SULLIVAN	NH	PALMER	PUB	GRD	All Other Gates	
NECR	CONN RIVER ML	016183	052797Y	SEC IN	FERRY RD	CLAREMONT	SULLIVAN	NH	PALMER	PUB	GRD	All Other Gates	
NECR	CONN RIVER ML	016526	052803A	CITY	WINDY HILL RD	CLAREMONT	SULLIVAN	NH	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	016626	052804G	PRIVATE	FARM	CORNISH FLAT	SULLIVAN	NH	PALMER	PRI	GRD	No Signs or Signals	
NECR	CONN RIVER ML	016640	052805N	RT 12 A	BALLOCK'S XING	CORNISH FLAT	SULLIVAN	NH	PALMER	PUB	GRD	Flashing Lights	
NECR	CONN RIVER ML	016707	052806V	PRIVATE	FARM	CORNISH FLAT	SULLIVAN	NH	PALMER	PRI	GRD	No Signs or Signals	
NECR	CONN RIVER ML	016754	052807C	PRIVATE	FARM	CORNISH FLAT	SULLIVAN	NH	PALMER	PRI	GRD	No Signs or Signals	

General Condition Codes:
1 - Poor, 2 - Marginal, 3 - Fair, 4 - Good, 5 - Excellent

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR	CONN RIVER ML	016754	052808J	PRIVATE	FARM	CORNISH FLAT	SULLIVAN	NH	PALMER	PRI	GRD	Crossbucks	
NECR	CONN RIVER ML	016800	052809R	PRIVATE	FARM	CORNISH FLAT	SULLIVAN	NH	PALMER	PRI	GRD	No Signs or Signals	
NECR	CONN RIVER ML	016833	052810K	PRIVATE	FARM	CORNISH FLAT	SULLIVAN	NH	PALMER	PRI	GRD	No Signs or Signals	
NECR		000070	052813F	TH34	RIVER ST	WINDSOR	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		000075	247795C	TH33	DEPOT AVE	WINDSOR	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR	CONEBLANCHARD	000075	900592X		DEPOT ST EXT	WINDSOR	WINDSOR	VT	ROXBURY	PUB	GRD	No Signs or Signals	
NECR		000075	900591R		DEPOT ST EXT	WINDSOR	WINDSOR	VT	ROXBURY	PUB	GRD	No Signs or Signals	
NECR		000090	247796J	TH32	EVERETT LANE	WINDSOR	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		000125	247797R			WINDSOR	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		000185	247798X			WINDSOR	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		000330	247799E			WINDSOR	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		000348	247800W			WINDSOR	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		000510	247801D	TH55	HARTLAND STREET	HARTLAND	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		000792	247804Y	TH81	CIRCLE ST	HARTLAND	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		000890	247805F			HARTLAND	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		000988	247807U	TH16	EVARTS RD	HARTLAND	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		001018	247808B			HARTLAND	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001191	247809H		GRAVEL PIT	HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001210	247810C		GRAVEL PITT	HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001230	247811J			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001310	247812R			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001445	247814E	TH168	NUTT LANE	HARTFORD	WINDSOR	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		001488	900616J		COURT HOUSE	WHITE RIVER JCTN	WINDSOR	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		001596	247819N	TH7	MILL RD	HARTFORD	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	

General Condition Codes:
1 - Poor, 2 - Marginal, 3 - Fair, 4 - Good, 5 - Excellent

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		001623	247820H	TH6	VA CUTOFF RD	HARTFORD	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		001681	247821P	TH10	OLD RIVER ROAD	HARTFORD	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		001830	247823D			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001899	247824K			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		001921	247825S			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002068	247828M			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002112	247829U			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002207	247833J			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002236	247834R	TH13	TIGER TOWN	HARTFORD	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		002273	247835X			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		002300	247836E	TH43	LAMPHERE	SHARON	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		002352	247837L			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002426	247838T			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002470	247839A			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002587	247840U			HARTFORD	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002860	247532N			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		002963	247535J			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003008	247536R			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD	Crossbucks	
NECR		003030	247537X			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003065	247538E			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003097	247539L	TH67	STEARNS ROAD	SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		003149	247541M	TH67	STEARNS ROAD	SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		003162	247542U			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003263	247544H			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		

General Condition Codes:
1 - Poor, 2 - Marginal, 3 - Fair, 4 - Good, 5 - Excellent

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		003281	247545P			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003292	247546W			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003309	247547D			SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003347	247548K	TH31	N. WINDSOR	SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		003380	247550L	TH5	GEE HILL RD.	SOUTH ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Stop Signs	
NECR		003407	247551T			ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003431	247553G	TH88	LYON RD	ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		003509	247557J			ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003510	247558R			ROYALTON	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003541	247559X	TH6	ROYALTON HILL RD	ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		003606	247560S	TH33	PERLY RD	ROYALTON	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		003667	247562F			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		003859	247563M	TH48	VT CASTINGS RD	BETHEL	WINDSOR	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		004065	247567P			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		004183	247569D			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		004243	247570X			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		004310	247572L			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		004337	247573T			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		004379	247574A			BETHEL	WINDSOR	VT	ROXBURY	PRI	GRD		
NECR		004402	247575G			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD		
NECR		004476	900583Y	TH29	LANDFILL RD	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Stop Signs	
NECR		004520	247578C			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD		
NECR		004630	247579J	TH	PLEASANT STREET	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		004637	247580D	VT12	MAIN STREET	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	All Other Gates	

General Condition Codes:
1 - Poor, 2 - Marginal, 3 - Fair, 4 - Good, 5 - Excellent

RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		004695	247581K	TH	SCHOOL ST.	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		004838	247582S	TH51	MOBILE ACRES RD	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		004870	247482M			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		004889	247483U	TH 46	RIFORD BROOK RD	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		004979	247486P			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		005085	247487W			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		005090	247488D	VT12A	MANLEY XING	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		005146	247489K	TH 35	GRANTSWORTH RD	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		005182	247485H			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		005202	247484B			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		005255	247490E			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		005280	247491L			RANDOLPH	ORANGE	VT	ROXBURY	PRI	GRD	No Signs or Signals	
NECR		005315	247492T	TH3	THRESHER RD	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		005377	247493A	TH15	LEMERY RD	RANDOLPH	ORANGE	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		005482	247494G	TH23	HANDLY RD	GRANVILLE	ADDISON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		005870	247496V	TH39	THURSTON HILL RD	ROXBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		005883	247497C	TH26	OXBOW RD	ROXBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		005917	247498J	TH23	CARRIE-HOWE RD	ROXBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		006071	247499R	TH1	WARREN MTN RD	ROXBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		006130	247501P	TH7	ELLIS ROAD	NORTHFIELD	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		006250	247503D	TH68	BEAUDETTE RD	NORTHFIELD	WASHINGTON	VT	ROXBURY	PUB	GRD	Stop Signs	
NECR		006395	247505S			NORTHFIELD	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		006587	247507F			NORTHFIELD	WASHINGTON	VT	ROXBURY	PRI	GRD	Stop Signs	
NECR		006770	247509U	TH	WALL ST	NORTHFIELD	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	

General Condition Codes:
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RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		006773	247510N			NORTHFIELD	WASHINGTON	VT	ROXBURY	PED	GRD		
NECR		006775	247511V	TH	WATER	NORTHFIELD	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		006810	247513J	TH	PARSONS LN	NORTHFIELD	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		006911	247514R			NORTHFIELD	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		006925	247515X			NORTHFIELD	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		006945	247516E	TH3	COX BROOKE RD	NORTHFIELD	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		007077	247517L	TH61	LOVER"S LANE	BERLIN	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		007188	247519A			BERLIN	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		007196	247518T		NORTHFIELD RD	BERLIN	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		007295	247520U			BERLIN	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		007324	247521B			BERLIN	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		007327	247522H	TH39	ROWELL HILL RD	BERLIN	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		007332	247523P			BERLIN	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		007475	247526K			BERLIN	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		007495	247527S	TH47	MURRAY RD.	BERLIN	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		007505	247528Y	TH12	LORD RD	BERLIN	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		007595	247529F		POWER PLANT	BERLIN	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		007650	247530A	TH 2	JUNCTION ROAD	BERLIN	WASHINGTON	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		007666	247531G	TH 14	GRAVES ST	MONTPELIER	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		007756	247291C	TH40	CROSS ST	MIDDLESEX	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		008515	247298A			WATERBURY	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		008554	247299G	TH	DERMITT RD	WATERBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		008569	247300Y		BATCHELDER ST	WATERBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		008595	247301F	TH 5	PARK ROW	WATERBURY	WASHINGTON	VT	ROXBURY	PUB	GRD	All Other Gates	

General Condition Codes:
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RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		008763	247306P			WATERBURY	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		008834	247307W			WATERBURY	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		008840	247308D			WATERBURY	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		008929	247309K			WATERBURY	WASHINGTON	VT	ROXBURY	PRI	GRD		
NECR		009015	247311L			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009202	247312T			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009296	247313A		ADIRONDACK GAS CO	RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009310	247314G	TH11	TH 11	BOLTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	Stop Signs	
NECR		009325	247315N			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009361	247316V			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009450	247317C			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009570	247318J			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		009587	247319R	TH3	COCHRAN RD	RICHMOND	CHITTENDEN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		009906	247685S	TH1	BRIDGE ST	RICHMOND	CHITTENDEN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		009954	247686Y			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010010	247688M			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010099	247691V			RICHMOND	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010372	247695X			WILLISTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010409	247696E			WILLISTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010414	247697L			WILLISTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010424	247698T	TH1	NO WILLISTON RD	WILLISTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		010449	247699A			WILLISTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010499	247700S			WILLISTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		010699	247703M			ESSEX JUNCTION	CHITTENDEN	VT	ROXBURY	PRI	GRD	All Other Gates	

General Condition Codes:
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RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		010809	247705B	VT 117	MAPLE ST	ESSEX JUNCTION	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		010818	247706H	VT15	MAIN	ESSEX JUNCTION	CHITTENDEN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		010828	247707P	TH36	CENTRAL ST	ESSEX JUNCTION	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		010851	247728H	TH	NORTH ST	ESSEX JUNCTION	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		010860	400919M	TH 44	PASCO WAY	WINDSOR	WINDSOR	VT	ROXBURY	PUB	GRD	Stop Signs	
NECR		010934	247729P	TH-20	OLD COLCHESTER RD	ESSEX	CHITTENDEN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		010978	247730J			ESSEX	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011197	247320K	TH-6	DEPOT RD	COLCHESTER	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		011327	247321S			COLCHESTER	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011338	247322Y	TH2	EAST RD	COLCHESTER	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		011373	247323F			COLCHESTER	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011439	247324M	TH2	EAST RD	COLCHESTER	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		011473	247325U	TH 5	EAST RD	COLCHESTER	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		011555	247327H			MILTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011699	247328P	TH 51	MCMULLEN RD	MILTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		011749	247329W			MILTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011781	247382H			MILTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011812	247383P	TH35	KINGSBURY RD	MILTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	Crossbucks	
NECR		011823	247384W			MILTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		
NECR		011831	247385D	TH1	RAILROAD ST	MILTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		011879	247386K	TH 31	CHERRY STREET	MILTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		011909	247387S	TH2	MAIN STREET	MILTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		012106	247390A	TH5	NORTH RD	MILTON	CHITTENDEN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		012140	247391G			MILTON	CHITTENDEN	VT	ROXBURY	PRI	GRD		

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RAILROAD	BRANCH	MILEPOST	CROSSING	HIGHWAY	STREET	TOWN/CITY	COUNTY	STATE	RRSUBDIV	PUB/PRIV	POSITION	WARNING DEVICE	GEN CONDITION
NECR		012339	247394C	TH31	INDUSTRIAL PRK RD	GEORGIA CENTER	FRANKLIN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		012585	247396R			GEORGIA CENTER	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		012685	247397X	TH4	OAKLAND STATE RD	GEORGIA CENTER	FRANKLIN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		012713	247398E			GEORGIA CENTER	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		012820	247399L	TH13	CONGER RD	GEORGIA CENTER	FRANKLIN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		012876	247400D			GEORGIA CENTER	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		013020	247402S			SAINT ALBANS	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		013047	247403Y			SAINT ALBANS	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		013074	247405M			SAINT ALBANS	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		013095	900596A	TH65	INDUST. PARK RD.	SAINT ALBANS	FRANKLIN	VT	ROXBURY	PUB	GRD	Flashing Lights	
NECR		013125	247406U			SAINT ALBANS	FRANKLIN	VT	ROXBURY	PRI	GRD		
NECR		013141	247407B	TH	NASON ST	SAINT ALBANS	FRANKLIN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		013173	247408H	TH	LOWER WELDEN ST	SAINT ALBANS	FRANKLIN	VT	ROXBURY	PUB	GRD	All Other Gates	
NECR		013189	247411R	VT36	LAKE ST	SAINT ALBANS	FRANKLIN	VT	ROXBURY	PUB	GRD	Flashing Lights	

Appendix B

Operational Analysis Documents

Train Equipment Make Up

Train Equipment Make Up

Passenger Trains (all trains coded DMU, GCOM/CDOT, AMTK)

Locomotive	***Coaches***	***Trailing Tons***	***Trailing Feet***
1 P-42DC	5 Amfleet	325	425

Freight Trains

Name	***Locomotive***	***Trailing Tons***	***Trailing Feet***
ED-2	1 GP40-2	1330-3330	2269
EDCT	1 GP40-2	2880	2819
EDPL	1 GP40-2	3330	2269
EDWJ	2 GP40-2	2960 - 3460	2338
Mt. Tom Coal	2 GP40-2	1160 - 3460	1788 - 2338
NEMPAST	3 GP40-2	2269	3286
NEMPSTA	3 GP40-2	6158	2681
NERWHBE	2 GP38-2	1576	613
PLED	1 GP40-2	1330	2269
WJED	1 GP40-2	2330	2269

Freight and Passenger Schedules for All Modeled Scenarios

Freight Schedule

I-91 Knowledge Corridor Project - Assumed Train Operation Information for Simulation

Train Name ED-2 runs Monday-Friday (different routes)

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START (MWF)	MPS 34.60	7:00 AM	9:00 AM	40	0	3200	2200	south	40	GP-40	1		
South Deerfield	MPS 28.39	9:20 AM	11:50 AM	32	8	2800	2200	south	40	GP-40	1		steel, plastics
Hatfield	MPS 20.82	12:10 PM	1:10 PM	22	18	2300	2200	south	40	GP-40	1		fertilizer
END (MWF)	MPS 34	2:45 PM						north	40	GP-40	1		
START (TThS)	MPS 34.60		9:10 AM										
Mt. Tom	MPS 14.72	10:10 AM	11:10 AM	12	28	1800	2200	south	40	GP-40	1		packaging, boxes
Holyoke	MPS 7.92	11:30 AM	12:30 PM	4	36	1400	2200	south	40	GP-40	1		scrap dealer
Chicopee	MPS 6	12:40 PM	1:40 PM	0	40	1200	2200	south	40	GP-40	1		chemicals
END (TThS)	MPS 34	2:25 PM						north	40	GP-40	1		

Train Name EDPL (East Deerfield to Plainville, CT) runs Mon.-Wed.- Fri.

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	MPS34.60	6:30 AM	8:30 AM	40	0	3200	2200	south	40	GP-40	1		clears the Conn River in Springfield at 9:3
END	MPS0	9:30 AM											

Train Name PLED runs Tues.-Thurs.-Sat.

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	MPS0	6:30 AM	8:30 AM	0	40	1200	2200	north	40	GP-40	1		
Mt. Tom	MPS 14.72	9:00 AM	12:00 PM	0	40	1200	2200	north	40	GP-40	1		
END	MPS 34.60	1:00 PM											

Train Name Mt. Tom coal train runs Monday-Friday

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	MPS 34.60		2:00 AM	30	0	2400	1650	south	40	GP-38	2		Run-through from the P & W
Mt. Tom	MPS 14.72	2:30 AM	4:30 AM	0	30	900	1650	north	40	GP-38	2		May go to 80-90 cars per train in the
						0	0						future. Current plant capacity is 75
						0	0						cars.
END	MPS 34.60	5:30 AM											

Train Name EDWJ (East Deerfield to White River Junction, VT) runs Mon.-Wed.-Fri.

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	MPS 34.60	9:00 AM	11:00 AM	40	0	3200	2200	north	40	GP-40	1		
Bernardston	MPS42.64	11:30 AM	2:30 PM	30	10	2700	2200	north	40	GP-40	1		plastic pellets, agricultural products
END	MPS 48	2:45 PM						north	40	GP-40	1		

Train Name WJED runs Tues.-Thurs.-Sat.

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	MPS 48	10:00 PM		20	20	2200	2269	south	40	GP-40	1		Arriving at East Northfield from White
													River Junction
END	MPS 34.60	10:30 PM											

Train Name To be determined-2010 daily (5 days/week ED to CT round trip)

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	MPS 34.60	7:00 AM	9:00 AM	25	25	2750	2750	south	40	GP-40	1		
Springfield	MPS 0	10:00 AM		25	25	2750	2750	south	40	GP-40	1		
Springfield	MPS 0	4:00 PM		25	25	2750	2750	north	40	GP-40	1		
END	MPS 34.60	5:00 PM											

Train Name NEMPAST 7 days a week

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	49.55		5:18 PM	15	41	2669	3286	north	40	GP-40	3		
Run Through				15	41	2669	3286	north	40	GP-40	3		
END	St. Albans			15	41	2669	3286	north	40	GP-40	3		

Train Name NEMPSTA 7 days a week

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	49.15		7:20 AM	30	15	6158	2681	south	40	GP-40	3		
Bellows Falls (30min work)	145.16	9:30 AM	10:00 AM	30	15	6158	2681	south	40	GP-40	3		
END	48.03	12:15 PM		30	15	6158	2681	south	40	GP-40	3		

Train Name NERWHBE weekdays

Origin / Destination	Field Milepost	Arrival Time	Departure Time	Departing Loads	Departing Empties	Total Departing Tons	Total Departing Feet	Departing Direction	Max Speed	Locomotive Type	# Locos Running	Loco Positions	Notes
START	14.43		6:30 PM	5	4	1576	613	south	40	GP-38-2	2		
Claremont	161.8	7:20 PM	8:20 PM	15	41	2669	3286	south	40	GP-38-2	2		
Walpole	147.97	9:10 PM	10:10 PM	15	41	2669	3286	north	40	GP-38-2	2		
Claremont	161.8	11:05 PM	12:05 AM	15	41	2669	3286	north	40	GP-38-2	2		
END	14.43	1:00 AM		15	41	2669	3286	north	42	GP-38-2	2		

Scenario 1 Schedule

Scenario 1 Schedule - Vermonter Relocation
One daily round trip, White River Jct., VT to Springfield, MA

Southbound	**55**
White River Jct.	
(185.00)	11:48
Windsor	12:08
(172.00)	12:09
Claremont	12:19
(163.00)	12:20
Bellows Falls	12:38
(146.00)	12:40
Brattleboro	13:13
(122.32)	13:14
Greenfield	13:42
(98.00)	13:44
Northampton	14:07
(79.00)	14:09
Springfield	14:30
(62.00)	

Northbound	**56**
Springfield	
(62.00)	15:25
Northampton	15:47
(79.00)	15:48
Greenfield	16:08
(98.00)	16:10
Brattleboro	16:41
(122.32)	16:44
Bellows Falls	17:16
(146.00)	17:18
Claremont	17:36
(163.00)	17:37
Windsor	17:46
(172.00)	17:47
White River	18:05
Jct. (185.00)	

Scenario 2 Schedule

AMTK 3	AMTK 1		AMTK 2	AMTK 4
11:30	07:37	White River Jct 185.00	18:09	22:03
11:50 11:51	07:57 07:58	Windsor 172.00	17:47 17:46	21:41 21:40
12:01 12:02	08:08 08:09	Claremont 163.00	17:35 17:34	21:29 21:28
12:13	08:20	Walpole 148.00	17:24	21:18
12:18 12:20	08:25 08:27	Bellows Falls 146.00	17:19 17:17	21:13 21:11
12:39	08:46	Putney North 132.32	16:58	20:52
12:54 12:55	09:00 09:01	Battleboro 122.32	16:44 16:41	20:38 20:35
13:24 13:26	09:31 09:33	Greenfield 98.00	16:10 16:08	20:04 20:02
13:49 13:49	09:56 09:58	Northhampton 79.00	15:48 15:46	19:42 19:41
14:01	10:09	Holyoke 69.80	15:33	19:28
14:15	10:24	Springfield 62.00	15:20	19:15

PRO FORMA SCHEDULES FOR A NEW HAVEN-SPRINGFIELD-GREENFIELD SERVICE

5 Morning to Springfield, 5 Evening from Springfield, 2 Mid-day, 1 Evening

SOUTHWARD

GCOM 15	AMTK 477	CDOT 13	CDOT 11	CDOT 9	GCOM 7	AMTK 475	DMU 437	AMTK 55	DMU 493	AMTK 471	GCOM 11	GCOM 13	GCOM 5 CDOT 7	AMTK4 95	GCOM 3 CDOT 5	CDOT 3	GCOM 1 AMTK 141	CDOT 1	5 Morning to Springfield 5 Evening from Springfield 2 Mid day 1 Evening
							12:19		8:27										Bellows Falls 146.00
							12:54		09:02										
							12:55		09:03										Battleboro 122.32
							13:25		09:33										
19:18					15:22		13:25		09:34		7:50	7:20	6:50		5:55		5:00		Greenfield 98.00
19:41					15:45		13:48		09:56		08:13	07:43	07:13		06:18		05:23		
19:42					15:46		13:48		09:58		08:13	07:43	07:13		06:18		05:23		Northhampton 79.00
19:54					15:58		14:00		10:10		08:25	07:55	07:25		06:30		05:35		
19:55					15:59		14:01		10:10		08:26	07:56	07:26		06:31		05:36		Holyoke 69.80
							14:15		10:24				7:40		6:45		5:50		
20:09	18:25	17:40	17:10	16:35	16:13	16:05	14:25	12:55	10:34	8:40	8:40	8:10	7:50	7:15	6:55	6:25	6:00	5:30	Springfield 62.00
	19:45	19:00	18:30	17:55		17:30	16:01	14:23	11:54	10:00			9:10	8:35	8:15	7:45	7:28	6:50	New Haven 0.00

NORTHWARD

5 Morning to Springfield 5 Evening from Springfield 2 Mid day 1 Evening	CDOT 2	CDOT 4	CDOT 6	GCOM 2	AMTK 490	AMTK 470	GCOM 4	AMTK 56	DMU 474	GCOM 14	GCOM 6 CDOT 8	GCOM 8 AMTK 486	GCOM 10 CDOT 10	DMU 476	GCOM 16	AMTK 148
Bellows Falls 146.00									17:14					21:09		
									16:39					20:34		
Battleboro 122.32									16:38					20:33		
									16:07					20:02		
Greenfield 98.00				10:18			12:33		16:07	17:27	17:52	18:27	18:57	20:02	21:42	
				09:58			12:13		15:47	17:07	17:32	18:07	18:37	19:42	21:22	
Northhampton 79.00				09:57			12:12		15:46	17:06	17:31	18:06	18:36	19:41	21:21	
				09:44			11:59		15:33	16:53	17:18	17:53	18:23	19:28	21:08	
Holyoke 69.80				09:44			11:59		15:33	16:53	17:18	17:53	18:23	19:28	21:08	
									15:20		17:05	17:40	18:10	19:15		
Springfield 62.00	7:25	8:10	8:50	9:31	10:10	11:35	11:46	14:20	15:10	16:40	16:55	17:30	18:00	19:05	20:55	21:55
New Haven 0.00	6:05		7:30		8:50	10:15		12:55	13:45		15:35	16:10	16:40	17:40		20:30

Scenario 4 Schedule

AMTK 477	AMTK 9	CDOT 13	CDOT 11	CDOT 9	AMTK 475	GCOM 7	AMTK 7	AMTK 437	AMTK 55	AMTK 5	AMTK 493	AMTK 3	CDOT 7	GCOM 13	AMTK495	CDOT 5	GCOM 5	CDOT 3	AMTK 1	AMTK 141	GCOM 3	CDOT 1	GCOM 1	
	17:50						14:50			11:50		8:50							6:00					White River Jct 185.00
	18:10						15:10			12:10		09:10							06:20					
	18:12						15:12			12:12		09:12							06:21					Windsor 172.00
	18:22						15:22			12:22		09:22							06:31					
	18:24						15:24			12:24		09:24							06:32					Claremont 163.00
	18:35						15:35			12:35		9:35							6:43					Walpole 148.00
	18:40						15:40			12:40		09:40							06:48					
	18:43						15:43			12:43		09:42							06:49					Bellows Falls 146.00
	19:02						16:02			13:02		10:01							7:08					Putney North 132.32
	19:16						16:16			13:16		10:15							07:22					
	19:21						16:21			13:21		10:20							07:23					Brattleboro 122.32
	19:51						16:51			13:51		10:50							07:53					
	19:54					15:44	16:54			13:54		10:53		7:20			6:50		07:56		5:55		5:00	Greenfield 98.00
	20:17					16:07	17:17			14:17		11:16		07:43			07:13		08:19		06:18		05:23	
	20:18					16:08	17:18			14:18		11:17		07:43			07:13		08:20		06:18		05:23	Northhampton 79.00
	20:30					16:20	17:30			14:30		11:29		07:55			07:25		08:32		06:30		05:35	
	20:30					16:21	17:30			14:30		11:29		07:56			07:26		08:32		06:31		05:36	Holyoke 69.80
	20:45						17:45			14:45		11:44							08:47					
18:25	20:55	17:40	17:10	16:35	16:05	16:35	17:55	14:10	12:55	14:55	10:40	11:54	7:50	8:10	7:15	6:55	7:40	6:25	08:57	6:00	6:45	5:30	5:50	Springfield 62.00
19:45	22:15	19:00	18:30	17:55	17:30		19:15	15:30	14:23	16:15	12:00	13:14	9:10		8:35	8:15		7:45	10:17	7:28		6:50		New Haven 0.00

	CDOT 2	CDOT 4	AMTK 2	AMTK 490	AMTK 4	AMTK 6	AMTK 56	AMTK 474	CDOT 8	GCOM 12	AMTK 8	CDOT 10	GCOM 14	AMTK 476	GCOM 6	GCOM 8	GCOM 10	AMTK 10	AMTK 148	CDOT 12	CDOT 14	AMTK 494
White River Jct 185.00			11:42		14:43	17:43					20:43							23:43				
			11:20		14:21	17:21					20:21							23:21				
Windsor 172.00			11:19		14:20	17:20					20:20							23:20				
			11:08		14:09	17:09					20:09							23:09				
Claremont 163.00			11:07		14:08	17:08					20:08							23:08				
Walpole 148.00			10:57		13:58	16:58					19:58							22:58				
			10:52		13:53	16:53					19:53							22:53				
Bellows Falls 146.00			10:51		13:51	16:51					19:51							22:51				
Putney North 132.32			10:32		13:32	16:32					19:32							22:32				
			10:18		13:18	16:18					19:18							22:18				
Brattleboro 122.32			10:15		13:15	16:15					19:15							22:15				
			09:44		12:44	15:44					18:44							21:44				
Greenfield 98.00			09:42		12:42	15:42				16:54	18:42		17:36		18:04	18:27	19:37	21:42				
			09:22		12:22	15:22				16:34	18:22		17:16		17:44	18:07	19:17	21:22				
Northhampton 79.00			09:21		12:21	15:21				16:33	18:21		17:15		17:43	18:06	19:16	21:21				
			09:08		12:08	15:08				16:20	18:08		17:02		17:30	17:53	19:03	21:08				
Holyoke 69.80			09:08		12:08	15:08				16:20	18:08		17:02		17:30	17:53	19:03	21:08				
			08:55		11:55	14:55					17:55							20:55				
Springfield 62.00	7:25	8:10	08:45	10:10	11:45	14:45	15:10	15:35	16:55	16:07	17:45	18:00	16:49	18:40	17:17	17:40	18:50	20:45	21:55	19:05	19:35	20:45
New Haven 0.00	6:05	6:50	7:20	8:50	10:20	13:20	13:45	14:15	15:35		16:20	16:40		17:15				19:20	20:30	17:45	18:15	19:25

Scenario 5 Schedule

Intermediate stations with two times are passenger stops

COM 7	55	COM 11	COM 13	COM 5	COM 3		COM 2	56	COM 12	COM 14	COM 6	COM 8
	11:48					White River Jct 185.00		18:05				
	12:08							17:47				
	12:09					Windsor 172.00		17:46				
	12:19							17:37				
	12:20					Claremont 163.00		17:36				
	12:38							17:18				
	12:40					Bellows Falls 146.00		17:16				
	13:13							16:44				
	13:14					Battleboro 122.32		16:41				
	13:42							16:10				
15:22	13:44	7:50	7:20	6:50	5:55	Greenfield 98.00	10:18	16:08	17:03	17:27	17:52	18:27
15:45	14:07	08:13	07:43	07:13	06:18		09:58	15:48	16:43	17:07	17:32	18:07
15:46	14:09	08:13	07:43	07:13	06:18	Northhampton 79.00	09:57	15:47	16:42	17:06	17:31	18:06
15:58		08:25	07:55	07:25	06:30		09:44		16:29	16:53	17:18	17:53
15:59	14:20	08:26	07:56	07:26	06:31	Holyoke 69.80	09:44	15:35	16:29	16:53	17:18	17:53
16:13	14:30	8:40	8:10	7:40	6:45	Springfield 62.00	9:31	15:25	16:16	16:40	17:05	17:40

Scenario 6 Schedule

SOUTHWARD						NORTHWARD				
AMTK9	**AMTK7**	**AMTK5**	**AMTK3**	**AMTK 1**	Combined Public and Operating Timetable 5 Amtrak Trains New Haven - White River Jct 08/10/09	**AMTK 2**	**AMTK4**	**AMTK6**	**AMTK8**	**AMTK10**
17:48	14:48	11:48	08:48	05:48		sa 11:48	sa 14:48	sa 17:48	sa 20:48	sa 23:48
sl 17:48	sl 14:48	sl 11:48	sl 08:48	sl 05:48	White River Jct. 185.57	11:34	14:34	17:34	20:34	23:34
18:08	15:08	12:08	09:08	06:08		sl 11:15	sl 14:15	sl 17:15	sl 20:15	sl 23:15
18:09	15:09	12:09	09:09	06:09		11:16	14:16	17:16	20:16	23:16
sl 18:08	sl 15:08	sl 12:08	sl 09:08	sl 06:08	Windsor 171.45	11:15	14:15	17:15	20:15	23:15
18:19	15:19	12:19	09:19	06:19		sl 11:05	sl 14:05	sl 17:05	sl 20:05	sl 23:05
18:20	15:20	12:20	09:20	06:20		11:06	14:06	17:06	20:06	23:06
sl 18:19	sl 15:19	sl 12:19	sl 09:19	sl 06:19	Claremont 163.34	11:05	14:05	17:05	20:05	23:05
18:33	15:33	12:33	9:33	6:33	Walpole 149.51	10:53	13:53	16:53	19:53	22:53
18:38	15:38	12:38	09:38	06:38		sl 10:45	sl 13:45	sl 16:45	sl 19:45	sl 22:45
18:40	15:40	12:40	09:40	06:40		10:47	13:47	16:47	19:47	22:47
sl 18:38	sl 15:38	sl 12:38	sl 09:38	sl 06:38	Bellows Falls 146.34	10:45	13:45	16:45	19:45	22:45
18:57	15:57	12:57	9:57	6:57	Putney North 133.90	10:29	13:29	16:29	19:29	22:29
19:13	16:13	13:13	10:13	07:13		sl 10:10	sl 13:10	sl 16:10	sl 19:10	sl 22:10
19:16	16:16	13:16	10:16	07:16		10:13	13:13	16:13	19:13	22:13
sl 19:13	sl 16:13	sl 13:13	sl 10:13	sl 07:13	Brattleboro 122.54	10:10	13:10	16:10	19:10	22:10
19:29	16:29	13:29	10:29	7:29	East Northfield 111.70	9:55	12:55	15:55	18:55	21:55
19:44	16:44	13:44	10:44	07:44		sl 09:37	sl 12:37	sl 15:37	sl 18:37	sl 21:37
19:46	16:46	13:46	10:46	07:46		09:39	12:39	15:39	18:39	21:39
sl 19:44	sl 16:44	sl 13:44	sl 10:44	sl 07:44	Greenfield 98.10	09:37	12:37	15:37	18:37	21:37
19:54	16:54	13:54	10:54	7:54	South Deerfield 90.45	9:28	12:28	15:28	18:28	21:28
20:09	17:09	14:09	11:09	08:09		sl 09:16	sl 12:16	sl 15:16	sl 18:16	sl 21:16
20:10	17:10	14:10	11:10	08:10		09:17	12:17	15:17	18:17	21:17
sl 20:09	sl 17:09	sl 14:09	sl 11:09	sl 08:09	Northhampton 79.10	09:16	12:16	15:16	18:16	21:16
20:13	17:13	14:13	11:13	8:13	Mt. Tom 76.68	9:12	12:12	15:12	18:12	21:12
20:21	17:21	14:21	11:21	8:21	Holyoke 69.90	9:04	12:04	15:04	18:04	21:04
20:31	17:31	14:31	11:31	08:31						
20:59	17:59	14:59	11:59	08:59		sl 08:54	sl 11:54	sl 14:54	sl 17:54	sl 20:54
sa 20:44	sa 17:44	sa 14:44	sa 11:44	sa 08:44		08:54	11:54	14:54	17:54	20:54
sl 20:59	sl 17:59	sl 14:59	sl 11:59	sl 08:59	Springfield 62.00	08:39	11:39	14:39	17:39	20:39
						sl 07:14	sl 10:14	sl 13:14	sl 16:14	sl 19:14
22:24	19:24	16:24	13:24	10:24	New Haven 0.00	07:14	10:14	13:14	16:14	19:14

sa: Public Timetable schedule arrive
sl: Public Timetable schedule leave

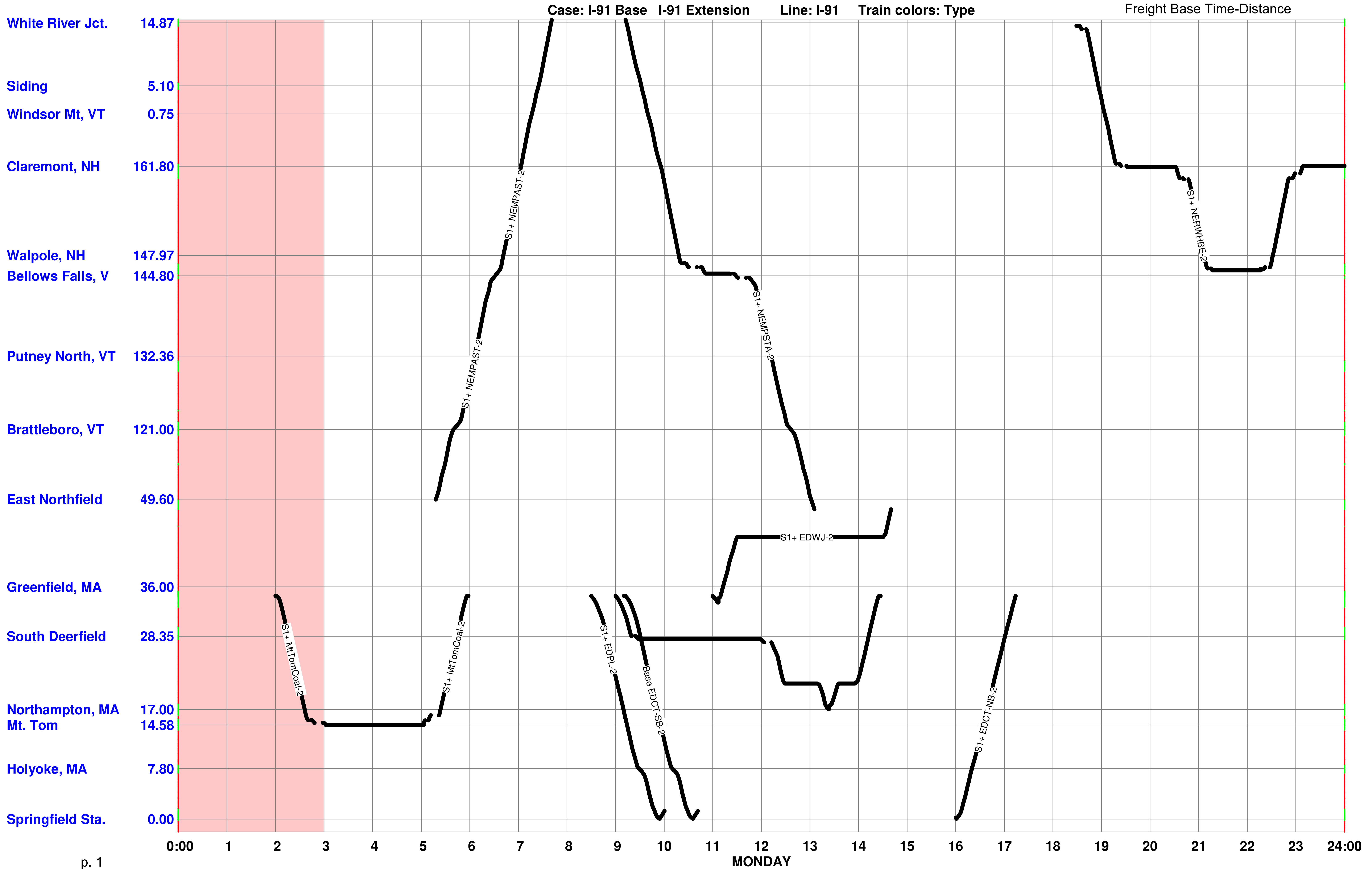
Scenario 7 Schedule

Relocated Vermonter and Amtrak New Haven - White River Jct shuttle trains

Southward							Northward					
479	**475**	**55**	**473**	**493**	**495**		**490**	**470**	**56**	**474**	**476**	**494**
		11:48		7:40		White River Jct. 185.57			17:56	20:09		
		12:08		08:00					17:38	19:51		
		12:09		08:01		Windsor 171.45			17:37	19:50		
		12:19		08:11					17:28	19:41		
		12:20		08:12		Claremont 163.34			17:27	19:40		
		12:33		8:25		Walpole 149.51			17:15	19:28		
		12:38		08:30					17:09	19:22		
		12:40		08:32		Bellows Falls 146.34			17:07	19:20		
		12:57		8:49		Putney North 133.90			16:51	19:04		
		13:13		09:05					16:35	18:48		
		13:14		09:06		Brattleboro 122.54			16:32	18:47		
		13:27		9:19		East Northfield 111.70			16:17	18:32		
		13:42		09:34					16:01	18:16		
		13:44	11:30	09:36	6:10	Greenfield 98.10	11:02		15:59	18:14		21:46
		13:52	11:38	9:44	6:18	South Deerfield 90.45	10:53		15:50	18:05		21:37
		14:07	11:53	09:59	06:33		10:42		15:39	17:54		21:26
		14:08	11:54	10:00	06:34	Northhampton 79.10	10:41		15:38	17:53		21:25
		14:11	11:57	10:03	6:37	Mt. Tom 76.68	10:37		15:34	17:49		21:21
		14:19	12:05	10:11	06:45		10:29		15:26	17:41		21:13
		14:20	12:06	10:12	06:46	Holyoke 69.90	10:28		15:25	17:40		21:12
		14:30	12:16	10:22	06:56		10:18		15:15	17:30		21:02
19:05	15:50	14:45	12:35	10:37	07:11	Springfield 62.00	10:03	12:00	15:00	16:30	18:31	20:47
20:30	17:15	16:10	14:00	12:02	8:36	New Haven 0.00	8:38	10:35	13:22	15:05	17:06	19:22

Southward train arriving Springfield and Northward trains leaving Springfield time applies at CSX crossing

Stringline Diagrams

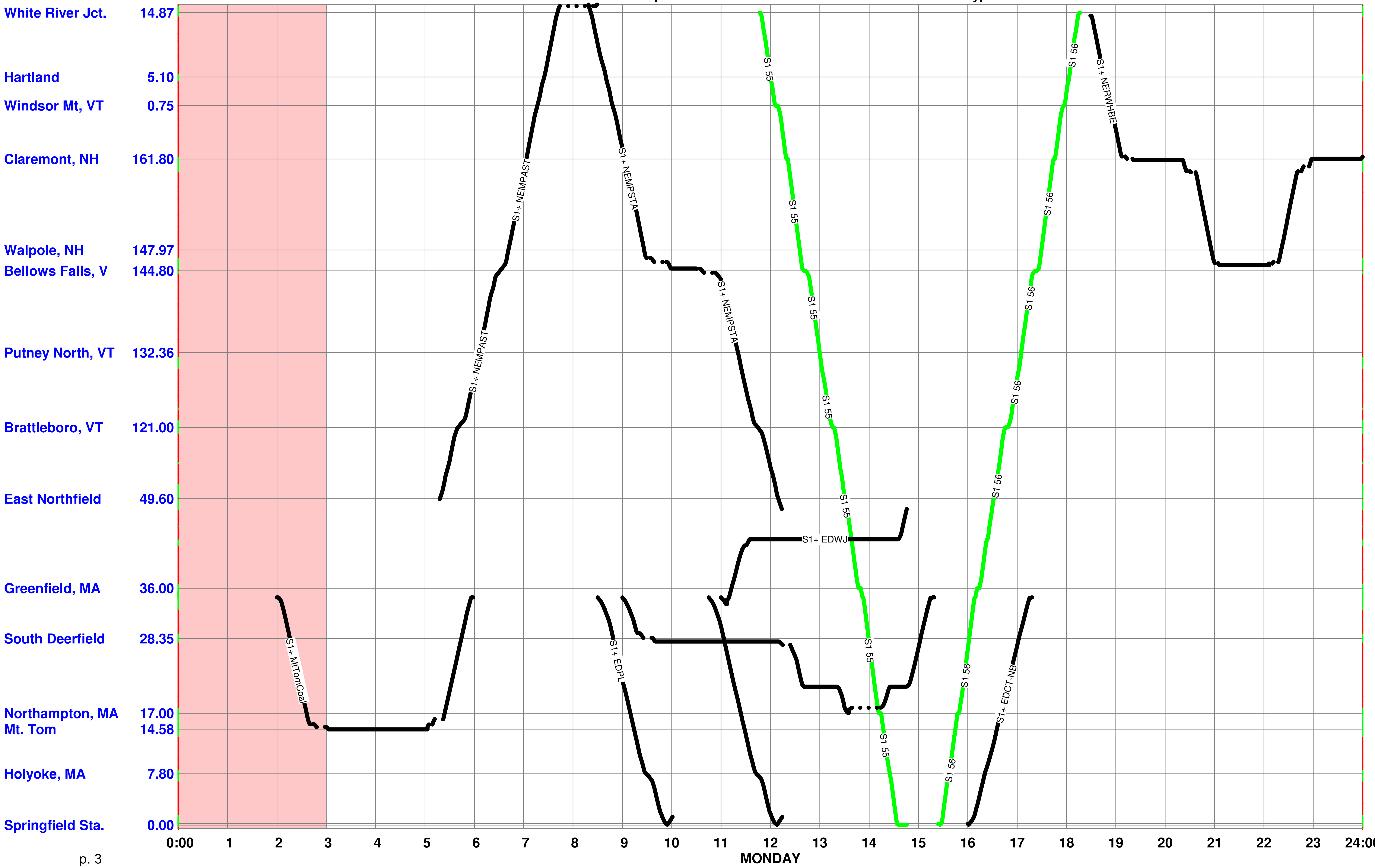


p. 1

All times displayed in Eastern time RTC version: 2.70 L50F Run time: 21 August 2009 14:36:13


Case: I-91 Base I-91 Extension
Line: I-91
Train colors: Type
Freight Base Time-Distance
White River Jct. 14.87
Siding 5.10
Windsor Mt, VT 0.75
Claremont, NH 161.80
Walpole, NH 147.97
Bellows Falls, V 144.80
Putney North, VT 132.36
Brattleboro, VT 121.00
East Northfield 49.60
Greenfield, MA 36.00
South Deerfield 28.35
Northampton, MA 17.00
Mt. Tom 14.58
Holyoke, MA 7.80
Springfield Sta. 0.00
S1+ NEMPAST-3
S1+ NEMPAST-3
S1+ NEMPSTA-3
S1+ NERWHBE-3
S1+ EDWJ-3
S1+ WJED-3
S1+ MtTomCoal-3
S1+ MtTomCoal-3
Base EDCT-SB-3
S1+ PLED-3
S1+ PLED-3
S1+ ED-2 T/Th/Sa-3
S1+ EDCT-NB-3
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24:00
TUESDAY
All times displayed in Eastern time
RTC version: 2.70 L50F
Run time: 21 August 2009 14:35:46

Case: I-91 Markup   I-91 Extension   Line: I-91   Train colors: Type   Scenario 1 Time-Distance

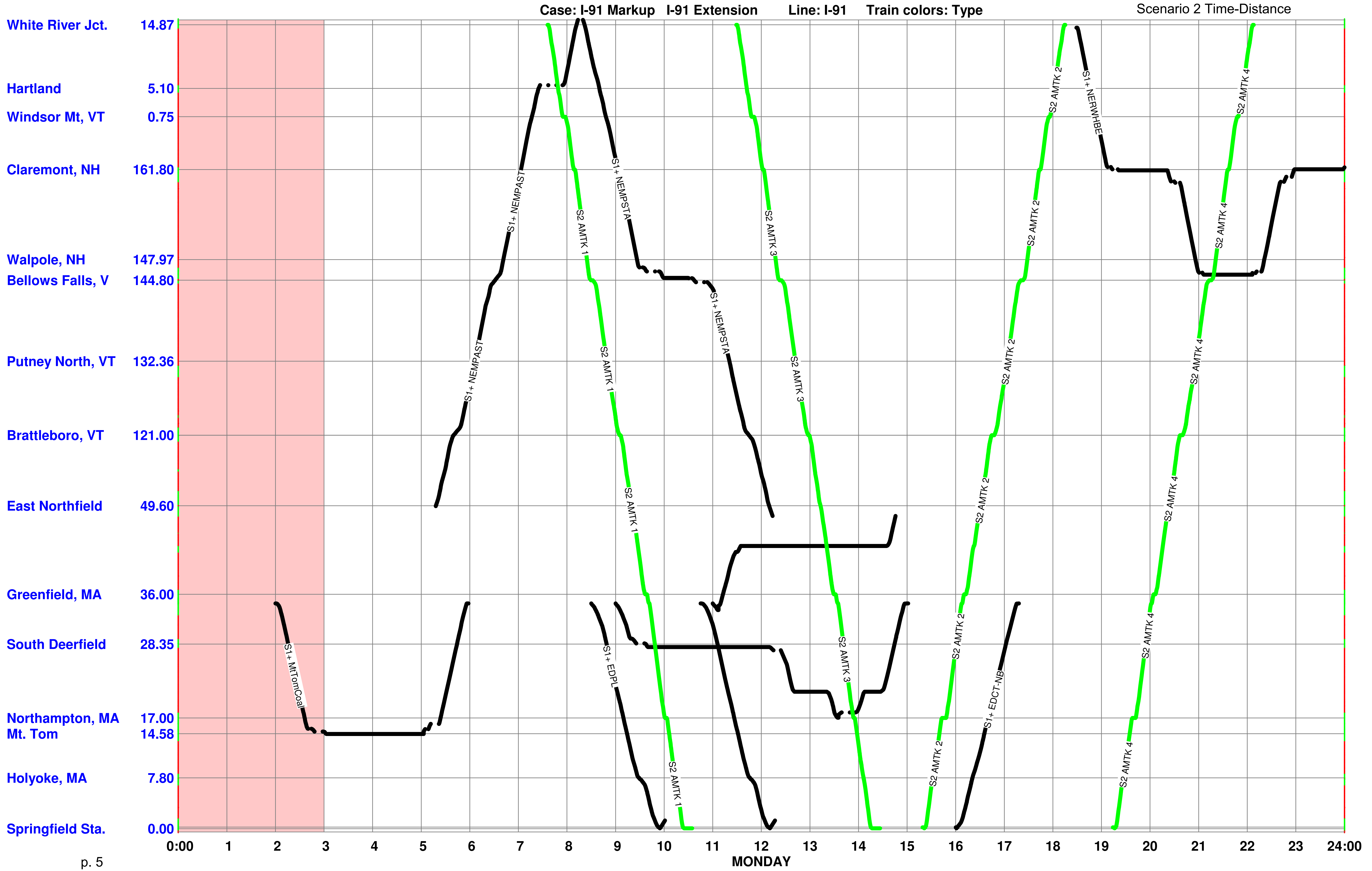


All times displayed in Eastern time   RTC version: 2.70 L50F   Run time: 30 September 2009 9:46:10

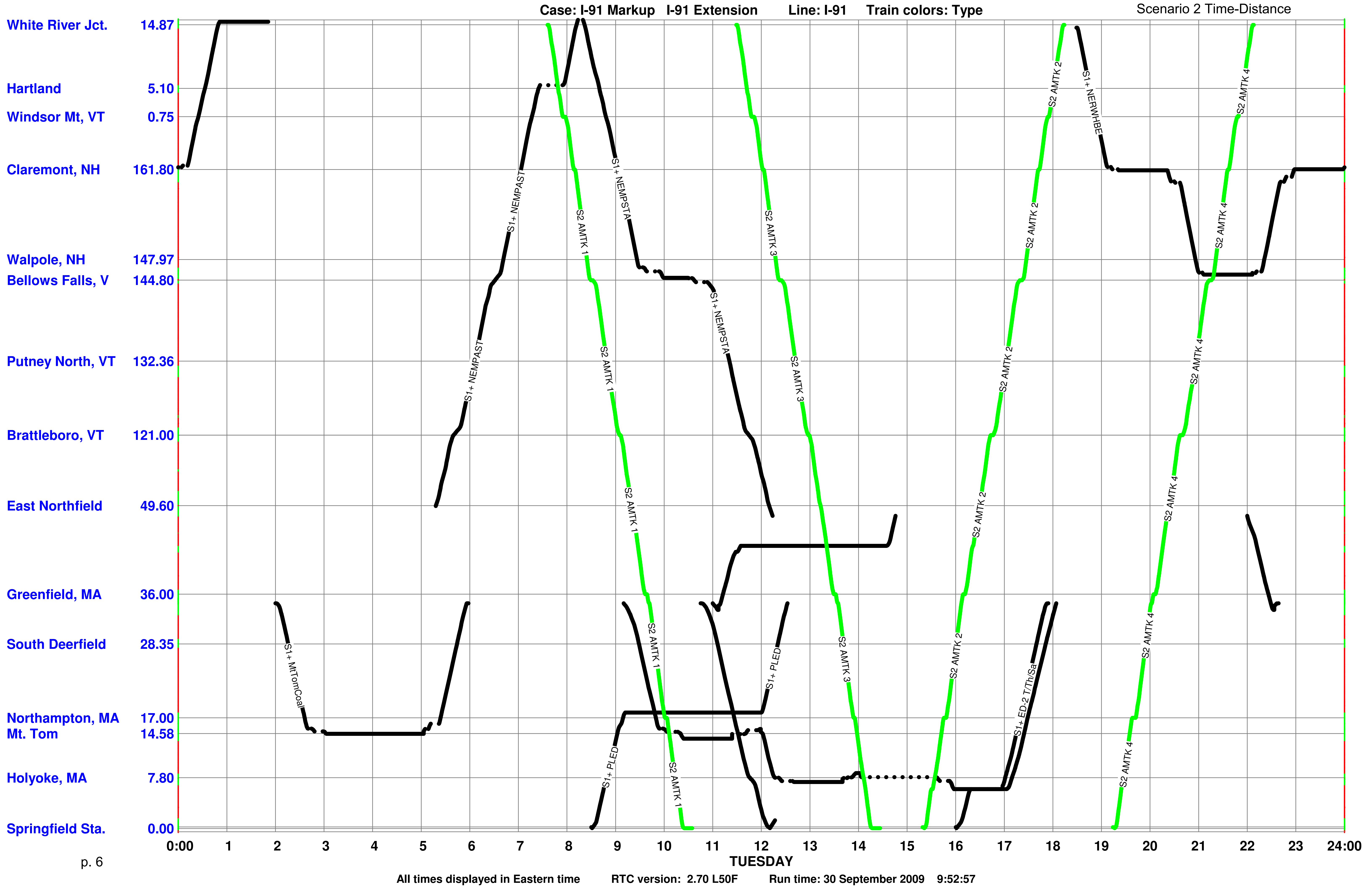
Case: I-91 Markup I-91 Extension Line: I-91 Train colors: Type

Scenario 1 Time-Distance

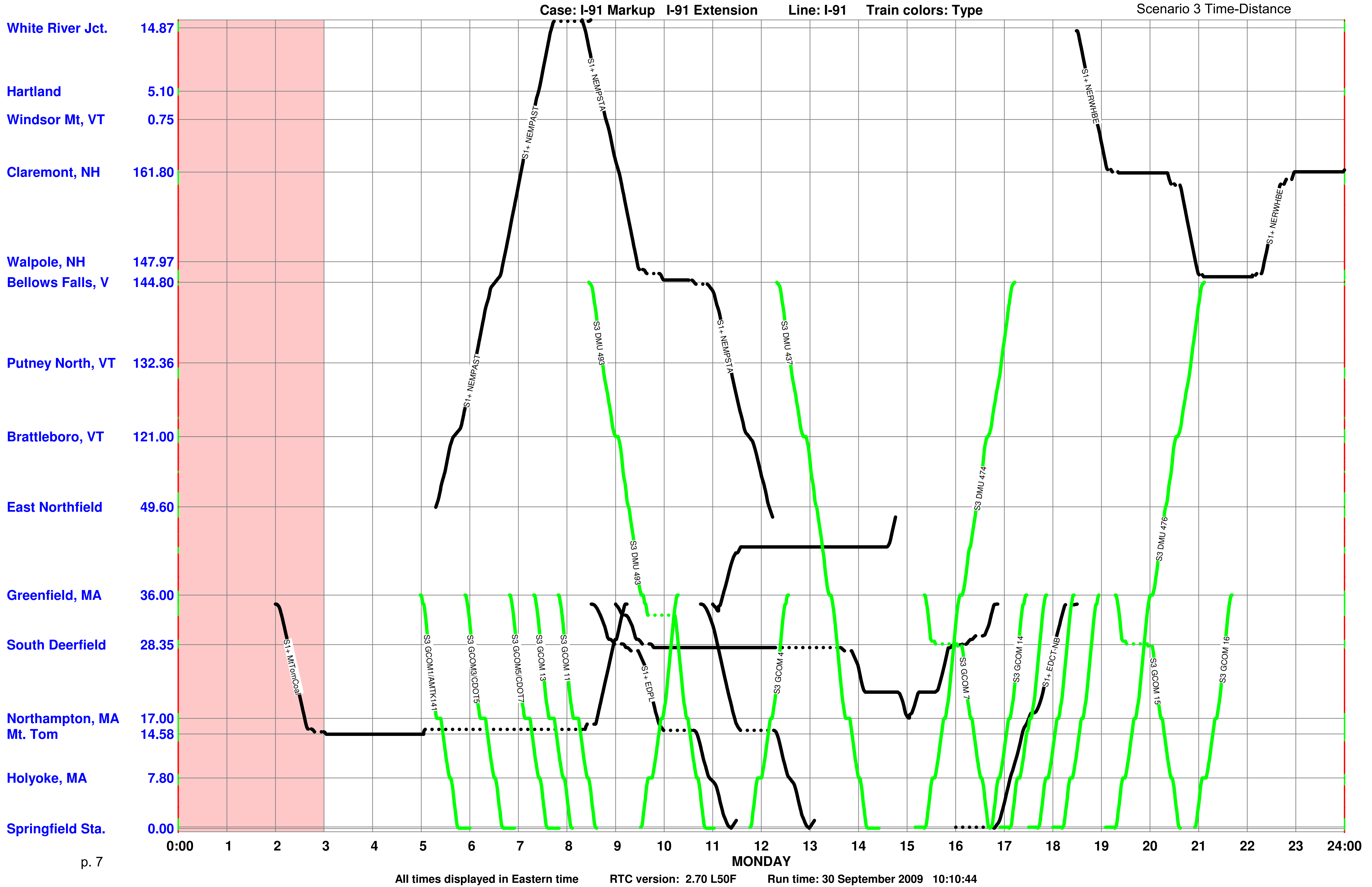
All times displayed in Eastern time RTC version: 2.70 L50F Run time: 30 September 2009 9:46:53



All times displayed in Eastern time RTC version: 2.70 L50F Run time: 30 September 2009 9:52:44



Case: I-91 Markup I-91 Extension Line: I-91 Train colors: Type
Scenario 2 Time-Distance
White River Jct. 14.87
Hartland 5.10
Windsor Mt, VT 0.75
Claremont, NH 161.80
Walpole, NH 147.97
Bellows Falls, V 144.80
Putney North, VT 132.36
Brattleboro, VT 121.00
East Northfield 49.60
Greenfield, MA 36.00
South Deerfield 28.35
Northampton, MA 17.00
Mt. Tom 14.58
Holyoke, MA 7.80
Springfield Sta. 0.00
S1+ NEMPAST
S1+ NEMPSTA
S1+ NERWHBE
S1+ MtTomCoal
S1+ PLED
S1+ ED-2 T/Th/Sa
S2 AMTK 1
S2 AMTK 2
S2 AMTK 3
S2 AMTK 4
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24:00
TUESDAY
All times displayed in Eastern time RTC version: 2.70 L50F Run time: 30 September 2009 9:52:57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Scenario 3 Time-Distance
White River Jct. 14.87
Hartland 5.10
Windsor Mt, VT 0.75
Claremont, NH 161.80
Walpole, NH 147.97
Bellows Falls, V 144.80
Putney North, VT 132.36
Brattleboro, VT 121.00
East Northfield 49.60
Greenfield, MA 36.00
South Deerfield 28.35
Northampton, MA 17.00
Mt. Tom 14.58
Holyoke, MA 7.80
Springfield Sta. 0.00
S1+ NEMPAST
S1+ NEMPSTA
S1+ NERWHBE
S3 DMU 493
S3 DMU 437
S3 DMU 474
S3 DMU 476
S1+ MtTomCoal
S3 GCOM1/AMTK141
S3 GCOM3/CDOT5
S3 GCOM5/CDOT7
S3 GCOM 13
S3 GCOM 11
S1+ EDPL
S3 GCOM 4
S3 GCOM 7
S3 GCOM 14
S1+ EDCT-NB
S3 GCOM 15
S3 GCOM 16
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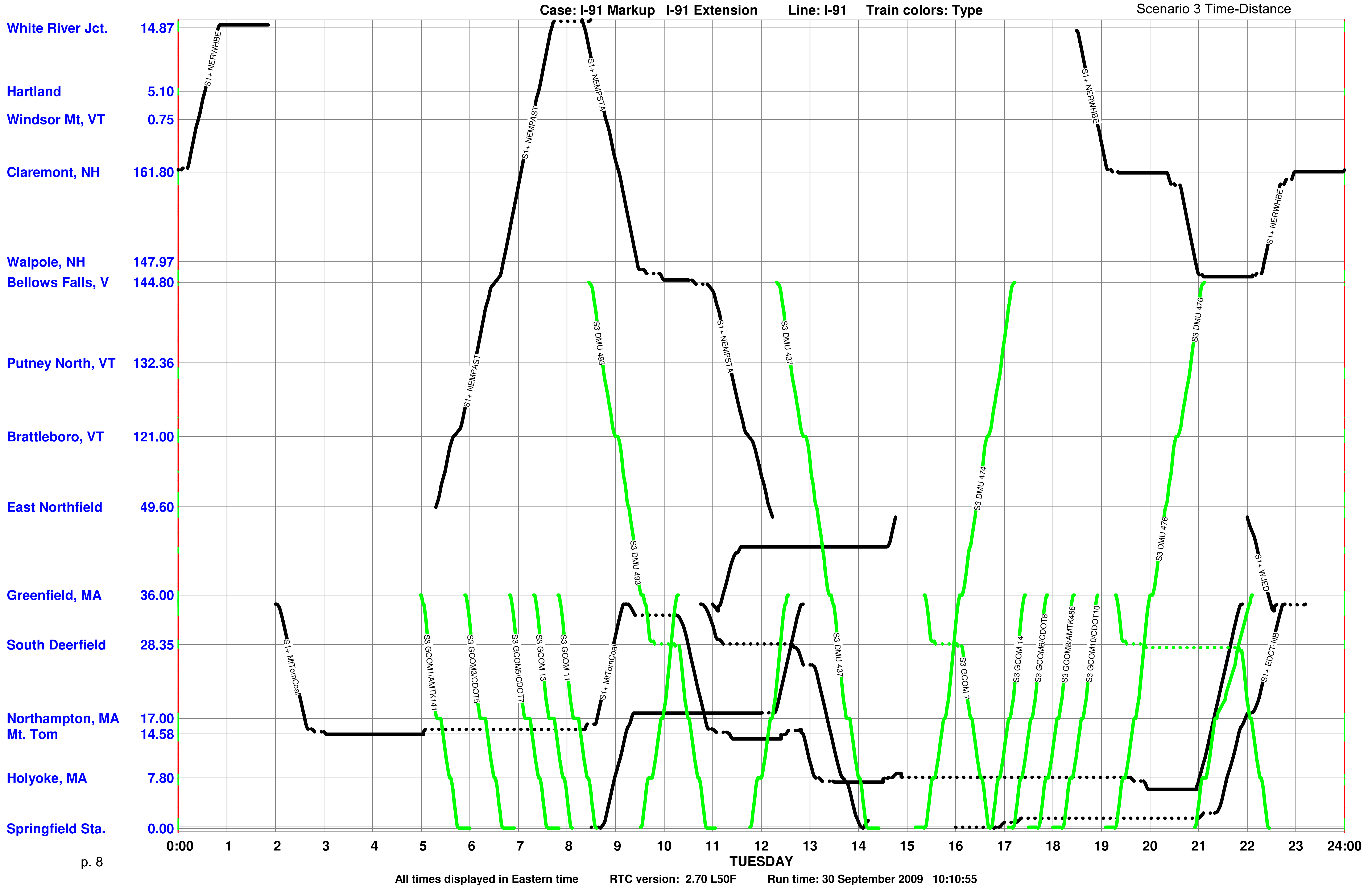

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Scenario 3 Time-Distance
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Hartland 5.10
Windsor Mt, VT 0.75
Claremont, NH 161.80
Walpole, NH 147.97
Bellows Falls, V 144.80
Putney North, VT 132.36
Brattleboro, VT 121.00
East Northfield 49.60
Greenfield, MA 36.00
South Deerfield 28.35
Northampton, MA 17.00
Mt. Tom 14.58
Holyoke, MA 7.80
Springfield Sta. 0.00
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24:00
TUESDAY
S1+ NERWHBE
S1+ NEMPAST
S1+ NEMPSTA
S3 DMU 493
S3 DMU 437
S3 DMU 474
S3 DMU 476
S1+ MtTomCoal
S3 GCOM1/AMTK141
S3 GCOM3/CDOT5
S3 GCOM5/CDOT7
S3 GCOM 13
S3 GCOM 11
S3 GCOM 7
S3 GCOM 14
S3 GCOM6/CDOT8
S3 GCOM8/AMTK486
S3 GCOM10/CDOT10
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S1+ EDCT-NB
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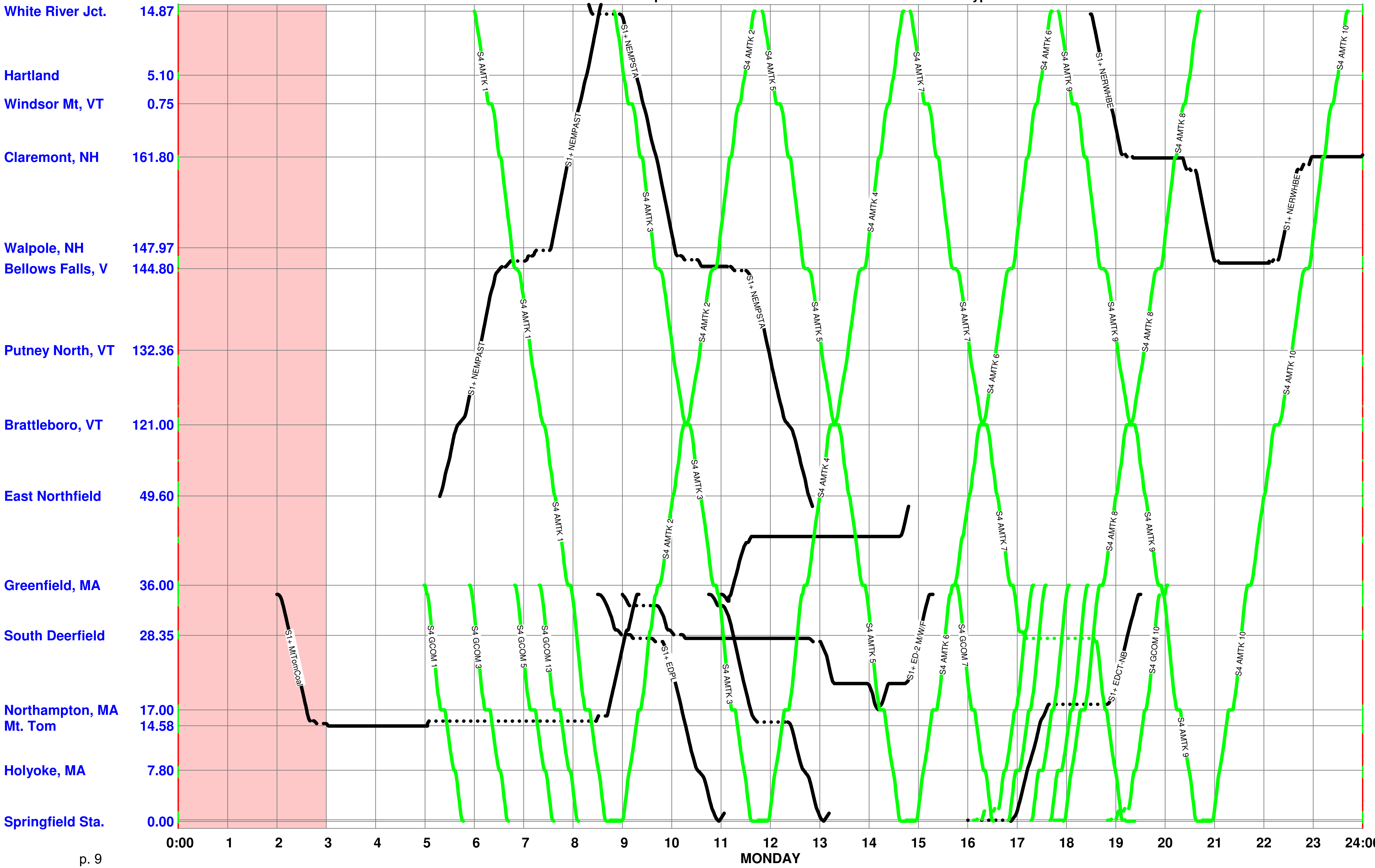

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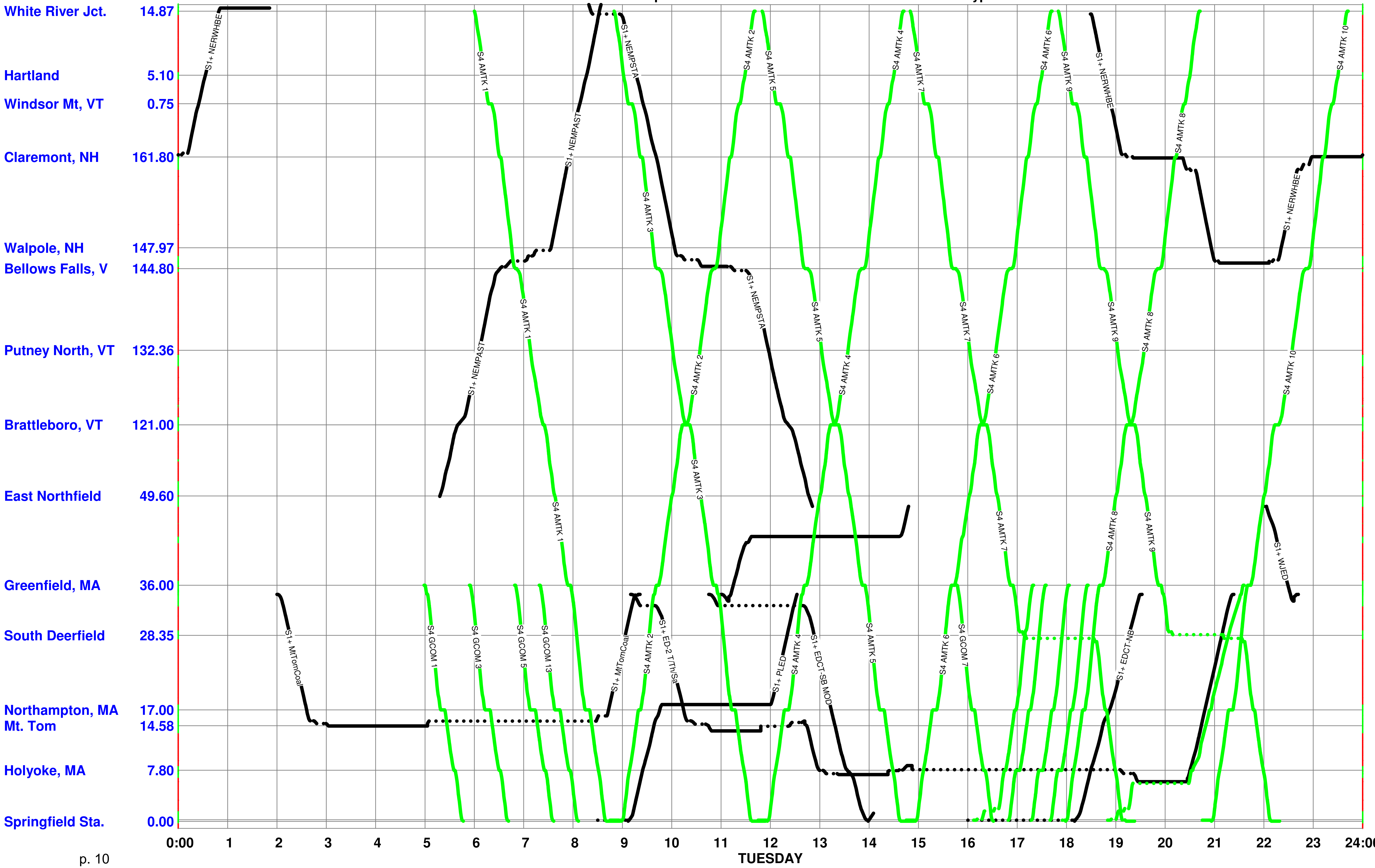

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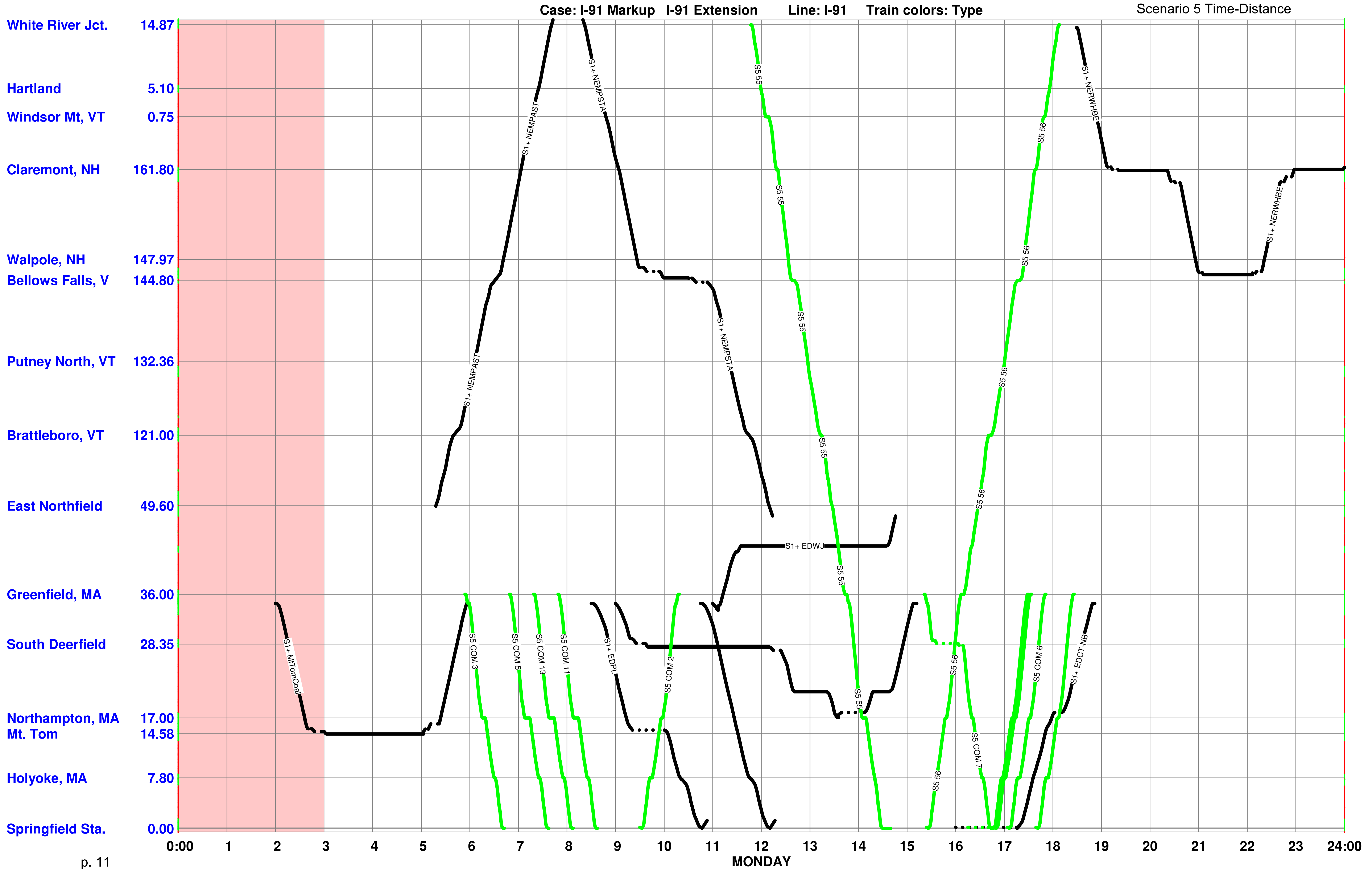

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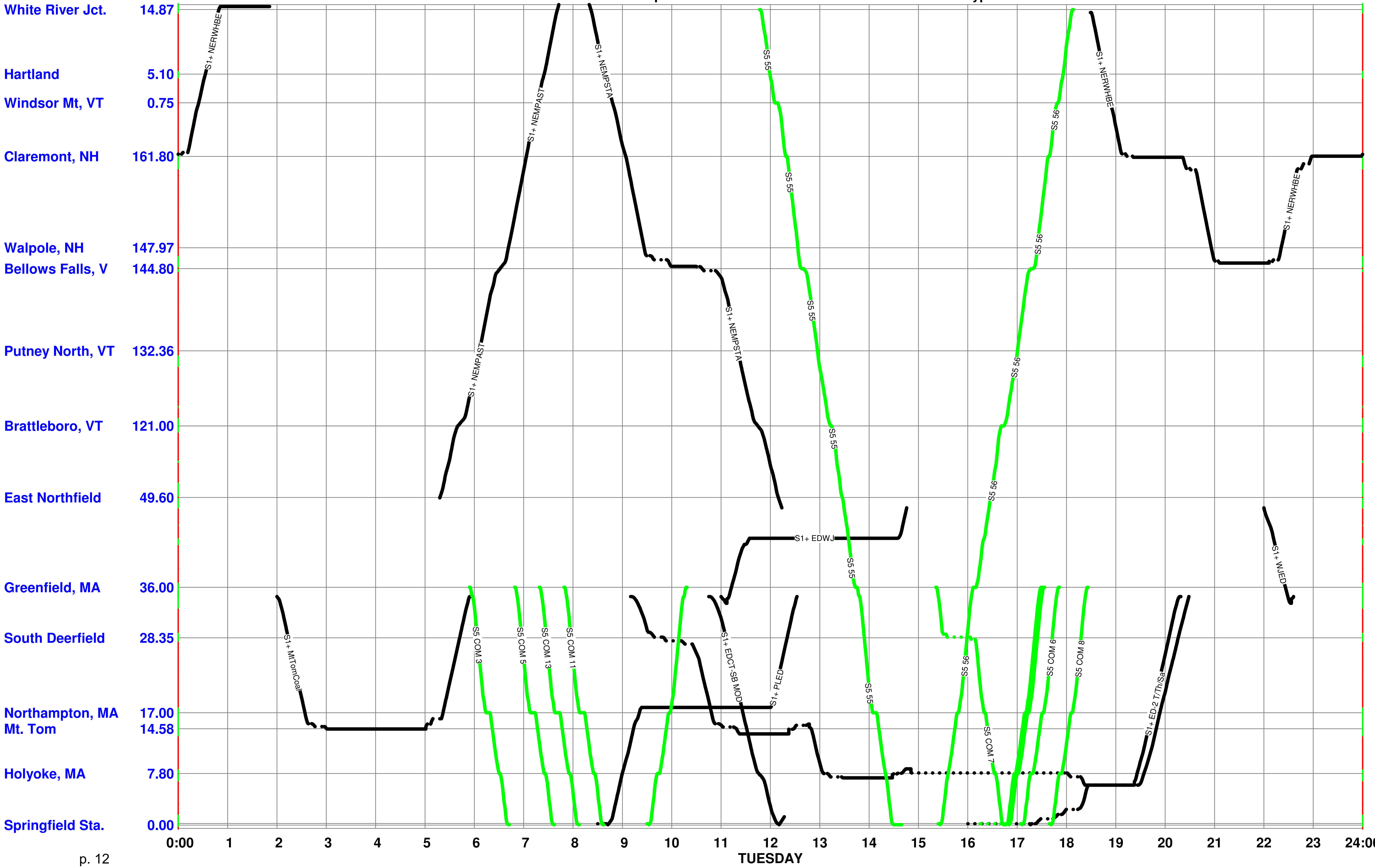
Scenario 5 Time-Distance



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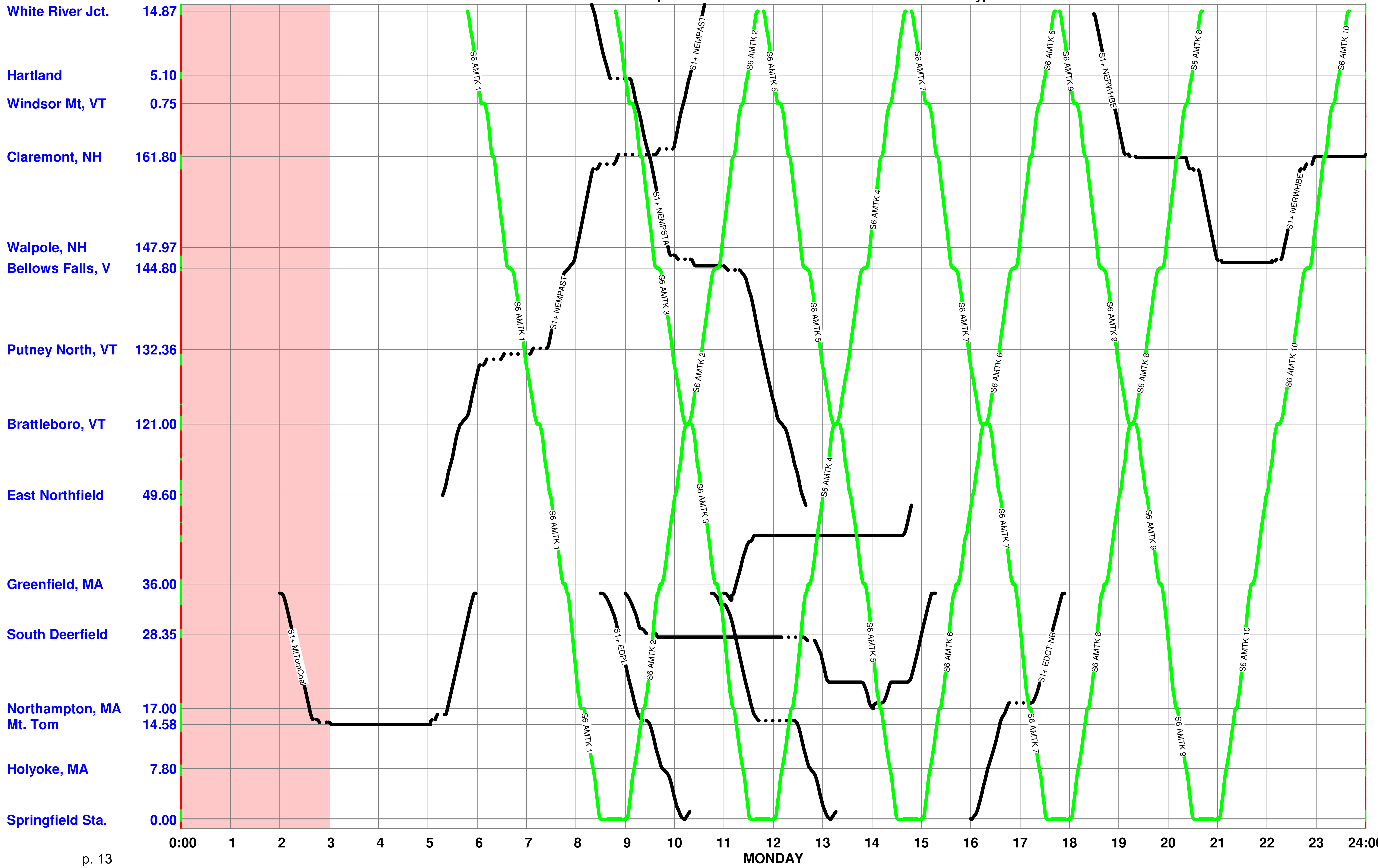

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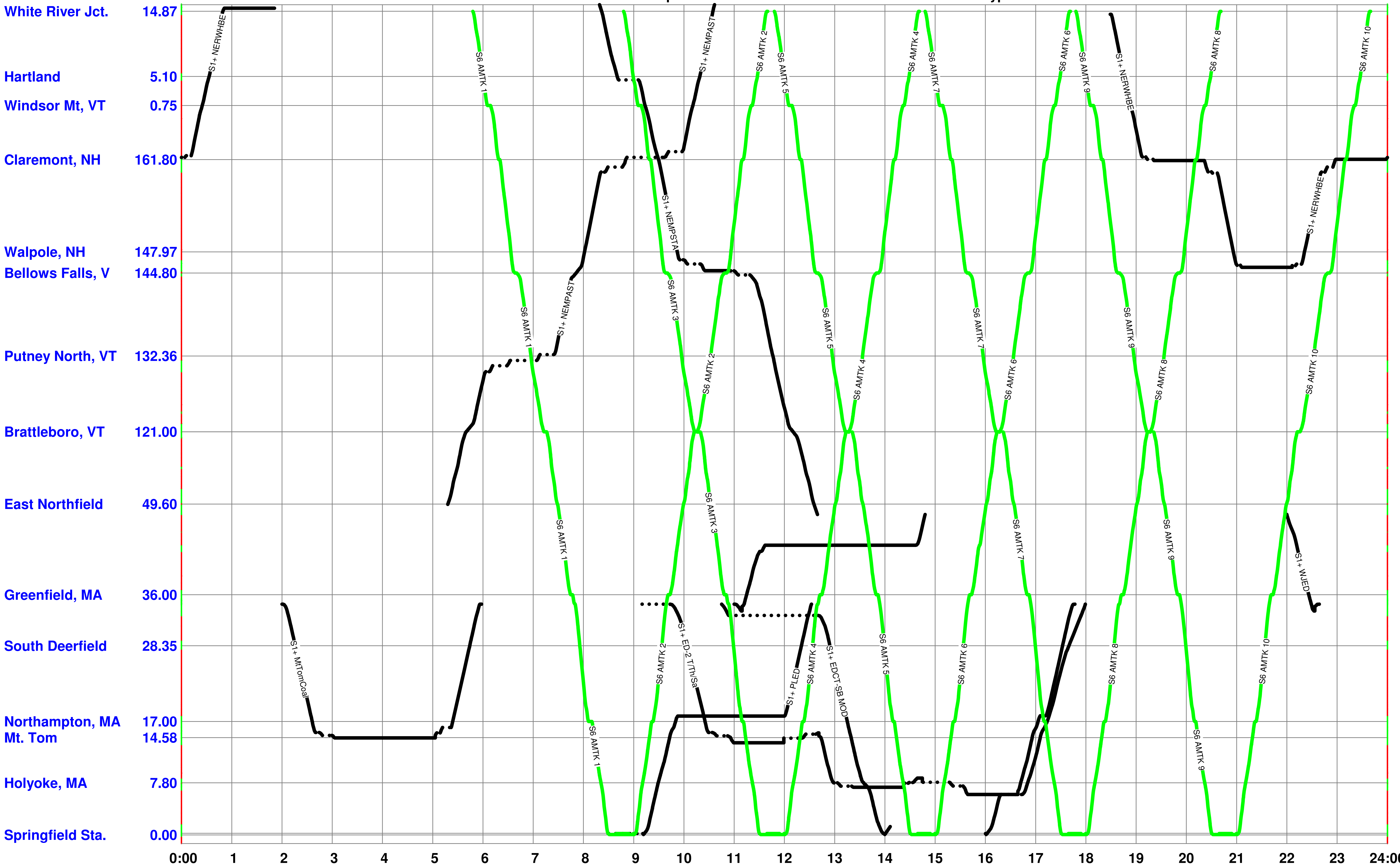

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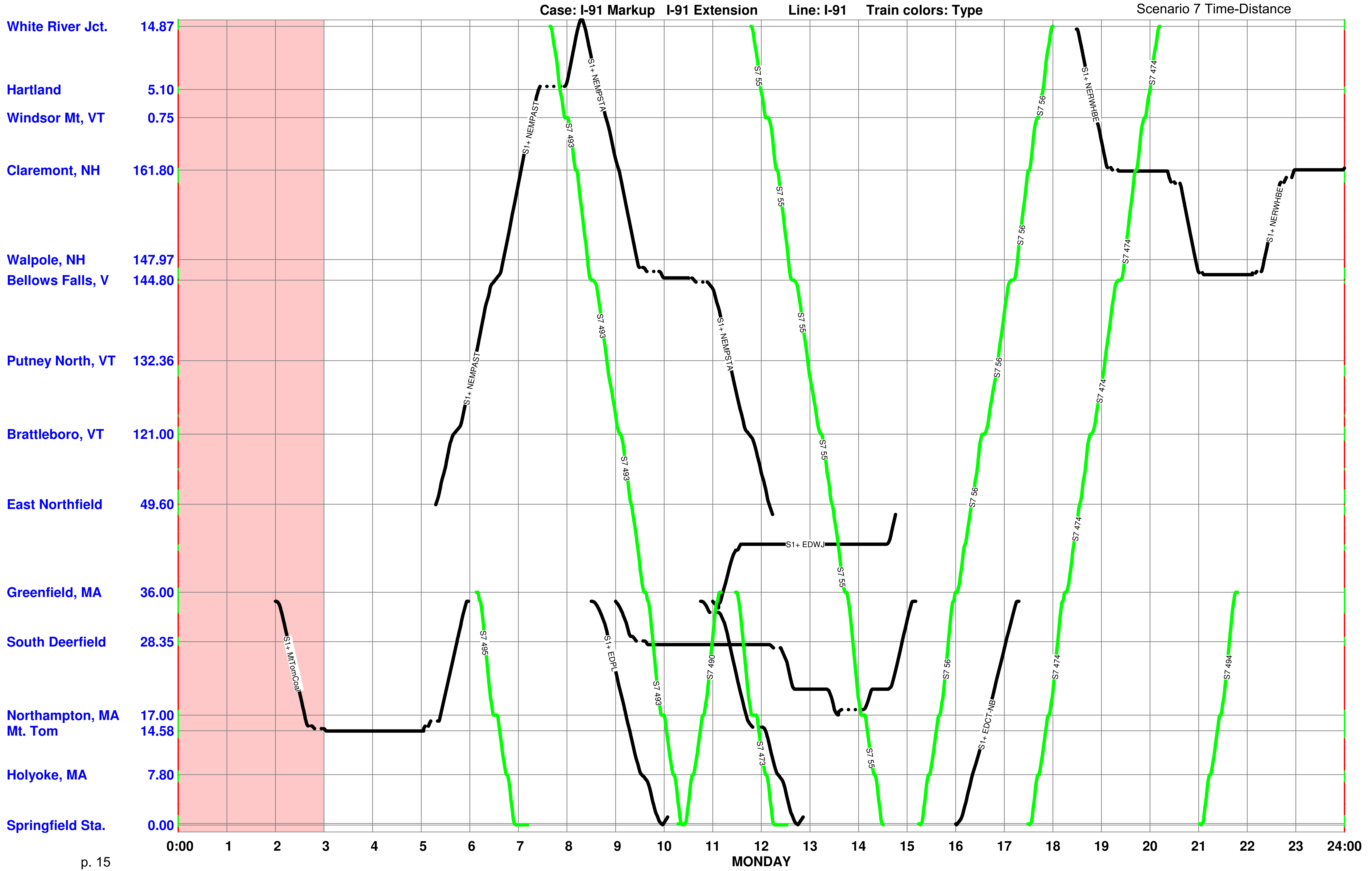

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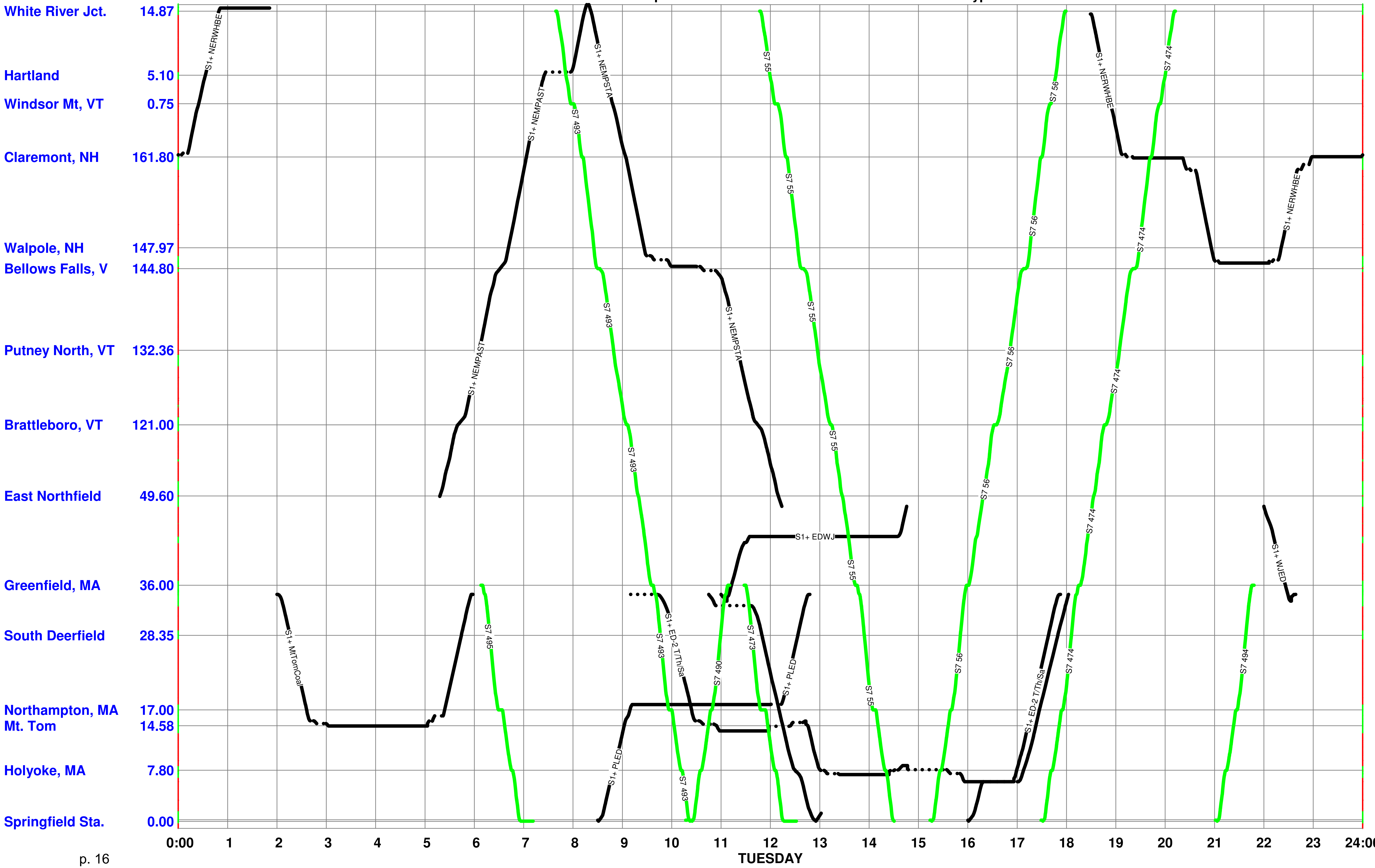

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Delay Statistics

Delay Statistics

Case	Train Group	Run-time Train Count	Average Speed with Dwell	Delay * %	Total Dwell * DD:HH:MM:SS	Switch Delay DD:HH:MM:SS	True Delay * DD:HH:MM:SS	Ideal Run Time DD:HH:MM:SS	Total Elapsed DD:HH:MM:SS	Train Miles
Base	Freight	28	14.062	5.52	1:14:51:01	11:30:44	3:28:10	4:09:18:40	4:12:02:41	1519.3
Scenario 1	Passenger	6	42.277	1.11	1:36:00	2:00	10:23	17:21:12	17:31:35	741.0
	Freight	28	13.727	9.79	1:14:51:01	8:59:41	6:09:12	4:08:57:14	4:14:40:32	1519.3
Scenario 2	Passenger	12	41.985	.95	3:12:00	3:30	17:50	1:11:00:00	1:11:17:50	1481.9
	Freight	28	13.801	8.53	1:14:51:01	9:06:41	5:22:36	4:08:57:14	4:14:04:59	1519.3
Scenario 3	Passenger	54	37.229	14.73	7:51:39	1:18:28	7:20:13	2:12:22:06	2:19:42:19	2520.6
	Freight	28	10.697	58.54	1:14:51:01	11:49:53	1:13:07:29	4:08:57:14	5:22:01:31	1519.3
Scenario 4	Passenger	60	39.054	10.94	12:45:45	2:18:55	10:25:08	4:16:00:12	5:02:25:20	4781.1
	Freight	28	10.999	52.03	1:14:51:01	12:03:09	1:09:13:27	4:08:57:14	5:18:08:01	1519.3
Scenario 5	Passenger	36	41.071	9.86	3:36:00	13:42	3:31:45	1:16:49:33	1:20:21:18	1821.7
	Freight	28	12.660	24.27	1:14:51:01	10:04:55	15:20:20	4:08:57:14	5:00:00:18	1519.3
Scenario 6	Passenger	30	41.052	1.63	12:45:15	4:45	1:14:04	3:17:00:45	3:18:14:49	3704.9
	Freight	28	12.277	29.63	1:14:51:01	13:21:19	18:55:12	4:08:57:14	5:03:45:07	1519.3
Scenario 7	Passenger	24	43.363	.96	4:36:00	4:30	22:00	1:19:46:42	1:20:08:42	1914.2
	Freight	28	13.491	12.33	1:14:51:01	9:10:11	7:47:27	4:08:57:14	4:16:36:50	1519.3

* Dwell times include time spent at initial and final terminals.

True delay = Total elapsed run time - Ideal (seed or run-time) elapsed run time.
True delay includes the acceleration and deceleration associated with conflict resolutions.

Appendix C

Risk Analysis Framework

APPENDIX C: RISK ANALYSIS FRAMEWORK

C.1 Risk Analysis

Forecasts traditionally take the form of a single "expected outcome" supplemented with alternative scenarios. The limitation of a forecast with a single expected outcome is clear -- while it may provide the single best statistical estimate, it offers no information about the range of other possible outcomes and their associated probabilities. The problem becomes acute when uncertainty surrounding the forecast's underlying assumptions is material.

A common approach to bracket the central estimate is to create a "high case" and "low case" scenario. This scenario approach can exacerbate the problem of dealing with risk because it gives no indication of likelihood associated with the alternative outcomes. The commonly reported "high case" may assume that most underlying assumptions deviate in the same direction from their expected value, and likewise for the "low case." In reality, the likelihood that all underlying factors shift in the same direction simultaneously is just as remote as everything turning out as expected.

Another common approach to providing added perspective on reality is "sensitivity analysis." Key forecast assumptions are varied one at a time in order to assess their relative impact on the expected outcome. The problem here is that the assumptions are often varied by arbitrary amounts. A more serious concern with this approach is that, in the real world, assumptions do not veer from actual outcomes one at a time. It is the impact of simultaneous differences between assumptions and actual outcomes that is needed to provide a realistic perspective on the riskiness of a forecast.

Risk Analysis avoids the problems outlined above, and the remainder of this section explains the risk analysis process (RAP) applied in this study. It helps avoid the lack of perspective in "high" and "low" cases by measuring the probability or "odds" that an outcome will actually materialize. This is accomplished by attaching ranges (probability distributions) to the forecasts of each input variable. The approach allows all inputs to be varied simultaneously within their distributions, thus avoiding the problems inherent in conventional sensitivity analysis. The approach also recognizes interrelationships between variables and their associated probability distributions.

Assign Central Estimates and Conduct Probability Analysis

Each key factor or variable is assigned a central estimate and a range (a probability distribution) to represent the degree of uncertainty. Special data sheets are used (see below) to record input from panelists. The first column gives an initial median (most likely) estimate while the second and third columns define an uncertainty range representing a 90 percent confidence interval. This is the range within which there exists a 90 percent probability of finding the actual outcome. The greater the uncertainty associated with a forecast variable the wider the range.

Example Data Sheet for Gas Prices (in 2009 dollars)

Year	Most Likely	Low Estimate	High Estimate
Years	$2.50	$1.75	$5.00

Probability ranges are established on the basis of both statistical analysis and subjective probability. Probability ranges need not be normal or symmetrical -- that is, there is no need to assume the bell shaped normal probability curve. The bell curve assumes an equal likelihood of being too low and being too high in forecasting a particular value. It might well be, for example, that if a projected growth rate deviates from expectations, circumstances are such that it is more likely to be higher than the median expected outcome.

The RAP model transforms the ranges as depicted above into formal probability distributions (or "probability density functions"). This liberates the non-statistician from the need to appreciate the abstract statistical depiction of probability and thus enables stakeholders to understand and participate in the process whether or not they possess statistical training.

Conduct Expert Evaluation: The RAP Session

The next step of the RAP involves the formation of an informed panel and the use of facilitation techniques to elicit risk and probability beliefs about:

a) The structure of the forecasting framework; and

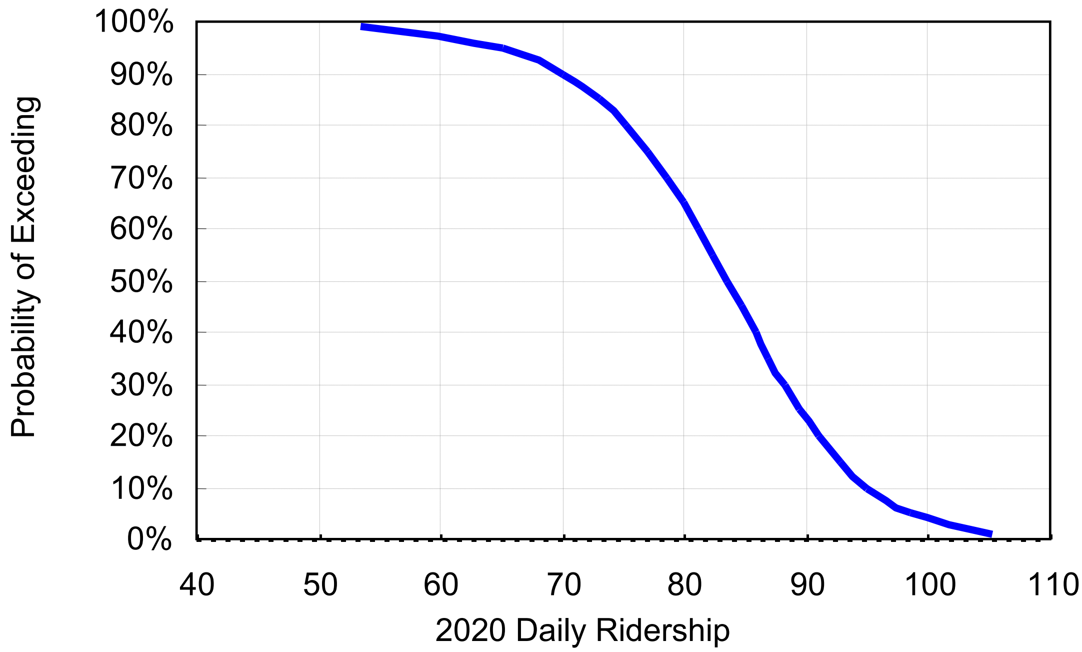
b) Uncertainty attaching to each variable and forecasting coefficient within the framework.

In a), the panel is invited to add variables and hypothesized causal relationships that may be material, yet missing from the model. In b), panelists are engaged in a discursive protocol during which the frequentist-based central estimates and ranges, provided to panelists in advance of the session, are modified according to panelist's beliefs.

Issue Risk Analysis

The final probability distributions are formulated by the risk analyst (HDR) based on input from the RAP session. These are combined using a statistical simulation technique (commonly known as Monte Carlo analysis) that allows each variable and forecasting coefficient to vary simultaneously according to its associated probability distribution. The end result is a central forecast, together with estimates of the probability of achieving alternative outcomes given uncertainties in underlying variables and coefficients (see figures below).

Risk Analysis of Annual Average Daily Boardings, *an Illustration*



Risk Analysis of Annual Average Daily Boardings, *an Illustration*

Projected Traffic	Probability of Exceeding Value Shown at Left
105.3	0.01
98.4	0.05
94.9	**0.10**
91.0	0.20
88.2	0.30
85.8	0.40
83.5	**0.50**
81.2	0.60
78.5	0.70
75.2	0.80
71.3	**0.90**
65.0	0.95
53.5	0.99
82.9	**Mean Expected Outcome**

C.2 Risk Variables

The following is a list of the variables to which risk analysis has been applied for this study:

Variable	Units
Value of Travel Time	$/hour
Average Speed	miles/hour
Fuel Price	$/gallon
Rail Fare	$/mile
Parking Cost	$
Share of Riders Parking	%
Emission Costs	$/mile
Travel Time Cost	$/hour
Amenity Factor	$/hour
On-time Percentage	%
Additional Freight Rail Cars	# cars
Average Rail Tonnage	tons
Freight Reliability	%

Several of the variables have varying ranges for sub-categories, such as type of vehicle – auto or truck, highway or rail travel, personal or business travel, and type of emission.

Appendix D

Public Participation

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Catalyst for Regional Progress
PVPC

August 17, 2009

Subject: Summary of Public Involvement Activity

Introduction

The PVPC and its study partners recognize the importance of stakeholder and community involvement in their various endeavors. For the Knowledge Corridor Passenger Rail Study, the PVPC retained a team of consultants, including Howard/Stein-Hudson Associates (HSH) to conduct stakeholder and community outreach for the project. This effort - described in detail below - has three important aspects. The first is a public awareness campaign to educate the region about the study purpose, schedule, and activities. HSH designed a web site and prepared presentation materials and newsletters for this purpose. The second is to coordinate with key stakeholders in the region to obtain technical input into the study, and gain approval of the methodology used for making assumptions about the potential impacts of the various phases of the rail project. This was done through the establishment of a Technical Advisory Committee, which met frequently throughout the study. The third is to create mechanisms to hear from the impacted communities about their reactions to the study and its recommendations. This was achieved through a series of public meetings, and through the collection and analysis of written comments from meeting participants and other community members.

The Public Involvement Plan

HSH created a Public Involvement Plan (**Appendix A**), which was approved in June 2008. The plan proposed a partnering session, group meetings, public meetings, web site, and newsletters.

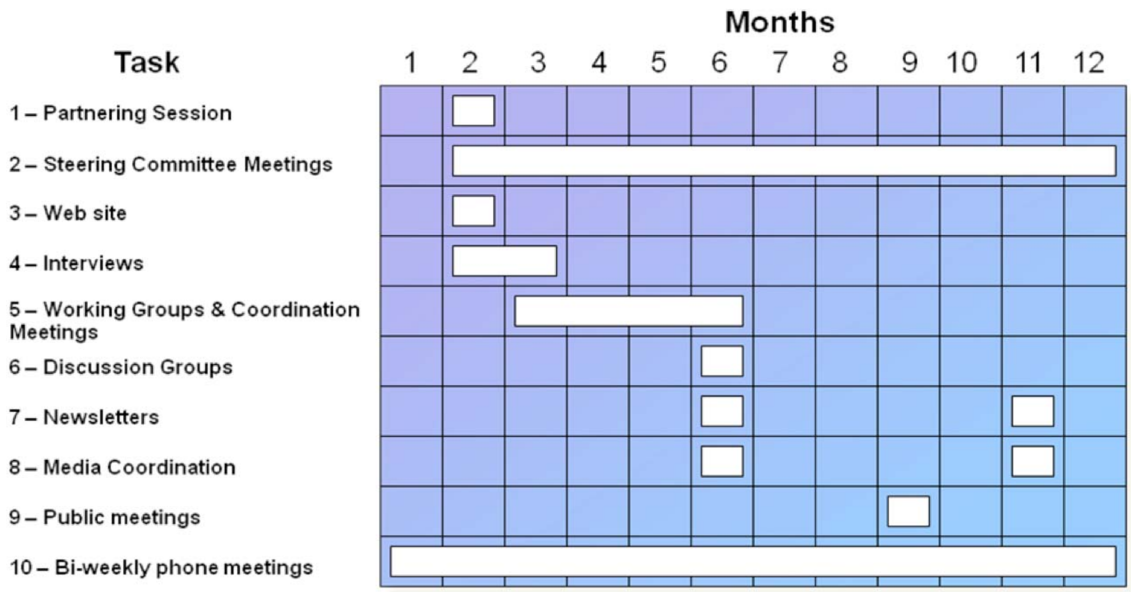


Figure 1. The original schedule.

Pioneer Valley Planning Commission 26 Central Street, Suite 34, West Springfield, MA 01089-2787
phone 413.781.6045 *fax* 413.732.2593 *TTY* 413.781.7168 www.pvpc.org

The schedule was generally adhered to, although the format of the meetings evolved somewhat from the original proposal.

Partnering Session

“Partners” or stakeholders to the project were invited for a daylong group convention on June 26, 2008, at the Clarion Hotel in Northampton, MA. The Partnering Session served as an introduction and understanding to the project. It functioned to gather input and develop a “cohesive, cooperative, and collaborative approach” to the Study.

Thomas L. Wells, Ph.D. Dean of Continuing Education and Special Programs at the University of South Alabama facilitated the Partnering Session. Dr. Wells specializes in these types of meetings.

After an introductory presentation, which outlined the study area and general goals, three teams or breakout groups were used to further develop the goals and issues related to the Study. The breakout sessions developed: goals and objectives, issues and concerns, and a plan of action. The final product was to write and sign a charter pledging to work together with commitment to the goals and objectives outlined during the breakout sessions.

Appendix B contains the invitation, presentation, write-up, and charter.

TAC Meetings

HSH coordinated four Technical Advisory Committee (TAC) meetings in addition to one TAC subcommittee meeting. The TAC is composed of advisors to the project, including railroads, transportation providers, political representatives, government agencies, and major businesses. The TAC was invited to review and respond to material and findings generated by the Study, which helped the project team ensure the quality of work produced. Using a TAC ensures that all the important voices are heard throughout the project.

TAC Meeting 1

The first TAC meeting was held on September 24, 2008 at the PVPC headquarters and served as an introduction to the project. The meeting covered purpose and need, infrastructure assessment, service considerations, interview results, and an overview of the ridership and economic development forecasting tools.

TAC Meeting 2

The second TAC meeting was held on November 19, 2008 at the Pan-Am Railway Headquarters at Deerfield Yard in Deerfield, MA. The meeting included a discussion of initial economic development and ridership findings as well as operations planning. There was also discussion of funding and progress on various related transportation initiatives.

TAC Economic Development/Ridership Subcommittee

On January 22, 2009, a subcommittee of the Technical Advisory Committee (TAC) met at the PVPC’s offices in West Springfield, MA for a working session to review, discuss, and refine the factors and assumptions for the ridership and economic development model. The subcommittee was chosen for their expertise and input to ensure locally informed, extensively reviewed, and credible estimates for the study.

TAC Meeting 3

On April 15, 2009, the PVPC hosted the third meeting of the Technical Advisory Committee (TAC) for the Study. With the feedback from the subcommittee, revised ridership and economic development analysis findings were presented. In addition, the public meetings were announced.

TAC Meeting 4

The fourth meeting of the TAC was held on June 29, 2009 at the PVPC headquarters. The meeting addressed feedback from the public meetings as well as cost-benefit analysis results of the alternative rail scenarios, operational issues, and a status update on funding initiatives.

Notes from all TAC meetings as well as presentations made may be found in **Appendix C**.

Public Meetings

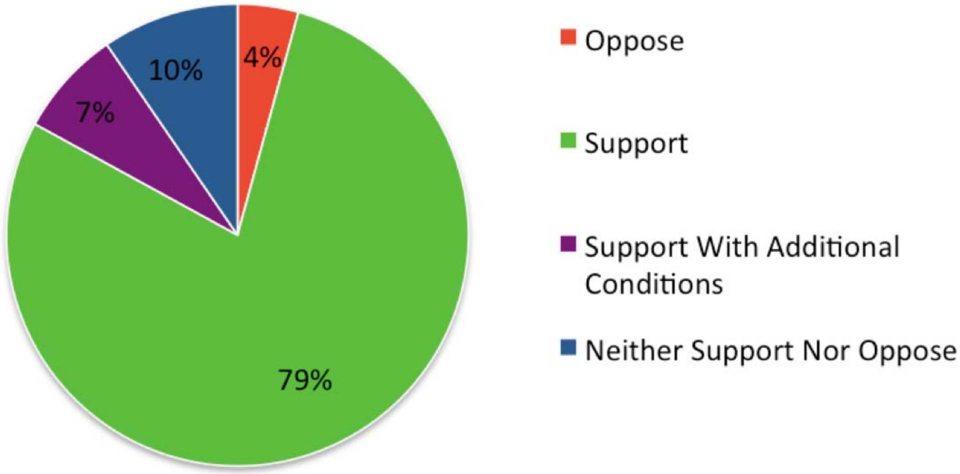
The Knowledge Corridor Passenger Rail Study team held a series of Public Meetings to educate and receive feedback from the public for the Study. The team gave a 30-minute presentation, and then the floor was opened to questions and answers. In addition, comment sheets were distributed to allow the public to submit written comments. Meetings were held:

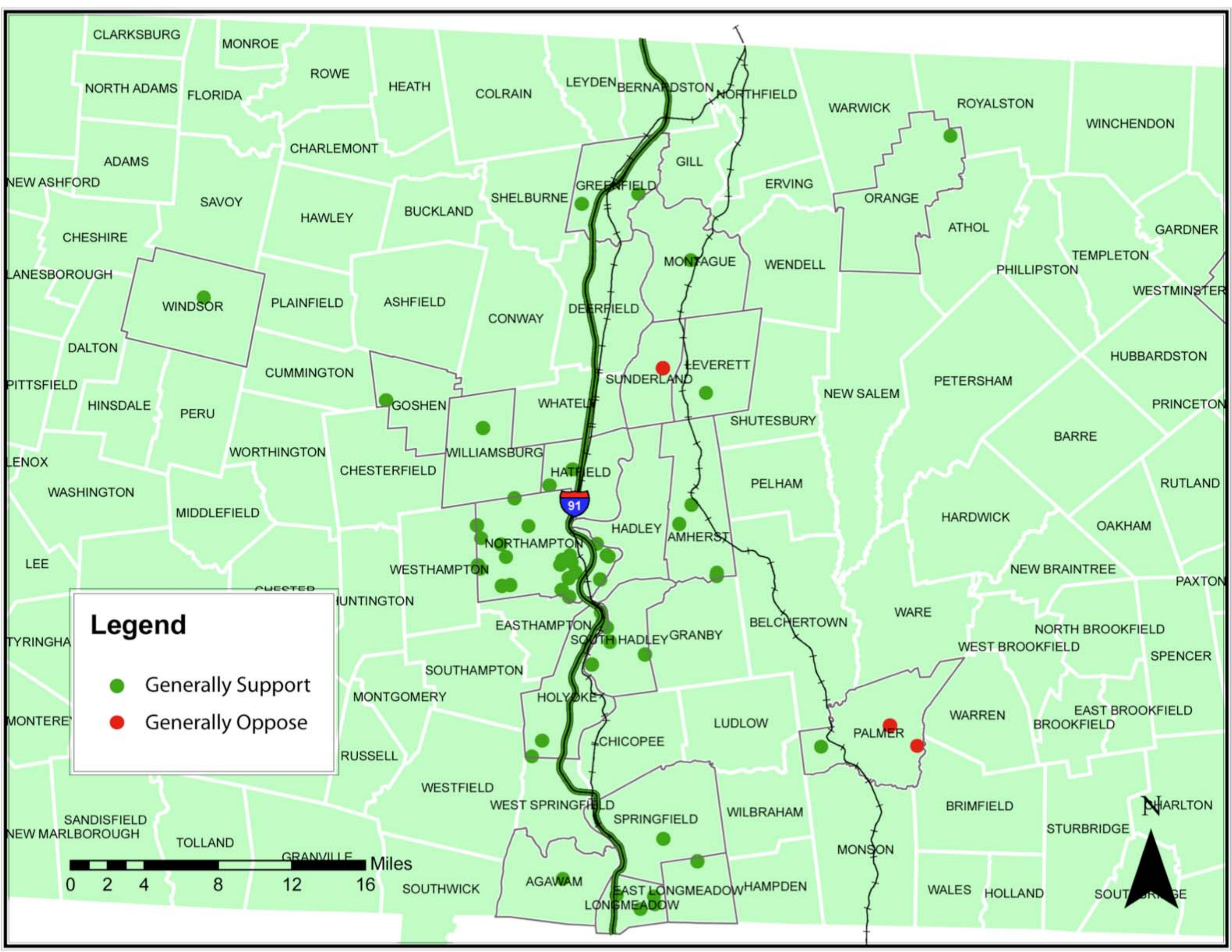
- **May 19, 2009** – Springfield, MA
- **May 20, 2009** – Northampton, MA
- **May 27, 2009** – Bellows Falls, VT

The meetings were publicized in the following publications: Eagle Times, Brattleboro Reformer, Hampshire Daily Gazette, Republican Springfield, masslive.com, and reformer.com. In addition, a legal notice was published in the Republican Springfield and the Brattleboro Reformer.

The project team received 94 written statements about the project. 86% percent supported the project overall, but of those, 8% supported the project conditionally. Reasons for supporting the project conditionally included the desire to also establish East-West service, ensuring bus connections, and continuation of select service through Palmer/Amherst. 10% did not express an opinion either way, and 4% opposed the project outright.

Project Support





Appendix D contains the flyers, ads, presentation, minutes, and all written comments received.

Newsletters

Two newsletters intended for public consumption were or are to be produced:

Newsletter 1 was distributed in January 2009 and contained information on:

- The study overview
- Information about the partnering session and TAC meetings
- Economic development overview
- Next steps
- Information on how to get involved

Newsletter 1 may be found in **Appendix E**.

Web Site

HSH designed and developed a Web site for the study, which was hosted on PVPC's web servers.

The web site was updated continually with information about the project, including meetings notices, summaries, maps, and presentations. In addition, it was possible to register for the newsletter mailing list.

A version of this Web site dated June 11, 2009 may be found in **Appendix F**.

News Clippings

Articles about the Study may be found in **Appendix G**.

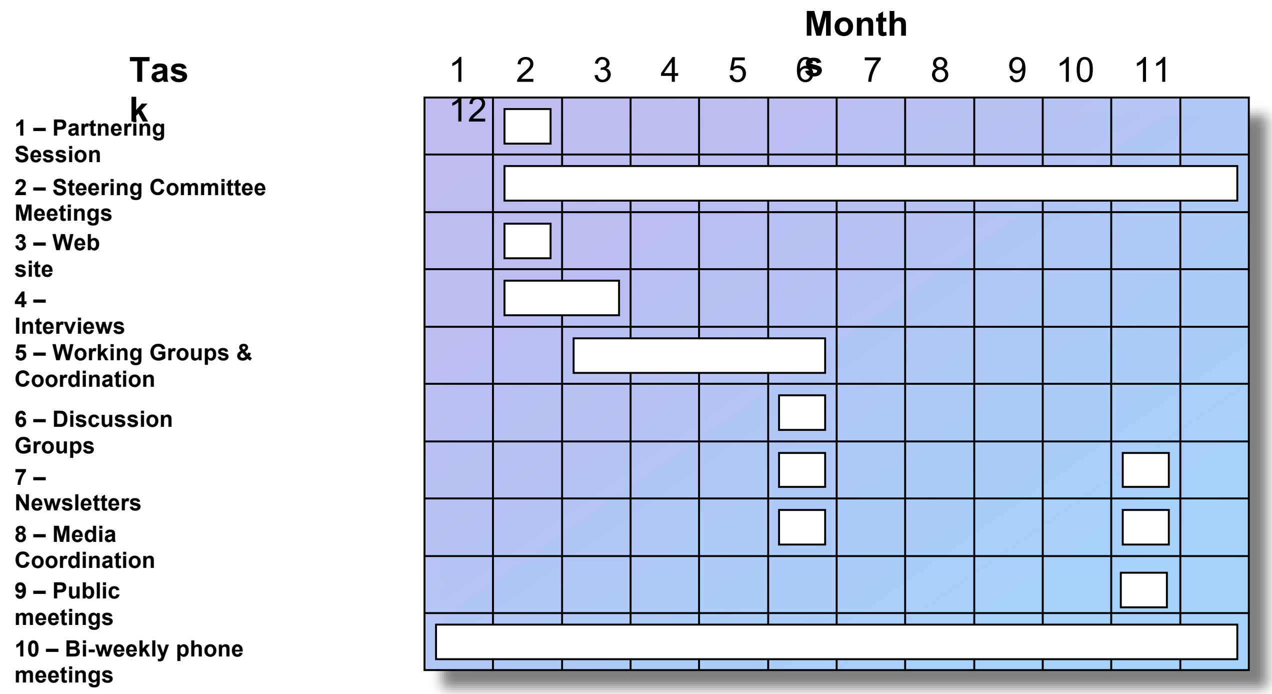
Appendix A

Public Involvement Plan

June 3, 2008

Howard/Stein-Hudson (HSH) Public Involvement Plan

Pioneer Valley Planning Commission I-91 Knowledge Corridor Commuter Rail Project



Month 1 is May, 2008.

Staff HSH key: MF = Maura Fitzpatrick, MTM = Max Talbot-Minkin

Task 1: Partnering Session – To kick-off the project with Stakeholders.

Months: 2
Staff: MF, MTM

- HSH to develop list potential stakeholders and contacts
- HSH to research locations, schedule and book venue
- HSH to develop and distribute invitations and directions
- HSH to participate in 1 prep session by phone and a second in person just prior to the meeting
- HSH will assist in the development of presentation materials
- HSH to attend Partnering Session, including maintaining registration area and aiding facilitation in breakout sessions

Task 2: Steering Committee Meetings – To meet regularly over the course of the study.

Months: 2-12
Staff: MF, MTM

- HSH to participate in 6 of these to report on public involvement activities

- MF to attend 2 of these meetings
- MF and MTM will teleconference to remaining 4 meetings

Task 3: Branding/Web site

Months: 2
Staff: MTM

- HSH will propose a "look" for project materials, including potentially developing a logo. This look will be used for the Web site, newsletters and project presentation materials

Web site Plan A (preferred): Site hosted by agency

- HSH to develop a content page to be submitted to agency for posting to Web site
- HSH to update the site as necessary as the project progresses

Web site Plan B: Site hosted independently

- HSH to register domain and set up hosting service (about $14/month)
- HSH to develop Web site and post it
- HSH to update the site as necessary as the project progresses

Task 4: Interviews – To supplement HDR's existing conditions data collection.

Months: 2-3
Staff: MTM

- HSH to conduct and summarize up to 18 telephone interviews

Task 5: Working group and coordination meetings – To expand the audience for outreach.

Months: 3-6
Staff: MTM

- HSH to identify and contact MPOs, the State of Vermont, and other key stakeholders
- HSH to set up special meetings and/or determine ways to piggyback on the agendas of planned meetings
- HSH to participate in meetings on an as needed basis, but assume that HDR will be the lead on most of these.
- Budget assumptions:
    - No meeting space rental required
    - Contact will be made by phone
    - HDR to take care of materials

Task 6: Discussion groups – To augment the stakeholder input.

Months: 6
Staff: MF, MTM

- HSH to identify two groups with shared interests and organize individual discussion groups
- HSH to draft the meeting discussion guides
- HSH to organize meeting venues and distribute meeting invitations
- HSH to facilitate discussion groups
- HSH to provide written summary of groups
- Budget assumptions:
    - One day, AM and PM meetings
    - No meeting space rental required

Task 7: Newsletters

Months: 6, 11
Staff: MF, MTM

- HSH to expand on the project mailing list of up to 500 for the purpose of distributing newsletters and public information meeting invitations.
- HSH to write, get approval for, and distribute up to two newsletters, possibly during month 6 and month 11

Task 8: Media coordination

Months: 6, 11
Staff: MF, MTM

- HSH to draft materials for the PVPC to provide updates to local media about progress of project, possibly during month 6 and month 12

Task 9: Public meetings – To provide wrap-up and present study findings.

Month: 11
Staff: MF, MTM

- HSH to organize and conduct up to 4 public meetings at end of project
- HSH to identify locations, and provide logistical support
- HSH to facilitate meetings
- HSH to provide written summaries
- HSH will assist in the development of presentation materials
- Budget assumption: HDR or PVPC will pay for advertisements in papers, if required

Task 10: Bi-weekly phone meetings

Months: 1-12
Staff: MF, MTM

- HSH to join and participate in bi-weekly team phone meetings on Wednesday at 8 AM

Appendix B

Materials for Partnering Session

June 1, 2008

Ms. Katie Bryne
Human Resources
Amherst College
201 Converse Hall

Amherst, MA 01002

Dear Stakeholder,

The Pioneer Valley Planning Commission (PVPC) is conducting a Partnering Session on Thursday, June 26, 2008. Please join us to discuss the I-91 Knowledge Corridor passenger rail study, which seeks to evaluate the feasibility of commuter rail from Springfield, MA north to Vermont as well as connecting to rail in Connecticut. The partnering session is intended to provide you with an understanding of this study and to solicit your input in order to develop a cohesive, cooperative and collaborative approach to the future direction of the study.

The study will consider options for providing improved passenger rail in the "Knowledge Corridor." This rail corridor generally parallels Interstate 91 along the Connecticut River, and is known as the Knowledge Corridor due to the high concentration of colleges, universities, and medical institutions that are located along its length. In addition to being an important cultural and economic engine in Massachusetts, Connecticut, Vermont and New Hampshire, the corridor also serves as the transportation backbone of Western Massachusetts.

Building on existing planning efforts by the Connecticut DOT to establish commuter rail between New Haven and Springfield, this study will primarily assess the feasibility of rail passenger service between Springfield, MA and White River Junction, VT. Due to the interrelated nature of the corridor elements of this project, there will be some attention given to the entire 186-mile corridor, including support of the implementation of commuter rail service between Springfield and New Haven.

Given the importance and the nature of the study as described above, we are seeking stakeholder feedback early in the process and for this reason we are requesting your attendance at the partnering session.

The session will run between 8:30 AM to 4:30 PM at the Clarion Hotel and Conference Center in Northampton, MA. Breakfast, lunch, and coffee will be served.

What: Partnering Session on I-91 Commuter Rail
When: Thursday, June 26, 2008 8:30 AM-4:30 PM
Where: Clarion Hotel, 1 Atwood Drive, Northampton, MA
(Directions attached)

PLEASE RSVP TO HOWARD/STEIN-HUDSON ASSOCIATES, ATTN: MAX TALBOT-MINKIN BY PHONE (917) 339-0488 OR BY E-MAILING MTALBOT-MINKIN@HSHASSOC.COM.

FOR MORE INFORMATION ABOUT THE MEETING, PLEASE CALL DANA ROSCOE OF THE PIONEER VALLEY PLANNING COMMISSION AT (413) 781-6045.

WE LOOK FORWARD TO SEEING YOU THERE.

BEST REGARDS,

Tim Brennan

TIM BRENNAN
EXECUTIVE DIRECTOR
PIONEER VALLEY PLANNING COMMISSION

Directions to the Clarion Hotel:

- From I-91 (North or South) take Exit 18.
- Take a right at the end of the ramp.
- Hotel is 3/10ths of a mile on the right.

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

June 26, 2008
Partnering Session

Catalyst for Regional Progress
pvpc

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Today's Agenda

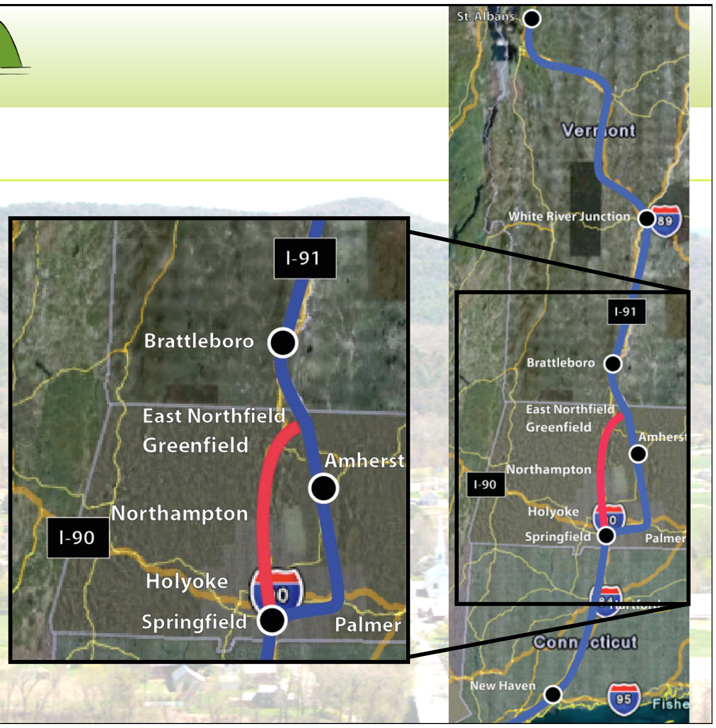
- Welcome and Introductions
- Project presentation/overview
- Initial comments from stakeholders
- Facilitated partnering activities

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

History

Vermonter (Current)

Knowledge Corridor



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Purpose and Need

- Linking and revitalizing communities
- Reducing congestion
- Economic and cultural backbone for New England
- Transportation hub for Western MA

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Study Steps

- Refine Purpose and Need
- Assess existing conditions
- Develop near-term & long-term objectives
- Develop Project market demand
- Develop recommended alternatives
- Develop operating plan
- Forecast economic impacts & opportunities

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Development of Rail Options

- Move to Conn River Line
  - Move Amtrak Vermonter to Conn River Line
  - Implement Diesel Multiple Units (DMUs)
  - Increase Frequency
- Commuter Rail options
  - Linked with ConnDOT New Haven/Hartford/ Springfield proposal
  - Local Commuter Rail options
- Intercity options

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Current Service – East of Conn. River

Amtrak

- St. Albans
- White River Junction
- Windsor
- Claremont
- Bellows Falls
- Brattleboro
- Amherst
- Springfield
- Washington, DC

One trip each direction daily

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Proposed Route

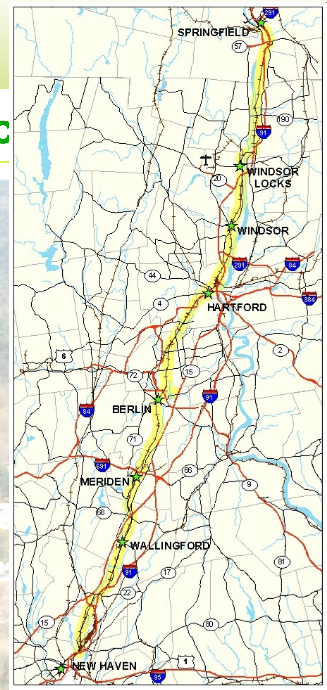
Current

Proposed

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Related Projec

- Connecticut DOT Springfield ↔ New Haven Line
  - Dates back to 1994
  - More substantial plan now
    - Two-way service during rush
    - Possible off-peak and weekend service
    - New stations and double-tracking
  - This study will look at integrating two systems



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Related Projects

- Boston-Springfield-New Haven High-Speed Rail Corridor
  - $694,000 earmark for PVPC

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

From Idea to Construction

Initial Study
↓
Environmental Study
↓
Approval & Funding
↓
Engineering
↓
Construction

- Current step: Initial Study
- Input from stakeholders and community vital

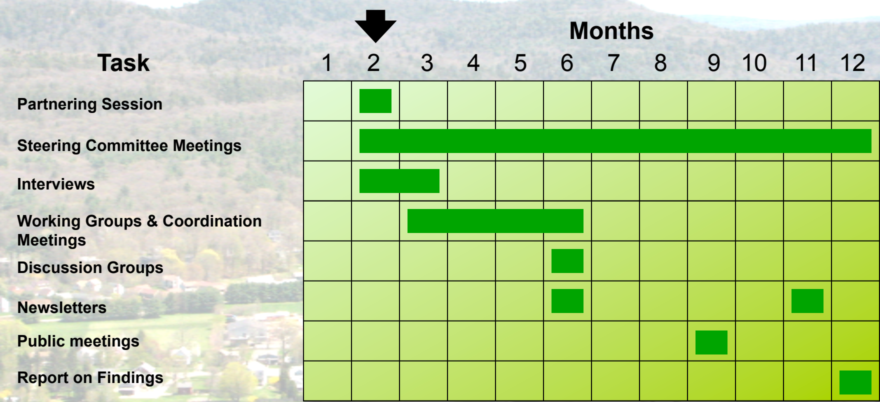
Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

How You Can Help

- Participation in workshop today
- Identify addition contacts
- Solicit support
- Remain involved throughout process

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Stakeholder Involvement Timeline



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Partnering Session Goals

- Develop a statement of project objectives
- Identify potential issues, concerns, problems
- Develop a charter
- Develop a process for tracking project
- Develop a process for problem identification and resolution

Thanks for Being Here

Partnering Workshop Facilitator

Tom Wells

Dean of Continuing Education and Special Programs at the University of South Alabama

PROCEEDING REPORT

INITIAL PARTNERING WORKSHOP

PVPC – KNOWLEDGE CORRIDOR RAIL STUDY

JUNE 26, 2007

CLARION HOTEL
1 ATWOOD DRIVE
NORTHAMPTON, MA

Facilitator: Thomas L. Wells, Ph.D.

COMING TOGETHER AND GETTING TO KNOW ONE ANOTHER IS BEGINNING. . . .

WORKING TOGETHER IS PROGRESS. . . .

ACHIEVING COMMON GOALS AS A COHESIVE MANAGEMENT TEAM IS PARTNERING.

AGENDA

PARTICIPANTS

(Provided by Maura Fitzpatrick)

DEVELOP A STATEMENT OF PROJECT OBJECTIVES AND PROJECT RESPONSIBILITIES FROM THE POINT OF VIEW OF EACH STAKEHOLDER

PROJECT GROUP/CONSULTANTS

GROUP #1

GOALS AND OBJECTIVES

"Better Living Through Mobility"

GOALS

1. Improve The Transportation Opportunities Within the Conn River Corridor

2. Ensuring and Enhancing Economic Vitality Of Entire Region

3. Preserving Livability of the Region

4. Provide Connected Transportation Options
   *Give people choices

5. Embrace Smarter and Use Patterns Through Transportation

6. Environmental Benefits

TIMELY

7. Improve Freight Movement

8. Maximize Use of an Underutilized Asset

9. Balance Objectives of Different Users Within a Single Corridor

10. Maintain Passenger Rail Service to Vermont

11. Reduce Greenhouse Gasses

12. Maximize Convenience for Users – Including Freight

13. Viable Option of Users

14. Evaluate and Understand Implications of Investments/Improvements

15. Develop a Public/Private Partnership

16. Increase Options for Freight/Passenger Options

17. Recognize Urgency for Developing Transit Options
    *Be sensitive to

18. Leverage Short-Term Public Support for Long-Term Needs

19. Develop Feasible/Doable Recommendations with Future Expansion in Mind

20. Promote Rail Mobility as an Economic Issue – Competitiveness

TEAM #2

GOALS AND OBJECTIVES

GOALS

1. Link and Revitalize I-91 Corridor; Less Single Occupant; AQ

2. Create Partnerships and Efficiencies that Work. Prioritize Intermodality – Success for Rail, Transit, Users

3. Clearly Identify Needs

4. Result in More Riders, Users

5. Wise Investments with Realistic Outcomes

6. Model for the Country

GROUP #3

GOALS AND OBJECTIVES

GOALS

1. Reasonable Rail Passenger Service To and From All Corridor Communities at Reasonable Times

2. Development of Strong North/South Rail Corridor

3. Support Sustainable/TOD In Our Community

4. Ensure That communities w/o a Station Are Connected To The Rail In Some Manner i.e., Speedy Bus Service

5. Promote Tourism and Travel

6. Policy Changes for Mass Transit

GROUP #3

OBJECTIVES

A. Rail Corridor to Include CT/New Haven/Canada

B. Include East/West Connection

C. Look at Zoning Around Train Stations

D. coordinate Bus Routes to Create Efficient Commuter Service

E. Lobby for Additional Funding for Public Transportation (For Infrastructure, Capital and Operation)

F. Re-look at Allocation of Existing Transportation Funding. Create/Facilitate (Bus/Rail) Group of Transportation Providers

LIST THE ISSUES, CONCERNS, AND/OR

PROBLEMS THAT COULD KEEP THIS

PROJECT FROM REACHING ITS

FULLEST POTENTIAL

GROUP #1

TOP FIVE (5) ISSUES

1. Funding
2. Timely (Time-Defined Implementation>Goals)
3. Coordinated Intermodal Solution
4. Community Advocacy, "Not In My Back Yard"
5. Operational Sustainability
   *Convenient to Riders
   *Practical Cost

TEAM #2

TOP FIVE (5) ISSUES

1. Establish Broad and Accurate Public Understanding and Support

2. Fight the Perception That Rail Is Competing With Rather Than Complementing Private Bus Service

3. Establish Funding and Consider Financial Constraints

4. Consider Passenger and Freight Rail Conflicts On Conn River Line as Passenger Service Grows

5. Expedite Process to Remain Competitive Locally and Nationally and To Ensure Funding and Commitment

TEAM #3

TOP FIVE (5) ISSUES

1. Financial Feasibility
    - *Service
    - *Ridership > Biz Model
    - *Cost
        - *Rider
        - *Operator System
    - *Evaluation of What Service Levels Make Sense

2. Political Will vs Funding Reality

3. Slow Policy Change Federal, State and Local Levels

4. Lack of Buy-In From Competing Interests
    - *Between Modes and Providers

5. Need for a Structured Plan for Decision –
   Making Implementation Process and Timing of Efforts
    - *Examples; Coordination with Conn and Vermont Services and Multi-Jurisdictional Partnering

TEAM #4

TOP SIX (6) ISSUES

1. Clear Identification of Steps, Timeliness and Public Process

2. Economically Feasible, Implementable, Substantial Benefit, Available Resources

3. Integration of all Modes OR NO Successes

4. Commitment of All Partners or There Will Be a Stalled Process

5. Short-Term Implementation Projects That Match Long-Term Vision or Poor Planning/Poor Use of Resources

6. Recognize Needs of All Users In All Areas – Rural, Suburban, Urban and Balance with Smart Growth, Sustainability

TEAM #5

TOP FIVE (5) ISSUES

1. Funding
   *Capital
   *Maintenance and Operation

2. Uneven for Unrepresentative Participation
   *Withdraw
   *Dominate
   *Resistance

3. Lack of Support
   *Urban vs Rural
   *Feeling of Being Threatened
      *Other Modes and Rates i.e., Amherst

4. Long Time Frames and Possible Missed Opportunities

5. Resolution of Conflicting Needs With Realistic Outcomes

ACTION PLANNING AND

DEVELOPMENT OF ACTION PLANS

BASED ON CRITICAL ISSUE LIST

GROUP #1

ACTION PLAN

PROBLEM: The established commuter rail line must ensure convenience, cost effectiveness, and attractiveness to continue and expand individual, private, public and political support.

SOLUTIONS:

1. Operation Must Mirror Demand
   *Respond to feedback from non-traditional rider-ship (people who have not experienced rail traffic options)

2. Collaboration with Positive/Negative Incentives

3. Competitive – Comfortable and Modern

4. Internally Defined Benchmarks of Success and Expectations

5. Economic Viability/Strategic Destinations to Obtain Concurrent Support; Rural/Urban Needs and Wants Including Transit Oriented Modal Development in Downtown Areas
   *Feasibility for Employees

6. Multi-State, Local, Federal Cooperation for Three (3) State Region > Account for All Levels of Representation

TEAM #2

ACTION PLAN

PROBLEM: How to Develop Public Understanding and Support

1. PVPC Outreach Plan In 12 Months

2. Translate to Funding Request

3. Build on PVPC Study >
   Use Partners

4. Media Relations

5. Build on Relationship with Pan Am

6. How Does This Help Holyoke and Greenfield and How to Coordinate with Local Plans?

ACTION PLAN – TEAM #2

WHAT	WHO?	WHEN?
Media Relations		
Charrette/Facilitation with Public Institutions and Stakeholders	PVPC	12 Months
Public Outreach with Local Meetings	PVPC	12 Months
Soliciting Input	PVPC	12 Months
Media and Technology	PVPC	12 Months
Go To Their Meetings	PVPC	12 Months
Identify Possible Sources Of Resistance and Reach Out Early	PVPC	12 Months
Be Forthcoming about Project Implications and Funding ($)	PVPC	12 Months
Identify and Leverage Potential Allies	PVPC	12 Months

We need to:

ESTABLISH BROAD AND ACCURATE PUBLIC UNDERSTANDING AND SUPPORT

TEAM #3

ACTION PLAN

ISSUES

1. Timing/Phases
   a) Vermont/DMV's – Use of CT River Line
   b) Commuter Service

2. Capital Costs > Alternatives

3. Operating Costs > Service Levels

4. Rider-ship
   a) Inter-City – Amtrak
   b) Existing Trips – Mode Switch
      Other Transit Assumptions
   c) New Trips
   d) Induced Economic Development/TOD

5. Freight Rail Operations

PROBLEM: Define Financial Feasibility

1. How to Define? What is Acceptable?
   (Not using FTA NS)
   CT Estimates 10% Fare Box Recovery

2. Access to Federal/State/Other Funds for Capital

3. What is Needed?

4. Economic Development/Value Capture to Help Fund Project

5. Potential Range of Funding Sources

TEAM #4

ACTION PLAN

PROBLEM: How to integrate Rail, Inter-city Bus and all other modes to maximize efficiency and compatibility with the least number of mode changes.

What Should Be Done?

1. Establish a Core Advisory Group
2. Identify Basic Architecture and Modes
3. Identify Existing Types of Service
4. What Do You Have? What Do You Want?
5. Determine When Needs are Financially Driven
6. Serve Existing Demand
7. Create/Incentive Demand
8. Analyze Effect on Areas Served and Not Served
9. Analyze Effect on All Modes
10. Define Rules of Operation
11. Identify Major Employers and Routes to Serve
12. Recognize Changing Trends – More Local Trips, Less Weekend Jaunts

Who Should Do It?   Lead Agency

1. Multi-State Advisory Group

2. Identify Stakeholders

3. Clear Coordination with State and Regional Plans

TEAM #5

ACTION PLAN

PROBLEM:

I. In order to make this a timely process, what do we need to do; and what happens if we don't?

SOLUTIONS:

V.A. Complete the feasibility study in the allotted time frame with realistic, phased implementation plan to go forward.

I. Agree upon a definition of timeliness

V. **Solution:**

A. Implement plan in phased stages to maintain public interest and support and political support

Anticipate/secure funding in order to implement phased project

Continue regulatory process as phases are being implemented

B. Lead agency in partnership with all stakeholders

C. To be determined – ASAP

D. Bi-weekly lead agency meetings (meaningful) and regular stakeholder updates.

Use Multiple Participation Venues/Techniques

When Should It Begin?

*Immediately

*Timely

*On or Close to Schedule”

Schedule in Progress

*Articulation of Milestones

PARTNERING CHARTER

(To be edited and completed by Maura Fitzpatrick And Max Talbot-Minkin)

ADDITIONAL HANDOUTS USED

AT THE

FOLLOW-UP

PARTNERING WORKSHOP

MONDAY, JULY 23, 2001

KEY POINTS IN PARTNERING

UPPER MANAGEMENT SUPPORT

COMMITMENTS – Commonly shared objectives by owner and contractor

RIGHT PEOPLE IN PMG

VISION – Common vision (purpose or mission)

OPEN COMMUNICATIONS – No hidden agendas and under-the-table discussions

NO DUAL MANAGEMENT

TRUST – (Adversarial relationships must be discontinued)

PROFITS - Both contractor and owner must profit from the association

SHARED RISKS – Always looking for "win-win" solutions

STRENGTH – The combination must be stronger tan either along (Synergy)

ATTITUDE – Partnering becomes the culture of choice

SYSTEMIC – (Depends on system rather than individuals)

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Partnering Charter

June 26, 2008

We, the Knowledge Corridor Passenger Rail Study partners, commit to work together to deliver a quality plan that will provide the best recommendations for the communities we serve. Our team will be dedicated to the principles of honesty, trust, respect, professionalism, and open communication.

The Knowledge Corridor is identified as the rail facilities traversing along the Connecticut River between New Haven, CT and White River Junction, VT.

We are committed to achieving the following Goals and Objectives:

- Improve the transportation opportunities within the Connecticut River Corridor.
- Add to the economic vitality of the entire Knowledge Corridor region.
- Provide effective and efficient passenger rail service along the corridor.
- Support sustainable Transit Oriented Development in our communities and encourage local jurisdictions to implement supporting land use zoning around train stations.
- Promote use of rail to support travel and tourism.
- Preserve the livability of the region.
- Coordinate transportation options to create effective freight and passenger rail service and intermodal connections.
- Provide environmental benefits.
- Create partnerships that support the goals and objectives of the Study.
- Consider passenger rail investments for realistic outcomes.
- Develop a model for the region and country.
- Include viable East/West connections.
- Progress Study to effectively evaluate the extension of the proposed New Haven-Hartford-Springfield commuter rail service north of Springfield to White River Junction and intercity passenger service within the Knowledge Corridor.
- Coordinate with New Haven-Hartford-Springfield commuter rail study team to ensure consistency of the two studies.
- Continue the commitment to the Partnering Process.

Appendix C

Materials from TAC Meetings

Catalyst for Regional Progress

PVPC

Timothy W. Brennan, Executive Director

September 4, 2008

Subject: Knowledge Corridor Passenger Rail Study - Technical Advisory Committee

The Pioneer Valley Planning Commission (PVPC) is leading the Knowledge Corridor Passenger Rail Study to evaluate the feasibility of passenger rail operations from Springfield, MA north to Vermont. This study will also consider how rail service proposed to be expanded between New Haven and Springfield would be integrated with potential rail service north of Springfield. To assist us with this effort we would like to **invite you or your representative to serve on the Technical Advisory Committee** for this study.

For the purposes of the study, the "Knowledge Corridor" rail corridor generally parallels Interstate 91 along the Connecticut River and includes the Pan Am Railway Conn River line from Springfield to East Northfield, MA and continues north on the New England Central Railroad to White River Junction, Vermont. The term "Knowledge Corridor" was derived from the high concentration of colleges, universities, and medical institutions that are located along the corridor. In addition to being an important cultural and economic engine in Massachusetts, Connecticut, Vermont and New Hampshire, the corridor also serves as the transportation backbone of Western Massachusetts.

A key element of the study is the need to define the benefits that the enhanced passenger rail service could realize to the area. Input from stakeholders on the opportunities and issues associated with increased passenger rail service is necessary in this process. We therefore would appreciate your participation on the Technical Advisory Committee to provide your perspective and expertise.

The meeting information follows:

What: Knowledge Corridor Passenger Rail Study
Technical Advisory Committee
When: Wednesday, September 24, 2008 10 am-12:00 noon
Where: PVPC's Offices – 26 Central Street, Suite 34, West
Springfield, MA (directions attached)

Please RSVP to Howard/Stein-Hudson Associates, attn: Max Talbot-Minkin by phone (917) 339-0488 or by e-mailing mtalbot-minkin@hshassoc.com.

For more information about the meeting, please call Dana Roscoe of the Pioneer Valley Planning Commission at (413) 781-6045.

We look forward to seeing you there.

Best regards,

Tim Brennan
Executive Director
Pioneer Valley Planning Commission

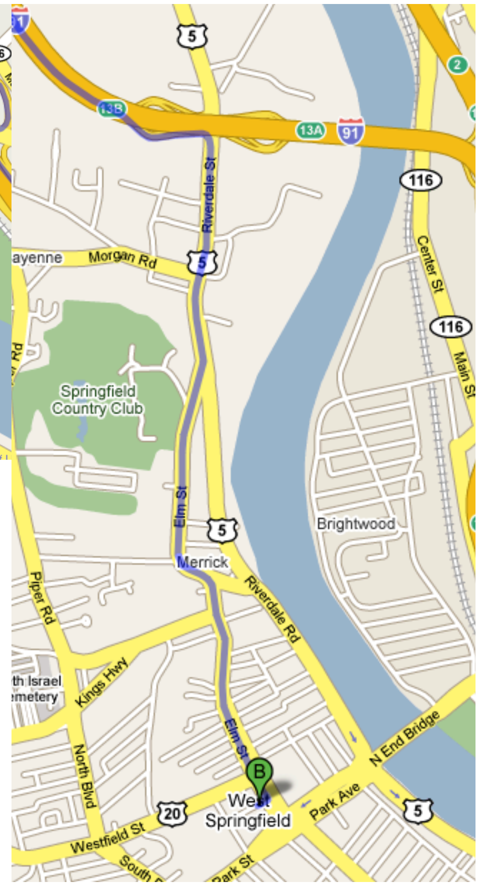
Directions to the PVPC

Driving north on I-91:

- Take exit 9 for Route 20 West
- At traffic circle, take 2nd exit to continue on Route 20 West
- Turn right at Van Deene Ave
- Turn right at Central Street

Driving south on I-91:

- Take exit 13B for US-5 South
- After about ¾ mile, take a slight right onto Elm Street
- After 1 ½ miles, turn right at Central Street



Pioneer Valley Planning Commission 26 Central Street, Suite 34, West Springfield, MA 01089-2787
phone 413.781.6045 *fax* 413.732.2593 *TTY* 413.781.7168 www.pvpc.org

MEETING MINUTES

Knowledge Corridor Passenger Rail Study

Meeting Subject:	Meeting #1 of the Technical Advisory Committee
Date/Place/Time:	September 24, 2008 / PVPC Meeting Room / 10 AM
Attendees:	*See Attached List*

On September 24, 2008, the Pioneer Valley Planning Commission (PVPC) hosted the first meeting of the Technical Advisory Committee (TAC) for the Knowledge Corridor Passenger Rail Study. The meeting took place at the headquarters of the PVPC at 26 Central Street, Suite 34 in West Springfield, MA. PVPC is the lead agency for the Study. The following memo summarizes the meeting.

Introduction

In addition to the project team, a total of 13 TAC members representing 12 agencies were in attendance at the meeting. A list of the attendees may be found in **Appendix A**.

Dana Roscoe of the PVPC welcomed the meeting attendees and thanked everyone for their attendance. Attendees introduced themselves.

Presentation

The main PowerPoint presentation may be found in **Appendix B** and covered the following subjects:

- Purpose and need; proposed route; ConnDOT's related commuter rail project; a video summary of the infrastructure assessment; and plans for high speed rail corridors and intercity service, presented by Ronald O'Blenis of HDR, Inc.
- Vermont's service planning, presented by Charlie Miller of the Vermont Agency of Transportation (VTrans)
- A summary of the travel market demand and ridership forecasting, presented by Peter Mazurek of HDR, Inc.
- An economic development analysis and interview findings, presented by Daniel Hodge of HDR, Inc.
- Maps and photographs of proposed station locations, presented by Neil Kollios of HDR, Inc.

Questions During and After Presentation

Mary MacInnes of the Pioneer Valley Transit Authority asked if the timeline for the ConnDOT project is realistic. Ronald O'Blenis replied that the 2011-2012 date is optimistic at best.

Matt Mann of Windham Regional asked if there were plans for service to Bradley under the ConnDOT project. Dana Roscoe replied that the intention was to have a station stop in Windsor that would meet a shuttle bus. Although there are tracks to Bradley, the geometry would make it a slow train ride—therefore, a bus would be faster.

Mary MacInnes asked about hybrid diesel-electric service. Stan Slater of Amtrak replied that the industry was waiting to see the results NJ TRANSIT's proposed hybrid locomotive, which would allow run-through service in both electric and diesel territory.

Teri Anderson of Northampton Economic Development stated that people that commute to Amherst are more sensitive to losing service during summer months than the cost of the service, because the level of bus service is reduced when the Five Colleges are not in session. The project team said they would take that into consideration.

Charlie Miller asked if it would be possible to host the next TAC meeting in Greenfield. Maureen Mullaney of the Franklin Regional Council of Governments replied that it would be.

Some attendees asked where the money would come from for construction of the project. Dana Roscoe noted that funding requirements would vary by the type and level of service considered. The cost estimates are currently being developed.

Conclusion

Dana Roscoe thanked the group for their attendance and adjourned the meeting. The next meeting of the TAC will be planned for November and the focus will be on draft ridership projections.

Appendix A
List of Attendees

Project Team

Charlie Miller	Vermont Agency of Transportation
Dana Roscoe	PVPC
Daniel Hodge	HDR, Inc.
Max Talbot-Minkin	Howard/Stein-Hudson Associates, Inc.
Neil Kollios	HDR, Inc.
Peter Mazurek	HDR, Inc.
Ronald O'Blenis	HDR, Inc.

TAC

Kathleen Anderson	City of Holyoke Office of Planning and Economic Development
Len Elwin	Amtrak
Mary MacInnes	Pioneer Valley Transit Authority
Matt Mann	Windham Regional
Maureen Mullaney	Franklin Regional Council of Governments
Mike Rennicke	Pioneer Valley Railroad
Mike Sharff	Peter Pan Bus Lines
Natalie Blais	Office of Congressman John Olver
Paul Nicolai	EDC of Western Mass
Roger Bergeron	Pan Am Railway
Stan Slater	Amtrak
Teri Anderson	Northampton Economic Development
Tim Doherty	Executive Office of Transportation

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

September 24, 2008
TAC Meeting

pvpc
Catalyst for Regional Progress

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Today's Agenda

- Welcome and Introductions
- Project presentation/overview
- Initial comments from TAC Members
- Preliminary Findings
- Follow up Actions

General Study Area

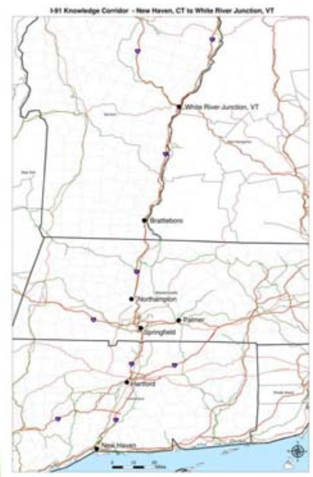
White River Junction, Vermont

to

Springfield, Massachusetts

to

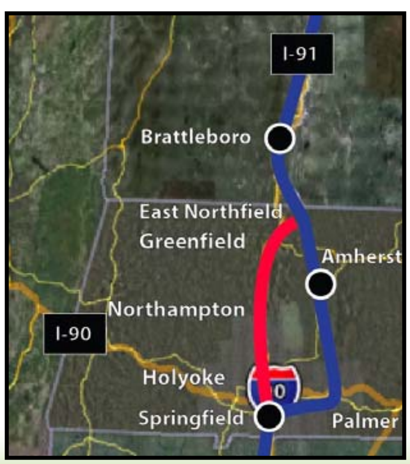
New Haven, Connecticut



Knowledge Corridor

Vermonter (Current)

Knowledge Corridor



Purpose and Need

- Linking and revitalizing communities
- Reducing congestion
- Economic & cultural resource for New England
- Transportation hub for Western MA

Study Components

- Refine Purpose and Need
- Why – consider benefits
  - Forecast economic impacts & opportunities
  - Develop Project market demand
  - Develop near-term & long-term objectives
- What – service considerations
  - Assess infrastructure conditions and needs
  - Develop potential service considerations
  - Develop operating plan

Current Vermonter Service

Amtrak

One trip each direction daily

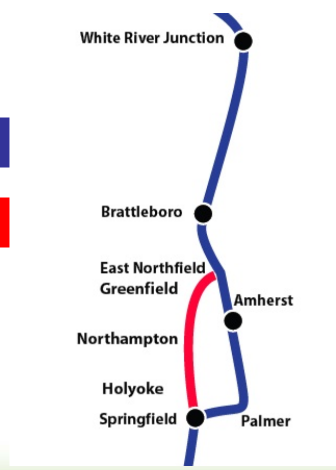
- St. Albans
- White River Junction
- Windsor
- Claremont
- Bellows Falls
- Brattleboro
- Amherst
- Springfield
- Washington, DC

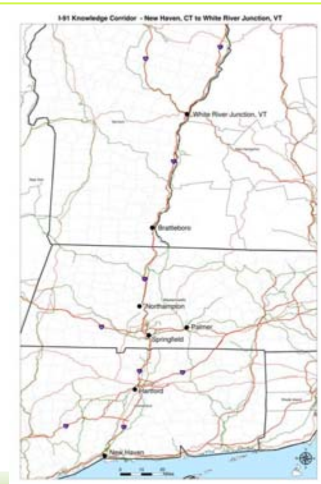
Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Proposed Route

Current

Proposed





Existing Passenger Rail Service

- Current Amtrak service - 6 roundtrips
- 62-mile New Haven and Springfield
  - 6 immediate station stops in CT
- 8 trains “shuttles” New Haven - Springfield
- 4 trains in NEC “Regional” service and include:
  - Springfield early AM -. Washington, DC early PM
  - Washington, DC late PM – Springfield late AM
  - The “Vermonter” daily 611-mile St. Albans - Washington.
    - Vermonter southbound am – northbound pm

ConnDOT Plans New Haven-Springfield

- Improve Springfield, Hartford, & New Haven
- ConnDOT plans increased service by 2011-2012
- Present 12 train increased to 30 trains
- Combination of Amtrak trains and ConnDOT trains.
- Plans to increase double track 23 to 42 miles
- Expanded service is commuter-oriented
  - 6 trains arriving New Haven before 9:30am
  - 6 trains departing New Haven prior to 6:15pm

Summary of Infrastructure Assessment

- Video Summary
- Track subgrade good condition
  - Well drained subgrade & ballast
  - Rock ballast in good condition
  - Surface and alignment good.
- Rail condition needs improvement
  - Jointed rail maintenance
  - Select rail replacement
  - Switch upgrades
- Tie condition needs improvement

Service Considerations

- Existing Amtrak Service to Conn River Line
  - Potential DMU service
  - Potential added trips
- Commuter Focused
  - Integration with ConnDot initiatives
  - Independent Operations and Market
- Intercity Service
  - Improvement to Amtrak service
  - Additional routes with Springfield as Hub
  - Higher Speed Rail

Related Projects

- Boston-Springfield-New Haven HSR Corridor
  - Part of FRA HSR Corridor
  - $694,000 earmark for PVPC
  - Considering combining with Boston Montreal HSR

Service Considerations North of Springfield

- Extend expanded New Haven-Springfield to Greenfield
- Potential extending ConnDOT's 30-train daily schedule
- 10 trains daily (4 peak round trips, 1 mid-day)
- 16 trains daily (5 peak round trips, 2 mid-day & 1 evening)
- Consider commuters to/from/south Springfield
- Some service could be provided by the Vermont trains
- Potential station locations considered
  - Greenfield
  - Northampton
  - Holyoke

Vermont Service Planning

- Move Vermonter to Pam Am Railways Conn River Line
- Potential self-propelled Diesel Multiple Units (DMU's)
- DMU's may double daily service in the Knowledge Corridor
- Second round trip based on shuttle to New Haven
- Can Vermont trains integrate with local service

Consider Additional Intercity Service

- **Success of "Downeaster" Portland to Boston**
  - Service has 5 daily round trips
    - Grown steadily since inception
    - 28% increase in ridership FY07 to FY08
  - Ridership combination of
    - Commuters
    - Tourism/recreation
    - College students (UNH station has largest ridership)
- **All elements are present in Knowledge Corridor**
- **Knowledge Corridor feature Bradley Airport**
  - 4 miles from Windsor Locks
  - Accessible by shuttle bus – significant ridership attraction

Ridership Development and Analysis

- Travel markets of Knowledge Corridor
  - *How Many*
  - *How Often*
  - *Which Way*
  - *Time, Cost, and Convenience Sensitivity*
- Passenger rail ability to support
- **Wh**at other benefits might be realized?
  - Potential for economic development
- Consistent with FTA Process

Ridership Forecasting Tools Data

- Regional Demographics and GIS Data
  - Population/Households, Employment
  - Size of different groups/markets
  - Zonal geographic coverage
- Travel Network Information
  - Travel times by mode
  - System connectivity
  - Capacity of transportation network
- Sensitivity information and parameters

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Special Markets

- "Non-traditional" travel markets Components
  - Universities/Colleges
  - Hospitals/Medical Facilities
  - Research & Development Institutions
  - Tourism/Local Attractions/Special Events
  - Commercial Airports
    - Bradley International
    - Westover Field
  - Others to consider?

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Ridership and System Connectivity

- Rail corridor component of regional plan
  - Link to expand regional transit systems
  - East-west linkages to major sites of interest
    - Northampton-Amherst
    - Holyoke-Chicopee-Westover Field
    - Interface with Route 2 services
- Ridership sensitive to connectivity & competition
- Don't have to solve every problem at once...

Induced Economic Development Analysis

- Incremental development (jobs and population)
  - Varies by rail service scenario
- Interviews and data collection
- Land use assessment
  - Known development projects
  - Developable land and re-vitalized parcels
- Employment and population trends
  - Context for development impacts
  - Input to ridership forecasts

Economic Development Interviews

- Affiliated Chamber of Commerce of Springfield
- Congressman Olver's Staff
- EDC of Western Massachusetts
- Franklin County CDC
- Franklin Regional Council of Governments
- Hayes Development
- Holyoke Community College Kittredge Center
- Holyoke Office of Planning and Development
- Northampton Economic Development
- O'Connell Companies
- Springfield Office of Planning and Development
- University of Massachusetts

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Interview Findings - Pioneer Valley Region

- Mix of industries provides stable economy
- Have urban infrastructure
- Need development catalyst
- Limitations to development
  - Construction costs that exceed market rates
  - Challenge in attracting younger workers
- Commuting patterns not focused on corridor
  - More commuters travel south to Hartford
  - Limited jobs in downtown Springfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Interview Findings - Greenfield

- Main strengths:
  - Educated labor force from region's colleges
  - Low housing prices
- Major constraints:
  - Lack of large employers, high paying jobs
  - Need for improved school districts
- Build Regional Transit Center near rail line
- Supports Transit Oriented Development
- Preservation of open spaces with development
- More desirable place to live with commuter rail

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Greenfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Greenfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Greenfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Greenfield

Greenfield

Interview Findings - Northampton

- Main Strengths:
  - Vibrant downtown economy – cultural attraction
  - Stable population – willingness to use trains
  - Large retail & service sector and higher-end jobs
- Main Constraints:
  - Somewhat limited developable land and parking
  - High land costs
- Strong regional connections to universities, artist community, NYC
- Not a 9-to-5 traditional business center

Northampton

Northampton Former Station

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Northampton – Former Station

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Northampton – Former Station

Interview Findings - Holyoke

- Main Strengths
  - Low electric rates and labor costs
  - Chapter 43D sites, TIFs and Industrial Park Zoning
  - Dense urban land use, historic mill buildings
- Main Constraints
  - Lingering perceptions, lack of sustained leadership
  - Slow progress towards completing downtown projects
- Downtown revitalization efforts are underway

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Passenger Rail Study
Springfield to White River Junction

Holyoke – Auto Ramp

Holyoke – Auto Ramp

Holyoke – Auto Ramp

Holyoke – Former Station

Holyoke – Pulaski Park

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Passenger Rail Study
Springfield to White River Junction

Holyoke Pulaski Park

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Holyoke – Pulaski Park

Interview Findings - Springfield

- Main Strengths
  - Mix of industries leads to stable economy
  - Low cost relative to other areas of Massachusetts
- Main Constraints
  - Public safety and education system
  - Lack of private development – residential and commercial
- Development pressures of Connecticut/Boston
- Re-use of existing space & parking for growth
- Union Station renovation = rail & redevelopment

Springfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Springfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Springfield

Springfield

Pioneer Valley Region Population

Geographic Area	2007 U.S. Census Estimate	2015 Projected Population	2030 Projected Population	Average Annual Growth Rates 2007-2015	Average Annual Growth Rates 2015-2030
Greenfield	17,706	17,851	18,064	0.10%	0.08%
Rest of Franklin County	*53,896*	*58,197*	*67,538*	*0.96%*	*1.00%*
Holyoke	39,737	39,033	37,839	-0.22%	-0.21%
Springfield	149,938	151,566	152,424	0.14%	0.04%
Rest of Hampden County	268,233	273,694	284,559	0.25%	0.26%
Northampton	28,411	28,987	29,485	0.25%	0.11%
Rest of Hampshire County	124,736	128,614	134,735	0.38%	0.31%

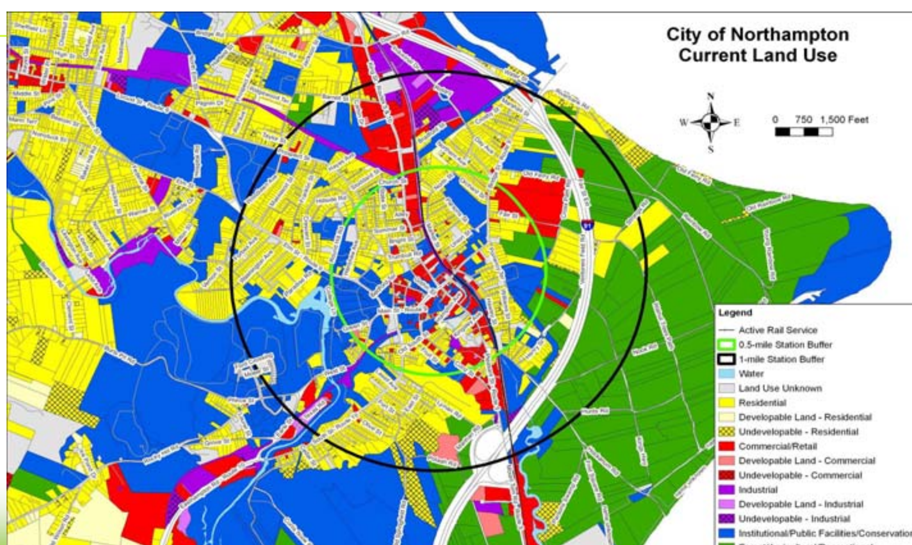
Source: U.S. Census Bureau 2007 Population Estimates, released July 2008; HDR estimates using Regional Transportation Plan for Franklin County 2007 and Pioneer Valley MPO- 2007 Update

Pioneer Valley Region Employment

Geographic Area	2007	2015 Projected Employment	2030 Projected Employment	Average Annual Growth Rates 2007-2015	Average Annual Growth Rates 2015-2030
Greenfield	10,941	11,377	12,038	0.49%	0.38%
Rest of Franklin County	19,736	20,493	21,723	0.47%	0.39%
Holyoke	24,010	23,790	22,541	-0.12%	-0.36%
Springfield	81,683	80,007	73,624	-0.26%	-0.55%
Rest of Hampden County	112,191	115,529	116,125	0.37%	0.03%
Northampton	20,373	20,646	19,992	0.17%	-0.21%
Rest of Hampshire County	44,813	45,495	45,450	0.19%	-0.01%

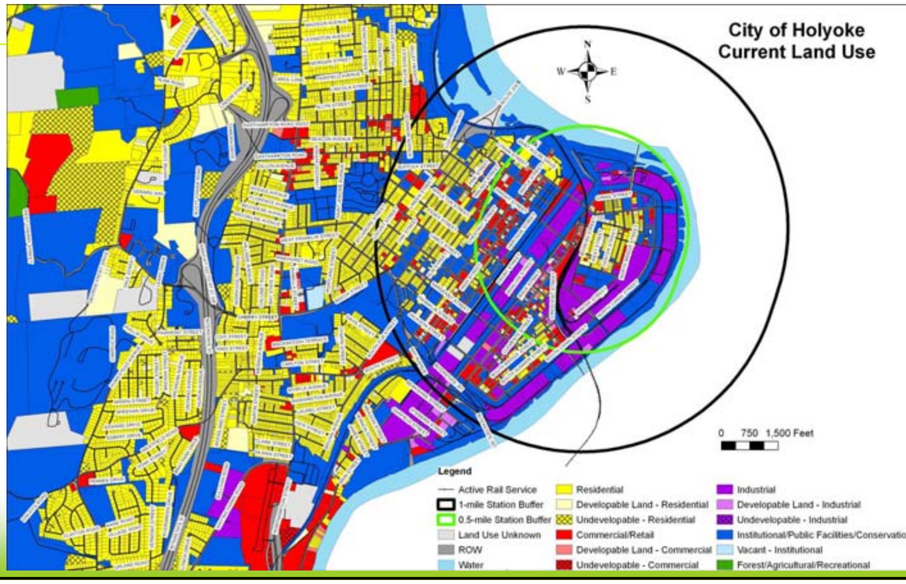
Sources: Franklin County Regional Transportation Plan, Pioneer Valley Regional Transportation Plan, Massachusetts Executive Office of Labor and Workforce Development, ES-202

Northampton Land Use Buffers from Station Location



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Holyoke Land Use Buffers from Station Location

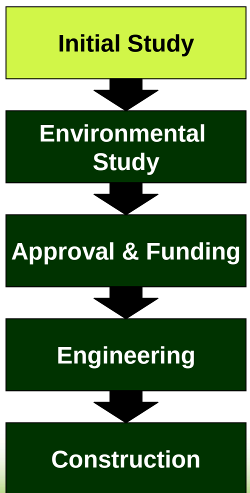


Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Preliminary Economic Development Analysis

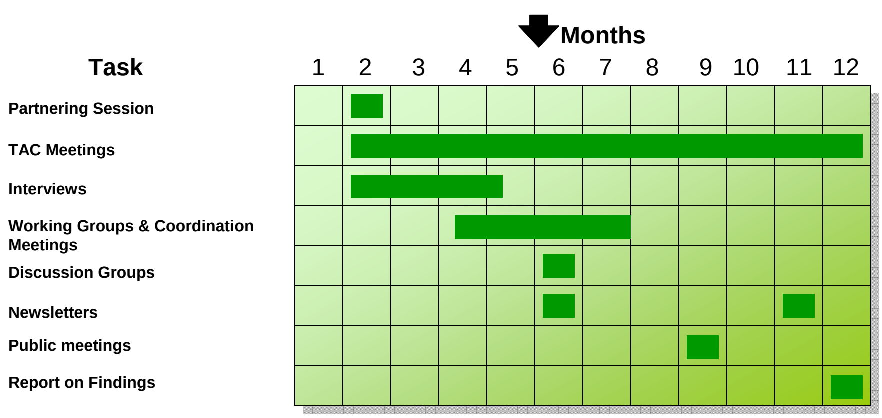
- **Enhanced Rail Service**
  - Northampton: about 310 new jobs, 75 new residents
    - 175 Office, 80 Retail, 55 Industrial
  - Holyoke: about 415 new jobs, 200 new residents
    - 250 Office, 115 Retail, 50 Industrial
- **Commuter Rail Service**
  - Greenfield: about 50 new jobs
    - 38 Office, 12 Retail
  - Northampton: 500 new jobs, 145 new residents
    - 275 Office, 130 Retail, 95 Industrial
  - Holyoke: about 970 new jobs, 475 new residents
    - 600 Office, 265 retail, 105 Industrial

From Idea to Construction



- Current step:
  - Initial Study
- Stakeholder & community input vital

Stakeholder Involvement Timeline



Next Steps

- Initial Ridership Forecast
- Complete Infrastructure Evaluation
- Complete Economical Development Analysis
- TAC Meeting

October 29, 2008

Subject: Knowledge Corridor Passenger Rail Study
Second Meeting of the Technical Advisory Committee

The Pioneer Valley Planning Commission (PVPC) invites you or your representative to the second meeting of the Technical Advisory Committee (TAC), which is intended to update the committee on the progress of the project.

Presentation materials will include initial travel market and ridership forecast results. We will ask the TAC to provide us feedback and guidance based on this discussion on how best to concentrate our collective energies in revising and refining the forecasts and subsequent economic analysis. The discussion will be facilitated through the following means:

- Presentation of estimates of potential economic development due to passenger rail in the Pioneer Valley
- Review of input assumptions used in developing markets/forecasts
- Review of operational assumptions as regards the proposed rail service
- Review of other operational assumptions
- Brief discussion of forecasting approach/technique
- Brief summary of thematic goals for analysis/data needs for subsequent economic analysis
- Dissemination of results by station

The meeting information follows:

What:	Knowledge Corridor Passenger Rail Study Technical Advisory Committee Meeting #2
When:	Wednesday, November 19, 2008 10:00 am-12:00 noon
Where:	Deerfield Yard – Engine House Conference Room McClelland Farm Road, Deerfield, MA

Please RSVP to Howard/Stein-Hudson Associates, attn: Max Talbot-Minkin by phone (917) 339-0488 or by e-mailing mtalbot-minkin@hshassoc.com.

Also, you will find the meeting minutes and presentation from the previous meeting included in this mailing.

For more information about the meeting, please call Dana Roscoe of the Pioneer Valley Planning Commission at (413) 781-6045.

We look forward to seeing you there.

Best regards,

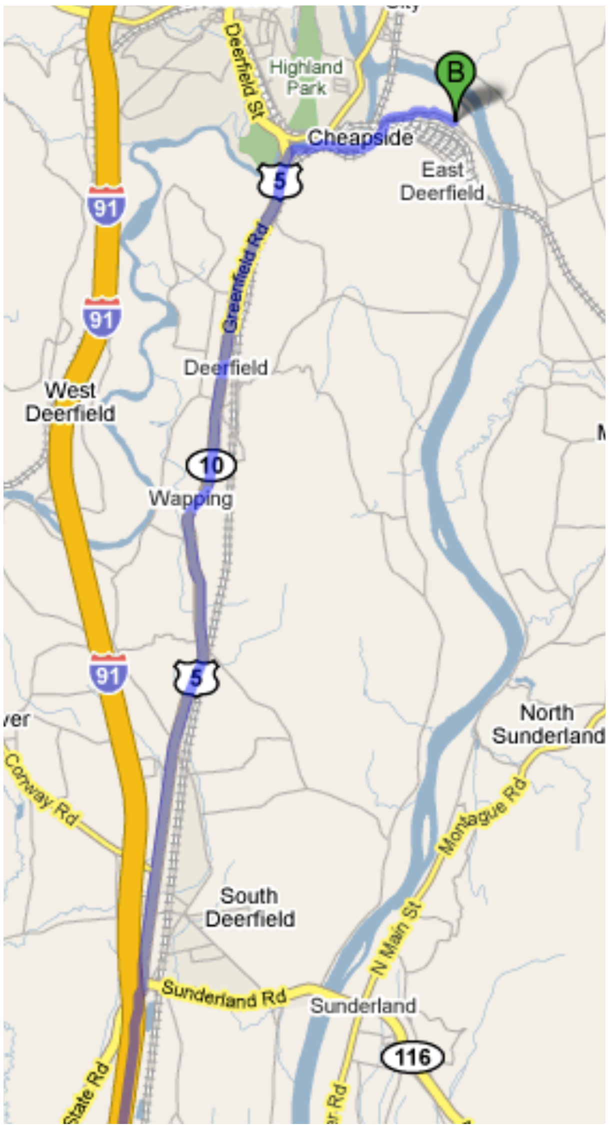
Tim Brennan

Tim Brennan
Executive Director
Pioneer Valley Planning Commission

Directions to Deerfield Yard

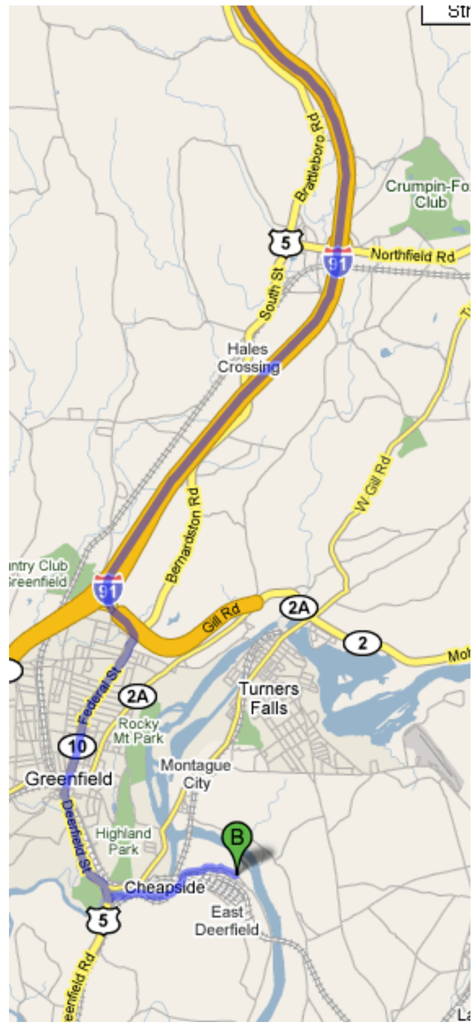
Driving north on I-91:

- Take exit 24 for Route 10/US-5 exit north
- Follow Route 10/US-5 for 7 miles
- Turn right onto River Road
- Turn left onto McClelland Farm Rd
- Follow signs to Deerfield Yard and Engine House Conference Room



Driving south on I-91:

- Take exit 27 onto Route 2 East towards Boston
- In ½ mile, take Route 10/US-5 exit south towards Greenfield
- Follow Federal St/Route 10/US-5 for 3 miles
- Turn left onto River Road
- Turn left on to McClelland Farm Rd
- Follow signs to Deerfield Yard and Engine House Conference Room



Pioneer Valley Planning Commission 26 Central Street, Suite 34, West Springfield, MA 01089-2787
phone 413.781.6045 *fax* 413.732.2593 *TTY* 413.781.7168 www.pvpc.org

MEETING MINUTES

Knowledge Corridor Passenger Rail Study

Meeting Subject: Meeting #2 of the Technical Advisory Committee

Date/Place/Time: November 19, 2008 / Pan-Am Railway (Deerfield Yard) / 10 AM

Attendees: *See Attached List*

On November 19, 2008, the Pan Am Railway hosted the second meeting of the Technical Advisory Committee (TAC) for the Pioneer Valley Planning Commission's (PVPC) Knowledge Corridor Passenger Rail Study. The meeting took place at the Deerfield Yard facility at Pan Am Railways on McClelland Farm Road in Deerfield, MA. PVPC is the lead agency for the Study. The following memo summarizes the meeting.

Introduction

In addition to 8 members of the project team, a total of 13 TAC members representing 10 agencies were in attendance at the meeting. A list of the attendees may be found in **Appendix A**.

Ron O'Blenis of HDR welcomed meeting attendees. Roger Bergeron of Pan Am Railway introduced the facility and provided safety information. Attendees introduced themselves.

Presentation

The main PowerPoint presentation may be found in **Appendix B** and covered the following subjects:

- Potential project-induced economic development, land use, and job and population growth was presented by Daniel Hodge of HDR. Data model assumptions were discussed and debated within the group.
- Ridership development and analysis / Transit Demand Modeling (TDM) was introduced by Peter Mazurek of HDR. Assumptions such as demographics and service and operational issues were discussed.
- A brief presentation on operations planning was given by Jim Stoetzel of Transit Safety Management.
- Travel time assumptions and ridership demand and forecasting were discussed by Peter Mazurek of HDR.

Questions and Discussion During and After Presentation

Ron O'Blenis told attendees they would be asked at the next meeting to review numbers and assumptions outlined in this presentation to concur or state what adjustments need to be made.

Roger Bergeron of Pan Am asked whether the ridership model reflects the sudden growth of ridership as a result of rising gas prices. Len Elwin of Amtrak noted that even 2007 models would not have anticipated the economy and gas prices of 2008. Dan Hodge replied that one of the risk factors in the analysis is the price of gas, and that ridership numbers have increased nationwide—a factor the project team will consider.

During the section on Land Use, Matt Mann of Windham Regional asked whether there was data on companies that still have access to freight rail but no longer use it, and whether they plan to use it in the future. Mann noted the Vermont side already did this through aerial surveys and by approaching companies to ask about their plans. Dan Hodge stated that the team does not have that data specifically. Sydney Culliford of Pan Am offered to get the Pan Am marketing group involved.

Maureen Mullaney of the Franklin Region Council of Governments provided an update on the Franklin Regional Transit Center. The RFP for design services is currently advertised. The goal is to complete the project by the end of 2011.

Teri Anderson of Northampton Economic Development asked how the job potential with respect to passenger rail was calculated and for clarification whether 100% of the development was related to rail projects. Dan Hodge responded that the inputs included local development plans, overall trends, and reasonable estimations of growth factors. The calculation of the impact of rail depended on distance from the proposed line. Consideration was given to projects that will proceed even without rail.

Maureen Mullaney asked for a clarification on the difference between *enhanced* and *commuter* rail. Dan Hodge replied that "enhanced" would be 4 to 5 evenly spaced trains throughout the day; commuter rail would be 2 to 3 trips during the morning and evening rush periods.

Teri Anderson suggested the project team consider making policy recommendations to concentrate developments in downtowns. Dan Hodge responded that the State in general is trying to promote "growth districts."

Charlie Miller of the Vermont Agency of Transportation pointed out that the next 30-60 days could have a significant impact from economic stimulus policy decisions. Federal investment is not built into this model, but impacts could be tremendous. Mary MacInnes of the Pioneer Valley Transit Authority suggested that Massachusetts's TOD program might provide funds if a commuter line moves forward.

Mary MacInnes provided an overview of developments at Springfield's Union Station. The goal is to construct the facility within 3 years.

Paul Nicolai, representing the Western Mass EDC questioned why the model showed a positive number for Springfield jobs when Springfield is estimated by the City's estimation to lose 8,000 jobs. Dan Hodge replied that the model considers the population for the entirety of Hamden County.

Matt Mann asked how many Amherst station boardings and alightings would move to Northampton if Vermonter service were moved. Peter Mazurek of HDR replied the numbers had not yet been calculated.

There was discussion and debate between Pan Am and other TAC members about when the line would actually be moved. Pan Am noted that they wanted the plan to move the Vermonter to the Conn River line to progress as soon as possible. Dana Roscoe of PVPC stated that the agency was already in line for funding for every funding opportunity that has presented itself. Ron O'Blenis said that Executive Office of Transportation (EOT) is "on board," and determined to move the project as quickly as possible. Charlie Miller said that there had not yet been a Federal authorization and there would be no Federal appropriation bill this year. Sydney Culliford urged swift progress on obtaining any funding possible, even a small amount, since even bringing back freight-grade service could restore lost business. Mary MacInnes said the Planning Commission will set up a meeting with EOT.

Ron O'Blenis pointed out a typo in the presentation: single-level, not bi-level, DMUs are proposed.

Len Elwin asked what lay-up facilities were being planned for CDOT equipment heading north. Jim Stoetzel replied that the project is not prepared to address maintenance issues at this stage.

Mary MacInnes pointed out that TripPlanner Web site is more accurate than published bus schedules for Travel Time Assumptions.

Charlie Miller asked why there was no indicated ridership from Vermont. Peter Mazurek replied that the PVPD model used only indicates "Greenfield and north," but they were working on developing numbers.

Paul Nicolai asked why incremental ridership numbers seemed so high when the related ConnDOT study doesn't have numbers nearly as high. Ron O'Blenis replied that the CT model was incremental from existing service, but this model is from zero.

Action Items

Who?	What?	When?
Pan Am Railway	Engage marketing group to determine companies' plans for freight usage along line	Next meeting
HDR	Update data models with input from meeting attendees	Next meeting
HDR	Provide TAC members with material containing complete modeling information	ASAP
TAC members	Review assumptions outlined by the project team	Next meeting
Mary MacInnes	Look into setting up meeting between Planning commission and EOT to discuss funding	ASAP

Conclusion

Ron O'Blenis concluded the presentation with a brief overview of the Project's next steps. A date and location for the next TAC meeting will be determined at a future point in time.

Appendix A

List of Attendees

Project Team

Charlie Miller	Vermont Agency of Transportation
Dana Roscoe	PVPC
Daniel Hodge	HDR, Inc.
Max Talbot-Minkin	Howard/Stein-Hudson Associates, Inc.
Peter Mazurek	HDR, Inc.
Ronald O'Blenis	HDR, Inc.
Marissa Witowski	HDR, Inc.
Jim Stoetzel	Transit Safety Management

TAC

John Dyjach (for Kathleen Anderson)	City of Holyoke Office of Planning and Economic Development
Teri Anderson	Northampton Economic Development
Roger Bergeron	Pan Am Railway
Natalie Blais	U.S. House of Representatives
Sydney Culliford	Pan Am Railway
Len Elwin	Amtrak
Scott Howland	Amtrak
Mary MacInnes	Pioneer Valley Transit Authority
Matt Mann	Windham Regional
Maureen Mullaney	Franklin Regional Council of Governments
Paul Nicolai	Nicolai Law Group (EDC of Western Mass)
Stan Slater (by phone)	Amtrak
Dave Swirk	Pioneer Valley Railroad

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

November 19, 2008
TAC Meeting

Deerfield, MA

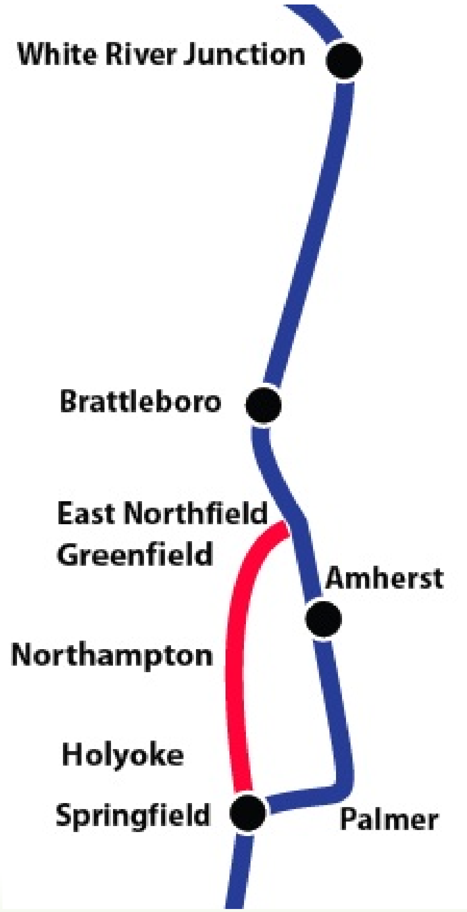
Catalyst for Regional Progress
pvpc

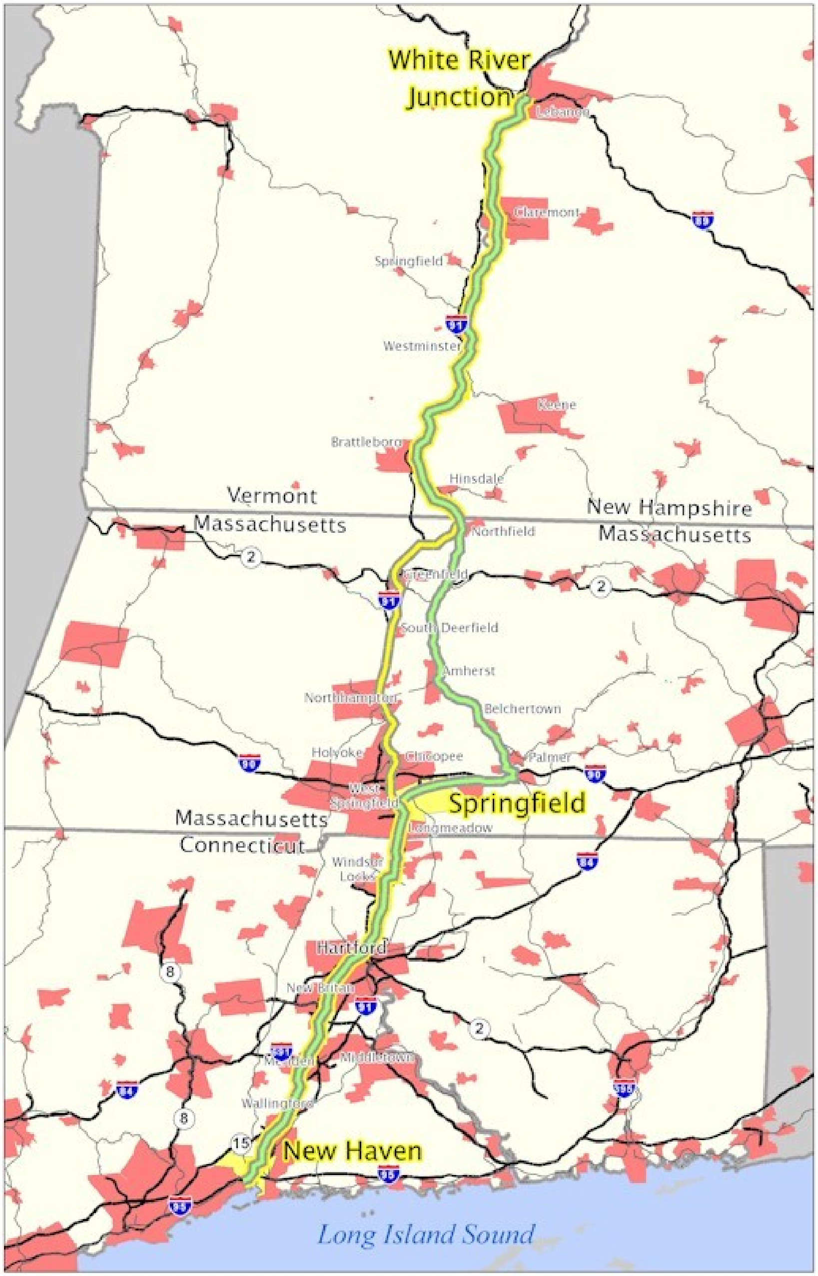
Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Knowledge Corridor

Current

Proposed





AGENDA

- Induced Economic Development Evaluation
  - Review of Methodology
  - Review of Input Assumptions
  - Review of Draft Development Results
- Baseline Ridership Forecasts
  - Review of Input Assumptions
  - Review of Preliminary Forecasts
  - Discussion
- Next Steps

Induced Economic Development – Methodology

- Stakeholder interviews
  - Informed risk assumptions and development potential
- Review of other studies
  - Economic Impacts of Downeaster Service
- Data collection – land use, development plans, job and population trends
- Model development
  - Risk-based to estimate range of development potential

Induced Economic Development – Methodology

- Results and analysis in terms of:
  - Level of rail service – Commuter and enhanced inter-city
  - Geography – station areas, cities, counties
  - Timing – results in 2015 and 2030
  - Jobs and population – input to ridership estimates

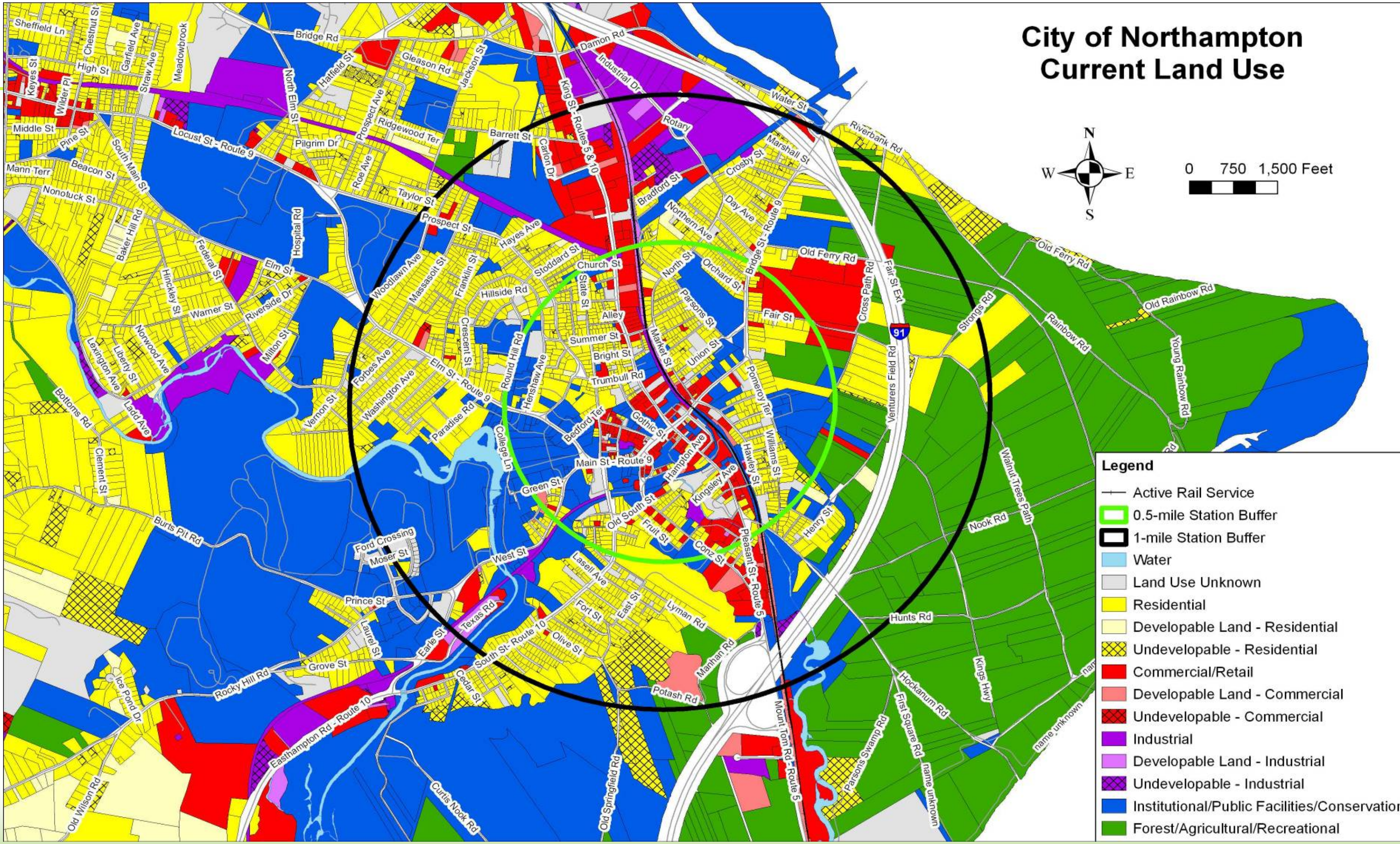
Pioneer Valley Population and Employment

Geographic Area	POPULATION 2007	POPULATION 2030	EMPLOYMENT 2007	EMPLOYMENT 2030
Greenfield	17,706	18,064	10,941	12,038
Rest of Franklin County	53,896	67,538	19,736	21,723
Northampton	28,411	29,485	20,373	19,992
Rest of Hampshire County	124,736	134,735	44,813	45,450
Holyoke	39,737	37,839	24,010	22,541
Springfield	149,938	152,424	81,683	73,624
Rest of Hampden County	268,233	284,559	112,191	116,125
TOTAL	682,657	724,644	313,747	311,493

Sources: US Census Bureau 2000 Census of Population & Housing; U.S. Census Bureau – 2007 Population Estimates, released July 2008; FRCOG Regional Population Projections 2000-2030; Regional Transportation Plan for the Pioneer Valley MPO – 2007 Update; Pioneer Valley Regional Transportation Plan; Franklin County Regional Transportation Plan; Massachusetts Office of Workforce Development ES-202.

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Northampton Land Use Development Patterns Centered on Station Location



Jobs and Population per 1,000 Sq Ft Development

	Low	Median	High
Retail	1.20	1.33	1.50
Industrial	0.50	0.80	1.20
Office	3.51	3.84	4.02
Residential	1.20	1.50	1.80

Sources: Median usage estimates for Retail and Industrial space are from the "Bank Row Urban Renewal Plan: Greenfield, Massachusetts" March 2007 Update. The median Office usage estimate is from "Amtrak Downeaster: Overview of Projected Economic Impacts" March 2008.

Key Assumptions for Greenfield and Franklin County

- Residential opportunities strongest with commuter rail scenario

		Enhanced			Commuter		
		Low	Median	High	Low	Median	High
Greenfield	Jobs	0.5%	1.0%	2.0%	1.25%	2.5%	5.0%
	Population	0.5%	1.0%	2.5%	1.5%	3.0%	6.0%
Rest of Franklin County	Jobs	0.3%	0.7%	1.5%	1.0%	2.0%	3.5%
	Population	0.5%	0.75%	2.0%	1.5%	2.5%	4.0%

Draft Development Results – Greenfield

Greenfield and Rest of Franklin County				
	2015		2030	
Greenfield	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	28 - 114	71 - 284	60 - 241	150 - 602
Population	45 - 223	134 - 536	90 - 452	271 - 1,084
	2015		2030	
Rest of Franklin County	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	31 - 154	102 - 359	65 - 326	217 - 760
Population	145 - 582	436 - 1,164	338 - 1,351	1,013 - 2,701

Key Assumptions for Northampton and Hampshire County

- Enhanced inter-city rail sufficient for most development opportunities

		Enhanced			Commuter		
		Low	Median	High	Low	Median	High
Northampton	Jobs <0.5 miles	5.0%	15.0%	30.0%	7.0%	20.0%	35.0%
	Population <0.5 miles	5.0%	15.0%	30.0%	7.0%	20.0%	35.0%
	Jobs >1 mile	1.0%	2.0%	4.0%	2.0%	3.0%	5.0%
	Population >1 mile	1.5%	3.0%	6.0%	2.0%	4.0%	6.0%
Rest of Hampshire County	Jobs	0.8%	1.5%	2.5%	1.0%	2.0%	3.0%
	Population	0.5%	1.0%	2.5%	1.0%	2.0%	3.0%

Draft Development Results – Northampton

Northampton and Rest of Hampshire County				
	2015		**2030**	
Northampton	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	134 - 352	194 - 463	537 - 1,407	777 - 1,851
Population	145 - 580	217 - 580	295 - 1,179	442 - 1,179
	2015		**2030**	
Rest of Hampshire County	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	171 - 569	227 - 682	341 - 1,136	454 - 1,363
Population	322 - 1,608	643 - 1,929	674 - 3,368	1,347 - 4,042

Key Assumptions for Holyoke and Hampden County

- Wide range of potential development reflected in risk analysis, longer-term prospects

		Enhanced			Commuter		
		Low	Median	High	Low	Median	High
Holyoke	Jobs <0.5 miles	3.0%	8.0%	12.0%	10.0%	20.0%	27.0%
	Population <0.5 miles	8.0%	10.0%	17.0%	12.0%	22.0%	30.0%
	Jobs >1 mile	1.0%	3.0%	6.0%	3.0%	8.0%	12.0%
	Population >1 mile	3.0%	5.0%	10.0%	6.0%	10.0%	15.0%
Rest of Hampden County	Jobs	0.2%	0.3%	0.5%	0.5%	0.75%	1.5%
	Population	0.25%	0.5%	1.0%	0.5%	1.0%	2.5%

Draft Development Results – Holyoke

Holyoke and Rest of Hampden County				
	2015		2030	
Holyoke	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	36 - 152	119 - 407	144 - 609	475 - 1,626
Population	98 - 390	195 - 732	189 - 757	378 - 1,419
	2015		**2030**	
Rest of Hampden County	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	116 - 289	289 - 866	232 - 581	581 - 1,742
Population	342 - 1,368	684 - 3,421	711 - 2,845	1,423 - 7,114

Key Assumptions for Springfield

- Union Station redevelopment, largest city in region, and nearest connections to Hartford

		Enhanced			Commuter		
		Low	Median	High	Low	Median	High
Springfield	Jobs <0.5 miles	2.0%	4.0%	5.6%	3.0%	7.0%	10.0%
	Population <0.5 miles	2.4%	5.6%	8.0%	6.0%	10.0%	13.0%
	Jobs >1 mile	0.05%	0.25%	0.4%	0.5%	1.0%	2.5%
	Population >1 mile	0.2%	0.8%	2.4%	2.5%	5.0%	8.0%

Draft Development Results – Springfield

Springfield				
	2015		2030	
Springfield	**Enhanced**	**Commuter**	**Enhanced**	**Commuter**
Jobs	187 - 527	294 - 945	746 - 2,108	1,175 - 3,779
Population	211 - 739	524 - 1,230	845 - 2,956	2,096 - 4,920

Draft Development Results – Pioneer Valley

		2015		2030	
		Enhanced	**Commuter**	**Enhanced**	**Commuter**
Station Cities	Jobs	385 - 1,145	678 - 2,099	1,487 - 4,365	2,577 - 7,858
	Population	499 - 1,932	1,080 - 3,078	1,419 - 5,344	3,187 - 8,602
Rest of County Areas	Jobs	318 - 1,012	618 - 1,907	638 - 2,043	1,252 - 3,865
	Population	809 - 3,558	1,763 - 6,514	1,723 - 7,564	3,783 - 13,857
Total Pioneer Valley	Jobs	703 - 2,157	1,296 - 4,006	2,125 - 6,408	3,829 - 11,723
	Population	1,308 - 5,490	2,843 - 9,592	3,142 - 12,908	6,970 - 22,459

Ridership Development and Analysis

- Understanding regional demographics
- Understanding regional travel infrastructure
- Understanding regional travel patterns in Knowledge Corridor
- Different groups respond to investments in different ways

- Assumptions about each of these

Ridership Development

- Definitions/Introduction
- Review of Assumptions
  - Demographic/Background
  - Operational/Service
  - Systemic/Behavioral
- Discussion of Preliminary Results/Status
- Potential Enhancements

Definitions

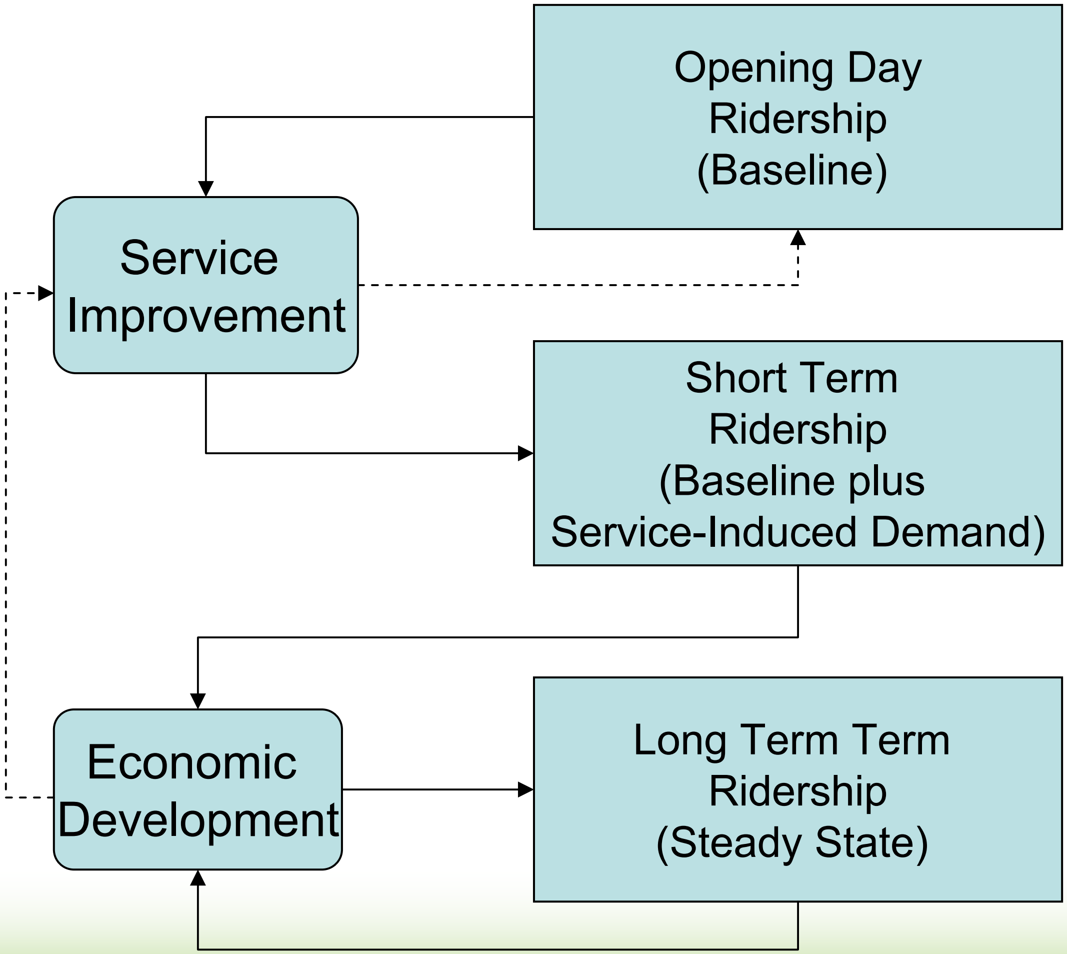
- ***Trip:*** Any one-way movement from A to B, regardless of mode
- ***Market:*** A group of trips with common characteristics (geography, purpose, demographics, access, etc.)
- ***Key Markets*** are those discrete markets which account for a disproportionately high percentage of the anticipated ridership

Definitions (continued)

- **Baseline Trips**: Trips which would be made anyway (by some available mode)
- **Service-Induced Trips:** Trips which would not have been made without the proposed rail service
- **Economically Induced Trips**: Trips created because of the economic development brought on by the proposed rail service

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Ridership Growth Dynamics



General Methodology: Baseline Trips

A. Define key markets for rail ridership demand
B. Estimate universe of trips in each key market
C. Develop rail mode market share parameter for each key market
D. B x C = Ridership for each key market
E. Sum D for all key markets
F. Factor E to infer about remaining markets
G. React, revise, repeat, etc.

General Methodology: Baseline Trips

$$\text{Riders}_{\text{key markets}} = \Sigma\,(\text{Trips}_{\text{market}} \times \text{Share}_{\text{market}})$$

$$\text{Riders}_{\text{total}} = (\text{Riders}_{\text{key markets}}) \times f_{\text{other markets}}$$

Assumptions: Demographics

	POPULATION		EMPLOYMENT	
Geographic Area	**2007**	**2030**	**2007**	**2030**
Greenfield	17,706	18,064	10,941	12,038
Rest of Franklin County	53,896	67,538	19,736	21,723
Northampton	28,411	29,485	20,373	19,992
Rest of Hampshire County	124,736	134,735	44,813	45,450
Holyoke	39,737	37,839	24,010	22,541
Springfield	149,938	152,424	81,683	73,624
Rest of Hampden County	268,233	284,559	112,191	116,125
TOTAL	682,657	724,644	313,747	311,493

Sources: US Census Bureau 2000 Census of Population & Housing; U.S. Census Bureau – 2007 Population Estimates, released July 2008; FRCOG Regional Population Projections 2000-2030; Regional Transportation Plan for the Pioneer Valley MPO – 2007 Update; Pioneer Valley Regional Transportation Plan; Franklin County Regional Transportation Plan; Massachusetts Office of Workforce Development ES-202.

Other interesting Background Assumptions

- Amtrak reports ridership at Amherst station at approximately 11,500 (boardings + alightings) per year → ~32 actions/16 boardings per day
  - Brattleboro is similar (~10,900)
- Springfield is approximately 112,000 (~320/160 per day
- Hartford 150,000

Assumptions: Service/Operational

- No significant changes to highway system
- Peter Pan and other private services
- PVTA/UMass/Franklin County Transit
- Potential Station Locations
  - Northampton
  - Holyoke
  - Greenfield
- Network of feeder bus services from key locations to meet train stops

Assumptions: Service/Operational

- Alternative service levels/concepts for service on Conn-River Line
  - "Existing" Vermonter Service moves over
  - "Existing"+Expanded Vermonter + Commuter-type service
  - Intercity service concept only
- Assumed 60mph cruise speed on line
- Assumed DMU-type equipment

Operations Planning Activities to Date

- Relocating the Vermonter from its present route to the historic B & M "Conn River" route.
- Analyzing the potential service opportunities for the Corridor created by passenger rail expansion planning efforts underway at Conn DOT and VTrans
- Determining how to incorporate additional Vermont service and increased Springfield-New Haven service into a Greenfield-Springfield-New Haven commuter rail service. This service could provide:
  - a better use of existing transportation infrastructure
  - a viable mobility alternative for the region
  - an impetus to economic development
- Examining planning efforts for station locations in Greenfield, Northampton and Holyoke, which are well underway.

How Running Times/Operations Plans were Developed

- Base New Haven <-> Springfield service plan from *New Haven-Hartford-Springfield Commuter Implementation Study* (2005) by Wilbur Smith Associates
- Base Springfield <-> Bellows Falls (VT) service plan, DMU schedules for substitute Vermonter service, as developed by AECOM
- HDR used RTC TPC software to develop enhanced service plan assuming:
  - 2-level DMU (Colorado Railcar) equiment, capacity 406
  - Cruise speed of 60mph

Assumptions: Rail Operating Plan

- Conn. River Line is upgraded to allow 60MPH operation
- Vermont: Existing and Enhanced Vermonter service:
  - Relocate to Conn River Line (E. Northfield to Springfield)
  - Replace station stop in Amherst with Northampton
  - Terminate Vermonter in New Haven with NEC Connections
  - Add additional daily trip Whiter River Junction <-> New Haven
  - Add stops in Greenfield and Holyoke
- ConnDOT Commuter-type services:
  - Increase Springfield <-> New Haven to 30 daily trains (including Vermont service)
- Pioneer Valley service
  - Some ConnDOT-type trains extended north to Greenfield, plus 2 Vermont trains

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Assumptions: Travel Times

Travel time comparison of several key points:

Between Points		Distance	Drive Time		Bus Service		Rail Service	
		Miles	Estimated	Modeled	Peter Pan	Transit	Current	Proposed
Springfield	Holyoke	8	**12**	24	*15/25*	25/60	n/a	14
Holyoke	Northampton	10	**16**	28	*20/30*	30	n/a	13
Northampton	Greenfield	20	**22**	44	30	50	n/a	23
Amherst	Northampton	7	**16**	22	20	30	n/a	n/a
Springfield	Northampton	18	**22**	34	30	60/90	n/a	27
Springfield	Greenfield	39	**45**	61	55	120/150	n/a	50
Amherst	Springfield	26	**34**	39	50	90/120	80	n/a
Greenfield	New Haven	103	**110**	135	180	n/a	n/a	144
White River Jct	New Haven	183	**190**	215	300	n/a	323	258

Notes:
Estimated Drive Time: Based on distance, facility type
Modeled: 2010 PVPC demand model
Peter Pan: Based on current Peter Pan Timetables, averaged
Transit: Based on PVTA and FRTA schedules, including transfers
Current Rail Service: Summer 2008 Vermonter schedule

Proposed Rail Service: As discussed

Assumptions: Systemic/Behavioral

- Markets are dimensioned by:
  - Connectivity to Station (can walk, feeder bus, drive)
  - Frequency and Type of trip (everyday commuter, occasional intercity, student, etc.)
  - Origin (initial origin, not necessarily boarding station)
  - Destination

Ridership Forecasting Assumptions

- Elsewhere things stay the same...
- No one will spend longer accessing the line (on a bus or in a car) than they will on the train
- Significant parking costs in Springfield CBD, Hartford CBD, and at BDL. Lesser parking costs around stations in other areas
- Reasonable bus-feeder network serves stations and is coordinated to meet trains
- Fares in line with other commuter rail and intercity operations—more analysis needed.

Station "Catchment" Districts

- Region was divided into districts based on the proposed stations
- Close in is "walk area"
- Larger, flatter area is "drive" area for each station
- Generally access the closest station without significant backtrack

Districts provide Commute Market insight

To: / From:	Greater Springfield		Greater Holyoke		Greater Northampton		Greenfield and North	Connecticut and South	Other	Total
	CBD	Rest of	Center	Rest of	CBD	Rest of				
Greater Springfield	49,242	196,612	10,289	17,938	**4,578**	10,214	**1,226**	9,212	9,214	308,523
Greater Holyoke	**5,201**	20,962	6,558	14,000	**3,422**	6,120	**736**	**887**	779	58,665
Greater Northampton	**2,180**	9,109	**1,589**	4,943	10,238	33,173	**1,737**	**421**	2,167	65,557
Greenfield/North	**119**	370	**76**	187	**408**	797	54	**20**	21	2,052
Connecticut/South	2,367	7,066	333	610	192	317	49	400	189	11,523
Other	1,313	8,752	445	980	359	1,450	98	342	1,267	15,006
Totals	60,422	242,871	19,290	38,657	19,196	52,071	3,900	11,282	13,636	461,326

- Home-based work trip table from 2010 PVPC Model
  - PVPC area only
  - “Externals” for North (Franklin Co.) and South (Connecticut)
- Bold cells indicate primary commuter markets

Ridership Forecasting Key Markets

Commute Markets:

- Holyoke-Springfield
- Holyoke-Connecticut
- Northampton-Springfield
- Northampton-Connecticut
- Greenfield-Northampton
- Greenfield-Springfield
- *Holyoke-Northampton?*
- *Springfield-Northampton?*
  - *Every day...*

- Intercity Markets:
  - Northampton-New Haven and beyond
    - Colleges
  - Greenfield to Points South
  - Potential for joint-use service with buses
- Other markets
  - Northampton-Springfield
  - Greenfield – Springfield

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Discussion of Preliminary Results

Incremental Daily Equivalent Station ActivityBoardings Boardings + Alightings. Combined			
	Low	Med	High
Vermont Stations	0	0	0
Greenfield	30	44	59
Northampton	507	745	984
Holyoke	328	482	636
Springfield	534	785	1,036
Connecticut Stations	81	119	157
Total	1,479	2,176	2,872

- Does not yet include service-induced demand
- Markets to/from Vermont not included yet\
- High degree of uncertainty

General Methodology: Service-Induced Trips

- Evaluation of Service-Inducement “factor” around stations
- Process which develops ranges of values based on variance analysis of key variables
- Incorporates
  - Baseline forecast elements
  - Regional demographic forecasts
  - Elasticities with respect to time and costs
- Accounting for uncertainties

Potential Special Markets: Bradley Airport

- Precedent for Commuter/Regional Rail to Airport
  - ORD, EWR, PHL, BWI all much larger (>20m enp.)
  - MKE, BUR(BOB), ISP are similar size with dedicated shuttle service to/from station.

Airport	Code	Operator	Connection	Enplanements(M)	Stops/Day
Chicago	ORD	Metra	Shuttle+Monorail	57.1	20
Newark	EWR	Amtrak/NJ1	Monorail	24.1	170
Philadelphia	PHL	SEPTA	Walk (Direct)	25.2	38
Baltimore	BWI	Amtrak/MA	Shuttle	20.3	80
Montreal	YUL	VIA/AMT	Shuttle	12.2	49
Milwaukee	*MKE*	*Amtrak*	*Shuttle*	*7.7*	*14*
Bradley	***BDL***	***???***	***Shuttle***	***6.5***	***???***
Burbank	*BUR*	*Amtrak/Me*	*Walk or Shuttle*	*5.5*	*38*
Islip	ISP	LIRR	Shuttle or Taxi	2.2	75
South Bend	SBD	NICTD	Walk (Direct)	0.78	14

Evaluating Bradley Special Market:Issues

- What service is there going to be?
  - Frequency and Time-span
- Geographic distribution of passengers
- Geographic distribution of employees
- Frequency of trip-making
- Competitive environment
- Airport Growth
- How is ConnDOT study handling this?
- Not a significant determinant to cost...

Potential Enhancements and Next Steps

- Refine Assumptions as discussed
- Review uncertainties in variables
- Implement service-induced demand
- Special Markets Missed?
- Evaluate economically induced ridership

- Workshop to “test” variables

Next Steps

- Refine ridership estimates
  - Induced demand
    - Price of gas, travel behavior, other rail initiatives
  - Economic development potential
  - Risk analysis session?
- Refine operating scenarios
- Cost-benefit analysis
  - Function of ridership, travel time, cost, etc.
- Funding feasibility

Discussion and Questions

January 6, 2009

Subject: Knowledge Corridor Passenger Rail Study – TAC Subcommittee

Dear TAC member,

You are invited and encouraged to participate as a member of a Ridership and Economic Development subcommittee of the Technical Advisory Committee (TAC) for the Knowledge Corridor Passenger Rail Study. This subcommittee will be meeting on January 22nd to review and provide input on the data, assumptions, and key factors determining estimates of rail ridership and economic development potential of alternative rail service options in the Pioneer Valley. Prior to the meeting, you will receive a workbook with background information regarding the data elements and assumptions to be discussed at the meeting. We will host a facilitated discussion with emphasis on obtaining your input to ensure that we have covered the key factors and are generating credible estimates based on a transparent process. The meeting information follows:

The meeting information follows:

What:	Knowledge Corridor Passenger Rail Study Technical Advisory Committee subcommittee
When:	Thursday, January 22, 2009 10 am-12:00 noon
Where:	PVPC's Offices – 26 Central Street, Suite 34, West Springfield, MA (directions attached)

Please RSVP to Howard/Stein-Hudson Associates, attn: Max Talbot-Minkin by phone (917) 339-0488 or by e-mailing mtalbot-minkin@hshassoc.com.

For more information about the meeting, please call Dana Roscoe of the Pioneer Valley Planning Commission at (413) 781-6045.

We look forward to seeing you there.

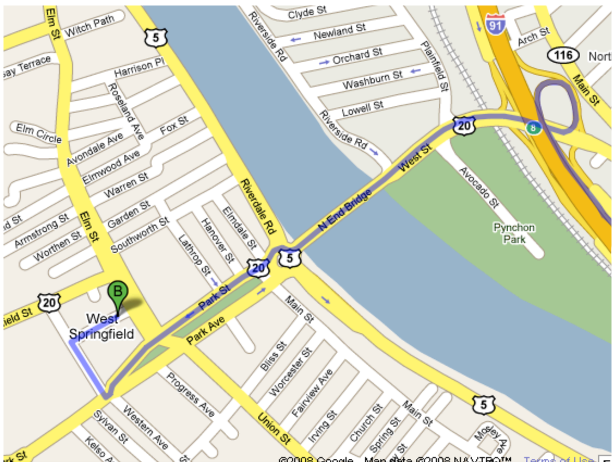
Best regards,

Tim Brennan

Tim Brennan
Executive Director
Pioneer Valley Planning Commission

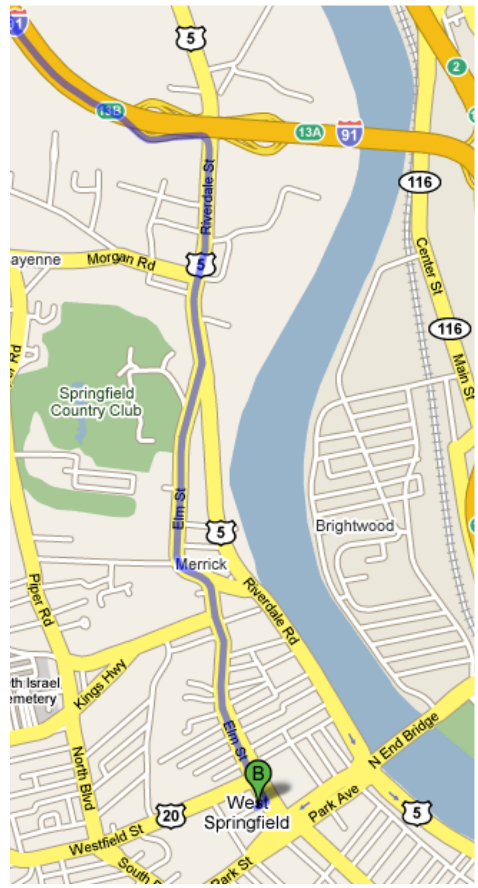
Driving north on I-91:

- Take exit 9 for Route 20 West
- At traffic circle, take 2nd exit to continue on Route 20 West
- Turn right at Van Deene Ave
- Turn right at Central Street



Driving south on I-91:

- Take exit 13B for US-5 South
- After about ¾ mile, take a slight right onto Elm Street
- After 1 ½ miles, turn right at Central Street



MEETING MINUTES

Knowledge Corridor Passenger Rail Study

Meeting Subject: Ridership and Economic Development Technical Advisory Subcommittee

Date/Place/Time: January 22, 2009 / PVPC Meeting Room / 10 AM

Attendees: *See Attached List*

On January 22, 2009, a subcommittee of the Technical Advisory Committee (TAC) met at the Pioneer Valley Planning Commission's offices in West Springfield, MA for a working session to review, discuss, and refine the factors and assumptions for the ridership and economic development model. The subcommittee was chosen for their expertise and input to ensure locally informed, extensively reviewed, and credible estimates for the study.

Introduction

Ron O'Blenis of HDR gave an introduction and thanked everyone for attending. Attendees introduced themselves. A list of attendees may be found in **Appendix A.**

Workbook

Before the meeting, subcommittee members were asked to complete a workbook. This workbook may be found in **Appendix C**.

Presentation

The full presentation may be found in **Appendix B**.

Questions During and After Presentation

Slide: "Baseline population forecast growth rates"

- Charlie Miller (Vermont Agency of Transportation) remarked that the *low* and *high* numbers for Holyoke should be reversed.
- Teri Anderson (Northampton Economic Development) remarked that the Northampton population has remained relatively stable.
- Charlie Miller asked about the population growth rate forecast for Franklin County. Maureen Mullaney (FRCOG) responded that the Franklin County numbers might be a little high, but there are some growth areas, especially those bordering Hampshire County and UMass, and that since the base of population is significantly lower than the other counties, the actual population increase is still relatively modest.
- Ronald O'Blenis (HDR) asked whether the numbers consider commuter rail to be in place. Dan Hodge (HDR) replied that the numbers in the workbook and presentation are the base case; that is, the growth forecast numbers do not demonstrate the effects of commuter rail. The estimates of effects on population and jobs are presented later in the economic development section.

- Peter Mazurek (HDR) asked whether the 2% population increase in Greenfield is because of market or land constraints. Maureen Mullaney replied that the low rate of growth was due to employment opportunities, not land constraint.
- Natalie Blais (Office of Congressman John Olver) asked how colleges were factored into population forecasts. Dan Hodge replied that they should be included within the population estimates and that he will double-check. Peter Mazurek remarked that they tend to be factored by time of year. Maureen Mullaney "tends to think" they are included and Tim Brennan remarked that they are counted by the Census as "special populations" and are within the Census estimates used by PVPC.
- Natalie Blais asked what analysis was done in Amherst, since the station is being taken away. Charlie Miller replied that with the location of UMass, moving the rail would not make a large difference, since a bus trip is required either way.
- Sydney Culliford (Pan Am Railway) asked why Holyoke's population forecast was negative. Dan Hodge replied that it was the result of a combination of recent lagging economic trends. Kathleen Anderson (City of Holyoke) remarked that she wants to go back and think about urban renewal plans that might affect the numbers. Tim Brennan (PVPC) remarked that baseline numbers should be given a specific year.
- Matt Mann (Windham Regional) asked whether Amherst has been informed of the plan to remove the rail station. Dana Roscoe (PVPC) replied they have, but that opinions vary.

Slide: "Employment Estimates"

- Charlie Miller asked when the last transportation plan for Franklin County was prepared. Maureen Mullaney replied that it was in 2007.
- Teri Anderson noted a discrepancy in the numbers from Northampton, compared to her own sources and agreed to help the team follow-up and clarify the job estimates.
- Sydney Culliford asked whether Holyoke's development pattern and housing market was similar to Lawrence/Haverhill — that is, the development of a commuter system could create labor market access to a more affordable housing market and thus attract people who cannot afford housing prices closer to Boston. Dan Hodge replied that Boston is a significantly more expensive market than Springfield or Hartford or any other area along the Knowledge Corridor and thus there is a bit less pressure to find affordable housing markets.
- Natalie Blais noted there is little job growth in Springfield. Charlie Miller said he believes that any job growth would take effect in the lower end of the job market, such as staff in the health care market.
- Natalie Blais asked about the potential number of reverse commuters to Northampton. Teri Anderson replied she can't imagine it would compose a large percent of the workforce.
- Charlie Miller said he would caution about being too optimistic in the baseline, especially boosting them based on unknown factors. Ron O'Blenis suggested that the baseline be left as-is, but would consider the possibility of raising "high" numbers to allow for a more realistic range of possible future growth. Dan Hodge said they want to have "90% confidence" in their numbers.
- Natalie Blais asked how the recession was being factored in. Dan Hodge replied that growth in the area was already stagnant, so it's less of a factor than in other parts of the country. Plus, the region's industry base of education, health care, and other sectors has historically shielded the region from volatile economic downturns. Its most likely effect would be to delay future growth. Tim Brennan noted this is why he favors a stripped-down baseline.

Slide: "Trip Making Cost Variables"

- Teri Anderson asked whether "extra costs," e.g. bus fare, are included in fare estimation. Peter Mazurek replied it was not.

- Sydney Culliford asked where rail fare numbers came from. Peter Mazurek remarked that they studied about 10 or 11 comparable commuter rail systems of similar size and station spacing to develop a reasonable range of per mile costs.
- Ronald O'Blenis noted that people only look at gas prices and parking when estimating driving costs. Peter Mazurek remarked that vehicle maintenance costs have stayed relatively the same over the years.
- Peter Mazurek suggested using "fuel/standard unit" measurements instead of gas costs, since energy sources may change.
- Ronald O'Blenis suggested raising the "high" fuel price to $6 (2009 dollars)

Slide: "Trip Making Travel Time and Speed Variables"
- Stan Slater (Amtrak) asked whether the numbers were based on peak hour. Peter Mazurek replied that they were based on more than peak hours, but not the entire day.
- Charlie Miller asked about the average rail speed. Peter Mazurek said they are based on input from the last meeting, and might change between "enhanced intercity" and commuter rail service options.

Slide: "Market based mode share variables"
- Sydney Culliford asked what was meant by "Connecticut." Peter Mazurek replied anything within the Hartford-New Haven-Meridan corridor.
- Stan Slater asked whether they were assuming one-seat rides. Peter Mazurek confirmed that yes, the analysis assumes a one-seat ride at least to New Haven.
- Tim Brennan noted that Hartford is the 2nd largest employment center in New England. Given another commuting option, rail could capture a large share of the market. The project team should be more specific than just "Connecticut." Dan Hodge suggested that the committee make adjustments to the Workbook assumptions based on specifying Connecticut as Hartford and/or Bradley depending on their input.
- Maureen Mullaney asked whether these numbers are from a Travel Demand Model. Peter Mazurek replied that they were, and also a survey about commuter lines.
- Charlie Miller remarked that Bradley Airport passengers would require a commuter service and dedicated transportation between the Bradley rail station and the airport.

Slide: Building Square Footage to Parcel Size Ratio
- Charlie Miller asked whether multiple stories were considered. Dan Hodge replied the analysis currently assumes three-story buildings for residential and commercial (retail/office) development in the central business districts near the proposed rail stations. One story buildings are assumed for industrial properties.
- Teri Anderson asked whether other zoning requirements (open space, etc.) were calculated. She then suggested that the assumptions about building square feet to parcel size vary depending on if a parcel is in the central business district (less open space) or further from the rail stations (more land compared to building square feet). Charlie Miller suggested adding a footnote to clarify.

After Presentation

Charlie Miller noted the significant challenge for VTrans for their planned rail service because Colorado Railcar, the Diesel Multiple Unit (DMU) supplier, had gone out of business. Colorado Railcar was the only company that produced FRA-approved DMUs that could run simultaneously with freight traffic. That led to a discussion of

Appendix A
List of Attendees

TAC Subcommittee

Teri Anderson	Northampton Economic Development
Stan Slater	Amtrak
Natalie Blais	Office of Congressman John Olver
Kristen Wood	Office of Congressman John Olver
Matt Mann	Windham Regional
Syd Culliford	Pan Am Railway
Maureen Mullaney	FRCOG
Wayne Feiden	Feiden Associates
Kathleen Anderson	City of Holyoke Office of Planning and Economic Development

Project Team

Max Talbot-Minkin	Howard/Stein-Hudson Associates, Inc.
Dan Hodge	HDR, Inc.
Peter Mazurek	HDR, Inc.
Dana Roscoe	Pioneer Valley Planning Commission
Marissa Witkowski	HDR, Inc.
Ronald O'Blenis	HDR, Inc.
Charlie Miller	Vermont Agency of Transportation
Jeff McCullough	Pioneer Valley Planning Commission
Tim Brennan	Pioneer Valley Planning Commission

RISK ANALYSIS OF RIDERSHIP AND ECONOMIC DEVELOPMENT FOR KNOWLEDGE CORRIDOR

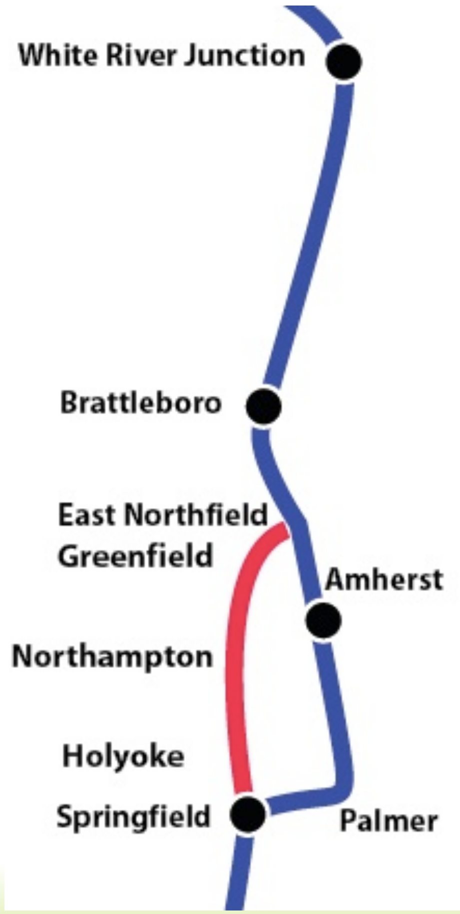
Pioneer Valley Planning Commission
Knowledge Corridor Passenger Rail Study

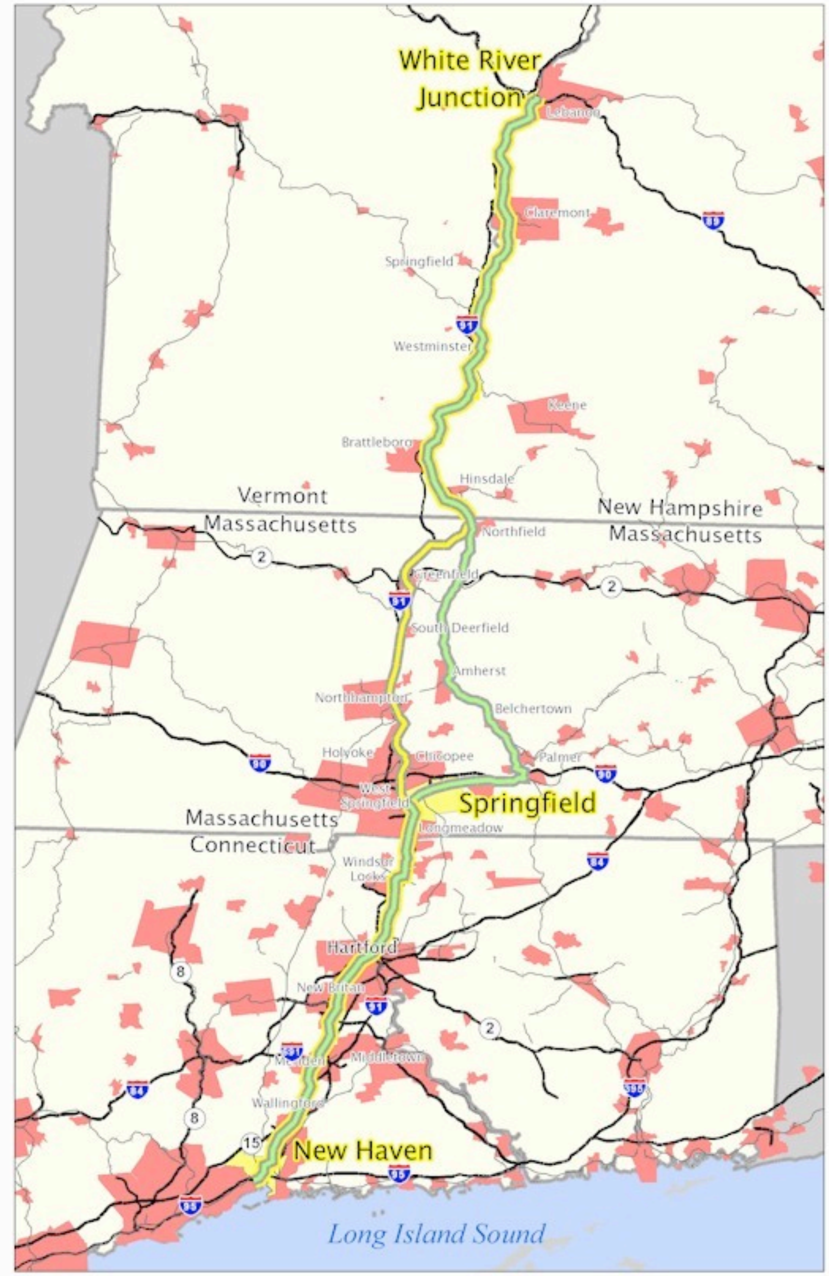
Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Knowledge Corridor

Current

Proposed





Goals of Project

- Move AMTRAK service to Pan Am Railways Connecticut River Line between Springfield and East Northfield
- Evaluate the rail options for the line between Springfield and northern points
- Analyze current and future intercity travel options, such as enhanced intercity rail service

Risk Analysis Process (RAP)

- Define key data variables and risk factors
- Assign estimates and ranges (probability distributions) to each variable
- Engage panel in an assessment of the model and all underlying assumptions
- Revise and issue forecast risk analysis

RAP Agenda

- Project and session objectives
- Study framework
- Overview of HDR's risk analysis process
- Background information and data sources
- Discussion of key model assumptions
- Next steps

Project & Session Objectives

- Estimate likely ridership of proposed rail alternatives
  - All users of improved rail corridor
- Estimate economic development potential
  - Station cities: Greenfield, Northampton, Holyoke, Springfield
  - Surrounding counties: Franklin, Hampshire, Hampden

Estimates & Ranges

- 90% confidence intervals for each input variable
- Found using data sheets (below)

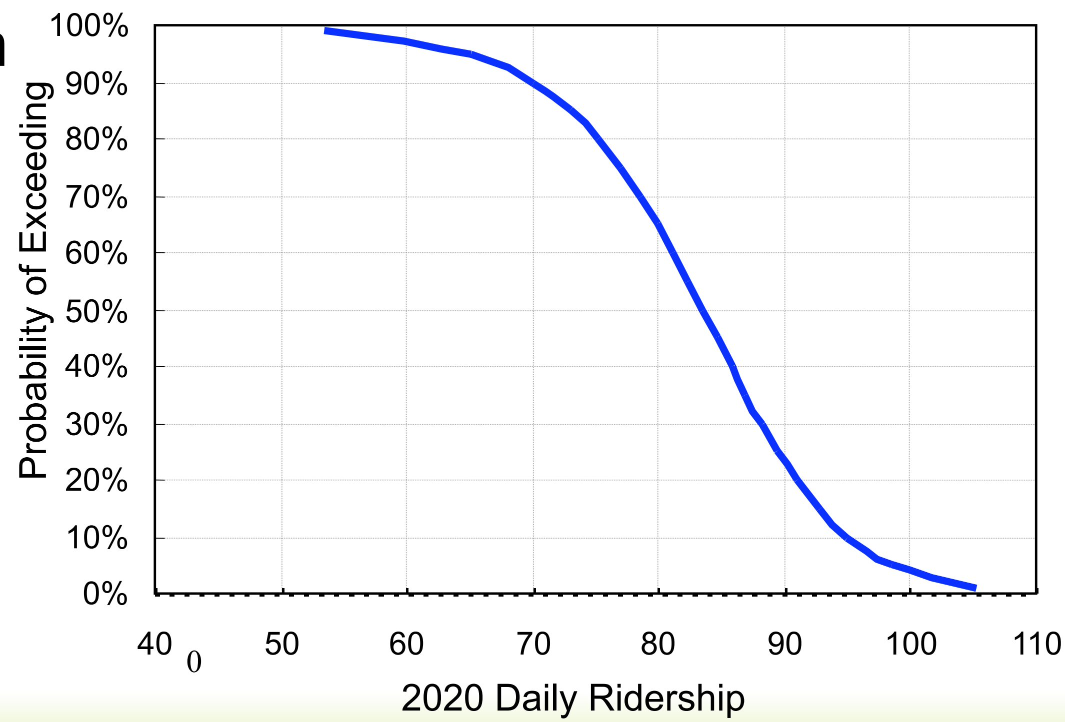
Example Data Sheet for Gas Prices (2009 dollars)

Year	**Most Likely**	**Low Estimate**	**High Estimate**
2009	$2.50	$1.75	$5.00

Forecast Risk Analysis

- HDR determines final probability distributions based on panel input
- Combine probability distributions with statistical simulation technique (Monte Carlo analysis)
- Forecast results are derived

Example: Risk Analysis of Annual Average Daily Boardings, *an Illustration*



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Baseline Population Forecast Growth Rates

Area	Most Likely[a]	Low[b]	High[b]
Greenfield	2.0%	1.6%	2.4%
Rest of Franklin County	25.3%	20.2%	30.4%
Northampton	3.8%	3.0%	4.6%
Rest of Hampshire County	8.0%	6.4%	9.6%
Holyoke	-4.8%	-3.8%	-5.8%
Springfield	1.7%	1.4%	2.0%
Rest of Hampden County	6.1%	4.7%	7.3%

Notes: (a) Most likely estimates based on projections from HDR using growth rates from the Franklin County Regional Employment Projections and the Regional Transportation Plan for the Pioneer Valley MPO and 2007 Employment data from the ES-202

(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Baseline Employment Forecast Growth Rates

Area	Most Likely[a]	Low[b]	High[b]
Greenfield	10.0%	8.0 %	12.0%
Rest of Franklin County	10.1%	8.1%	12.1%
Northampton	-1.9%	-1.5%	-2.3%
Rest of Hampshire County	1.4%	1.1%	1.7%
Holyoke	-6.1%	-4.9%	-7.3%
Springfield	-9.9%	-7.9%	-11.9%
Rest of Hampden County	3.5%	2.8%	4.2%

Notes: (a) Most likely estimates based on projections from HDR using growth rates from the Franklin County Regional Employment Projections and the Regional Transportation Plan for the Pioneer Valley MPO and 2007 Employment data from the ES-202

(b) Indicates the upper and lower limits of a 90% confidence interval

Trip Making Cost Variables

Preliminary Estimates

Variable	Units	Most Likely[a]	Low[b]	High[b]
Parking Cost at Springfield	$/day average	$7.00	$5.00	$10.00
Rail Fare	$/mile average	$0.17	$0.12	$0.29
Average Fuel Price	$/Gallon	$2.50	$1.75	$5.00

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Trip Making Travel Time and Speed Variables

Preliminary Estimates

Variable	Units	Most Likely[a]	Low[b]	High[b]
Average Speed on Rail	Miles per hour (over MA portion of line)	43	35	50
Average Speed on Highway	Miles per hour	47	25	60

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Market Based Mode Share Variables

Preliminary Estimates

Rail Market		Most Likely[a]	Low[b]	High[b]
From	**To**			
White River Junction	Connecticut	3.0%	2.0%	10.0%
Greenfield	Holyoke	4.0%	2.0%	5.0%
Greenfield	Springfield	4.5%	3.0%	6.0%
Northampton	Holyoke	3.0%	1.0%	5.0%
Northampton	Springfield	5.0%	2.0%	7.5%
Holyoke	Northampton	4.0%	1.0%	5.0%
Brattleboro	New Haven	8.0%	2.0%	10.0%
Northampton	Connecticut	5.0%	2.0%	6.0%
Holyoke	Connecticut	4.0%	1.0%	5.0%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Jobs and Population per 1000 Sq Ft of Development

Preliminary Probability Ranges

Development Type	Most Likely[a]	Low[b]	High[b]
Retail	1.33	1.20	1.50
Industrial	0.80	0.50	1.20
Office	3.84	3.51	4.02
Residential	1.50	1.20	1.80

Notes: (a) Median estimates based on several sources: Retail and Industrial space usage from "Bank Row Urban Renewal Plan: Greenfield, Massachusetts" March 2007 Update and office is from "Amtrak Downeaster: Overview of Projected Economic Impacts" March 2008.

(b) Indicates the upper and lower limits of a 90% confidence interval

Building Square Footage to Parcel Size Ratio

Preliminary Estimates

Development Type	Most Likely[a]	Low[b]	High[b]
Retail	1.07	0.87	1.27
Industrial	0.77	0.62	0.92
Office	1.07	0.87	1.27
Residential	1.58	1.26	1.90

Notes: (a) Most likely estimates based on estimates from HDR.
(b) Indicates the upper and lower limits of a 90% confidence interval

Greenfield Economic Development Risk Factors

Preliminary Estimates

Variable	Service Level	Most Likely[a]	Low[b]	High[b]
Population	Enhanced	1.00%	0.50%	2.50%
	Commuter	3.00%	1.50%	6.00%
Employment	Enhanced	1.00%	0.50%	2.00%
	Commuter	2.50%	1.25%	5.00%

Notes: (a) Most likely estimates based on projections from HDR

(b) Indicates the upper and lower limits of a 90% confidence interval

Northampton Economic Development Risk Factors

Preliminary Estimates

Service Level	Land Use	Distance from Station	Most Likely[a]	Low[b]	High[b]
Enhanced	Business	Less than 0.5 miles	15.0%	5.0%	30.0%
		Between 0.5 and 1 mile	10.0%	2.5%	25.0%
		Greater than 1 mile	2.0%	1.0%	4.0%
	Residential	Less than 0.5 miles	15.0%	5.0%	30.0%
		Between 0.5 and 1 mile	7.5%	2.5%	15.0%
		Greater than 1 mile	3.0%	1.5%	6.0%
Commuter	Business	Less than 0.5 miles	20.0%	7.0%	35.0%
		Between 0.5 and 1 mile	12.0%	5.0%	25.0%
		Greater than 1 mile	3.0%	2.0%	5.0%
	Residential	Less than 0.5 miles	20.0%	7.0%	35.0%
		Between 0.5 and 1 mile	12.0%	5.0%	25.0%
		Greater than 1 mile	4.0%	2.0%	6.0%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Holyoke Economic Development Risk Factors

Preliminary Estimates

Service Level	Land Use	Distance from Station	Most Likely[a]	Low[b]	High[b]
Enhanced	Business	Less than 0.5 miles	8.0%	3.0%	12.0%
		Between 0.5 and 1 mile	6.0%	3.0%	9.5%
		Greater than 1 mile	3.0%	1.0%	6.0%
	Residential	Less than 0.5 miles	10.0%	8.0%	17.0%
		Between 0.5 and 1 mile	8.0%	4.0%	14.0%
		Greater than 1 mile	5.0%	3.0%	10.0%
Commuter	Business	Less than 0.5 miles	20.0%	10.0%	27.0%
		Between 0.5 and 1 mile	18.0%	8.0%	22.5%
		Greater than 1 mile	8.0%	3.0%	12.0%
	Residential	Less than 0.5 miles	22.0%	12.0%	30.0%
		Between 0.5 and 1 mile	20.0%	10.0%	27.0%
		Greater than 1 mile	10.0%	6.0%	15.0%

Notes: (a) Most likely estimates based on estimates from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Springfield Economic Development Risk Factors

Preliminary Estimates

Service Level	Land Use	Distance from Station	Most Likely[a]	Low[b]	High[b]
Enhanced	Business	Less than 0.5 miles	4.0%	2.0%	5.6%
		Between 0.5 and 1 mile	2.5%	0.75%	4.0%
		Greater than 1 mile	0.25%	0.05%	0.4%
	Residential	Less than 0.5 miles	5.6%	2.4%	8.0%
		Between 0.5 and 1 mile	4.0%	1.2%	5.6%
		Greater than 1 mile	0.8%	0.2%	2.4%
Commuter	Business	Less than 0.5 miles	7.0%	3.0%	10.0%
		Between 0.5 and 1 mile	4.0%	2.0%	6.0%
		Greater than 1 mile	1.0%	0.5%	2.5%
	Residential	Less than 0.5 miles	10.0%	6.0%	13.0%
		Between 0.5 and 1 mile	8.0%	4.0%	10.0%
		Greater than 1 mile	5.0%	2.5%	8.0%

Notes: (a) Most likely estimates based on estimates from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Rest of Franklin County Economic Development Risk Factors

Preliminary Estimates

Variable	Service Level	Most Likely[a]	Low[b]	High[b]
Population	Enhanced	0.75%	0.50%	2.00%
	Commuter	2.50%	1.50%	4.00%
Employment	Enhanced	0.70%	0.30%	1.50%
	Commuter	2.00%	1.00%	3.50%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Rest of Hampshire County Economic Development Risk Factors

Preliminary Estimates

Variable	Service Level	Most Likely[a]	Low[b]	High[b]
Population	Enhanced	1.00%	0.50%	2.50%
	Commuter	2.00%	1.00%	3.00%
Employment	Enhanced	1.50%	0.75%	2.50%
	Commuter	2.00%	1.00%	3.00%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Rest of Hampden County Economic Development Risk Factors

Preliminary Estimates

Variable	Service Level	Most Likely[a]	Low[b]	High[b]
Population	Enhanced	0.50%	0.25%	1.00%
	Commuter	1.00%	0.50%	2.00%
Employment	Enhanced	0.30%	0.20%	0.50%
	Commuter	0.75%	0.50%	1.50%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

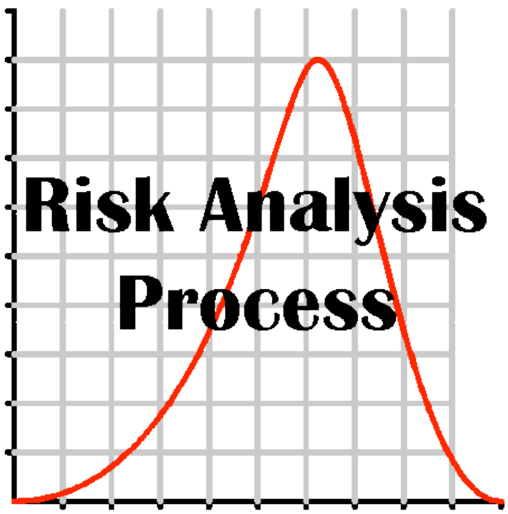
Next Steps

- Refine the model assumptions based on panel input
- Populate and calibrate the model
- Prepare a draft report of ridership and economic development estimates

Pioneer Valley Planning Commission

Knowledge Corridor Passenger Rail Study

RISK ANALYSIS OF RIDERSHIP AND ECONOMIC DEVELOPMENT



Reference Book and Work Book

Name of Panelist: ______________________

January 2009

1. INTRODUCTION

The Pioneer Valley Planning Commission (PVPC), with support from the Vermont Agency of Transportation is leading the Knowledge Corridor Passenger Rail Study to examine future rail options in the area along the I-91 Corridor from Springfield, Massachusetts north to White River Junction, Vermont. Communities in this area consist of a mix of both high-density and rural areas that have important cultural, educational, business and medical facilities. The study is undertaken in the hopes of developing a comprehensive market identification and ridership forecast, creating an optimized rail plan and maximizing the economic impacts to the region. The potential for service expansion in this area could bring significant economic revitalization and investment.

There are three major components to the study. The first is moving Amtrak Service to the Pan Am Railways Connecticut River Line between Springfield and East Northfield (see map). The current alignment runs on CSX Railroad east of Springfield to Palmer and then on New England Central Railroad north to Amherst station, up to East Northfield and through Vermont. This realignment would discontinue service to the Amherst station while adding service to the communities of Holyoke, Northampton and Greenfield. The second component of the study is to evaluate the rail options for the line between Springfield and northern points. Components of this evaluation include examining market demand, existing conditions and identifying desirable station locations to maximize the benefits of rail service. The third aspect is to look at current and future intercity travel options, such as enhanced intercity rail service. The successful Portland to Boston Downeaster Service will be used as an example to evaluate service in the Pioneer Valley as well as related High Speed Rail initiatives for future options in rail service.

As part of the evaluation of impacts of the proposed rail alternatives, this study is estimating: 1) likely ridership; and 2) economic development potential. In order to estimate these effects, HDR has gathered detailed data on travel patterns, land use, population and employment trends, and reviewed relevant studies of passenger rail and economic development. A risk-based modeling methodology is being applied to estimate rail ridership, square feet of development, jobs and population while accounting for uncertainty in key variables and assumptions. The ridership estimates encompass all likely users of an improved rail corridor, while the increased economic development potential is focused on the four station cities – Greenfield, Northampton, Holyoke and Springfield – as well as the impacts on Franklin, Hampshire, and Hampden counties.

The purpose of this workbook is to provide information and obtain feedback on the key factors and assumptions being used to estimate ridership and economic development effects.

2. RISK ANALYSIS PRIMER

Forecasts traditionally take the form of a single "expected outcome" supplemented with alternative scenarios. The limitation of a forecast with a single expected outcome is clear -- while it may provide the single best statistical estimate, it offers no information about the range of other possible outcomes and their associated probabilities. The problem becomes acute when uncertainty surrounding the forecast's underlying assumptions is material.

A common approach is to create "high case" and "low case" scenarios to bracket the central estimate. This scenario approach can exacerbate the problem of dealing with risk because it gives no indication of likelihood associated with the alternative outcomes. The commonly reported "high case" may assume that most underlying assumptions deviate in the same direction from their expected value, and likewise for the "low case." In reality, the likelihood that all underlying factors shift in the same direction simultaneously is just as remote as that of everything turning out as expected.

Another common approach to providing added perspective on reality is "sensitivity analysis." Key forecast assumptions are varied one at a time in order to assess their relative impact on the expected outcome. A problem here is that the assumptions are often varied by arbitrary amounts. A more serious concern with this approach is that, in the real world, assumptions do not veer from actual outcomes one at a time. It is the impact of simultaneous differences between assumptions and actual outcomes that is needed to provide a realistic perspective on the riskiness of a forecast.

Risk Analysis provides a way around the problems outlined above and the remainder of this section explains the risk analysis process (RAP) applied in this study. It helps avoid the lack of perspective in "high" and "low" cases by measuring the probability or "odds" that an outcome will actually materialize. This is accomplished by attaching ranges (probability distributions) to the forecasts of each input variable. The approach allows all inputs to be varied simultaneously within their distributions, thus avoiding the problems inherent in conventional sensitivity analysis. The approach also recognizes interrelationships between variables and their associated probability distributions.

Assign Central Estimates and Conduct Probability Analysis

Each key factor or variable is assigned a central estimate and a range (a probability distribution) to represent the degree of uncertainty. Special data sheets are used (see below) to record input from panelists. The first column gives an initial median (most likely) estimate while the second and third columns define an uncertainty range representing a 90 percent confidence interval. This is the range within which there exists a 90 percent probability of finding the actual outcome. The greater the uncertainty associated with a forecast variable the wider the range.

Example Data Sheet for Gas Prices (in 2009 dollars)

Year	Most Likely	Low Estimate	High Estimate
Years	$2.50	$1.75	$5.00

Probability ranges are established on the basis of both statistical analysis and subjective probability. Probability ranges need not be normal or symmetrical -- that is, there is no need to assume the bell shaped normal probability curve. The bell curve assumes an equal likelihood of being too low and being too high in forecasting a particular value. It might well be, for example, that if a projected growth rate deviates from expectations; circumstances are such that it is more likely to be higher than the median expected outcome than lower.

The RAP model transforms the ranges as depicted above into formal probability distributions (or "probability density functions"). This liberates the non-statistician from the need to appreciate the abstract statistical depiction of probability and thus enables stakeholders to understand and participate in the process whether or not they possess statistical training.

Conduct Expert Evaluation: The RAP Session

The next step of the RAP involves the formation of an informed panel and the use of facilitation techniques to elicit risk and probability beliefs about:

a) The structure of the forecasting framework; and

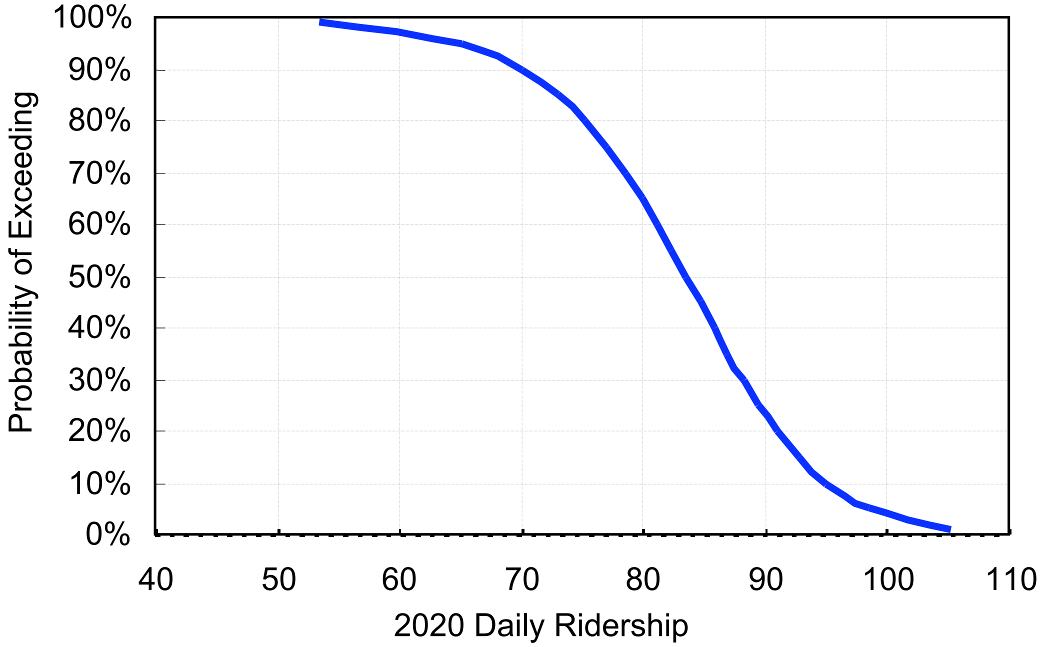
b) Uncertainty attaching to each variable and forecasting coefficient within the framework.

In a), the panel is invited to add variables and hypothesized causal relationships that may be material, yet missing from the model. In b), panelists are engaged in a discursive protocol during which the frequentist-based central estimates and ranges, provided to panelists in advance of the session, are modified according to panelist's beliefs.

Issue Risk Analysis

The final probability distributions are formulated by the risk analyst (HDR) based on input from the RAP session. These are combined using a statistical simulation technique (commonly known as Monte Carlo analysis) that allows each variable and forecasting coefficient to vary simultaneously according to its associated probability distribution. The end result is a central forecast, together with estimates of the probability of achieving alternative outcomes given uncertainties in underlying variables and coefficients (see Figures below).

Risk Analysis of Annual Average Daily Boardings, *an Illustration*



Risk Analysis of Annual Average Daily Boardings, *an Illustration*

Projected Traffic	Probability of Exceeding Value Shown at Left
105.3	0.01
98.4	0.05
94.9	**0.10**
91.0	0.20
88.2	0.30
85.8	0.40
83.5	**0.50**
81.2	0.60
78.5	0.70
75.2	0.80
71.3	**0.90**
65.0	0.95
53.5	0.99
82.9	**Mean Expected Outcome**

3. DATA SHEETS

Data Sheets are used to describe the components of the analysis and record input from panelists about each variable within the models. Panelists are encouraged to only respond to questions to which they have an informed opinion.

The data sheets incorporate the following elements:

- Name of the variable;
- A summary description of the variable;
- An explanation of the relationship between the variable and the overall methodology/model;
- Data sources and units of measurement;
- Suggested probability ranges (derived by HDR);
- Panelist input table; and
- Area for comments.

Data sheets for the following variables are provided on the following pages for the main assumptions of the induced economic development model:

3.1 Baseline Population Forecast Growth Rates

3.2 Baseline Employment Forecast Growth Rates

3.3 Trip Making Cost Variables

3.4 Trip Making Time/Speed Variables

3.5 Market Based Mode Share Variables

3.6 Jobs and Population per 1000 Square Feet of Development

3.7 Building Square Footage to Parcel Size Ratio

3.8 Greenfield Economic Development Risk Factors

3.9 Northampton Economic Development Risk Factors

3.10 Holyoke Economic Development Risk Factors

3.11 Springfield Economic Development Risk Factors

3.12 Rest of Franklin County Economic Development Risk Factors

3.13 Rest of Hampshire County Economic Development Risk Factors

3.14 Rest of Hampden County Economic Development Risk Factors

3.1. Baseline Population Forecast Growth Rates

Variable Description: The baseline population forecast represents the projected growth rate from 2007 to 2030 without rail service. The "most likely" growth rates for all areas are based on the growth rates from the Regional Transportation Plans. For Greenfield and the rest of Franklin County, the population forecasts were HDR calculations using the FRCOG Regional Population Projections 2000-2030 which were developed in coordination with the Massachusetts Executive Office of Transportation in 2006. For Northampton, Holyoke, Springfield, the rest of Hampshire County and the rest of Hampden County, the same method was used on the data from the Regional Transportation Plan for the PVPC – 2007 Update.

Impact on the Model: These population projections are used as a baseline for the future with no rail service, and help determine the size of future markets for ridership estimates. In addition, they are the starting point for the population estimates for Greenfield and each of the rest of County jurisdictions to estimate residential population effects from improved train service.

Preliminary Estimates

Area	Most Likely[(a)]	Low[(b)]	High[(b)]
Greenfield	2.0%	1.6%	2.4%
Rest of Franklin County	25.3%	20.2%	30.4%
Northampton	3.8%	3.0%	4.6%
Rest of Hampshire County	8.0%	6.4%	9.6%
Holyoke	-4.8%	-5.8%	-3.8%
Springfield	1.7%	1.4%	2.0%
Rest of Hampden County	6.1%	4.7%	7.3%

Notes: (a) Most likely estimates based on projections from HDR using growth rates from the Franklin County Regional Population Projections and the Regional Transportation Plan for the Pioneer Valley MPO and 2007 Population data from the U.S. Census Bureau
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Area	Most Likely	Low[(a)]	High[(a)]
Greenfield			
Rest of Franklin County			
Northampton			

Rest of Hampshire County			
Holyoke			
Springfield			
Rest of Hampden County			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.2. Baseline Employment Forecast Growth Rates

Variable Description: The baseline employment forecast represents the projected growth rate from 2007 to 2030 without rail service. The "most likely" growth rates for all areas are based on the growth rates from the area Regional Transportation Plans. For Greenfield and the rest of Franklin County, the employment forecasts were HDR calculations using the FRCOG Employment Projections 2000-2030 which were developed in coordination with the Massachusetts Executive Office of Transportation in 2006. For Northampton, Holyoke, Springfield and the rest of Hampshire and Hampden Counties, the same method was used on the data from the Regional Transportation Plan for the Pioneer Valley.

Impact on the Model: These employment projections are used as a baseline for the future with no rail service, and help determine the size of future markets for ridership estimates. In addition, they are the starting point for the employment estimates for Greenfield and each of the rest of County jurisdictions to estimate job effects from improved train service.

Preliminary Estimates

Area	Most Likely[(a)]	Low[(b)]	High[(b)]
Greenfield	10.0%	8.0 %	12.0%
Rest of Franklin County	10.1%	8.1%	12.1%
Northampton	-1.9%	-2.3%	-1.5%
Rest of Hampshire County	1.4%	1.1%	1.7%
Holyoke	-6.1%	-7.3%	-4.9%
Springfield	-9.9%	-11.9%	-7.9%
Rest of Hampden County	3.5%	2.8%	4.2%

Notes: (a) Most likely estimates based on projections from HDR using growth rates from the Franklin County Regional Employment Projections and the Regional Transportation Plan for the Pioneer Valley MPO and 2007 Employment data from the ES-202
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Area	Most Likely	Low[(a)]	High[(a)]
Greenfield			
Rest of Franklin County			
Northampton			
Rest of Hampshire County			
Holyoke			
Springfield			
Rest of Hampden			

County			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.3. Trip Making Cost Variables

Variable Description: These risk factors are applied into the ridership demand model to the base travel markets (estimated from the base level of projected population and employment) to account for the contribution of different costs on ridership. For example, lower fares for the rail combined with higher gas costs would tend to increase ridership while the opposite trends would lower ridership. The three basic types of costs applied here are destination parking cost (where parking cost exists), rail fare, and the cost of fuel (represented by the cost of gas as indicator of auto cost).

Impact on the Model: Each of these cost variables impacts the model in a different way.

Parking cost at the destination (which includes not only the dollar cost but also factors in the scarcity of supply and the difficulty in using it—hunting to find a space, etc.) is one of the strongest determinants of transit usage to a particular location. It only appears in limited locations in the study area (e.g. Downtown Springfield), but for trips to those locations, a significant increase in parking cost (and/or decrease in ready supply) can have a significant positive impact on transit ridership to that location.

Rail fare (which includes any parking cost at the station, if applicable) negatively impacts ridership—the higher the fare between two points, the lower the ridership is likely to be.

Fuel cost affects all travelers, but has a more significant impact on auto trips. Accordingly, a significant increase in fuel cost can have a significant positive impact on ridership.

Preliminary Estimates

Variable	Units	Most Likely[(a)]	Low[(b)]	High[(b)]
Parking Cost at Springfield	$/day average	$7.00	$5.00	$10.00
Rail Fare	$/mile average	$0.17	$0.12	$0.29
Average Fuel Price	$/Gallon	$2.50	$1.75	$5.00

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Variable	Units	Most Likely[(a)]	Low[(a)]	High[(a)]
Parking Cost at Springfield	$/day average			
Rail Fare	$/mile average			
Average Fuel Price	$/Gallon			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.4. Trip Making Travel Time and Speed Variables

Variable Description: These risk factors are applied into the ridership demand model to the base travel markets (estimated from the base level of projected population and employment) to understand the contribution of different travel times on ridership. Two basic types of time variables (expressed as average speeds) applied here are Average Speed over the Rail Line, and, correspondingly Average Speed over the Highway System.

Both variables reflect the likelihood of incidents or delays on some or all of the portion of the trip. The average speed over Rail would capture the likelihood of delay-producing incidents on the line itself; not only the anticipated travel time via highway, but also factors in the uncertainty of delays and incidents encountered along the way. Because operations on the rail line are more tightly controlled (by dispatch, block signals, etc.) than on the highway system, incidents and delays can be expected to occur less frequently than those impacting the highway system.

Impact on the Model: The average speed over the line is a proxy for the individual origin-to-destination travel times (which the model uses for each specific origin-to-destination market). This average speed captures not only the operating time of the line, but also factors in the uncertainty of delays and incidents on the line. A positive increase in speed would have a positive impact on ridership. A positive increase in average highway speed would tend to have a negative impact on rail ridership. However, it is reasonable to assume that the average highway speed variable might be more susceptible to delays from incidents and conditions than the more tightly-controlled rail line. In one example, a regional weather event such as an ice storm might only have a limited impact on rail speeds, but could have a huge impact on highway speeds.

Preliminary Estimates

Variable	Units	Most Likely[a]	Low[b]	High[b]
Average Speed on Rail	Miles per hour (over MA portion of line)	43	35	50
Average Speed on Highway	Miles per hour	47	25	60

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Variable	Units	Most Likely	Low[a]	High[a]
Average Speed on Rail	Miles per hour (over MA portion of line)			
Average Speed on Highway	Miles per hour			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.5. Market Based Mode Share Variables

Variable Description: These variables quantify the base mode share for rail services between key origin-destination pairs (markets) along the rail line. Market size between two points is itself a function of base population at A, base employment at B, and the time and distance between A and B. The base mode share represents an estimated portion (in terms of trips per day) of the total trips between A and B which will use the proposed rail service. The rail markets shown below are for some of the larger trip making markets in the region and thus do not capture *all* potential rail trips. However, input on these key potential rail markets will be used to derive mode shares for all relevant markets.

Impact on the Model: These mode shares directly estimate the likely ridership for various travel markets based on total trip making (i.e., percentage of total trips that would use rail rather than drive or other modes). If the estimated mode share for any given market is lower than what it would actually be (i.e. if the standard modeled mode share is not as high as it should be), the rail trips contributed in that market will be too low.

Preliminary Estimates

Rail Market		Most Likely[(a)]	Low[(b)]	High[(b)]
From	To			
White River Junction	Connecticut	3.0%	2.0%	10.0%
Greenfield	Holyoke	4.0%	2.0%	5.0%
Greenfield	Springfield	4.5%	3.0%	6.0%
Northampton	Holyoke	3.0%	1.0%	5.0%
Northampton	Springfield	5.0%	2.0%	7.5%
Holyoke	Northampton	4.0%	1.0%	5.0%
Brattleboro	New Haven	8.0%	2.0%	10.0%
Northampton	Connecticut	5.0%	2.0%	6.0%
Holyoke	Connecticut	4.0%	1.0%	5.0%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Rail Market		Most Likely[(a)]	Low[(b)]	High[(b)]
From	To			
White River Junction	Connecticut			
Greenfield	Holyoke			

Greenfield	Springfield			
Northampton	Holyoke			
Northampton	Springfield			
Holyoke	Northampton			
Brattleboro	New Haven			
Northampton	Connecticut			
Holyoke	Connecticut			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.6. Jobs and Population per 1,000 Square Feet of Development

Variable Description: The different land use purposes have different space requirements. This variable is used to determine approximately how many jobs will be created based on the differing types of land use. Typically, office space can employ more workers per square foot than retail space, and industrial usages often require the most space per employee. The most likely values for retail, industrial, and office uses were calculated based on several sources, including Greenfield's "Bank Row Urban Renewal Plan" and the "Amtrak Downeaster: Overview of Projected Economic Impacts". The residential variable is an estimate of the average expected number of occupants per 1,000 square feet of new residential development.

Impact on the Model: Planned and available square footages for development were translated to jobs and population based on the usage rates shown below. The higher the usage rate, the more jobs created or more future residents.

Preliminary Probability Ranges

Development Type	Most Likely[a]	Low[b]	High[b]
Retail	1.33	1.20	1.50
Industrial	0.80	0.50	1.20
Office	3.84	3.51	4.02
Residential	1.50	1.20	1.80

Notes: (a) Median estimates based on several sources: Retail and Industrial space usage from "Bank Row Urban Renewal Plan: Greenfield, Massachusetts" March 2007 Update and office is from "Amtrak Downeaster: Overview of Projected Economic Impacts" March 2008.
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Probability Ranges

Development Type	Most Likely	Low[a]	High[a]
Retail			
Industrial			
Office			
Residential			

Note: (a) Indicates the upper and lower limits of an 90% confidence interval

Comments

3.7. Building Square Footage to Parcel Size Ratio

Variable Description: This variable captures the amount of building square feet compared to the size of the parcel itself. Since many of the parcels available for development are currently vacant land, the size of the potential future building is uncertain. This ratio is used to help convert the acreage of available land into developed building square feet. The values for the most likely are based on input from the Northampton Planning off-street parking regulations relative to building square footage. These calculations assume that retail, office and residential land uses are in or near the central business district and are (on average) three-story buildings. Industrial land uses assume a one-story building.

Impact on the Model: When the ratio of building size to parcel size is higher, there is a greater density of land use and thus greater potential for new jobs or residents. For example, a ratio of 1.0 might indicate on average that the building has 2 floors and covers half the land of the parcel (leaving space for parking, trees, sidewalks, etc.).

Preliminary Estimates

Development Type	Most Likely[a]	Low[b]	High[b]
Retail	1.07	0.87	1.27
Industrial	0.77	0.62	0.92
Office	1.07	0.87	1.27
Residential	1.58	1.26	1.90

Notes: (a) Most likely estimates based on estimates from HDR.
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Development Type	Most Likely	Low[a]	High[a]
Retail			
Industrial			
Office			
Residential			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.8. Greenfield Economic Development Risk Factors

Variable Description: These risk factors are applied to the base level of projected population and employment to estimate the additional impacts of rail service on the area. Due to the lack of detailed land use data available when the model was generated, risk factors were applied to the projected population and projected employment calculations. Commuter rail service assumes at least three trains in each peak commuting period while enhanced service is assumed to be similar to the Downeaster service (i.e., 5-6 trains a day in each direction). Since it is believed that commuter service will have a larger impact on economic development than enhanced service would, the growth rates are higher for commuter service than for enhanced service. For context, the 2007 population of Greenfield is 17,706 and employment is 10,941.

Impact on the Model: These factors indicate the additional economic development in Greenfield. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Variable	Service Level	Most Likely[a]	Low[b]	High[b]
Population	Enhanced	1.00%	0.50%	2.50%
	Commuter	3.00%	1.50%	6.00%
Employment	Enhanced	1.00%	0.50%	2.00%
	Commuter	2.50%	1.25%	5.00%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Variable	Service Level	Most Likely	Low[a]	High[a]
Population	Enhanced			
	Commuter			
Employment	Enhanced			
	Commuter			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.9. Northampton Economic Development Risk Factors

Variable Description: Specific data for developable parcels was used to assess Northampton's economic development potential. The data was divided by land use type, either business or residential, as well as distance from the proposed station location. Risk factors of induced economic development are applied to estimate the percentage of developable properties that will be impacted by enhanced and commuter level service. Areas closest to the stations are most likely to experience growth due to rail. For context, the 2007 Northampton population is 28,411 and employment is 20,373.

Impact on the Model: These factors indicate the additional economic development in Northampton. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Service Level	Land Use	Distance from Station	Most Likely[a]	Low[b]	High[b]
Enhanced	Business	Less than 0.5 miles	15.00%	5.00%	30.00%
		Between 0.5 and 1 mile	10.00%	2.50%	25.00%
		Greater than 1 mile	2.00%	1.00%	4.00%
	Residential	Less than 0.5 miles	15.00%	5.00%	30.00%
		Between 0.5 and 1 mile	7.50%	2.50%	15.00%
		Greater than 1 mile	3.00%	1.50%	6.00%
Commuter	Business	Less than 0.5 miles	20.00%	7.00%	35.00%
		Between 0.5 and 1 mile	12.00%	5.00%	25.00%
		Greater than 1 mile	3.00%	2.00%	5.00%
	Residential	Less than 0.5 miles	20.00%	7.00%	35.00%
		Between 0.5 and 1 mile	12.00%	5.00%	25.00%
		Greater than 1 mile	4.00%	2.00%	6.00%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Service Level	Land Use	Distance from Station	Most Likely	Low[a]	High[a]
Enhanced	Business	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			

	Residential	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			
Commuter	Business	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			
	Residential	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.10. Holyoke Economic Development Risk Factors

Variable Description: Specific data for developable parcels was used to assess Holyoke's economic development potential. The data was divided by land use type, either business or residential, as well as distance from the proposed station location. Risk factors of induced economic development are applied to estimate the percentage of developable properties that will be impacted by enhanced and commuter level service. Areas closest to the stations are most likely to experience growth due to rail. For context, 2007 Holyoke population is 39,737 and employment is 24,010.

Impact on the Model: These factors indicate the additional economic development in Holyoke. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Service Level	Land Use	Distance from Station	Most Likely[(a)]	Low[(b)]	High[(b)]
Enhanced	Business	Less than 0.5 miles	8.00%	3.00%	12.00%
		Between 0.5 and 1 mile	6.00%	3.00%	9.50%
		Greater than 1 mile	3.00%	1.00%	6.00%
	Residential	Less than 0.5 miles	10.00%	8.00%	17.00%
		Between 0.5 and 1 mile	8.00%	4.00%	14.00%
		Greater than 1 mile	5.00%	3.00%	10.00%
Commuter	Business	Less than 0.5 miles	20.00%	10.00%	27.00%
		Between 0.5 and 1 mile	18.00%	8.00%	22.50%
		Greater than 1 mile	8.00%	3.00%	12.00%
	Residential	Less than 0.5 miles	22.00%	12.00%	30.00%
		Between 0.5 and 1 mile	20.00%	10.00%	27.00%
		Greater than 1 mile	10.00%	6.00%	15.00%

Notes: (a) Most likely estimates based on estimates from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Service Level	Land Use	Distance from Station	Most Likely	Low[(a)]	High[(a)]
Enhanced	Business	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			
	Residential	Less than 0.5 miles			
		Between 0.5 and 1 mile			

		Greater than 1 mile			
Commuter	Business	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			
	Residential	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.11. Springfield Economic Development Risk Factors

Variable Description: Specific data for developable parcels was used to assess Springfield's economic development potential. The data was divided by land use type, either business or residential, as well as distance from the proposed station location. Risk factors of induced economic development are applied to estimate the percentage of developable properties that will be impacted by enhanced and commuter level service. Areas closest to the stations are most likely to experience growth due to rail. These risk factors are intended to account for the planned redevelopment of Union Station. For context, 2007 Springfield population is 149,938 and employment is 81,683.

Impact on the Model: These factors indicate the additional economic development in Springfield. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Service Level	Land Use	Distance from Station	Most Likely[a]	Low[b]	High[b]
Enhanced	Business	Less than 0.5 miles	4.00%	2.00%	5.60%
		Between 0.5 and 1 mile	2.50%	0.75%	4.00%
		Greater than 1 mile	0.25%	0.05%	0.40%
	Residential	Less than 0.5 miles	5.60%	2.40%	8.00%
		Between 0.5 and 1 mile	4.00%	1.20%	5.60%
		Greater than 1 mile	0.80%	0.20%	2.40%
Commuter	Business	Less than 0.5 miles	7.00%	3.00%	10.00%
		Between 0.5 and 1 mile	4.00%	2.00%	6.00%
		Greater than 1 mile	1.00%	0.50%	2.50%
	Residential	Less than 0.5 miles	10.00%	6.00%	13.00%
		Between 0.5 and 1 mile	8.00%	4.00%	10.00%
		Greater than 1 mile	5.00%	2.50%	8.00%

Notes: (a) Most likely estimates based on estimates from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Service Level	Land Use	Distance from Station	Most Likely	Low[a]	High[a]
Enhanced	Business	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			
	Residential	Less than 0.5 miles			
		Between 0.5 and 1 mile			

		Greater than 1 mile			
Commuter	Business	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			
	Residential	Less than 0.5 miles			
		Between 0.5 and 1 mile			
		Greater than 1 mile			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.12. Rest of Franklin County Economic Development Risk Factors

Variable Description: These risk factors are applied to the base level of projected population and employment to estimate induced economic development (jobs and population) of rail service on the areas in Franklin County that are outside of Greenfield. The base projected population in 2030 is 67,538 and the base employment is 21,723. Since the rest of the county will likely be impacted by the rail service, but to a lesser extent than the Town of Greenfield, these growth rates are typically lower for both enhanced and commuter level service. For context, 2007 Franklin County (excluding Greenfield) population is 53,896 and employment is 19,736.

Impact on the Model: These factors indicate the additional economic development in the Franklin County areas outside of Greenfield. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Variable	Service Level	Most Likely(a)	Low(b)	High(b)
Population	Enhanced	0.75%	0.50%	2.00%
	Commuter	2.50%	1.50%	4.00%
Employment	Enhanced	0.70%	0.30%	1.50%
	Commuter	2.00%	1.00%	3.50%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Variable	Service Level	Most Likely	Low(a)	High(a)
Population	Enhanced			
	Commuter			
Employment	Enhanced			
	Commuter			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

3.13. Rest of Hampshire County Economic Development Risk Factors

Variable Description: These risk factors are applied to the base level of projected population and employment to estimate the induced economic development of rail service on the areas in Hampshire County that are outside of Northampton. The base level of population in 2030 is 134,735 and the base level of employment is 45,450. Since the rest of the county will likely be impacted by the rail service, but to a lesser extent than Northampton, these growth rates are typically lower for both enhanced and commuter level service. For context, 2007 Hampshire County (excluding Northampton) population is 124,736 and employment is 44,813.

Impact on the Model: These factors indicate the additional economic development in the Hampshire County areas outside of Northampton. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Variable	Service Level	Most Likely[(a)]	Low[(b)]	High[(b)]
Population	Enhanced	1.00%	0.50%	2.50%
	Commuter	2.00%	1.00%	3.00%
Employment	Enhanced	1.50%	0.75%	2.50%
	Commuter	2.00%	1.00%	3.00%

Notes: *(a) Most likely estimates based on projections from HDR*
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Variable	Service Level	Most Likely	Low[(a)]	High[(a)]
Population	Enhanced			
	Commuter			
Employment	Enhanced			
	Commuter			

Notes: *(a) Indicates the upper and lower limits of a 90% confidence interval*

Comments

3.14. Rest of Hampden County Economic Development Risk Factors

Variable Description: These risk factors are applied to the base level of projected population and employment to estimate the induced economic development of rail service on the areas in Hampden County that are outside of Holyoke and Springfield. The base level of population in 2030 is 284,559 and the base level employment is 116,125. Since the rest of the county will likely be impacted by the rail service, but to a lesser extent than the two station cities, these growth rates are typically lower for both enhanced and commuter level service. For context, 2007 Hampden County (excluding Holyoke and Springfield) population is 268,233 and employment is 112,191.

Impact on the Model: These factors indicate the additional economic development in the Hampden County areas outside of Holyoke and Springfield. A higher growth rate indicates a larger increase in economic development due to the presence of rail service.

Preliminary Estimates

Variable	Service Level	Most Likely[a]	Low[b]	High[b]
Population	Enhanced	0.50%	0.25%	1.00%
	Commuter	1.00%	0.50%	2.00%
Employment	Enhanced	0.30%	0.20%	0.50%
	Commuter	0.75%	0.50%	1.50%

Notes: (a) Most likely estimates based on projections from HDR
(b) Indicates the upper and lower limits of a 90% confidence interval

Panelist's Estimates

Variable	Service Level	Most Likely	Low[a]	High[a]
Population	Enhanced			
	Commuter			
Employment	Enhanced			
	Commuter			

Notes: (a) Indicates the upper and lower limits of a 90% confidence interval

Comments

Catalyst for Regional Progress
PVPC
Timothy W. Brennan, Executive Director

March 20, 2009

Subject: Knowledge Corridor Passenger Rail Study
Third Meeting of the Technical Advisory Committee

The Pioneer Valley Planning Commission (PVPC) invites you or your representative to the third meeting of the Technical Advisory Committee (TAC), which is intended to update members on the progress of the project and to provide an opportunity for the committee to offer its invaluable input.

The Ridership and Economic Development Subcommittee of the TAC held a workshop on January 22, 2009. The comments and suggestions that followed have been incorporated into the latest version of the ridership forecasts and will be presented for discussion by the entire TAC.

The meeting information follows:

What:	Knowledge Corridor Passenger Rail Study Technical Advisory Committee Meeting #3
When:	Wednesday, April 15, 2009 10:00 am-12:00 noon
Where:	PVPC's Offices – 26 Central Street, Suite 34, West Springfield, MA (directions attached)

Please RSVP to Howard/Stein-Hudson Associates, attn: Max Talbot-Minkin by phone (646) 826-6323 or by e-mailing mtalbot-minkin@hshassoc.com.

For more information about the meeting, please call Dana Roscoe of the Pioneer Valley Planning Commission at (413) 781-6045.

We look forward to seeing you there.

Best regards,

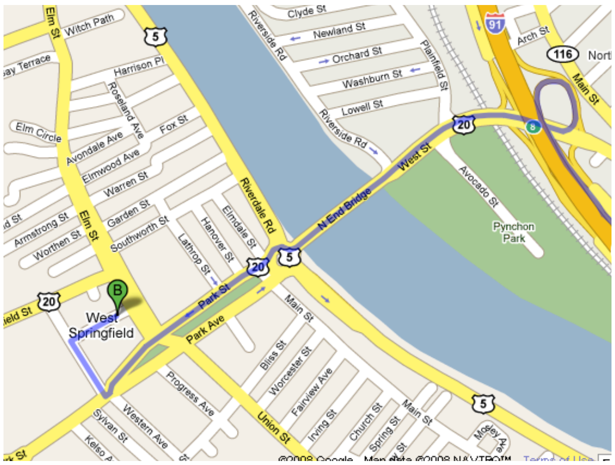
Tim Brennan

Tim Brennan
Executive Director
Pioneer Valley Planning Commission

Directions to the PVPC

Driving north on I-91:

- Take exit 9 for Route 20 West
- At traffic circle, take 2nd exit to continue on Route 20 West
- Turn right at Van Deene Ave
- Turn right at Central Street



Driving south on I-91:

- Take exit 13B for US-5 South
- After about ¾ mile, take a slight right onto Elm Street
- After 1 ½ miles, turn right at Central Street

Pioneer Valley Planning Commission 26 Central Street, Suite 34, West Springfield, MA 01089-2787
phone 413.781.6045 *fax* 413.732.2593 *TTY* 413.781.7168 www.pvpc.org

Meeting Subject: Meeting #3 of the Technical Advisory Committee

Date/Place/Time: April 15, 2009 / West Springfield Council Chambers / 10 AM

Attendees: *See Attached List*

On April 15, 2009, the Pioneer Valley Planning Commission (PVPC) hosted the third meeting of the Technical Advisory Committee (TAC) for the Knowledge Corridor Passenger Rail Study. The meeting took place at the headquarters of the PVPC at 26 Central Street, Suite 34 in West Springfield, MA. PVPC is the lead agency for the Study. The following memo summarizes the meeting.

Introduction

In addition to the project team, a total of 14 TAC members representing 13 agencies were in attendance at the meeting. A list of the attendees may be found in **Appendix A**.

Ronald O'Blenis (HDR) welcomed the meeting attendees and thanked everyone for their attendance. Attendees introduced themselves.

Presentation

The main PowerPoint presentation may be found in **Appendix B** and covered the following subjects:

- Rail ridership estimates, utilizing the latest figures based on feedback from the TAC, and presented by Pete Mazurek of HDR.
- Summary of economic development analysis findings, also updated based on feedback from the TAC, and presented by Dan Hodge of HDR.
- Information about the upcoming public meetings. A flyer for these meetings may be found in Appendix C.
- Next steps.

Questions During and After Presentation

There was some discussion about where the ridership estimate numbers came from. Pete Mazurek (HDR) noted that the ridership numbers representing a baseline "no-build" condition were only for Vermonter service. For the expanded inter-city and commuter rail ridership estimates, numbered 3 and 4, Pete Mazurek noted that the ridership estimates covered ridership in addition to the estimates solely for the Vermonter service.

Attendees questioned why the ridership figures for Springfield are higher than Hartford. Pete Mazurek noted he would double-check them, but that Springfield is a much closer employment center for points north, which will see improved service. This could be the reason for the effect.

Attendees asked whether the numbers considered the split between other modes, i.e. does the model "take" riders from other modes such as bus, intercity bus, etc. Pete Mazurek replied that the model considers the full universe of trips but does not specifically estimate how much ridership is coming from each other mode.

There was a question about Northampton-Amherst shuttle service, specifically what kind and frequency of service would be provided and who would pay for it. The project team noted that this type of mobility connection issue is critical to maximize ridership and also understands that frequent bus linkages exist today between Amherst and Northampton. The team will document current services and assumptions about future service.

Charlie Miller (Vermont Agency of Transportation) updated the TAC on the status of the DMU railcars. Intellectual property rights of Colorado Railcar are being auctioned off. However, with the increased expected ridership demand for the Vermonter service, it is possible that regular locomotive sets and service would need to be procured and implemented to provide sufficient capacity.

For the slide "Employment Impacts by City and Scenario", it was asked why Northampton reacted differently from the other cities. The project team responded that Northampton's economy is less traditional in terms of 9-5 workdays and more focused on visitation, cultural attractions, a robust restaurant and retail economy, and creative economic linkages to places like New York City. Thus, the enhanced inter-city service was deemed to produce substantial economic development benefits in Northampton, almost as large as from the commuter rail scenario.

For the slide "Employment and Population Attributable to Enhance Service: 2030" it was asked what 10, 50, and 90 percent represent. The percentages correspond to a low to high range of likely results developed based on a number of risk factors that have been presented to the TAC. The 50% values represent the "most likely" impact. The 10% "low" values can be interpreted as only a 10% chance that impacts will be lower than that value (or conversely, a 90% chance that the economic development impacts will be at least that high). The 90% "high" value means that there is a 90% chance that the economic impacts will not be any higher than that value.

Charlie Miller requested the TAC and PVPC consider holding a regional/public meeting in Vermont as part of this study to ensure support and participation from key Vermont stakeholders along the rail corridor. The project team will work with PVPC to explore and plan this meeting.

Tim Doherty (EOT) updated the TAC regarding near-term funding opportunities. The state is planning to work closely with the PVPC to apply for rail funding through a competitive program from the Federal Stimulus package and encouraged local stakeholders to support this application process, including writing letters of support for the project, as appropriate. Federal guidelines for the stimulus funds should be released soon, and will provide much more information regarding the application process.

Appendix A
List of Attendees

Project Team

Charlie Miller	Vermont Agency of Transportation
Dana Roscoe	PVPC
Daniel Hodge	HDR, Inc.
Jim Stoetzel	Transit Safety Management
Max Talbot-Minkin	Howard/Stein-Hudson Associates, Inc.
Peter Mazurek	HDR, Inc.
Ronald O'Blenis	HDR, Inc.

TAC

Kathleen Anderson	City of Holyoke Office of Planning and Economic Development
Teri Anderson	Northampton Economic Development
Natalie Blais	U.S. House of Representatives
Sydney Culliford	Pan Am Railway
Tim Doherty	MA Executive Office of Transportation
Thomas L. Fournier	Amtrak
Scott Howland	Amtrak
Charles Hunter	New England Central Railroad
Mary MacInnes	Pioneer Valley Transit Authority
Matt Mann	Windham Regional
Maureen Mullaney	Franklin Regional Council of Governments
Paul Nicolai	Nicolai Law Group (EDC of Western Mass)
Michael Perrault	Franklin Regional Transit Authority
Michael H. Sharff	Peter Pan Bus Lines

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

April 15, 2009
TAC Meeting

Catalyst for Regional Progress
pvpc

Today's Agenda

- Project update and recent activities
- Rail ridership estimates by service cases
- Summary of economic development analysis findings
- Funding and application for ARRA competitive rail stimulus funds
- Upcoming public meetings – May 19 & 20
- Discussion and next steps

Rail Ridership Estimates by Service Cases

Ridership Development and Analysis

- Ongoing, data-intensive process
- Complex tool developed to be sensitive to as many “what if” type questions as possible.
  - Even if the data is not there yet to support assumptions
- Understanding regional demographics, infrastructure, travel patterns
- Model development and key assumptions and risk factors
- Stepwise case development and analysis

Stepwise Case Development

- Tool was developed and forecasts made for a series of incremental service configurations ("cases")
- Gives advantage of seeing how region reacts to potential improvements in an incremental fashion
  - Proceed from simpler, more certain improvements to more complex, less sure configurations.
  - Could closely mirror what is eventually implemented.

Case 0: No-Build Case

- Rail service continues on existing alignment with current level of service and schedule
  - 1 train each way per day
  - Operational Challenges lead to slow speed through region

Actual January 2009 (Monthly) Ridership Number	
BRATTLEBORO	839
AMHERST	1,046
SPRINGFIELD-MA	140

Case 0: Existing Service Results

CASE 0	FROM	TO	TOTAL
Station Activity	(Boardin	(Alighting	ACTIVIT
Bellows Falls	61	73	134
Brattleboro	12	14	26
Greenfield	0	0	0
Amherst	16	17	34
Northampton	0	0	0
Holyoke	0	0	0
Springfield	4	2	7
Windsor Locks	0	6	6
Hartford	3	2	5
Berlin	0	0	1
Meriden	1	1	1
Wallingford	0	0	1
New Haven	5	4	9
Bridgeport	2	2	4
Stamford	4	3	7
New Rochelle	0	0	0
New York	90	76	167
TOTAL	202	202	403

Case 1: Realignment of existing *Vermonter*

- Existing service (1 train) routed onto Conn River line with no additional service
  - Northampton replaces Amherst
  - Two new stations assumed at Holyoke and Greenfield
  - Significant time savings (10-15% of time Vermont <-> New York)
  - Assumed no changes outside of Springfield-Brattleboro segment

CASE 1	From	To	Ons+Offs
Greenfield	7	7	14
Amherst	0	0	0
Northampton	22	23	45
Holyoke	8	8	16
Springfield	5	3	7

Case 1: Rerouting of Existing Vermonter Results

	FROM	TO	TOTAL
Station Activit	(Boardings	(Alightings	ACTIVITY
Bellows Falls	77	92	169
Brattleboro	15	18	33
Greenfield	7	7	14
Amherst	0	0	0
Northampton	22	23	45
Holyoke	8	8	16
Springfield	5	3	7
Windsor Lock	0	6	6
Hartford	4	4	8
Berlin	0	0	1
Meriden	1	1	2
Wallingford	0	0	1
New Haven	6	5	12
Bridgeport	3	2	5
Stamford	5	4	10
New Rochelle	0	0	0
New York	114	96	209
TOTAL	269	269	537

Case 2: Vermonter Re-configuration

- Building off of Case 1...
- Reconfiguration of Vermonter service to DMU equipment
- Second Vermonter trainset enables second train
- Service termination at New Haven
  - Opportunity for timed cross-platform transfers at New Haven
  - Loss of through cars to New York and beyond
  - Remove the time-consuming engine change

Case 2: Vermonter Reconfiguration Results

CASE 2	FROM	TO	TOTAL
Station Activity	(Boardings	(Alightings	ACTIVITY
Bellows Falls	148	175	323
Brattleboro	29	34	63
Greenfield	14	14	27
Amherst	0	0	0
Northampton	42	43	86
Holyoke	15	14	30
Springfield	6	3	9
Windsor Locks	1	10	10
Hartford	8	7	15
Berlin	1	1	2
Meriden	2	1	3
Wallingford	1	1	1
New Haven	12	10	22
Bridgeport	5	4	9
Stamford	10	8	18
New Rochelle	0	0	0
New York	214	181	395
TOTAL	506	506	1,012

Case 3: (*Enhanced Intercity*) Additional Intercity service from Greenfield south added

- Additional intercity-type service from Greenfield south added
  - 5-6 trains per day in each direction, distributed throughout the day
  - Possible linkages with Amtrak/ConnDOT services in Connecticut
  - Not specifically commuter-focused, but desirable to commuters to some degree

Case 3: Enhanced Intercity Operations

SOUTHWARD

GCOM 15	AMTK 477	CDOT 13	CDOT 11	CDOT 9	GCOM 7	AMTK 475	DMU 437	AMTK 55	DMU 493	AMTK 471	GCOM 11	GCOM 13	GCOM 5 CDOT 7	AMTK495	GCOM 3 CDOT 5	CDOT 3	GCOM 1 AMTK 141	CDOT 1	5 Morning to Springfield 5 Evening from Springfield 2 Mid day 1 Evening
							12:19		8:27										Bellows Falls 146.00
							12:54		09:02										
							12:55		09:03										Battleboro 122.32
							13:25		09:33										
19:18					15:22		13:25		09:34		7:50	7:20	6:50		5:55		5:00		Greenfield 98.00
19:41					15:45		13:48		09:56		08:13	07:43	07:13		06:18		05:23		
19:42					15:46		13:48		09:58		08:13	07:43	07:13		06:18		05:23		Northhampton 79.00
19:54					15:58		14:00		10:10		08:25	07:55	07:25		06:30		05:35		
19:55					15:59		14:01		10:10		08:26	07:56	07:26		06:31		05:36		Holyoke 69.80
							14:15		10:24				7:40		6:45		5:50		
20:09	18:25	17:40	17:10	16:35	16:13	16:05	14:25	12:55	10:34	8:40	8:40	8:10	7:50	7:15	6:55	6:25	6:00	5:30	Springfield 62.00
	19:45	19:00	18:30	17:55		17:30	16:01	14:23	11:54	10:00			9:10	8:35	8:15	7:45	7:28	6:50	New Haven 0.00

NORTHWARD

5 Morning to Springfield 5 Evening from Springfield 2 Mid day 1 Evening	CDOT 2	CDOT 4	CDOT 6	GCOM 2	AMTK 490	AMTK 470	GCOM 4	AMTK 56	DMU 474	GCOM 14	GCOM 6 CDOT 8	GCOM 8 AMTK 486	GCOM 10 CDOT 10	DMU 476	GCOM 16	AMTK 148
Bellows Falls 146.00									17:14					21:09		
									16:39					20:34		
Battleboro 122.32									16:38					20:33		
									16:07					20:02		
Greenfield 98.00				10:18			12:33		16:07	17:27	17:52	18:27	18:57	20:02	21:42	
				09:58			12:13		15:47	17:07	17:32	18:07	18:37	19:42	21:22	
Northhampton 79.00				09:57			12:12		15:46	17:06	17:31	18:06	18:36	19:41	21:21	
				09:44			11:59		15:33	16:53	17:18	17:53	18:23	19:28	21:08	
Holyoke 69.80				09:44			11:59		15:33	16:53	17:18	17:53	18:23	19:28	21:08	
									15:20		17:05	17:40	18:10	19:15		
Springfield 62.00	7:25	8:10	8:50	9:31	10:10	11:35	11:46	14:20	15:10	16:40	16:55	17:30	18:00	19:05	20:55	21:55
New Haven 0.00	6:05		7:30		8:50	10:15		12:55	13:45		15:35	16:10	16:40	17:40		20:30

Case 3: *Enhanced Intercity* Results

CASE 3	FROM	TO	TOTAL
Station Activ	(Boardings	(Alightings	ACTIVITY
Bellows Falls	0	0	0
Brattleboro	0	0	0
Greenfield	54	21	75
Amherst	0	0	0
Northamptor	204	151	355
Holyoke	117	140	257
Springfield	315	290	605
Windsor Loc	44	17	61
Hartford	9	100	109
Berlin	3	10	13
Meriden	0	1	1
Wallingford	1	0	1
New Haven	1	8	9
Bridgeport	1	1	2
Stamford	0	1	2
New Rochell	0	0	0
New York	8	18	25
TOTAL	758	758	1,515

Case 4: (*Enhanced Commuter*)

- Similar to Case 3 but with trains focused on morning and afternoon commuter times and market.
  - Possible through routings into Hartford and at New Haven
  - Should be more attractive to commuters

SOUTHWARD

AMTK 477	CDOT 13	CDOT 11	CDOT 9	GCOM 7	AMTK 475	DMU 437	AMTK 55	DMU 493	GCOM 11	AMTK 471	GCOM 13	GCOM 5 CDOT 7	AMTK 495	GCOM 3 CDOT 5	CDOT 3	AMTK 141	CDOT 1	4 Morning to Springfield 4 Evening from Springfield 1 Mid day
						12:19		8:27										Bellows Falls 146.00
						12:54		09:02										
						12:55		09:03										Battleboro 122.32
						13:25		09:33										
				15:22		13:25		09:34	7:50		7:20	6:50		5:55				Greenfield 98.00
				15:45		13:48		09:56	08:13		07:43	07:13		06:18				
				15:46		13:48		09:58	08:13		07:43	07:13		06:18				Northhampton 79.00
				15:58		14:00		10:10	08:25		07:55	07:25		06:30				
				15:59		14:01		10:10	08:26		07:56	07:26		06:31				Holyoke 69.80
						14:15		10:24				07:40		06:45				
18:25	17:40	17:10	16:35	16:13	16:05	14:25	12:55	10:34	8:40	8:40	8:10	07:50	7:15	06:55	6:25	6:00	5:30	Springfield 62.00
19:45	19:00	18:30	17:55		17:30	16:01	14:23	11:54		10:00		9:10	8:35	8:15	7:45	7:28	6:50	New Haven 0.00

NORTHWARD

4 Morning to Springfield 4 Evening from Springfield 1 Mid day	CDOT 2	CDOT 4	CDOT 6	GCOM 2	AMTK 490	AMTK 470	AMTK 56	DMU 474	GCOM 12	GCOM 14	GCOM 6 CDOT 8	GCOM 8 AMTK 486	CDOT 10	DMU 476	AMTK 148
Bellows Falls 146.00								17:14						21:09	
								16:39						20:34	
Battleboro 122.32								16:38						20:33	
								16:07						20:02	
Greenfield 98.00				10:18				16:07	17:03	17:27	17:52	18:27		20:02	
				09:58				15:47	16:43	17:07	17:32	18:07		19:42	
Northhampton 79.00				09:57				15:46	16:42	17:06	17:31	18:06		19:41	
				09:44				15:33	16:29	16:53	17:18	17:53		19:28	
Holyoke 69.80				09:44				15:33	16:29	16:53	17:18	17:53		19:28	
								15:20			17:05	17:40		19:15	
Springfield 62.00	7:25	8:10	8:50	9:31	10:10	11:35	14:20	15:10	16:16	16:40	16:55	17:30	18:00	19:05	21:55
New Haven 0.00	6:05		7:30		8:50	10:15	12:55	13:45	15:35		16:10	16:10	16:40	17:40	20:30

Case 4: (Enhanced Commuter) Results

CASE 4 Station Activity	FROM (Boardings)	TO (Alightings	TOTAL ACTIVITY
Bellows Falls	0	0	0
Brattleboro	0	0	0
Greenfield	119	47	166
Amherst	0	0	0
Northampton	450	334	784
Holyoke	260	312	573
Springfield	618	617	1,235
Windsor Locks	71	27	98
Hartford	15	161	176
Berlin	5	17	22
Meriden	0	1	2
Wallingford	1	0	1
New Haven	2	11	13
Bridgeport	1	1	2
Stamford	0	2	2
New Rochelle	0	0	0
New York	11	26	38
TOTAL	1,556	1,556	3,112

Thoughts and Considerations

- Intercity and Commuter markets are very different
  - Scale of trip-making is different
  - Commuter trips tend to “swamp” intercity trips
- Not forecasting all travel in the region
  - Not explicitly trying to model competition with PVTA or private bus operators
  - Although travel to Connecticut and even New York is important, not attempting to explain travel within Connecticut
- More information and data are (always) needed
  - Travel patterns across state line
- Forecast tool designed to live beyond the study

Summary of Economic Development Analysis Findings

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

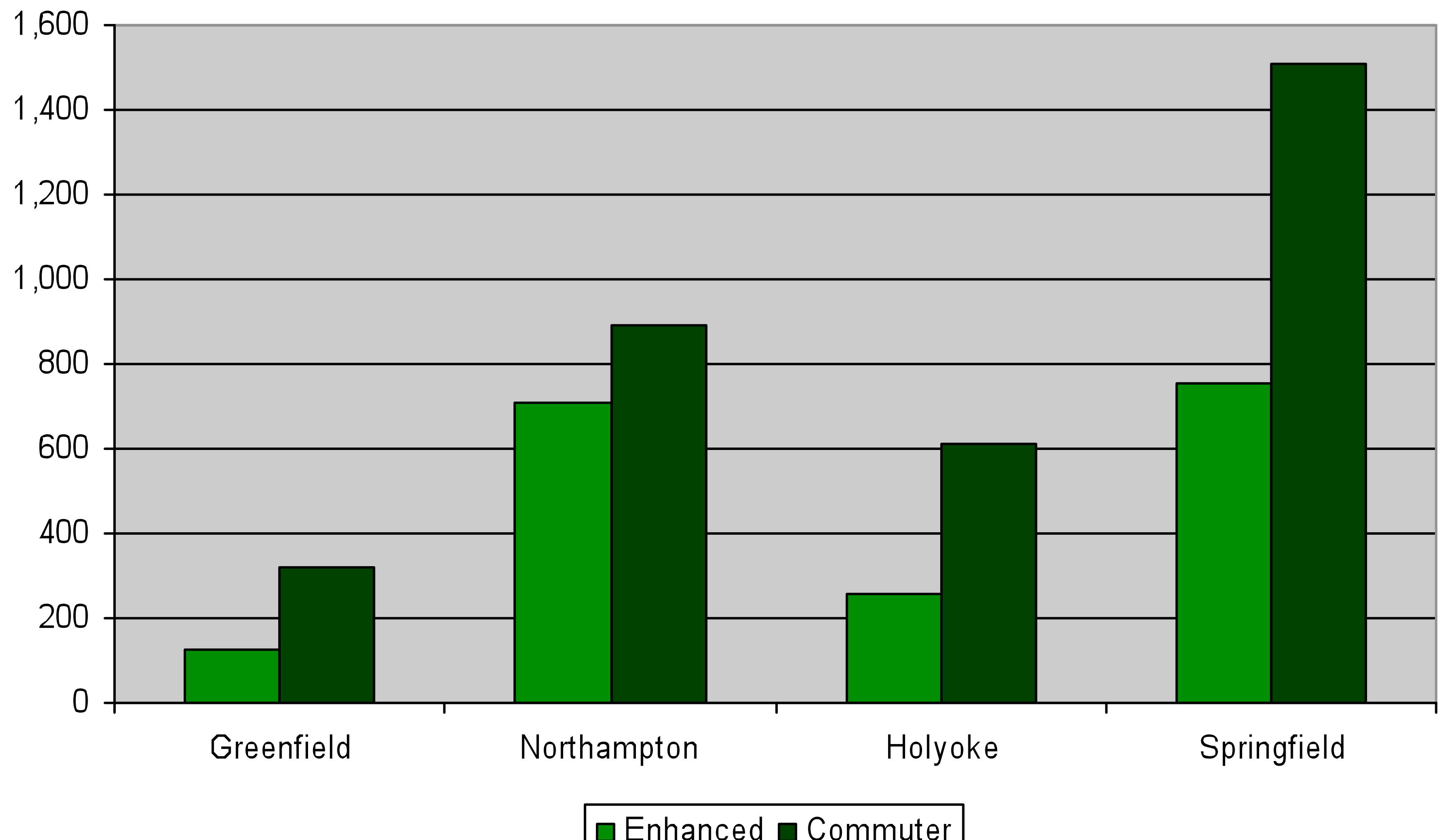
Summary of Induced Employment and Population Results

	Enhanced				Commuter			
	Employment		Population		Employment		Population	
	2015	2030	2015	2030	2015	2030	2015	2030
Greenfield	32	128	61	243	80	321	159	634
Northampton	177	707	307	1,227	222	889	361	1,444
Holyoke	65	260	131	522	152	609	256	1,022
Springfield	189	754	250	998	378	1,510	502	2,006
Rest of Franklin County	38	153	187	746	99	396	451	1,802
Rest of Hampshire County	88	352	452	1,806	206	823	671	2,682
Rest of Hampden County	87	349	416	1,662	242	967	959	3,837
TOTAL	**676**	**2,703**	**1,804**	**7,204**	**1,379**	**5,515**	**3,359**	**13,427**

Source: HDR Calculations.

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Employment Impacts by City and Scenario: 2030



Source: HDR Calculations.

Employment and Population Attributable to Enhanced Service: 2030

	Employment			Population		
	10%	50%	90%	10%	50%	90%
Greenfield	55	128	219	90	243	451
Northampton	365	707	1,224	558	1,227	2,210
Holyoke	114	260	486	221	522	915
Springfield	409	754	1,242	472	998	1,807
Rest of Franklin County	55	153	274	337	746	1,353
Rest of Hampshire County	309	352	1,030	670	1,806	3,356
Rest of Hampden County	210	349	523	709	1,662	2,487
TOTAL	*1,517*	*2,703*	*4,998*	*3,057*	*7,204*	*12,579*

Source: HDR Calculations.

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Development Impacts of Enhanced and Commuter Service as Percent of Baseline Numbers: 2030

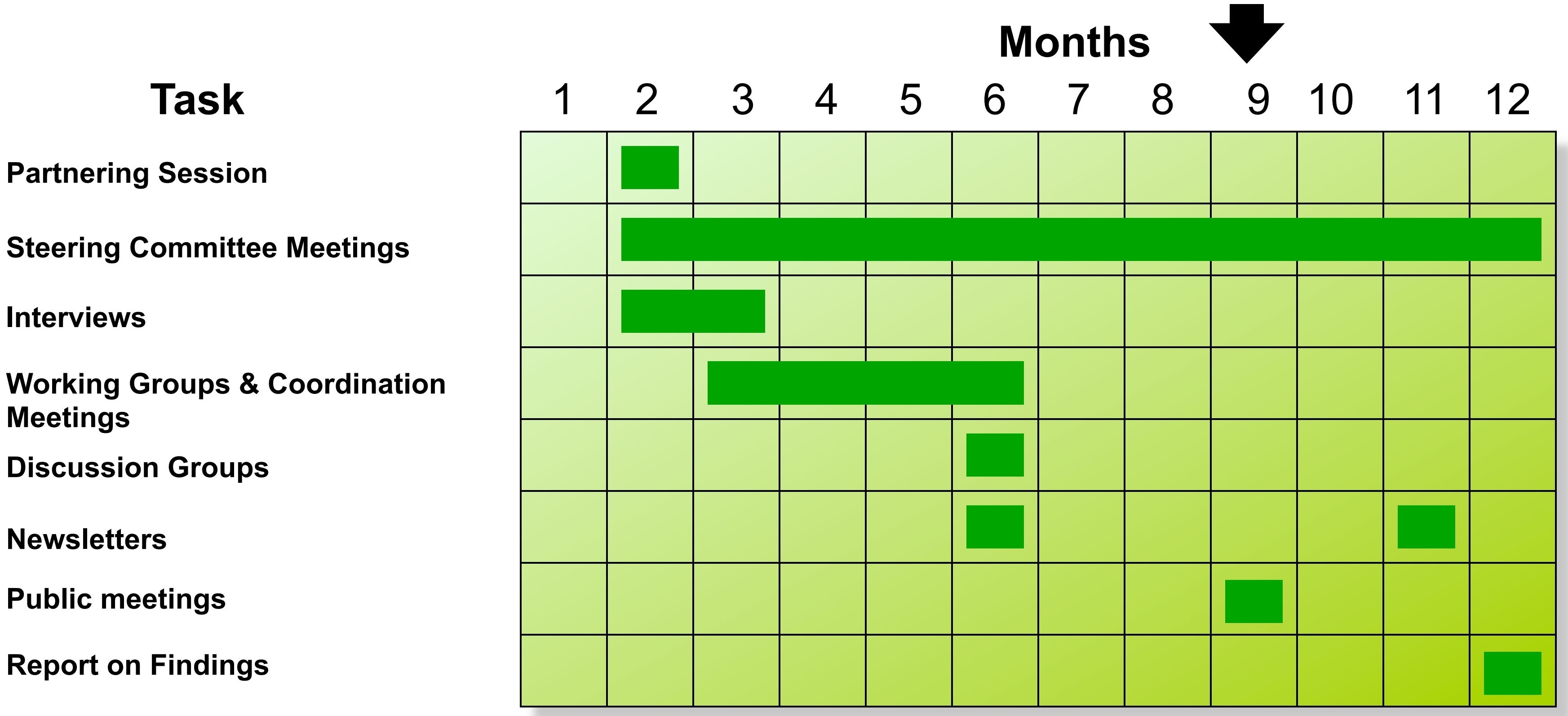
	Enhanced		Commuter	
	Employment	Population	Employment	Population
Greenfield	1.2%	1.3%	2.9%	3.5%
Northampton	3.8%	4.3%	4.8%	5.0%
Holyoke	1.2%	1.4%	2.9%	2.7%
Springfield	1.1%	0.7%	2.1%	1.3%
Rest of Franklin County	0.8%	1.1%	2.2%	2.7%
Rest of Hampshire County	0.9%	1.3%	2.0%	2.0%
Rest of Hampden County	0.3%	0.6%	0.9%	1.3%
TOTAL	**0.9%**	**1.0%**	**1.9%**	**1.9%**

Source: HDR Calculations.

Upcoming Public Meetings

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Stakeholder Involvement Timeline



Public Meetings

- Objective to communicate study direction, obtain broad stakeholder input
- Scheduled for May 19 and 20, 7:00 – 8:30pm
  - Tuesday, May 19 Springfield, TD Banknorth Conference Center
  - Wednesday, May 20 Northampton, Clarion Hotel
- 30 minute presentation of study findings/scope
- Facilitated questions and discussion
- Publicized through a number of channels
  - Local newspapers
  - Flyer – email distribution lists
  - Radio

Next Steps

- Finalize ridership estimates
- Prepare for and publicize May public meetings
- Conduct Operational Modeling
- Determine capital and O&M costs by scenario
- Conduct cost-benefit analysis

Discussion and Questions

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Catalyst for Regional Progress
pvpc

Join us at a

Public Meeting

to learn about a study for a new

Passenger Rail Service

along the

I-91/Connecticut River corridor

between Springfield and points north.

Springfield - May 19, 2009
TD Banknorth Conference Center, 1441 Main Street

Northampton - May 20, 2009
Clarion Hotel, 1 Atwood Dr.

7:00 - 8:30 PM

For questions or special needs, please call Howard/Stein-Hudson Associates at (800) 823-1348.

Visit the project web site:

www.pvpc.org/corridor/

Catalyst for Regional Progress
PVPC
Timothy W. Brennan, Executive Director

June 9, 2009

Subject: Knowledge Corridor Passenger Rail Study
Fourth Meeting of the Technical Advisory Committee

The Pioneer Valley Planning Commission (PVPC) invites you or your representative to the fourth meeting of the Technical Advisory Committee (TAC), which is intended to update members on the progress of the project and to provide an opportunity for the committee to offer its invaluable input.

Public Open Houses were held in May in Northampton, Springfield, and Bellows Falls VT to introduce the project to communities and discuss preliminary findings. Feedback, issues, and commentary received at those meetings will be discussed at the TAC meeting. Other key topics to be presented include:

- Cost-benefit analysis results of the alternative rail scenarios;
- Updated analysis of passenger rail operations; and
- Status update on funding initiatives.

The meeting information follows:

What:	Knowledge Corridor Passenger Rail Study Technical Advisory Committee Meeting #3
When:	Monday, June 29, 2009 1 PM-3 PM
Where:	PVPC's Offices – 26 Central Street, Suite 34, West Springfield, MA (directions attached)

Please RSVP to Howard/Stein-Hudson Associates, attn: Max Talbot-Minkin by phone (646) 826-6323 or by e-mailing mtalbot-minkin@hshassoc.com.

For more information about the meeting, please call Dana Roscoe of the Pioneer Valley Planning Commission at (413) 781-6045.

We look forward to seeing you there.

Best regards,

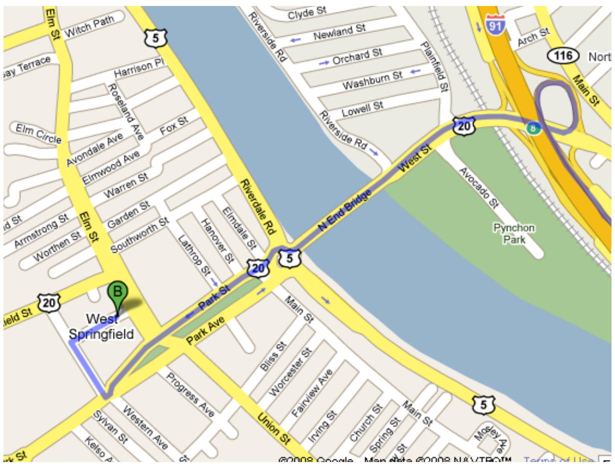
Tim Brennan

Tim Brennan
Executive Director
Pioneer Valley Planning Commission

Directions to the PVPC

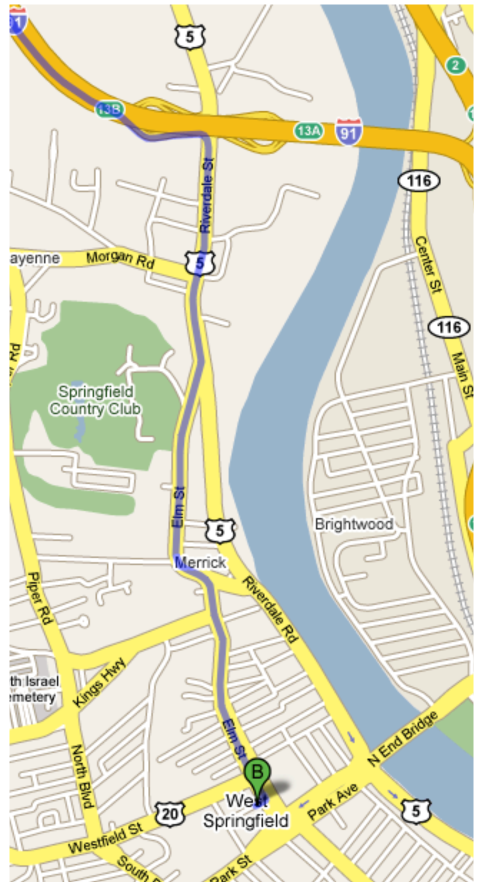
Driving north on I-91:

- Take exit 9 for Route 20 West
- At traffic circle, take 2nd exit to continue on Route 20 West
- Turn right at Van Deene Ave
- Turn right at Central Street



Driving south on I-91:

- Take exit 13B for US-5 South
- After about ¾ mile, take a slight right onto Elm Street
- After 1 ½ miles, turn right at Central Street



Pioneer Valley Planning Commission 26 Central Street, Suite 34, West Springfield, MA 01089-2787
phone 413.781.6045 *fax* 413.732.2593 *TTY* 413.781.7168 www.pvpc.org

MEETING MINUTES

Knowledge Corridor Passenger Rail Study

Meeting Subject: Meeting #4 of the Technical Advisory Committee

Date/Place/Time: June 29, 2009 / PVPC Headquarters / West Springfield / 1 PM

Attendees: *See Attached List*

On June 29, 2009, the Pioneer Valley Planning Commission (PVPC) hosted the fourth meeting of the Technical Advisory Committee (TAC) for the Knowledge Corridor Passenger Rail Study. The meeting took place at the headquarters of the PVPC at 26 Central Street, Suite 34 in West Springfield, MA. PVPC is the lead agency for the Study. The following memo summarizes the meeting.

Introduction

In addition to the project team, a total of 14 TAC members representing 14 agencies were in attendance at the meeting. A list of the attendees may be found in **Appendix A**.

Ronald O'Blenis (HDR) welcomed the meeting attendees and thanked everyone for their attendance.

Presentation

The main PowerPoint presentation may be found in **Appendix B** and covered the following subjects:

- Review of alternatives
- Findings from May open house meetings
- Cost-benefit analysis results of alternative scenarios
- Updated operational analysis
- Status update on funding initiatives
- Next steps.

Cost-Benefit Analysis Summary

	Benefits (PV)	**Costs (PV)**	**Net Present Value**	**Benefit-Cost Ratio**
Case 1: Return Vermonter to Conn. River Line	$106.2	$39.2	$67.0	2.7
Case 2: Expanded Intercity Service	$201.9	$149.1	$52.9	1.4
Case 3: Commuter-Oriented Service	$219.5	$462.4	($242.9)	0.5

*dollar amounts in millions

Benefits take into account travel time savings for existing riders, user benefits for induced riders, reduced emissions, reduced highway maintenance, and freight shipping cost savings. **Costs** take into account capital costs and annual O&M cost savings.

Questions During and After Presentation

Syd Culliford (Pan Am Railways) asked whether the study area was designated as a high-speed rail (HSR) corridor. Tim Doherty (EOT) replied that it was not, but it connected two of them. The results of this study may feed into whether it is eventually designated as such. Charlie Miller (VTrans) added that the result of the alternatives study will result in a recommendation as to whether this leg of railroad should be designated as such.

Kathy Anderson (City of Holyoke) asked whether HSR designation has to do whether the tracks are straightened. Tim Doherty replied that is not the case and that the Federal corridors are based on an older plan.

Mike Scharff (Peter Pan) asked what the local HSR corridors were. Tim Brennan (PVPC) named Boston-Montréal, Boston-Albany, and Springfield-New Haven. Charlie Miller added that multiple corridors may be part of a single effort.

Kathy Anderson asked whether the comment period was over. Ron O'Blenis (HDR) said that they will continue collecting comments until the report begins to be assembled in August.

Mary MacInnes (PVTA) asked whether the public meeting in Northampton was advertised in Amherst. Dana Roscoe (PVPC) said that it was reported on in the local newspapers before and after. Tim Brennan acknowledged the lack of presence of Amherst at the table and noted what the PVPC had done to correct this: they met with the Town Manager and invited officials to come to the TAC meetings. He pointed out Jonathan Tucker from the Amherst Planning Board was in attendance today.

Cost-Benefit Analysis (CBA)

Kathy Anderson asked whether the Cost-Benefit Analysis (CBA) included an increase in rail service. Dan Hodge (HDR) replied that it does. Dan Hodge noted that the numbers in the CBA are overall conservative.

Charles Hunter (NECR) asked whether the CBA concluded that there would be no growth on the existing route. Dan Hodge replied that it does suppose growth on the existing route, and those numbers form the baseline.

Jonathan Tucker asked whether the CBA numbers included people from Amherst. Ron O'Blenis replied that it includes the capture area for people who would drive from Amherst.

Tim Doherty noted that available resources for the project have grown and there may be an opportunity for more capital investment than previously believed. Because the frame of the project could change, Charlie Miller asked the project team to break out the separate CBAs to ensure that they match the initial level of investment as proposed at the public meetings. Ron O'Blenis noted that the C/B ratio stays strong through most cases, but acknowledged the final report will have to describe any changes since the public meetings.

Syd Culliford asked whether hospital service was considered. Jim Stoetzel (Transit Safety Management) said there was a good opportunity in the future but the study does not consider a stop at a medical campus.

Dan Hodge noted that the increased ridership under the commuter rail alternative does not make up for capital costs. Charlie Miller asked what period of time the costs considered—Dan Hodge replied it included upfront costs and a 30-year useful life on equipment, not including a mid-life overhaul. Dan noted that the project team will prepare a low-high range on these estimates to allay concerns over the accuracy of estimates.

Syd Culliford asked whether the Downeaster could be used as a model to promote the Knowledge Corridor Plan. Dan Hodge replied that the team can point to Downeaster experiences in the report, but the Knowledge Corridor service itself does not connect two major metropolitan areas as does the Downeaster.

Next Steps

Ron O'Blenis noted the HSR guidelines have been released and the project lines up well with the following guidelines: a CBA has been performed; the early phases do not propose a commuter system; the PVPC have willing partners and agreements; and there exists a commitment from the State of Massachusetts for operation. Tim Doherty noted it is the beginning of a long and complicated application process, but the timing is fortuitous for the project. Pre-application questions from the Federal Railroad Administration (FRA) will be requested shortly to ensure the project qualifies.

Mike Scharff asked whether the State DOT files the application. Tim Doherty replied "yes."

Kathy Anderson asked how Holyoke could plan for the new Data Center. Tim Brennan replied that PVPC staff is meeting with Holyoke and Northampton to look at station area zoning and will provide the cities with help. Tim Doherty noted that the City of Holyoke now owns the former train station there

Dave Swirk asked about double-tracking in customer areas for freight in order to leave the mainline open. Tim Doherty noted they are looking at this.

Kathy Anderson asked where letters of support should go. Tim Doherty replied they should be sent to the PVPC.

Tim Brennan emphasized that the application must show economic and jobs improvement, as it is bidding for stimulus money.

Teri Anderson (Northampton Economic Development) asked whether other projects within MA are competing for the same money. Tim Doherty replied there were a couple projects on the NEC and Downeaster, but the pool of money is large enough that they aren't concerned about competing against themselves.

Kathy Anderson asked whether eminent domain will be required. Tim Doherty replied no, the Right of Way is big enough. This is a positive thing for the project, otherwise NEPA would be required.

Action Items

- Dan Hodge will follow up with Teri Anderson about economic development opportunities.
- HSH will develop a list of sources to obtain letters of support for the project.

Appendix A
List of Attendees

Project Team

Charlie Miller	Vermont Agency of Transportation
Dana Roscoe	PVPC
Daniel Hodge	HDR, Inc.
Jim Stoetzel	Transit Safety Management
Max Talbot-Minkin	Howard/Stein-Hudson Associates, Inc.
Ronald O'Blenis	HDR, Inc.
Tim Brennan	PVPC

TAC

Kathleen Anderson	City of Holyoke Office of Planning and Economic Development
Teri Anderson	Northampton Economic Development
Natalie Blais	U.S. House of Representatives
Sydney Culliford	Pan Am Railway
Tim Doherty	MA Executive Office of Transportation
Scott Howland	Amtrak
Charles Hunter	New England Central Railroad
Mary MacInnes	Pioneer Valley Transit Authority
Matt Mann	Windham Regional
Paul Nicolai	Nicolai Law Group (EDC of Western Mass)
Michael Perraul	Franklin Regional Transit Authority
Michael H. Sharff	Peter Pan Bus Lines
Jonathan Tucker	Amherst Planning Department
David Swirk	Pioneer Valley Railroad

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

June 29, 2009
TAC Meeting

West Springfield, MA

Catalyst for Regional Progress
pvpc

Today’s Agenda

- Brief review of alternative scenarios
- Feedback and findings from May open house meetings
- Cost-benefit analysis results of alternative scenarios
- Updated passenger rail operational analysis
- Status update on funding initiatives
- What’s next

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Existing Conditions

Case
0

- Additional mileage and time
- 55 mph speed limit
- Reverse direction at Palmer
- Requires use of congested East-West line

55 mph

Return Vermonter to Conn River Line

Case
1

- Restores original Vermonter route
- Would serve communities historically connected
- Shorter trip time
- Station at Northampton (Greenfield and Holyoke to be developed)
- Potential second round trip

60 mph

Expanded Intercity Service

Case 2

- Expanded Amtrak service – 3 to 5 round trips
- Integrated with ConnDOT initiatives
- Augments Springfield opportunities as a rail hub
- Upgraded track for higher speeds

79 mph

Commuter-Oriented Service

Case
3

- Focus from Greenfield south
- Integrated with intercity service continuing to VT
- Integrated with ConnDOT initiatives
- Targeted schedule: 5 morning and 5 evening rush hour trains, 3 midday/evening trains
- Provides basis for higher-speed operation

80+ mph

Infrastructure Improvements & Estimated Cost

Case 1

- Move Vermonter to Conn River Line
  - Tie & rail improvement
  - Switch & grade crossing renewal
  - Signal system improvements

$25-32 million

Case 2

- Expanded Intercity
  - Rail replacement & passing sidings
  - Additional signal upgrades (79 mph)

$60-75 million

Case 3

- Commuter Service
  - Purchase of equipment
  - Restore double track to Greenfield
  - Station upgrades for expanded parking
  - Additional signal upgrades (80+ mph)

$200-300 million

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

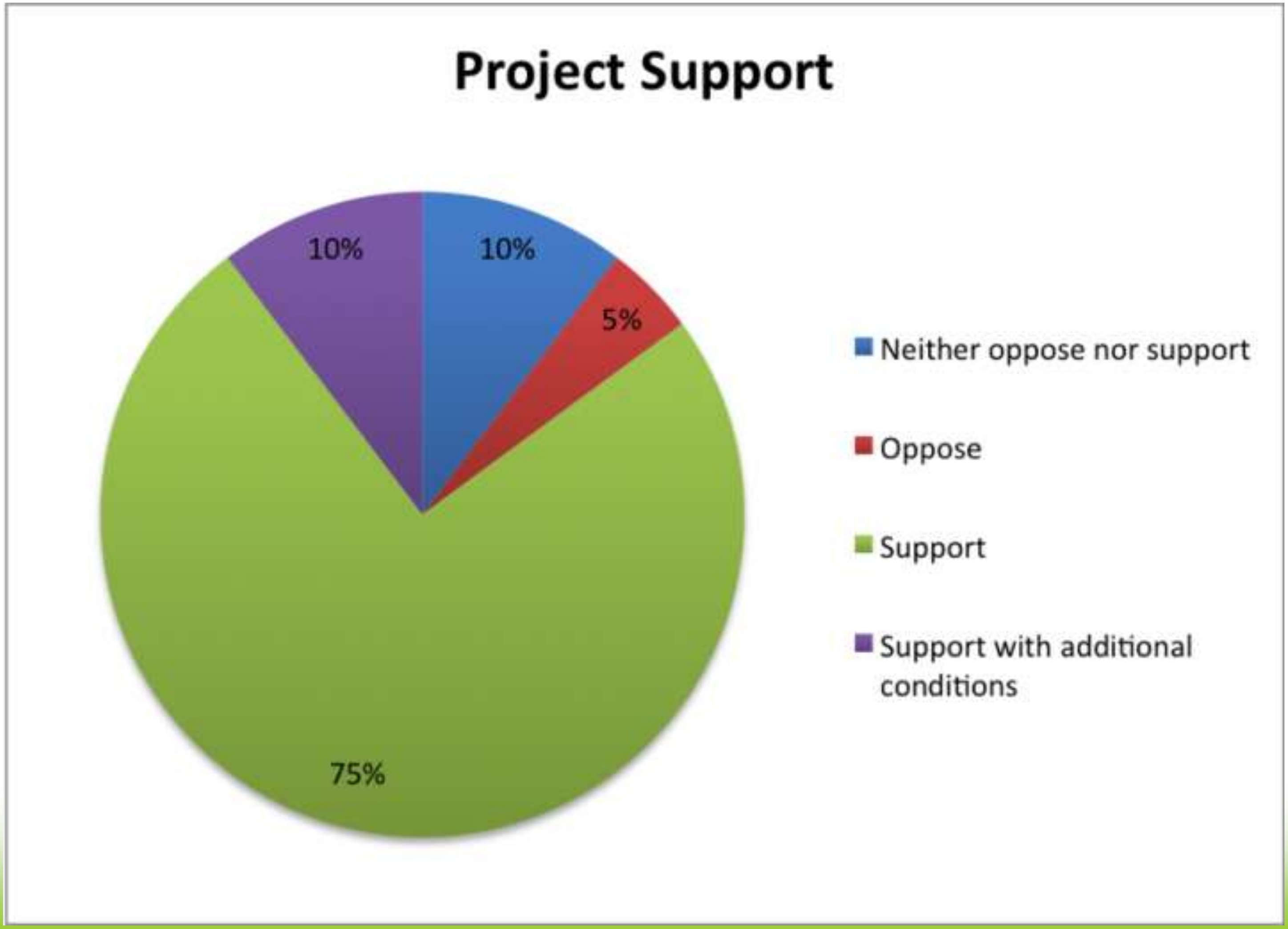
Public Meetings – 174 Attendees

Bellows Falls, VT
May 27, 2009
26 attendees

Northampton, MA
May 20, 2009
120 attendees

Springfield, MA
May 19, 2009
28 attendees

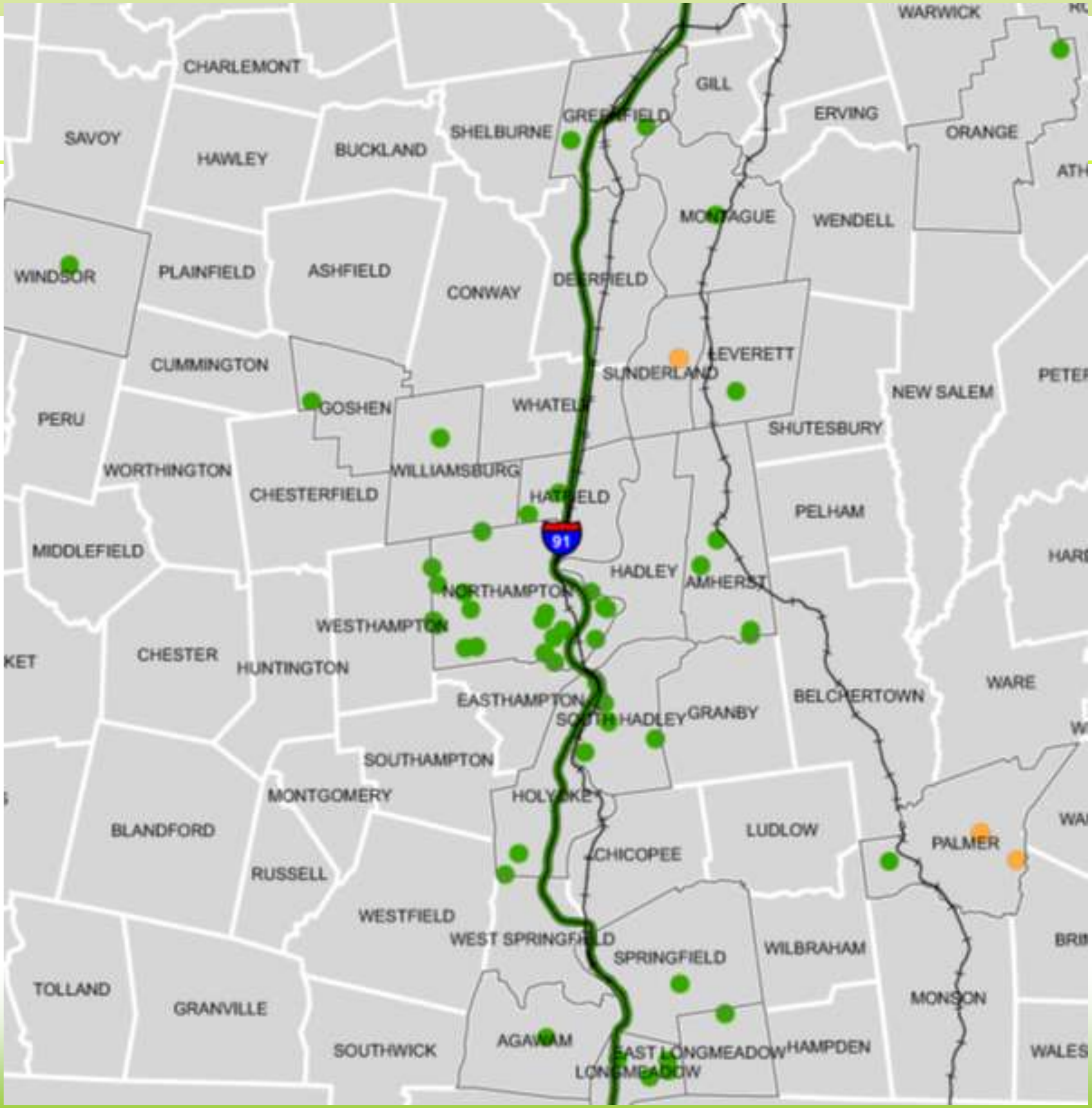
What We Heard (87 Letters)



Location of Written Responses

Legend

	Generally Support	Generally Oppose
On Map	70	3
NY	1	
E. Mass	2	
VT	6	1
NH	1	
CT	3	



Comment Themes In Support of Project

- Overwhelming support for project
- Economic development opportunities
- Mobility and accessibility
- Reducing dependence on autos
- Traffic reduction
- Tourism promotion

Issues of Concern Raised at Open Houses

- Importance of east-west rail service
- Loss of service on existing route
- Cost/benefit concerns (ridership)
- Parking facilities, especially for commuter rail
- Ensuring bus connections to new stations

Cost-Benefit Analysis – Overview

- *Incremental* costs and benefits for each alternative scenario
- Key Factors
  - Capital costs and operating cost assumptions
  - Ridership estimates
  - Relative travel time between rail and highway
  - Benefits to freight rail service

Cost-Benefit Analysis – Benefits Measured

- Travel time savings for existing riders
- Consumer surplus benefit for induced riders
  - Accounts for travel time, cost, and amenity factors
- Additional freight moved by rail
  - Shipper cost savings, reduced truck VMT
- Environmental and highway benefits
  - Reduced air emissions and highway pavement damage from fewer auto and truck trips
- Reductions in operating costs (public subsidy) due to fewer miles and higher fare revenue

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Revised Average Daily Ridership (2015)

CASE	Existing	Relocate Vermonter	2nd Round Trip	Expanded Intercity	Commuter Service
Brattleboro	16	22	41	64	63
Greenfield	---	12	23	46	118
Northampton	---	28	53	120	260
Amherst	19	---	---	---	---
Holyoke	---	13	24	49	101
Springfield	101	101	105	419	535
Total St. Albans to NY	415	519	819	1,508	1,894
% Increase Over Existing	---	25%	97%	264%	357%
	Case 0	Case 1a	Case 1b	Case 2	Case 3

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Revised Average Daily Ridership (2030)

CASE	Existing	Relocate Vermonter	2nd Round Trip	Expanded Intercity	Commuter Service
Brattleboro	17	22	43	66	67
Greenfield	---	12	23	84	256
Northampton	---	30	57	227	451
Amherst	21	---	---	---	---
Holyoke	---	13	24	89	148
Springfield	106	106	111	534	788
Total St. Albans to NY	436	542	854	2,002	2,729
% Increase Over Existing	---	24%	96%	360%	526%
	Case 0	Case 1a	Case 1b	Case 2	Case 3

Return Vermonter to Conn River Line: Cost-Benefit Analysis Results

Case 1

60 mph

BENEFITS	
Travel Time Savings - Existing Riders	$22.8
User Benefits - Induced Riders	$20.7
Reduced Emissions	$6.2
Reduced Highway Maintenance	$62.3
Freight Shipping Cost Savings	$122.3
TOTAL BENEFITS	$234.2
PV of Total Benefits	$106.2

COSTS	
Capital Costs	$60.0
Annual O&M Cost Savings	($1.0)
PV of Costs	$39.2

Net Present Value (NPV)	$67.0
Benefit-Cost Ratio (BCR)	**2.7**

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Expanded Intercity Service: Cost-Benefit Analysis Results

Case
2

79 mph

BENEFITS	
Travel Time Savings - Existing Riders	$22.8
User Benefits - Induced Riders	$213.0
Reduced Emissions	$25.7
Reduced Highway Maintenance	$63.6
Freight Shipping Cost Savings	$122.3
TOTAL BENEFITS	$447.4
PV of Total Benefits	$201.9

COSTS	
Capital Costs	$67.5
Annual O&M Cost Savings	$5.7
PV of Costs	$149.1

Net Present Value (NPV)	$52.9
Benefit-Cost Ratio (BCR)	**1.4**

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Commuter-Oriented Service: Cost-Benefit Analysis Results

Case
3

80+ mph

BENEFITS	
Travel Time Savings - Existing Riders	$22.8
User Benefits - Induced Riders	$249.0
Reduced Emissions	$28.6
Reduced Highway Maintenance	$63.8
Freight Shipping Cost Savings	$122.3
TOTAL BENEFITS	$486.4
PV of Total Benefits	$219.5

COSTS	
Capital Costs	$250.0
Annual O&M Cost Savings	$15.3
PV of Costs	$462.4

Net Present Value (NPV)	($242.9)
Benefit-Cost Ratio (BCR)	**0.5**

Next Steps

- Finalize capital, O&M, and fare revenue estimates – financial plan
- Finalize cost-benefit and economic analysis
- PVPC/EOT coordination to develop local support
- Incorporate public comments
- Complete draft and final reports
- Seek Federal Stimulus HSR and inter-city rail funds

Discussion and Questions

Appendix D

Summary of Public Meetings

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Catalyst for Regional Progress
pvpc

Join us at a

Public Meeting

to learn about a study for a new

Passenger Rail Service

along the

I-91/Connecticut River corridor

between Springfield and points north.

Springfield - May 19, 2009
TD Banknorth Conference Center, 1441 Main Street

Northampton - May 20, 2009
Clarion Hotel, 1 Atwood Dr.

7:00 - 8:30 PM

For questions or special needs, please call Howard/Stein-Hudson Associates at (800) 823-1348.

Visit the project web site:

www.pvpc.org/corridor/

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Catalyst for Regional Progress
pvpc

The Pioneer Valley Planning Commission, the Windham Regional Commission, and the Southern Windsor County Regional Planning Commission invite you to

join us at a

Public Meeting

to learn about a study for a new

Passenger Rail Service

along the

I-91/Connecticut River corridor between Springfield, MA and White River Junction, VT.

Bellows Falls - May 27, 2009

Waypoint Center
17 Depot Street

7:00 - 9:00 PM

For questions or special needs, please call Howard/Stein-Hudson Associates at (800) 823-1348.

Visit the project web site:

www.pvpc.org/corridor/

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Welcome

May 19/20/27, 2009
Public Meetings

Catalyst for Regional Progress
pvpc

Springfield, MA
Northampton, MA
Bellows Falls, VT

Today's Agenda

- Introductions
- Background and study overview
- Infrastructure and operations
- Economic development
- Ridership estimates
- What's next

Overview

- Passenger rail service feasibility I-91 Knowledge Corridor
- Manager Pioneer Valley Planning Commission (PVPC)
- In coordination with:
  - Executive Office of Transportation (EOT)
  - Vermont Agency of Transportation (Vtrans)
  - Amtrak

Catalyst for Regional Progress
PVPC

EOT

VTrans

AMTRAK

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Location of the "I-91 Knowledge Corridor"

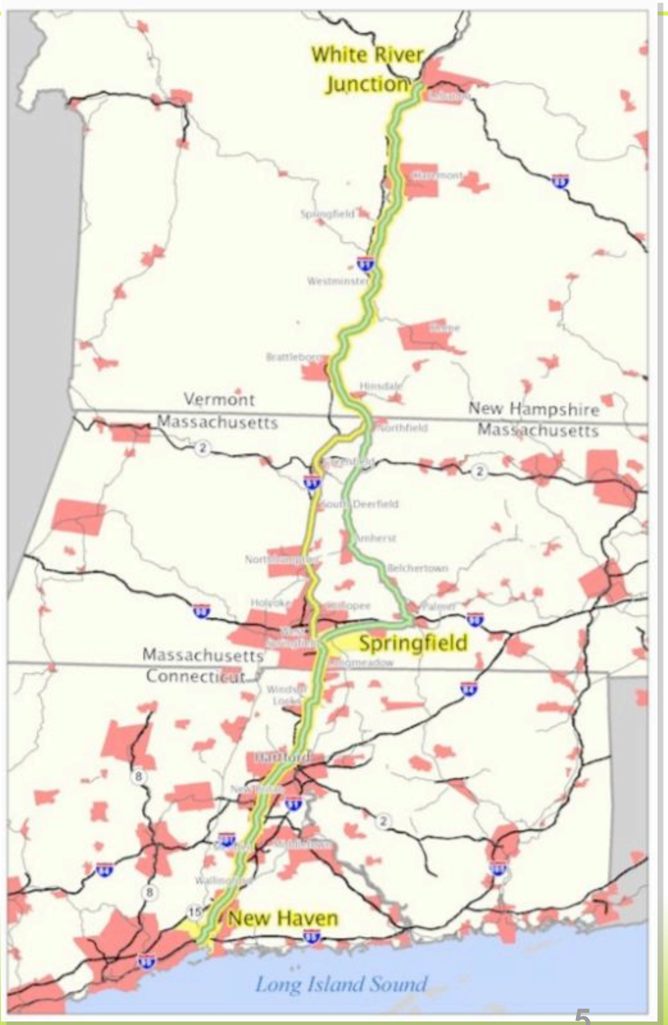
- Current Vermonter Route
  - NECR – St Albans to Palmer
  - CSX – Palmer to Springfield
  - Capacity constraints
- Knowledge Corridor Route
  - NECR – East Northfield
  - PAS RR – East Northfield – Springfield
  - Former Montréaler/Vermonter Route
  - Potential 45 minute travel time saving

Study Area

White River Junction, VT

Springfield, MA

New Haven, CT



Study Elements

- “What” - Infrastructure and operations
  - Assess infrastructure conditions and needs
  - Develop potential service options
  - Evaluate construction and operating costs
- “Why” - Benefits to the communities
  - Forecast economic impacts & opportunities
  - Establish projected ridership
  - Develop near-term & long-term objectives

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Current Service on Amtrak's "Vermonter"

Amtrak

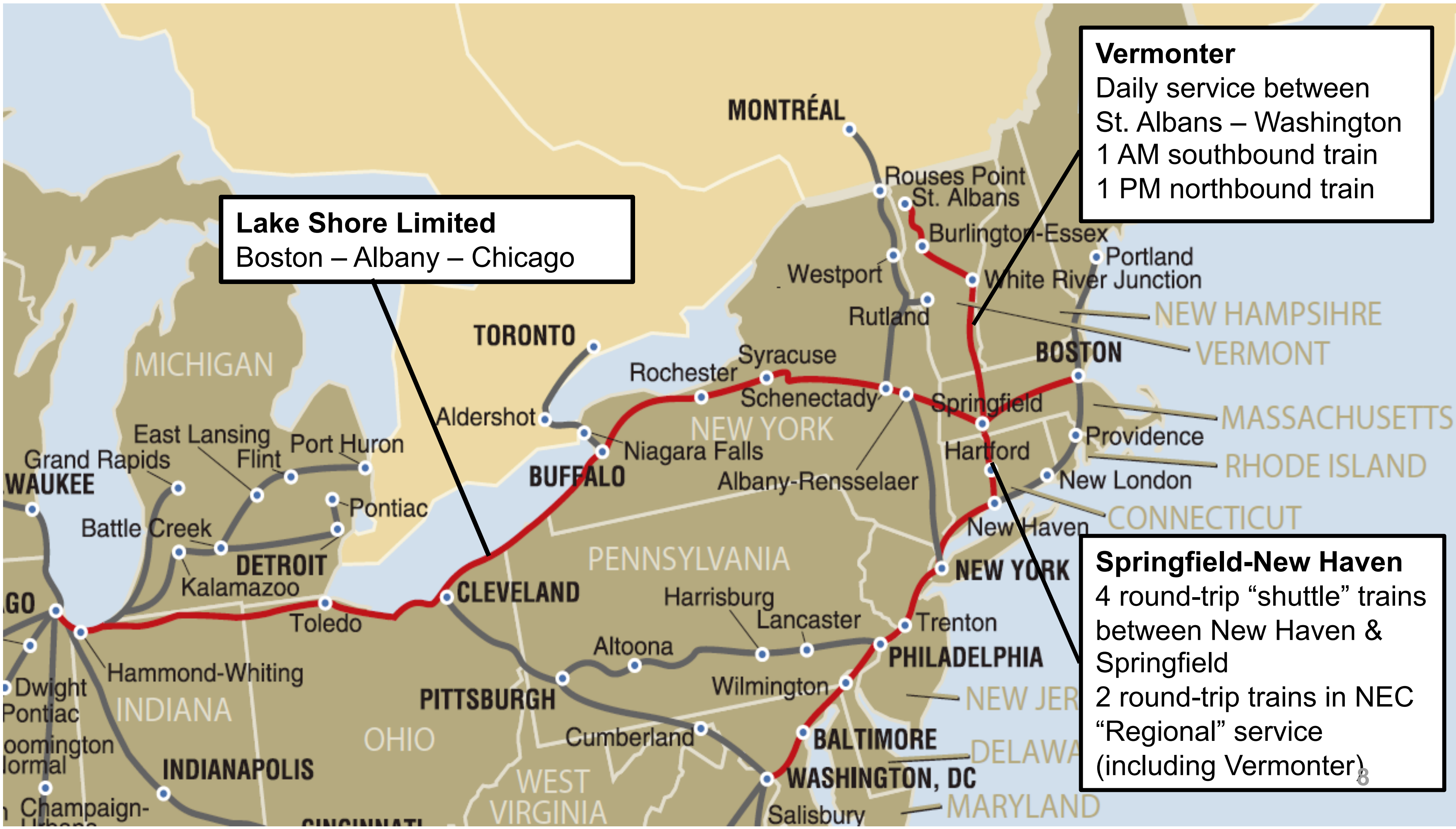
St. Albans

White River Junction
Windsor
Claremont
Bellows Falls
Brattleboro
Amherst
Springfield

Washington, DC

One trip each direction daily

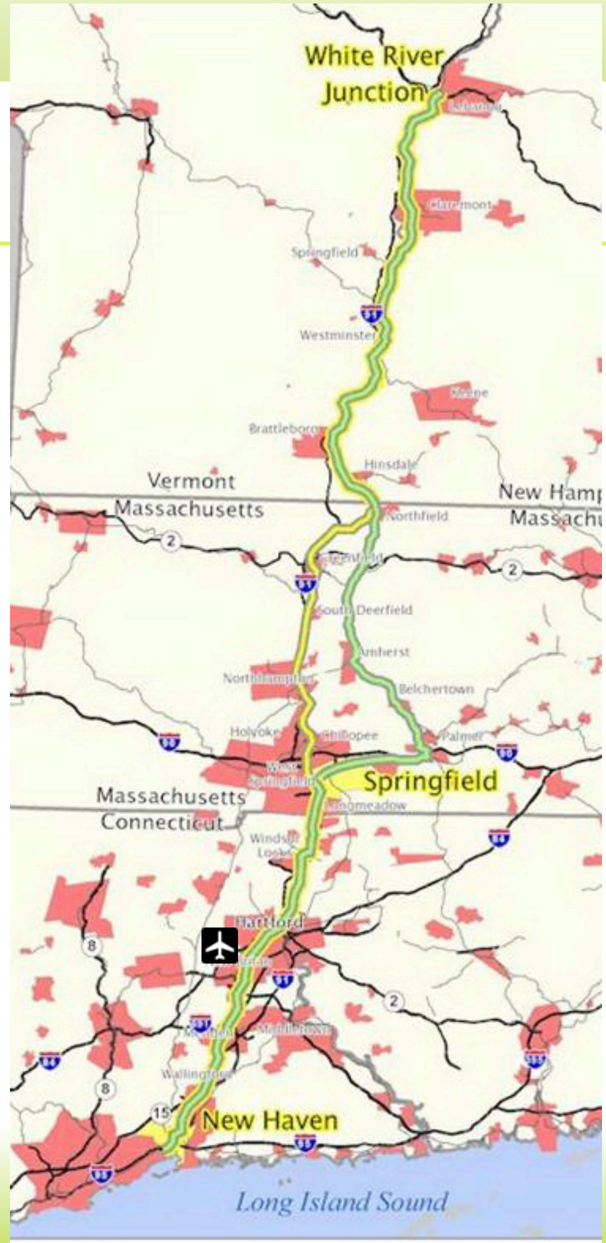
Springfield — Existing Passenger Rail Service



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

ConnDOT Rail Plans

- Coordination between projects
- New Haven to Springfield
  - Double track increase 23 to 42 miles
  - Increase from 12 to 30 trains/day (ConnDOT)
  - Multi-modal connectivity including shuttle to Bradley Airport
- Commuter-oriented
- EIS under way



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Existing Conditions

Case

0

- Additional mileage and time
- 55 mph speed limit
- Reverse direction at Palmer
- Requires use of congested East-West line

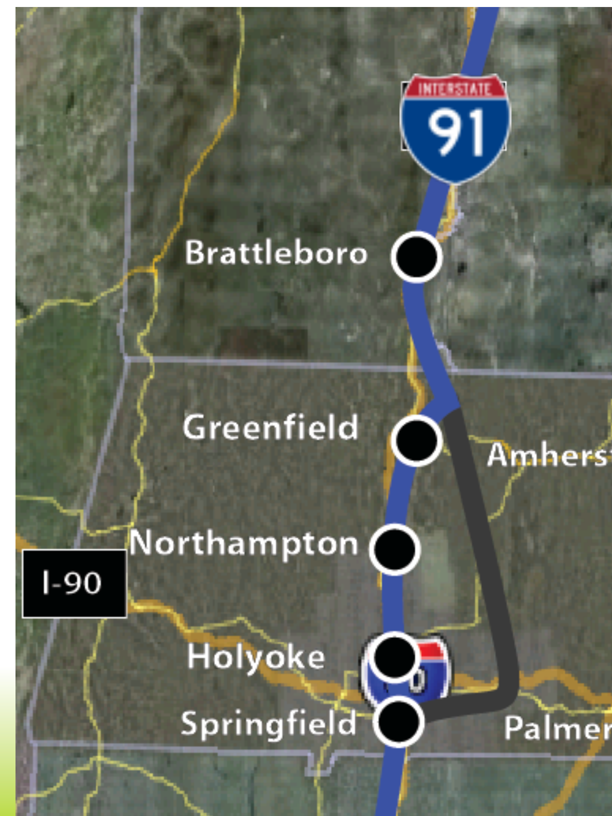
55 mph

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Return Vermonter to Conn River Line

Case
1

- Restores original Vermonter route
- Would serve communities historically connected
- Shorter trip time
- Station at Northampton (Greenfield and Holyoke to be developed)
- Potential second round trip



60 mph

Expanded Intercity Service

Case 2

- Expanded Amtrak service – 3 to 5 round trips
- Integrated with ConnDOT initiatives
- Augments Springfield opportunities as a rail hub
- Upgraded track for higher speeds

79 mph

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Commuter-Oriented Service

Case
3

- Focus from Greenfield south
- Integrated with intercity service continuing to VT
- Integrated with ConnDOT initiatives
- Targeted schedule: 5 morning and 5 evening rush hour trains, 3 midday/evening trains
- Provides basis for higher-speed operation

80+
mph

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Study Parameters

- No significant changes to highway system
- Compatible with freight rail operations
- Connecting & integrating bus service
- Pioneer Valley Transit Authority/UMass Transit/Franklin Regional Transit Authority will continue to provide service that will act as a “feeder” bus service
- Potential station locations:
  - Holyoke
  - Northampton
  - Greenfield

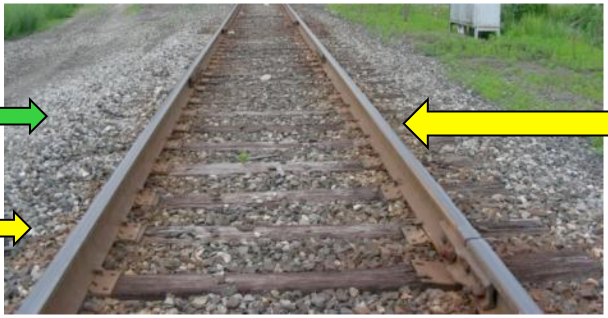
Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Infrastructure and Operations

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Conn River Line - Infrastructure Assessment

- Track ballast — **Good Condition**
- Rail condition — **Needs Investment**
  - Joints – Rails – Switches
- Rail ties — **Needs Investment**
- Signals — **Needs Investment**



Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Infrastructure Improvements & Estimated Cost

Case 1

- Move Vermonter to Conn River Line
  - Tie & rail improvement
  - Switch & grade crossing renewal
  - Signal system improvements

$25-32 million

Case 2

- Expanded Intercity
  - Rail replacement & passing sidings
  - Additional signal upgrades (79 mph)

$60-75 million

Case 3

- Commuter Service
  - Purchase of equipment
  - Restore double track to Greenfield
  - Station upgrades for expanded parking
  - Additional signal upgrades (80+ mph)

$200-300 million

Potential Station Areas — Holyoke

Dwight Street

Former Station

Pulaski Park

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Existing Station Area — Northampton

Potential Station Area — Greenfield

Planned Greenfield Intermodal Center

Summary of Economic Development Analysis Findings

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Baseline Population Forecast Growth Rates

Area	Most Likely[a]	Low[b]	High[b]
Greenfield	2.0%	0.8%	3.0%
Rest of Franklin County	25.3%	19.2%	31.4%
Northampton	1.8%	-0.5%	2.4%
Rest of Hampshire County	8.0%	4.2%	10.5%
Holyoke	-4.0%	-5.8%	0.0%
Springfield	1.7%	0.0%	3.0%
Rest of Hampden County	6.1%	3.0%	9.0%

Positive Growth   Modest Growth   Negative Growth

Notes: (a) Most likely estimates based on projections from HDR using growth rates from the Franklin County Regional Employment Projections and the Regional Transportation Plan for the Pioneer Valley MPO and 2007 Employment data from the ES-202
(b) Indicates the upper and lower limits of a 90% confidence interval

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

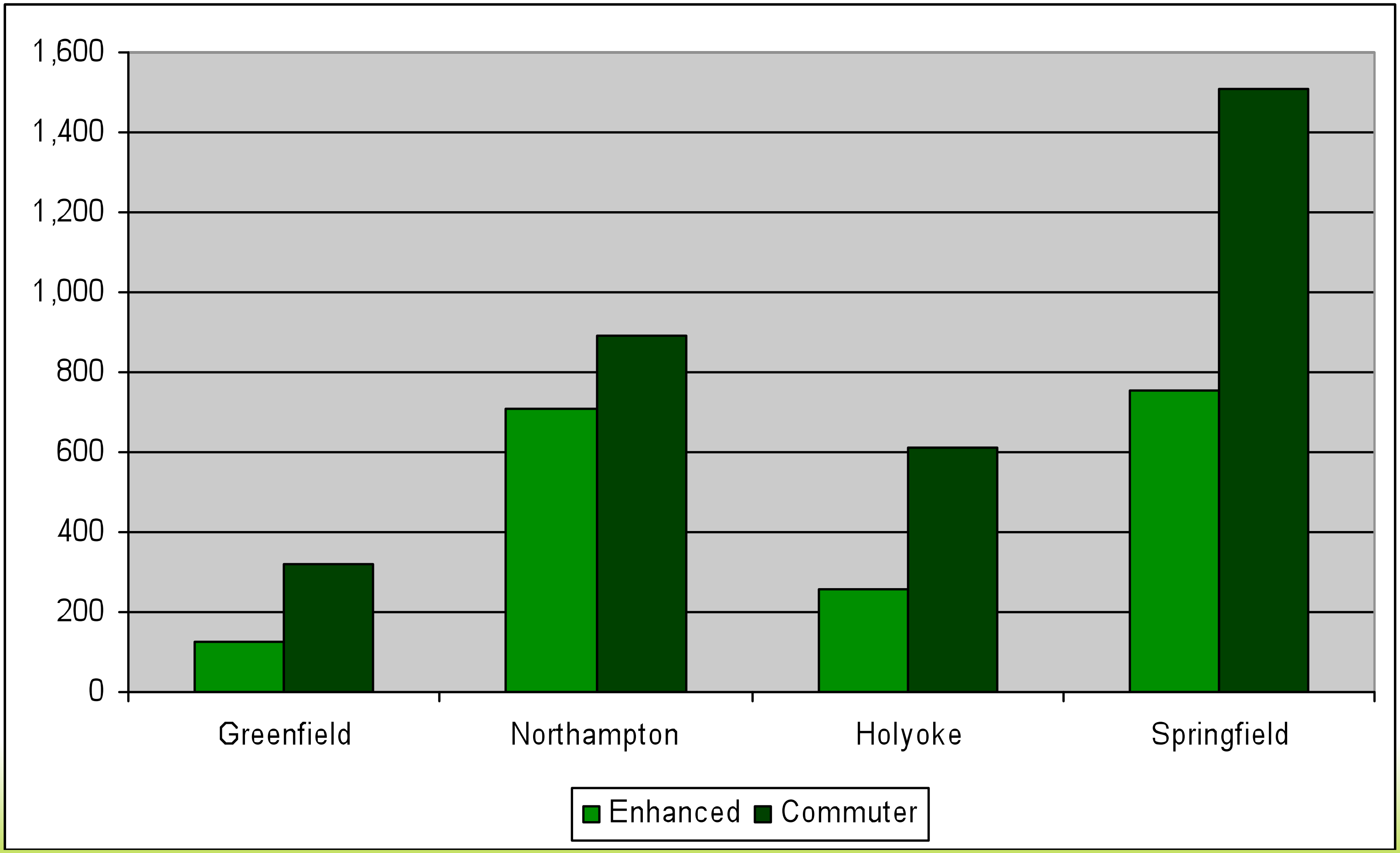
Baseline Employment Forecast Growth Rates

Area	Most Likely[a]	Low[b]	High[b]
Greenfield	10.0%	4.0 %	12.0%
Rest of Franklin County	10.1%	4.1%	14.1%
Northampton	1.0%	-1.0%	4.0%
Rest of Hampshire County	1.4%	0.0%	3.0%
Holyoke	-4.0%	-7.3%	0.0%
Springfield	-7.0%	-11.9%	0.0%
Rest of Hampden County	3.5%	1.2%	6.4%

Positive Growth Modest Growth Negative Growth

Notes: (a) Most likely estimates based on projections from HDR using growth rates from the Franklin County Regional Employment Projections and the Regional Transportation Plan for the Pioneer Valley MPO and 2007 Employment data from the ES-202
(b) Indicates the upper and lower limits of a 90% confidence interval

Additional Employment by City and Scenario: 2030



Source: HDR Calculations.

Rail Ridership Estimations

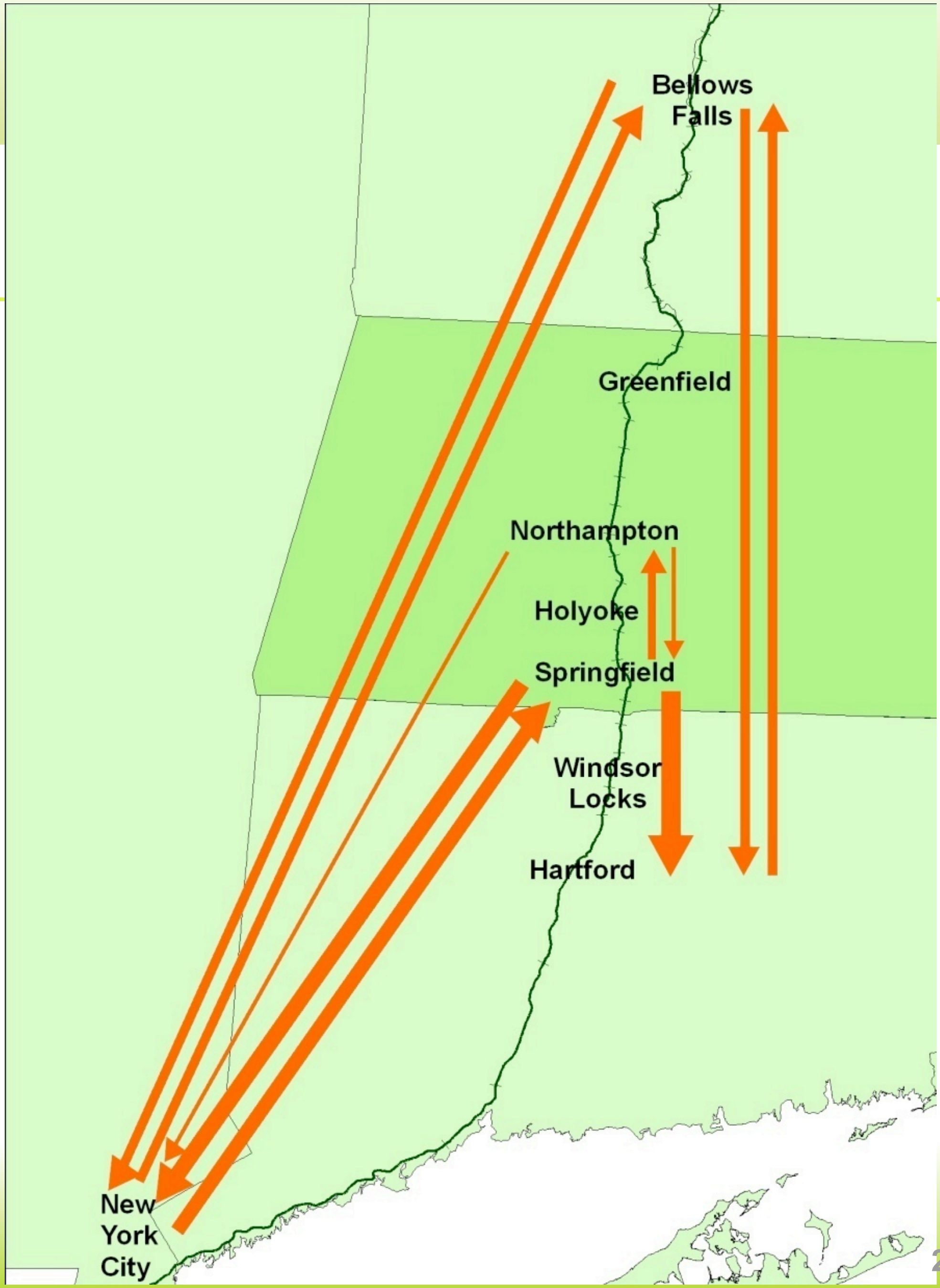
- Intercity and Commuter markets are very different
- Focused forecasting in the region
  - Assumes PVTA or private bus operators continue
  - Connecticut and New York viewed as capture areas
- Near-term (2015) and longer-term (2030) forecasts

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Average Daily Ridership

CASE	Existing	Relocate Vermonter	2nd Round Trip	Expanded Intercity	Commuter Service
Brattleboro	32	42	81	81	124
Greenfield	---	30	27	37	77
Northampton	---	51	97	242	411
Amherst	37	---	---	---	---
Holyoke	---	33	30	81	140
Springfield	198	200	208	456	672
Total St. Albans to NY	831	1,034	1,567	2,226	2,841
% Increase Over Existing	-	24%	89%	168%	242%
	Case 0	Case 1a	Case 1b	Case 2	Case 3

Top Ten Largest Ridership Markets Under Enhanced Service, 2030



Next Steps

- Finalize ridership and fare revenue analysis
- Capital, operations, and maintenance costs
- Conduct cost-benefit analysis
- PVPC/EOT coordination to develop local support
- Incorporate public comments
- Complete draft and final reports
- Seek Federal Stimulus HSR and inter-city rail funds

Comment Received

From: Amherst, MA
Organizational Affiliation: Chair Norwottuck Rail Trail Comm.

Comment:

1) Amherst-Palmer rail shuttle-we need to upgrade the 18 miles of track to 60-80 mph service 2) Springfield-Palmer-Worcestor-Boston; get this double-tracked, upgraded to 80+ mph service, and be sure most trains stop at Palmer for a guaranteed connection w/ Amherst-Palmer rail shuttle. 3) dedicated connecting PVTA bus service (year-round) between Amherst-Northampton to make short lay over guaranteed connections at Northampton. 4) Electrification of service w/ frequency greater than every 2 hours. 5) Please engage with us in Amherst and at UMass particularly- we have expertise. ^) Do this by aggregation (add service, web of service) and do this incrementally (upgrade singl-track first, add second tracks later). Thank you. I was a recent letter-writer to DH Gazette (20 May 2009) on this issue.

Comment Received

From: S. Hadley, MA
Organizational Affiliation: PVACR

Comment:

1) I hope the name, "Knowledge Corridor," would only be used to describe this study and not the rail line. The name used for the study has no context. 2) How can we not include Bradley Airport? What would the ridership be if we had rail to/from Hartford & Springfield to BPC?? 3) Nothing underminds credibility in a public project as much as Budget overruns. Can you commit to curtailing costs? Think BIG DIG. 4) For Tim Brennan-please solicit the advocacy of Atty Tom Kenefick who spoke at length regarding the merits of the East-West connection. Atty Kenefick is past president of the Hampden County Bzr Assn. and is both well-respected and well-respocted.

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

1) I strongly support the move of the rail line to Holyoke-Northampton-Greenfield. 2) Large parking lots can be destructive of downtown areas & desolate at night. If large new parking lots are needed, please consider a dedicated commuter lot and station off I-91 (in addition ot urban stations) 3) Please plan ahead to allow for future upgrades w/ reasonable cost (such as electrification).

Comment Received

From: Westminster, VT
Organizational Affiliation:

Comment:

A friend and I visit back and forth between Bellows Falls and Berlin, Ct. It become frustrating due to its slowness. I would like to go to Boston via train.

Comment Received

From: Holyoke, MA
Organizational Affiliation:

Comment:

A great presentation; however there seemed to be a deliberate effort to avoid talking about the costs of operating such a venture. I would suggest total transparency and openess about the taxpayer's burden to sustain ongoing operations. You need to reveal the annual income expected and the annual costs so the public will know the extent of tax buden. I am against a project that starts with "stimulus" money, and against such a project that is a potential boondoggle and debt burden to taxpayers.

Comment Received

From: ,
Organizational Affiliation:

Comment:

All the people that works in Hartford, Windsor, Windsor Locks, New Haven need this service .

Comment Received

From: Amherst, MA
Organizational Affiliation: Select Board Amherst

Comment:

Amherst ridership is really from Amherst-Springfield gets most of Amherst train traverls b/c of the very limited Amherst Schedule. You should plan for a switch in Palmer that would diminish the 45 minute time that is added from Springfield to Amherst to take care of the 25,000 students who travel N-S & W-E. Leaving Amherst out of the planning means dual solutions for both Amherst & Northampton are not being considered. We need a seat at the table!

Comment Received

From: Westminster, VT
Organizational Affiliation:

Comment:

As Amtrak traveling Seniors, we go on the Bellows Falls, to NY route, then to N.J. to visit our kids and their families. It would be nie to go directly from B.F. to Springfield without side tracking to Palmer. We welcome any improvements on the tracks. We always enjoy the friendliness of train crews.

Comment Received

From: ,
Organizational Affiliation:

Comment:

As I pointed out I won't be offered local rail service though Palmer leaving Amherst to connect in Springfield for NY or DC. But if I was in Europe a train between Paris and Berlin would probably be accessible by boarding local rail service from Heidelberg.

Comment Received

From: ,
Organizational Affiliation:

Comment:

As long last, it is good to know that there both is a growing recognition and a demand for both commuter and inter city rail service. It is even better to know that the state and federal governments acknowledge that this is a vital public service and are prepared to underwrite it, particularly in the wake of again increased gas prices. First, in the Sunday edition of the Springfield Republican, I found it interesting that the Vice President of Peter Pan Bus operations raises the tired, discredited and factuous argument that the pubic does not know the "real costs" of Amtrak operations. The obvious inference is that bus service pays for itself whereas rail service is on the cheap, I.E., the province of rail buffs and special interest groups. The contention is pure sophistry. Perhaps Peter Pan might wish to share with the public who pays for its rails, I.E., the Massachusetts Turnpike and other highways throughout the United States. Is is mirabile dictu, the American taxpayer. Since the argument is completely without merit and considering its source, nothing really further need to be said. One of the issues in this debate is whether to reroute the Vermonter fro its current route, viz, Palmer/Amherst to the Connecticut River route. This was the old Boston and Maine line that went through Holyoke, Northampton during the days of the Montrealer. Both routes join at Bellows Falls and proceed to White River Junction, then on to St. Albans where it presently terminates. Respectfully, this doe snot make sense. Indeed, running trains between major metropolitan end points is the ideal route model, in this case Montreal-New York. Given the assumption that it makes sense to run trains where the people are, consideration clearly should be given to extending the route to Montreal, the historic end point fo the Vermont route. I favor the Connecticut River line because it serves a greater population base. Further, the argument that the train would no longer stop in amherst can be easily satisfied by the Connecticut River line stopping in Northampton, a mere 9 miles away. To be sure, many people who board the train in Amherst come from Hadley and Northampton. Thus, the argument that Amherst should retain its station is not compelling. Further, Palmer presents an interestings question not only because it has historically been the intersection of seven railroads and still is a major freight center, bu tthe possibility of it having a casino would make Palmer an attractive stop along the route. The solution to this issue would be in conjunction with my earlier proposition that Amtrak increase trains along the Inland Route, certainly a stop in Palmer would solve that city's issues in terms of connecting with northbound trains route at Springfield. In short, rail service is an important piece of any moder urban policy in the context with the national issue concerning our citizens not being oil dependent. Greater Springfield can only benefit by playing a role in the rail services at the crossroads of New England.

Comment Received

From: S. Burlington, VT
Organizational Affiliation: Transit Advocates of VT

Comment:

Before Meeting: I live in the Burlington, VT area and have been talking with other citizens who are interested in starting a Vermont public transportation citizen advocacy group. It makes sense for Vermont public transportation and Massachusetts public transportation groups to work together in any way possible to see an upgrade and extension in public transportation that would benefit residents of both states. I will be visiting the Northampton area next week, so I can attend the informational meeting on Wednesday. Would it be possible for me to get a copy of the meeting agenda? Will there be any time for attendees to add comments? Thank you for your time and consideration.
After Meeting: I moved to Burlington, VT a little over a year ago, and soon after gave up my car becae: I wanted to reduce my carbon footprint, the car was old, I found a job that allowed me to live without a car, and I knew that I could save a lot of money. I thought that I would miss having a car that I could jump into and go when I wanted to, but as soon as I gave it up I felt like I had divested myself of an addiction. I felt free, and was soon enjoying seeing wildlife and things that I would not normally see from a car while walking and riding my bike to bus stops. I have been able to save more money than at any other time in my life, and was likely one of the few people who was not affected by the skyrocketing gas prices last summer. I have ridden on the Vermonter several times to Brattleboro, VT and Amherst, MA. I love that this service is available so I can travel south at a reasonable price. After reading and listening to information about the plan to return the Vermonter to the Knowledge Corridor I would have to vote in favor. Incrased ridership would remove cars from roads, my travel time would be reduced by 45 mins. and if the track is upgraded to handle increased speeds the ride would potentially be smoother. Right now there are patches that are rough and make the train vibrate. The main issue that I have with the train ride is its unreliability and potential safety hazards, both of which could be remedied by rerouting to the Knowledge Corridor and upgrading the tracks. One of my return trips had to be rescheduled for the next day at my request because after arriving at the Amherst station and calling the Amtrak information phone line I found out that the last car of the train had derailed in Springfield and it would be 2 hours before an investigation was completed. I did not want to wait around, not knowing when the train would arrive to take me home. On anothe rtrip south a fellow passenger said she had been delayed going north due to a fire on the track in Springfield, and now she would be taken by bus from Amherst to Springfield to catch another train because a freight train derailed. Rerouting the Vermonter to more reliable track would go a long way in terms of increasing passengers.

Comment Received

From: Holyoke, MA
Organizational Affiliation: Holyoke City

Comment:

Bringing commuter rail back to Holyoke will be a huge shot in the arm for one of the most depressed cities in the Commonwealth of Massachusetts. The statistics that have been compiled in the PVPC Knowledge Corridor informational packet provide compelling reasons why Holyoke's economic picture will be enhanced by the train's ridership. The advantage to our local tourism, arts corridor, sale of goods, employment opportunities, new business development, and increased tax base cannot be stresses enough. Our new Intermodal Center will be an added advantage as the PVTA will provide connecting and integrated bus service as a partner to train service. According to PVPC both employment and population forecasts are projected to increase with the addition of train service to Holyoke. The City, which has lost both over the last 40 years, will need a stimulus to turn things around and head in an upward direction again. Train service will make the difference in whether the City of Holyoke continues to just survive or will thrive. This is a great opportunity for our City and I hope it will be taken seriously when applying for this funding.
Thank you for the opportunity to support this effort.

Comment Received

From: Northampton, MA
Organizational Affiliation: University of Massachusetts Graduate Student

Comment:

Completely support this-definitely pay enphasis to economic development within station commuters, esp. Holyoke & Greenfield-don't forget about Greenfield! Thanks for your work.

Comment Received

From: Bellows Falls, VT
Organizational Affiliation: Flying Under Radar, LLC

Comment:

Conn. River Line is the sensible choice. Used to live in Noho-feel strongly that Noho is a stronger market than Amh, and student traffic would migrate to Noho, since PVTA bus service is strong.

Comment Received

From: Florence, MA
Organizational Affiliation: CTPS

Comment:

Considering the current alignment is slow, avoids major population centers, and was considered temporary to begin with, reverting to the Greenfield-Northampton-Springfield alignment is crucial to the success of this rail corridor. Vermont is already on board with this, and has made it clear that without this, Vermont could possibly pull the plug on this corridor. Western MA needs to be on board with this project how?

Comment Received

From: ,
Organizational Affiliation: MassBike/Pioneer Valley

Comment:

Dear Dana,
On behalf of MassBike/Pioneer Valley, I'd like to voice my strong support for improved and increased passenger rail service in the Valley, especially the return of the main north-south route to the Connecticut River track line. Northampton is the biggest population center in the upper valley. With over 40% of its population living within 1 mile of downtown, it makes sense to site passenger rail service there. Northampton has a large and growing system of rail trails and bike lanes, and a significant bicycle culture. Most residents of Northampton would be able to bicycle easily to downtown for access to Amtrak. The benefits for the Valley in general will be improved air quality, reduced greenhouse gas emissions, economic boosts for our downtowns, and reduced risks of injury or death due to car crashes. Especially given the nearly one hour savings in time for the Springfield - Brattleboro trip that will result, the benefits for all Amtrak travelers are also clear. This improvement in travel time will likely bring more tourists by rail to our region. We further urge you to include in any track renovation discussion the need for a new tunnel under the track north of Northampton's North St.
so that the Norwottuck and Northampton rail trails can be directly connected, as has been planned for over 10 years. Such a connection will greatly facilitate east-west bicycle travel between Williamsburg and Belchertown and points between, including the major commuting route here: Northampton-Amherst.
Finally, we urge that any train service in the Valley -- be it via Amherst and Ware or via Northampton -- include baggage cars or other capability for carrying unboxed bicycles, as the Montrealer used to have, and as most trains in Europe do now.

Comment Received

From: Northampton, MA
Organizational Affiliation: City Hall

Comment:

Dear Mr. Roscoe: On behalf of the City of Northampton, I fully endorse and support the Knowledge Corridor Rail Project to expand passenger rail service in the Pioneer Valley Region. Return of Amtrak service to the Connecticut River Line and the proposed phasing of enhanced and commuter service will have significant economic and environmental benefit to the region. The project will:
-provide alternative transportation within the region and to major metropolitan centers outside the region; -support the regional economy by making employment centers more accessible; -promote development in urban centers where it will have access to rail and bus transportation as well as other services;
-Strengthen the Knowledge Corridor partnership with Connecticut and developing regional partnerships with Vermont, thereby strengthening our regional ecoomy and raising our national profile; -Support the tourism economy by providing alternative transportation access for visitors;
-Result in reduced vehicle use, reduced energy consumption, reduced greenhouse gas production, and improved air quality;
-Strengthen the regional public transit systema and create opportunities for more cross connections between bus and rail; and
-Enhance freight rail use with track upgrades, which could well serve the region's manufacturers. You have my full support for the project.
Please let me know how we can be of assistance as the project moves foward.
Sincerely, Mayor Mary Clare Higgins

Comment Received

From: South Hadley, MA
Organizational Affiliation: Mount Holyoke College

Comment:

Dear Ms. Brennan: Mount Holyoke College strongly supports the Knowledge Corridor Rail Project to expand passenger rail service in the Pioneer Valley Region. Enhanced Amtrak service to the area, and the possible phasing in of commuter service, will offer significant benefits to Mount Holyoke students, faculty, and staff, as well as to other members of the Five College communities. In addition, improved transportation services will have significant economic and environmental benefits to the region as a whole. The College will be happy to play any role helpful to you in moving these plans forward. In addition to the benefits to our community that enhanced north-south transportation services will bring, we support the new opportunities for economic development that improved service will bring to South Hadley and Holyoke. Key to the effectiveness of this planning process will be coordination of bus service throughout the Valley to ensure that all residents have easy access to local train stations. Since msot of our community will use bus service to gain access at Holyoke or Northampton, the College would be very interested in participating in planning with PVPC and the PVTA to ensure that the evolving intermodal system is as effective as possible. Mount Holyoke is "all aboard." We support and applaud your efforst, and will be happy to follow your lead in moving your important work forward. Sincerely yours, Joanne Creighton cc: Congressman Richard Neal, Congressman John Olver, Senator Stan Rosenberg, Representative John Scibak

Comment Received

From: East Longmeadow, MA
Organizational Affiliation:

Comment:

Dear Sir:
I support increased rail travel north-south and east-west from Springfield, Massachusetts. I believe that many people would use a well-maintained, well-run rail service in lieu of an automobile for travel to adjacent cities and states. Please do all you can to see that the appropriate legislation is passed to ensure that future generations of Massachusetts residents have the option for rail travel, as it exists in Europe.
Sincerely, Susan DeGrave
East Longmeadow, MA

Comment Received

From: Greenfield, MA
Organizational Affiliation:

Comment:

Dear Sirs/Madams,
I write in support of enhancing rail service in the region of Western Massachusetts. This is an area heavy with residential high-schools and colleges with many students traveling up and down route 91 each day and heavily around weekends and holidays. We have, as well, a non-student population inclined to choose environmentally friendly transport options. In the Springfield and Greenfield areas there are not enough options for lower income residents who need to have high quality transport options so that employment, medical and educational options become more available.
Excellent rail service would be welcomed not just by users who remain within the region, but by the thousands of regional workers who must travel further afield, particularly to New York City and beyond. Currently, the Amherst service is very time consuming and so most regional workers who must travel to NYC choose to drive to Springfield, or all the way to New Haven and park then take the train...or drive all the way into New York. It's expensive, time consuming, parking is scarce and not terribly secure late at night for lone travelers. This area has a high proportion of college/prep school administrators, as well as telecommuting knowledge workers who would benefit tremendously from regional rail that enhanced connections to other areas.
Beyond serving existing populations, high-quality public transportation options would encourage healthy growth in the valley. One of the best ways for us to entice businesses to this already wonderful area, filled with knowledgeable workers and affordable housing, high quality of living and cultural attractions, would be to expand our transportation options. Perhaps just as important as its immediate appeal as an amenity, is the message that our region sends by investing in sensible regional transport – we signal that we are forward-thinking, planning, growing, smart. Let's get going!
Thanks so much,
Jen Stromsten
40 Russell Street
Greenfield, MA 01301

Comment Received

From: Holyoke, MA
Organizational Affiliation: PVACR

Comment:

Dwight St. would be the site of the original Holyoke St. This simple stations & small design could be easily duplicated with a new building.

Comment Received

From: Bellows Falls, VT
Organizational Affiliation: Gretchen Schmid Fine Art.com

Comment:

Fund raising idea w/ fine art.

Comment Received

From:	Easthampton, MA
Organizational Affiliation:	Amherst Railway Society

Comment:

Good presentation-informative. Question I didn't ask: Why not extend back to the original terminus of Montreal?

Comment Received

From: Greenfield, MA
Organizational Affiliation:

Comment:

Greetings,
I am very interested in seeing the public transit and especially passenger rail service extended & improved in Western Mass. Before moving out here, we lived in Boston and took the MBTA, Commuter Rail, and Downeaster Amtrak all over. Having similar service in the Pioneer Valley corridor would greatly enhance jobs, travel, tourism, and general quality of life in the area. Hub development would be encouraged because people would be better able to get by without a car.
Do let us know of anything we can do to aid in the process.
Thank you
-Garth Shaneyfelt
26 Grinnell St
Greenfield, MA 01301

Comment Received

From: Leeds, MA
Organizational Affiliation:

Comment:

Hello there:
I can't make the May 20 information session in Northampton, unfortunately, but I am very much in favor of a rail link extending to Northampton. I'd use it at least several times a year to go to New York, and last night I was talking to friends who occasionally take the bus, drive to New York, or drive to Springfield and who also would use the train. For me personally, I would like a train that would get me to New York between 10:00 and 11:00 a.m. on weekdays, for when I need to go there on business. I'd also take my daughter on weekends. If there's anything else I can do to express this support to other officials or agencies, please let me know.

Comment Received

From: Agawam, MA
Organizational Affiliation:

Comment:

Hello.
I am sending this email to register my support of the Knowledge Corridor Passenger Rail. Thank you!

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

I am an occasional Amtrak rider and feel that it is very important that we develop a world class train system.
I live in western Massachusetts and use the train when I go to New York. But I generally drive to New Haven to get the train. I would like to see expanded service to our region, both north-south as well as a good schedule of trains running to Boston.
Thank you for your consideration,
Silas Kopf
Northampton, MA 01060

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

I am strongly in favor of Amtrak Service being extended north from Sprinfield with stops in Holyoke, Northampton, Greenfield…(along the Conn. River) for the following reasons: 1) I travel to NYC frequently and having family members there who visit me in Northampton=Convenience. 2) Improved public transportation is an important step in weaning us all off overuse of our cars=SAVING THE ENVIRONMENT. 3) The flagging economy in many towns North of Springfield along the CT River would be stimulated by regular rail service= ECONOMIC STIMULATION. Thank you for the presentation & for encouraging input from the audience! Train travel is comfortable, enoyable, efficient. It is such a shame that the automobile has dominated in this country for so long. It's time to return to a sensible, non-polluting, reliable, carefree means of travel!

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

I am strongly in support or returning the Vermonter to the Conn River Line. The savings in time and the potential for an additional trip per day would benefit the entire region. I regularly travel to New York City and New Haven on Amtrak, and having a station in Northampton would save me many hours, as I currently rely on very poor bus connections to catch the train in Springfield. I would also support expanded intercity service or commuter oriented service. Any of these changes would greatly improve rail travel in the area.

Comment Received

From: Amherst, MA
Organizational Affiliation: Valley Free Radio

Comment:

I am totally for rail transportation. But my concern is why take the train stop out of Amherst. Driving to Northampton from Amherst over the Coolidge Bridge is sometimes very time consuming. Also, in the winter there is a train station all ready in Amherst. Where would people be waiting for the train in Northammpton? There are a lot of people associated with the University of Massachusetts in Amherst, Amherst College and Hampshire College that ride the train out of Amherst. I myself have ridden the trains and took the Montrealer from Amherst to Canada when it existed. So, I hope that the stop in Amherst will continue to exist. Thank you.

Comment Received

From: Holyoke, MA
Organizational Affiliation:

Comment:

I am totally in favor of commuter rail coming through Holyoke. I'd love to be able to catch a train to NYC from Holyoke instead of driving to Springfield & park the car there. I also would like to use train & go to Northampton for evenings if trains run often enough in the evening. Mass transit should be encouraged. I think students going to the local colleges would benefit for commuter rail too. Eg. train for Holzt & N'ton and 5 colleges of UMass & Amherst. I am in favor of straightening out the Vermonter route. The odd detour through Palmer makes no sense, especially without a station stop there. The Palmer route adds almost an hour to the trip. The proposed realignment through Holyoke, Northampton & Greenfield does make sense. The City of Holyoke, which has fallen on hard economic times, lose of population and jobs, is poised to do better in the future. Our hydroelectric system-which a big dam on the Connecticut River and our system clearals- provides cheap energy. I believe there will soon be growth of "green" industries within Holyoke. Our long awaited "Canal Wolle" Project-12 years in planning-just broke ground. It will spur further optimism & development. A vibrant transportation corridor, connecting us with the trains to the North and South would help spur this development. We already have (under contracts now) an intermodal bus center and plans for better pedestrian & bicycling paths. A new train station-or even better yet, a rehabilitation of hour historic train station designed by architect HK Richardson-would be welcome, indeed.

Comment Received

From: New York, NY
Organizational Affiliation:

Comment:

I am writing to state that I strongly support federal rail stimulus funds for the Knowledge Corridor Passenger Rail project.
As a frequent traveler from New York City to the Springfield area of Massachusetts, I find that currently, the best method for traveling between the two points is via private automobile.
I am very used to using public transportation, since I live full-time in New York City, but I think that certain areas of Massachusetts are being shortchanged by not having adequate quality commuter travel via rail. For this region to flourish in the coming years, transportation options like commuter rail must be an option. A commuter rail system can ensure that a stable labor force can be available in the future. In addition, tourism can increase if access to the region is provided by rail.
Please consider the future of westerm Massachusetts when the time comes to decide on funding rail projects in the coming days.
Regards,
Kevin Hanrahan
11 Stuyvesant Oval
Apt MA
New York, NY 10009
212-995-0665

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

I am writing to support the rerouting of the Springfield-Brattleboro rail line. I live in Northampton, Massachusetts in walking distance from the proposed new (or rather, revived) station. I would love to be able to walk to the station and travel Amtrak to New York. As it stands, I rarely go to New York and when I do I usually end up driving all the way down to New Haven to take Metro North, because once I get in the car I figure I might as well go that extra distance and save on the fare. But if I could get to New York by train without getting in a car at all, that would make all the difference. There are many others like me in Northampton who have sought a more ecologically friendly lifestyle by living within walking distance of downtown and who would love to be able to take the train from Northampton to New York or Vermont. I very much hope this becomes a reality!
Sincerely,
Sigrid Schmalzer
Northampton, MA

Comment Received

From: Springfield, MA
Organizational Affiliation:

Comment:

I attended your recent public meeting for Passenger Rail Service along the I-91/Connecticut River Corridor. Aside from the Petty In-fighting by some of the audience, I found it to be very informative. I have two comments that come to mind: 1) To increase ridership, and bring people to the atea to spend money you need to have adequate service you have to start out with timely and frequent service. One train each way (1:00a.m. one way and 1:00p.m. for the return). or even two won't cut it. With today's family schedules you need to offer service to people, mornings, days and nights. Anything other than that would make a visit too short, make someone unable to connect to anything at their destination on a timely basis, or worse yet force someone to stay overnight (which may not be an option in today's economy). Starting out with limited service in the beginning and hope the ridership will increase so the additional trains later will continue to increase service and ridership exponentially could be a fatal blow to the project's viability. When forced to make changes to plans or to rule out doing something because of unabailability of timely service will only cause someone to do something else or find another way to get there. And not being able to use this mode of transportation to get to work only makes you find another way (which takes time, effort and expense, and when commited to that does not afford you the ability to change over as a later date). People in today's day and age can not either afford to wait for very long, not the patience to do so. And 2) We have things unique to New England to promote travel and tourism, that many areas of our country do not. If groundwork is done now, for travel connections to Bed & Breakfast, Cabin Resorts, Lake Communities, concert arenas, scenic destinations, ski resorts etc., you could promote a viable enterprise. We have great springtime, exciting summers to the coolness of mountain streams and lakes, breathtaking fall foilage and enchanting winter wonderlands with a cozy fireplace, skiing and snowmobiling. Finally this needs to be up and running in two to three years. Any longer, and it may not work and people will just lose interest.

Comment Received

From: Leverett, MA
Organizational Affiliation:

Comment:

I believe moving to Vermonter to the west side of the Connecticut River makes a whole lot of sense. The train will serve 3 cities in lieu of one town (Amherst) in the Pioneer Valley. An average of about 34 passengers per day in Amherst does not warrant a train. Obviously there will be many more passengers from and to Greenfield, Northampton and Holyoke. The other point is that the travel time will be significantly reduced. The last time I took the Vermonter it took 1.5 hours from Sprignfield to Amherst, very slow going. With rail improvements I believe the trip from Northampton to Penn Station in New York City could be 2/5 hours at an average speed of 60 mph inclduing station stops and change of locomotive in New Haven, 1/2 of the current schedule from Amherst to Penn Station. As for commuter service as far north as White River Junction, i can imagine Budd type of Rail Diesel Cars (RDC) between New Haven and White River Junction. Single units or up to 3 coupled.

Comment Received

From: Palmer, MA
Organizational Affiliation: Palmer Resident

Comment:

I do not feel the report is an objective finding from an analysis and a study of what makes sense in regards to prudent spending of tax dollars or in some sense of private dollars, but is rather a report that had a pre-determined otucome and the report is provided with figures to support that pre-determined outcome. The following are observations and commentaries that I question within the report: 1. The proposal mentions that there would be stops in Holyoke, Northampton and Greenfield. I question the ability to save 45-60 minutes in travel time by investing in upgrading the Connecticut River Line. With the number of stops how is the train to save time, unlikely in that same stretch that is looking to be improved that more speed is possible, as by the time it reaches its faster speeds it will need to slow again with the short distances between some of the stops. 2. Train vs Bus Transportation: This proposal appears to take from one to give to another....sounds familiar in todays' political realm doesn't it. There is an already established means of public transportation between Springfield, Holyoke, Northampton...why would you want to take away from one part of the economy to give to another part...what have you gained? Anything new?...I think you need to determine what is the real need? The 91 corridor is constructed for the means of ground transportation for bus and auto. Wouldn't that make best use of our resources and existing infrastructure. 3. Elimination of the Amherst Stop: It is very difficult to understand the logic of eliminating a built in ridership with Amherst and the college students of 12,000 passengers last year, and on top of that to have those riders be bussed along route 9, or yet may have more traffic created as students rely on buses or the need for rides to and from the proposed Northampton stop. How can it be justified to bus more people from Amherst to Northampton than have the fewer numbers bus from Northampton to Amherst? 4. Delayed and Questionable Economic Venefits vs Relatively Immediate Increased Ridership Potential: The ridership and spin off economic benefits are assumptions and projections at best. I don't fault that projections in any proposal or proforma need to be provided, however this is a case of where "if we build it they will come" vs. we have all the basic elements in place we just need a means to connect them. The latter is certainly not the case. This is a very expensive experiment to see if the assumptions and predictions pan out. It is a very large sum of money and time delay in reaping these benefits, and if they don't pan out for what? Again this would be an example of building more infrastructure that is not needed when there is an infrastructure in place with the current rails with North, South, East & West directions being able to be served at the Palmer diamond and switch. a) If decreasing travel time is a concern for the riders, then why not see what can be done on the existing rail lines to improve that time. b) If increased ridership is the goal of the Amtrak Vermonter, why not make use of the current basic infrastructure already in place and invest a fraction (a mere fraction) of the cost of the propsoed cost for the Connecticut River line improvements, by making a stop in Palmer, where the Vermonter stops for approximately 8-15 minutes to make a switch. 5. Investment vs. Value: I am concerned that regardless of whose money it is, Massachusetts, Federa, VT, or private that in a time when the federal government needs to spend money wisely and is looking for sustainability we are looking to new vs building on the infrastructure that exists and very likely at a fraction of the cost. In LEED building projects there are points that owners receive towards the LEED level for reusing of structures and elements. If we built off our current infrastructure the stimulus money could be put to additional efforts that are based on need and demand, not on pre-determined, projected and preferred outcomes.

Comment Received

From: Goshen, MA
Organizational Affiliation:

Comment:

I encourage and support passenger rail service in the Connecticut River Valley corridor. Greenfield, Northampton, and Holyoke service would greatly enhance rail travel in the corridor allowing easier and quicker travel to Vermont and south to Springfield and New Haven connecting trains. Repair of the rails would also provide a path for expansion of commuter travel in the future. Greenfield is especially ready for rail travel with the construction of a new ground transportation Center near the tracks. Students and townspeople could have valley rail travel when Amtrack returns to the valley with a safe route to Greenfield, Northampton, & Holyoke.

Comment Received

From: Amherst, MA
Organizational Affiliation:

Comment:

I forgot to comment that it is essential that there is convenient bus connections to surrounding areas.

Comment Received

From: ,
Organizational Affiliation:

Comment:

I fully support the Knowledge Corridor Passenger Rail project. I think expanding rail service in Massachusetts will contribute to greater transportation options, economic development, and environmental benefits. Having lived for 2 years in Seattle (with most of that time stuck in daily traffic) I know an automobile-based daily commute is unsustainable. For the future prosperity of Massachusetts it is essential to expand passenger service and create a full-scale commuter rail service before we are choked with traffic. This will be a draw for employers, relief for employees, and less impact on the environment.

Michele LaRock MS RD LDN
413-247-5054
michelelarock@verizon.net

Comment Received

From: Amherst, MA
Organizational Affiliation: Hampshire College

Comment:

I have given considerable thought to the proposed railway expansion known as The Knowledge Corridor, and wholeheartedly6 endorse its success. As am Amherst resident, I am willing to travel the extra distance to the Northampton station, and only wish the railway could be electrified to better reflect European standards and speeds, and also be more consistent with community values around the environment. Despite this, I see no reason the expansion should not move forward based on the feasibility study as presented in this forum.

Comment Received

From: Northampton, MA
Organizational Affiliation: Connecticut Valley Quartlery Meeting Religious Society of Friends (Quakers)

Comment:

I heartily support the passenger rail study proposal for service from Springfield to White River Junction and in fact all of my friends in the Pioneer Valley are strong, enthusiastic supporters of this proposal. 1a) This area will by dying 20 years from now unless we link us with large cities. 1b) Enormous numbers of students and professors visiting lectures would use it (Colleges and boarding schools). 2) The aging baby boomers who are aging out of long distance driving would use it. 3) It is essential to reduce dependence on automobiles & gas to global warming and to become less dependent on foreign oil. I support linking Holyoke=Springfield & Northampton & Greenfield. Industry & economy of this area & property values will only increase if we are linked by train & bus with other metropolitan areas all across the country-North-South as well as East-West. The ski crowd/Rt. 91 corridor will be a huge user of the train NYCóVermont if it is efficient & convenienct & linked with buses and shuttles.

Comment Received

From: Florence, MA
Organizational Affiliation:

Comment:

I support: 1)reestablish 2-rail line corridor (restore 2nd line) 2) public ownership of rail line & less complicated 3) new line (2nd) to have concrete sleepers & continues welded rails. 4) upgrade bellast throughout line 5) eventually replace current line with concrete sleepers & continuous welded rails. 6) design standard; grade separation; high standard (difficult) to justice at-grade intersections 7) design for future electrification (no interference with that, in near term construction) 6a) example: Daman Rd. reconstruction needs to be grade separation 8) any reconstruction accomide other modes of transportation ex: rail trail tunnel in Northampton.

Comment Received

From: Hatfield, MA
Organizational Affiliation: PVACR

Comment:

I urge funding for the Knowledge Corridor Passenger Rail project. After hearing the plans for the Knowledge Corridor Passenger Rail project at the public meeting, May 20, in Northampton, MA, I not only support the proposal, but I am speaking to people on my street, on my email list, people everywhere who will benefit from improved and increased passenger rail service in the Pioneer Valley.
Improving the tracks along the Connecticut River and restoring the Vermonter to that line is an important beginning. Restoring service to the Holyoke, Northampton, Greenfield population will produce an immediate benefit for ease in transportation for travelers,workers, students and the elderly. Importantly it will begin to make positive changes in the environment by taking cars off I-91 and other highways.
The longer range benefits for growth and development of business and convenience for a diverse labor pool will come as service is extended.
Eventually, the Pioneer Valley will realize much-needed commuter rail service on this CT River line with even greater benefits to the growing population and for a greener environment.
Thank you.

Comment Received

From: ,
Organizational Affiliation:

Comment:

I wanted to express my support for this important passenger rail project.
I worked for 30 years in the railroad industry in the New England in administrative areas. In the late 1960's when I began my rail career, interest in passenger rail was at an all-time low, but, I knew that this would change some day, 40 years later in fact.
The main line to the north from Springfield via Holyoke, Northampton, Greenfield, Brattleboro, White River Jct and St Albans was historically a busy and vital north-south rail link for both freight and passesger operations. Various economic and political factors led to the demise of both.
Fixing this line up to passenger train speeds would be an economic boost to the whole area. Amtrak's Vermonter should be re-routed to this line and it should have Montreal as it's terminus. The overnight Montrealer service from Washington to Montreal was popular in the 1970's and 1980's and it too should be restored. A few more round trips per day between Springfield and White River Jct, in addition to the through train, would provide enough scheduling choices. The town of Amherst could be connected to this line by a dedicated light rail tram car shuttle between Amherst and Northampton with not any intermediate stops, following the right of way of the old Massachusetts Central RR presently in use as the Norrowotuck Rail Trail. It has much more value as a transportation link than as a bicycle trail!!!
This project, in coordination with upgrading the passenger train services between New Haven, Hartford, Springfield, Worcester and Boston, the so-called Inland Corridor, would make once again make Springfield the rail crossroad of New England that it was many years ago.
If you are standing on the platform in New Haven, it's 157 miles via Providence to Boston, the high speed Acella Shoreline route. It's only 161 miles (4 miles longer) via Springfield, but a far greater demographic market would be served.
I am willing to be a resource from the perspective of a railroad person who worked many years in this territory
Don't hesitate to e-mail me with questions.
Rich Teed
RRRich67@gmail.com.

Comment Received

From: Windsor, CT
Organizational Affiliation:

Comment:

I wanted to take a minute to write you and voice my support for expanding rail service in Western Massachusetts. I am days away from closing on my first home, at which time I will relocate from Windsor, CT to Holyoke, MA - and I am thrilled at the prospect of having regular rail service expanded to Holyoke!
I strongly believe such service would be good for Holyoke and good for the entire region, as it would facilitate travel in and out of the region. Of equal importance is the message it would send to the Northeast and, indeed, the rest of the country - that Massachusetts is at the forefront of smart growth and green development.
I believe in the economic, social, and environmental benefits of rail travel and I urge planners and decision-makers at all levels of local, state, and federal government to include expanded passenger rail service in their planning efforts for Western Massachusetts.
Thank you,
Jesse Vanek
PO Box 914
Windsor, CT 06095
(soon to be 215 Lacus Drive, Holyoke, MA)

Comment Received

From: Glastonbury, CT
Organizational Affiliation:

Comment:

I wish to express my support for the Knowledge Corridor Passenger Rail project. Even though I live in Connecticut it is
very important for us to collaborate and support projects that are of common interest and I feel this project is of mutual interest.
The project fits nicely with the New Haven/Springfield (and points north) proposal. On the Connecticut side we need passenger
rail directly into Bradley airport.
Shortening the route and travel time to Vermont will be a great advantage to western New England and others.
In addition to the project, we need to restore AND UPGRADE the old Montrealer. It is very discouraging
that at this time, there is only one practical mode of transportation, the automobile, to Quebec and in particular to Montreal. We need to
change that without delay. We need multimodal and inter-modal transportation.
Land developers need to enhance properties along the rail line.
I feel we will then find that businesses and people will flourish with minimal impact on the environment.
Sincerely,

Ron DeGray
120 Cricket Lane
Glastonbury, CT 06033-1851
Land line: 860.633.2258
Wireless: 860.978.4919
E-mail: rdegray@mac.com
iChat: R.Degray
http://www.sjc.edu/rdegray

Comment Received

From: Lebanon, NH
Organizational Affiliation:

Comment:

I would certainly be interested in being able to take the train south from WRJ vt if it took less time, and particularly if it stops in Northampton Ma.

Amelia Sereen
Slayton Hill Rd
Lebanon, NH 03766

Comment Received

From: ,
Organizational Affiliation:

Comment:

I would like to throw my hat in the ring as a supporter of pasenger rail service on the line extending from New Haven, Connecticut to Montreal QC via Springfield and Greenfield,Massachusetts.
Today as land use issues loom large, prices for fuel go through the roof, green house effect arising from consumption of fossil fuels, baby boomers become the majority of the elder explosion, and automobiles dominate our national economic discussion.......clearly we as a nation need to recognize the need to look to the benefits of becoming once again a truly mutli modal society.
Sixty years ago our valley was multi modal, when gas and land were cheap, baby boomers were babys, and even though automobiles ruled the transport roost... there were at least five trains a day in each direction on the New Haven to Montreal route. Today despite a much greater population to serve there are maybe six trains in each direction between New Haven and Springfield. There are no trains between Springfield and Greenfield, Mass. And there is one roundabout train between Springfield and Saint Albans, VT via Palmer, Mass.
Our region today basically has one viable inter corrdior modal choice and that is by private automobile by highway. There is alternative modal infrastructure still in place but there is no service. We all know the reason why. People in the past have voted for their cars. Governments, local and federal supported with billions of tax payer dollars the growth of the autohighway industrial complex.
Over the past thirty nine years there admittedly has been some Government moneys spent on Amtrak. But, these moneys have been nothing but a fraction of a fraction of the amounts spent on highways every year. And whereas the original Amtrak concept was supposedly a national system, Amtrak in reality from the begining was nothing more than the Northeast Corridor (still needing substantial sums in it's own right) and a few thin meandering once a day or less extensions providing the "National" aspect.
I would submit to you that the Pioneer Valley would make a terrific starting place for a rebirth of the "National Rail Passenger Corporation". It would be nice to think that maybe our country could finally see rail service as being a viable part of becoming a truly multimodal society. And by so doing we can move step by step towards becoming a society that uses it's resources wisely.
In the final analysis it would be nice to see America start to move away from being a nation that depends soley on cars that depend on foreign oil that depends on perpetuating irrational foreign policys.
We're ready for trains in the valley!

Comment Received

From: Turners Falls, MA
Organizational Affiliation:

Comment:

I'm writing in support of improved passenger rail service from VT to Springfield, MA. I grew up in Western Mass and have seen many friends, family and class mates move away from this area because it does not offer decent commuter service. The 5 college bus system is ok, but during summer or holidays anyone using the service to commute to a job is stranded. And this service is very restricted to the college areas. There is such a swell of environmentally conscious and money conscious citizens in the Pioneer Valley who would readily change their daily routine to be able to take advantage of rail service. Not to mention the tourist industry in the area.We are in the position to be front runners and ground breakers by establishing such a service. Other regions similar to ours will look to us as an example. And when an area is looked to as a example, it brings business, money and stability. I bought a house in Turners Falls, MA 3 years ago. The arts programming is amazing. The people are motivated and interested. The location is gorgeous. But, there are no jobs and the public transportation system is inconvenient at best. If there was a train that could get us to our jobs in Brattleboro, Amherst, Northampton, Easthampton etc, I am certain that those motivated and creative individuals will stay here and continue to bring Turners Falls to the peak that it is already inching towards. AND people with established jobs elsewhere will not hesitate as they have in the past to move to areas like this because the golden lining of a rail system will be on the horizon. Imagine the economic boost that towns such as Turners Falls would experience.I hope that the support for this project continues to pour in. Thanks so much for your time and your hard work.

-Jessica Adamites
61 Central Street
Turners Falls, MA 01376
(413)863-5136

Comment Received

From: ,
Organizational Affiliation:

Comment:

I'm writing to voice my support for commuter rail projects in New England.
Detroit seems to be faltering, and with the current economy many people cannot afford to buy new cars, let alone keep them on the road. Bus schedules have been drastically cut in many communities. Even if buses had expanded schedules, they continue our dependence on foreign oil.
Rail projects make a lot of sense. Rail travel in this country was once the envy of the world. It was an efficient and effective means
of travel for millions of people. Even though there needs to be an infusion of capital to begin to rebuild our rail systems to what they used to be, it would be money well spent if properly implemented. Railroads provide a safe and energy-efficient way of moving people from one place to another. The current problem is that many of the old rail lines have been dismantled. But through proper planning, similar lines could be rebuilt. People would gladly forego their cars if rail systems provided a way to get where they needed to go in a timely fashion, both for long distance and local travel. I urge your support to bring back public rail systems.
SIncerely,
Jay Ducharme

Comment Received

From: ,
Organizational Affiliation:

Comment:

If service was rerouted to go through Greenfield, Northampton and Holyoke, I would really consider the train as a viable transportation option. The current 50+min detour between Amherst-Palmer-Springfield is not worth the time or money and is a serious deterrent from higher ridership on this train. I know many people who would take this train if it were rerouted to the CT river line along Rt. 5.
Sincerely,
Julian Hartmann-Russell

Comment Received

From: ,
Organizational Affiliation:

Comment:

In this time of economic crisis, and rising energy demand I do not see alternative fuel as being a solution I see alternative transportation a much more feasible alternative. I support a commuter rail in Western Ma, it will provide access to jobs for those who can not easily afford Personal Transportation.

Comment Received

From: Florence, MA
Organizational Affiliation: CTPS

Comment:

It is crucial that the Vermonter is restored to its original route now as stimulus money may be available and PanAm/Norfolk Southern are about to embark on rail upgrades in the area for freight (Patnet Corridor). In addition, in Vermont rail service may eventually be extended on the west side of the state to Burlington thus providing a much faster ride to NYC that could erode the Vermonter's ridership & state support it improved running time is not achieved on the Vermonter.In addition, the ability to support additional corridor service to Holyoke, northampton, & Greenfield from Springfield is crucial. Thought might be given into providing a guaranteed connection by thruway bus from Amherst/UMass to Northampton train station.

Comment Received

From: Holyoke, MA
Organizational Affiliation: Holyoke Housing Authority

Comment:

It is with great enthusiasm the Holyoke Housing Authority supports the proposed location of a commuter rail stop in the city of Holyoke. As a provider of housing to families in need, it is apparent a rail stop would provide exposure to employment, education, and cultural opportunities currently unavailable. A rail stop would clearly benefit Holyoke. In addition, it would increase limited transportation options and ultimately reduce environmental impact. I hope this very worthwhile endeavor becomes reality for Holyoke.

Comment Received

From: South Hadley, MA
Organizational Affiliation:

Comment:

Just a quick note to say thank you for the opportunity to be heard.
I am in favor of the project for all of the reasons you have stated in your outreach informational sessions and web site.
Our workplace has changed. People are choosing to live in communities that offer a better quality of life rather than packing up the family and moving. The baby boomers who grew up, educated and were fortunate to obtain advanced degrees in this Valley; the ones that have lived through the downsizing, rightsizing, and mergers and acquisitions of the last twenty years knew enough that companies will come and go but communities, especially in New England, will find a way to survive. My husband and I decided a long time ago to keep our home in South Hadley, MA. as our primary residence and do what we have to for work. Thus, we have been doing what has now become to be known as the "extreme commute" , for the last thirteen years. I wont' lie and say that it's great, but it is a lot easier than moving children and ageing parents every two or three years. We have traveled and lived all over the world and there is no place better that we would rather call home than our Pioneer Valley.
I have a cousin who lives local and commuted into NYC every day for 10 years. Unfortunately she had to drive into New Haven to take the train into NYC.
So yes, we need Passenger Rail along the I-91 Corridor. I do believe that if this project does materialize we will be able to retain some of the great young minds we are graduating from our colleges and stop the population loss. So as you move forward with plans may I suggest that you, together with communities start booking employers and incubator companies into this area as we lay our tracks for the future. One last final note, do whatever necessary to retain current business.
Thanks for your time. Shelia A. Fitzgerald

Comment Received

From: Essex, MA
Organizational Affiliation: NECR/Rail America

Comment:

Let's find a way to maintain a public/private partnership that works today: The current Amtrak Vermonter route via Palmer, MA: via a willing host-New England Central RR-and expand that model to grow rail via Holyoke, MA.-add a route. Don't just re-distribute the same resources and hope that somehow all come out with more

Comment Received

From: Longmeadow, MA
Organizational Affiliation: Pioneer Valley Advocates for Commuter Rail

Comment:

May 31, 2009
Max Talbot-Minkin
Howard/Stein-Hudson Associates, Inc.
Attn: Knowledge Corridor Project
11 Hanover Square
3rd Floor
New York, NY 10005
Dear Mr. Talbot-Minkin:
I strongly support the Knowledge Corridor Passenger Rail Project. The Commonwealth of Massachusetts's application for federal stimulus funds for this project will be a strong one, for the project will benefit the region as well as the state.
By reducing the time of the trip to Vermont from Springfield, the project promotes additional travel by rail. By adding station service to Holyoke, and Greenfield, it will help two struggling cities. By adding station service to Northampton, already a bustling destination city part of the Five College system, will burgeon with increases in local business. That it examines the potential for increasing the frequency of passenger service and creating a full-scale commuter rail service is a bonus--it shows foresight.
As a founder of the Pioneer Valley Advocates for Commuter Rail, a regional grassroots organization that developed out of strong widespread (but as of then unfocussed) strong support for rail in our region, I was overwhelmed by the supportive messages people offer me whenever they see me. They know, from their experience traveling elsewhere and seeing the sustainable economic and environmental benefits that rail is right for our region. They also know from their intuition that an automobile-centric transportation system is unsustainable and stress-inducing. The Knowledge Corridor Passenger Rail project is precisely what our region needs.
Please contribute my solid support to the application for federal funds for this project.
Sincerely,
Rebecca M. Townsend
160 Ely Road
Longmeadow, MA 01106-1836
413-565-5273

Comment Received

From: Florence, MA
Organizational Affiliation:

Comment:

Move the trains to the Conn. River Route.

Comment Received

From: Leyden, MA
Organizational Affiliation: FRCOC Executive Board Planning Department

Comment:

N.B. There is a well dpcuented history of "ski-trains" leaving Boston, Providence, Connecticut & NY going to VT & NH sites-special cars, special times, etc. The economic benefits of a self-contained specialty train like this would ecrue to the railroad, but might have somewhat negative impact on local restaurants, motels in Greenfield, Brattleboro, etc. But, in sum, w/ proper marketing specialty 'ski trians' could again become populat & profitable.

Comment Received

From: Northampton, MA
Organizational Affiliation: Citizen

Comment:

Need Amtrak train from Northampton to NYC/New Haven. Hope this construction project will start ASAP and get the New trains running within 1-2 years!!!

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

North-South service nice. Need East-West Service between 5 colleges & Boston/Cambridge

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

Please let the train come through.

Comment Received

From: Longmeadow, MA
Organizational Affiliation: PVACR

Comment:

Please see my attached comments on the knowledge Corridor.
I have attached two links:
A link on a recent article about a train ride by father and son from Northampton to Brattleboro in Preview magazine.
http://www.previewma.com/article.cfm?aid=9590
<http://www.previewma.com/article.cfm?aid=9590>
Recent press on the bullet train in Spain with the transportation secretary:
http://www.facebook.com/ext/share.php?sid=84012331546&h=9m2gH&u=LqVpb&ref=nf
<http://www.facebook.com/ext/share.php?sid=84012331546&h=9m2gH&u=LqVpb&ref=nf>
Good Luck!
Moira Murphy
Coldwell Banker
413-575-3643
Your Key to Quality!
Dear Sirs,
I am responding to your Public Meeting held in Springfield, MA May 19, 2009, regarding the application for stimulus money to improve the regional train system by bringing the Montrealer back to its original train route to improve speed, ridership and save time, as the current route takes the trains on an East to West route when it is a North to South train.
My background:
I am a current resident of Longmeadow, MA, I am a real estate professional and a member of the Pioneer Valley Advocates for Commuter Rail - PVACR. I am also an active community volunteer serving on several non profit boards in the area. I grew up in Longmeadow went away to college in Burlington, VT area, and then lived and worked in the Stamford, CT area, as well as the Hartford, CT area. I am very familiar with the entire regional train system as my parents were both born in Boston, MA and I have relatives on the Cape. My husband went to school in Syracuse and their family had a house in the Thousand Islands that we visited often. So I am very aware of the regional benefits of making Springfield, MA a transportation hub.
I applaud the thorough work that has been done on this project and the professionalism that has accompanied it. The presentation in Springfield which I attended and spoke at, was informative and very helpful to understand the dynamics involved in planning the transportation systems in the region. I am going to address many different aspects of the project many of which you already

know, but I would like the records to state these considerations to support your work.

We need alternative transportation solutions to get off our reliance on gas/autos. This project is a start to the process of getting Springfield, MA back into being a productive revenue generating area. If you take a look at Stamford CT, their rail system encouraged corporations to move to the city. I worked for a company that moved their headquarters from Greenwich, CT, to Stamford, CT, to be near the train and the highway. Both of which Springfield has. If we build it they will come. We have a much lower cost of living in this area than the NYC metropolitan area and we will have access in all directions for trains, I-91 corridor North and South as well as the East to West connection from the Mass Pike with an entrance a few miles down the road.

We have great higher education institutions that are positioned to grow with STCC, AIC right up the road as well as WNEC and Springfield College. We also have two great hospitals for corporations to partner with Baystate and Mercy. Let's not forget that right up I-91 is the five college connection – UMASS, Amherst, MT Holyoke, Smith and Hampshire College. The Knowledge Corridor as it is referred to will enable more access to educated job seekers and employers The land surrounding the train station has potential lots not far away to be developed into headquarters for different industries, similar to the Stamford situation.

Previously the Montrealer was active North and South – I took that train when I went to College in Burlington. It should be fixed to go straight from the Vermont border to streamline the route for economies of scale. A spur line could go between Amherst and Palmer to keep that line active. But don't make the rest of the ridership go East west on a North to South route. Vermont pays the annual expensive bill for the service to Vermont. We need to step up to the plate and correct the problem. We also have the current New Haven to Springfield project on the horizon and that will work much better with a streamlined North to South connection from Springfield. Once the NYC to Montreal line is in place and the New Haven to Springfield route is improved, the Boston legislature and the MA governor will realize that the connection East to West needs to be made. It is a straight shot across our small state and is long overdue. The Boston legislature being in Boston has been harmful to the rest of the state. They cannot see outside the Boston area and understand the wisdom that developing the western side – specifically Springfield - is good for the state. Springfield would be revenue producing to the state budget and reverse the trend from taking money from the state to contributing to the state – we will actually help pay off their big dig problem. We do also have a local problem with Peter Pan Bus Lines, that has a lot of political power and does not want to have this project take away their business. It is a dual edged sword as they are a large employer yet we need to advance our train system. There should be some way of incorporating their services into the new train line. As someone stated at the meeting we need to be thinking of transportation in the area from the ground up from sneakers, to bikes, to cars, to buses, to trucks, to trains to planes.

We also have the Union Station project in Springfield that would work very well with these efforts. Again look at the Stamford CT station, they built and the corporations came. The land values around the train as well as the local surrounding towns housing markets will increase as people start commuting to Albany to Berkshires to Worcester to Boston and North South to Hartford to New Haven to Stamford to NYC to Washington and Holyoke to Greenfield to Brattleboro to Montpelier to Burlington to Montréal.
Also once these improvements have been made the Boston legislature will see the importance of connecting East to West. It is a faster route to NYC than the current shore line route that is being used. It will attract more ridership on this route as well.
That would bring to mind the Bradley airport connection. There is currently no reliable source of public transportation to get to the airport. The train system should incorporate some connection, whether it be shuttle buses from a train stop initially and then eventually a quick train shuttle to the airport from a train station.
To win this bid from the federal government we are going go need assistance from our elected officials all the way up the chain, select boards, mayors, state senators in the state house, the governors, as well as in Washington. Since this is Federal money we really need Senators Kennedy, and Kerry and Neal to strongly support this application. We also need the states of VT, CT, and NY to support this project. We need the support of the state transportation officials and the National transportation officials. We also could use the aid of the Canadian officials. This truly in a regional and international route and needs to be billed and supported that way to get the attention and support it needs.
As you can see the Springfield Rail improvements are regional and international. What is good for Springfield will directly benefit all the surrounding areas. Build it and they will come and use it. This isn't just about this one project it is the start to a very large regional train system that is long overdue.
Please feel free to call me with any questions or assistance.
Regards,
Moira Murphy
19 Tecumseh Drive
Longmeadow, MA 01106
41-575-3643
Moira.Murphy@verizon.net

Comment Received

From: ,
Organizational Affiliation:

Comment:

PLEASE support the Knowledge Corridor Passenger Rail service! This commuter and traveller service would be of great use to hundreds or thousands of students, commuters and regular people who want to travel! As residents of Longmeadow, MA, we would definitely choose to use the service for daytrips up to Northampton and Greenfield, and we would also use it for commuting south to New Haven and to connect with NYC! Like many Americans, I am tired of using my gas-guzzling mini-van for everything and would absolutely love to see an improvement in rail service. Now is the perfect time.
THANK YOU FOR YOUR SUUPORT OF THIS MEASURE!
Anne Muench and John Valencia, MA residents

Comment Received

From: St. Albans, VT
Organizational Affiliation: Rail Council Passenger Rails

Comment:

Retired Vice President for RailAmerica, Presently VP Business Development for RailComm, LLC, appointed by Governor Douglas to the Vermont Rail Council, Chairman of the Passenger Rail-Sub-Committee, Board member for the Vermont Rail Action Network and board member for the Northwest Regional Planning Commission (TAC).
49 Smith Street
St. Albans, Vermont 05478
802-527-2845 cell – 585-329-1889
Email – cmoore@railcomm.com
Comments:
First let me say that I have dealt with HDR over the years on various projects and have found them to be very professional and has the ability to put together a good product and a good presentation. Ron O'Blenis is articulate and a good salesman, but I regret to inform you that I was not impressed with the presentation concerning the Knowledge Corridor.
The cost of this study amounted to several thousand dollars of our taxpayers money to reroute the Vermonter and save 45 minutes. That is all that came out of this proposal was to save 45 minutes. This is incredible and makes no business sense to me at all.
Please note the attached historical running times which prove that the statements made at the Bellows Falls meeting were not based on any fact finding efforts, but appear to have been pulled out of the air. Ron O'Blenis I'm sure will be more than happy to explain to you the content of the historical running times in the attachment. Under the existing conditions at the presentation it was mentioned the "Reverse Direction at Palmer". What about the reverse direction at Springfield? This is comparing apples and onions, come on, let's get our facts straight here. Also the use of the "congested East-West line" was mentioned. The Knowledge Corridor route will require the move to not only cross the "congested East-West line" but to make a reverse move at the station.
Who will pay to maintain this line once the upgrades have been accomplished? What government official in Vermont will put their job and reputation on the line to sign a letter to continue to subsidize the train and not request any assistance from the Common Wealth of Massachusetts?
Even though Charlie Miller made this statement at the meeting, I assure you that you will not see his signature on the letter.
This proposed route will bypass the third largest boarding station on the Vermonter route in Amherst, MA. In the presentation it was stated "Restores original Vermonter route". Again, this is not a true statement. The Vermonter never traveled over this Conn River Line.

By rerouting the Vermonter over this Knowledge Corridor will allow Massachusetts and Pan Am Southern to apply for the intercity stimulus grant. Massachusetts could care less about having the Vermonter operate on this route. What they do care about is this gives them what they need to apply for the grant to operate commuter service on this line. Without the reroute of the Vermonter they will not qualify. Why would Vermont want to do this? What will be the return to Vermonters? It has to be more than 45 minutes savings in running times, which as indicated by the attachment is not going to happen.

Also in the presentation it was said “potential second round trip”. Now that there is no plan to purchase the new equipment this will not happen.

This is not a good proposal and one that I oppose for the reasons I stated at the May 27th meeting and stated in this letter.

Best Regards,

Charlie Moore

Comment Received

From:	Sunderland, MA
Organizational Affiliation:	Franklin County Planning Board

Comment:

Sound bad-particularly from the audience. Your model shows a too low increase in ridership. A new facility usually attracts more than expected new users.

Comment Received

From: Enfield, CT
Organizational Affiliation: Retail Brand Alliance-Brooks Brothers

Comment:

Support of train in MA

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

Thank you. Long overdue! I drive to New Hae 1-2x/month to take the train to NYC and pick up my daughter who lives there-many of us in western MA have a NYC connection and welcome an easier trip there. Many more will use the trains than you have proposed. Also, what is the feasibility of buying union Station in Northampton(currently a restaurant) & renewing it as our beautiful station?

Comment Received

From: Holyoke, MA
Organizational Affiliation: The Trustees of Reservations

Comment:

The "rehabilitation of existing grade crossings" & "switch & grade crossing renewal" will be crucial. I would also suggest that there are a number of properties a ing the tracks that currently have informal pedestrian grade crossings which, in order to preserve these pathways & to keep these users safe will need to be (I would urge, should be) considered for upgrade to formal grade crossings. Finally, even if there are not regularly used informal grade crossigns, there will be safety considerations presented by an increase in train speed fro the current 20-30 mph to 55, 60 or almost 80 mph.

Comment Received

From: Williamsburg, MA
Organizational Affiliation:

Comment:

The meeting was well attended-so many people from Amherst. They seems very possesive of "their" Amtrak connection-which cuts out 3 major hwys along the Conn. River. The materials were very detailed and thorough. The studies thorough. Many people unfamiliar with Amtrak do not know the difficulties Amtrak has sharing its' lives with the rail Freight owners. People whine about delays-well folks while the govt. bails out the banks Amtrak passengers wait hours in the middle of nowhere, particularly from Chicago into Texas, while freight rocks by. We need our own track! Freight has priority-Union Pacific could delay et al. when the elevator is working is ok-when not there all over 30 steps-try that with two bags! at 75! Fro me the Noho station would forego frequency for rides to catch. My train to San Antonio every winter on my way to Mexico. And harriy people wait at nite in a nasty section of Springfield to pick one up! It would mean access to travel on Vermonter (in my points earned x country) to visit my family who live near W River Jct in VT/NH. Vermont Transit does not give any decent "deals" to attract customers. A trip ticket via VTA is $72 for Sr.! It is a 1 1/2 car trip. I have no car. We need transport here on rail side of river. Amherst, because it is part of the 5 colleges, has a pampered PUTA & 5 colleges bus system and the Amtrak Station to boot! Hard to part with that. I will help in any way this project off ground ASAP. I am a hard worker *. Who needs a covered station? On one Amtrak trip to New Mexicao I got dumped at the Union Pacific Track building in Deninure, N. Mexico-95 degrees in August! No one around-nothing around-fortunately the other person getting off had a cell phone so we culd connect w/ shuttle that picks people up to go to Silver City. A 1 1/2 mile walk that evening.

Comment Received

From: ,
Organizational Affiliation: EDD Candidate in Higher Education Policy & Leadership, University of Massachusetts-Amherst

Comment:

There are a number of reasons that I feel a rail line between Springfield and White River Junction are vital, the first is the obvious impact it will have on using less gasoline. Gas prices continue to be on the rise and mass transit options are just not that viable. Further a connection to Springfield and New Haven would open up access to NYC and other regions. Currently the options are limited to taking the Vermonter which takes 1 hour and 30 minutes to travel from Amherst to Springfield, the drive on a bad day is not that long. More Service specifically through Northampton would be of great use. Though I think more rail service is needed between Boston and Springfield instead of the 1 train, I think this is a start. As a graduate student in the valley with family in the region I would greatly utilize new rail service in the Valley.
Please seek to extend services this would be a great benefit to the valley in terms of development and transit availability.
Sincerely,
Stephen Mahood
EDD Candidate in Higher Education Policy and Leadership
University of Massachusetts - Amherst

Comment Received

From: Hatfield, MA
Organizational Affiliation:

Comment:

To Whom it May Concern,
As a concerned citizen I am writing in support of the Knowledge Corridor Passenger Rail Project. I believe the public deserves a safe place place to walk, run and bike without competing with truck and cars on the roads. This is also a great opportunity to decrease carbon emissions and connect with our natural environment.
I respectfully ask that the Knowledge Corridor Passenger Rail Project receive funding.
Bonnie Zima Dowd
Hatfield, MA 01038

Comment Received

From: Amherst, MA
Organizational Affiliation: Valley Free Radio

Comment:

To Whom It May Concern,
I attended the public meeting on May 20th in Northampton, MA regarding rail service in the area. I have been a resident ofthe area for my entire life and a long time advocate and supporter of passenger rail. I havewitnessed many changes with·Patticular regards to Amtrak service to Amherst since it's inception in 1989. I attended the station stop of the inaugural run ofthe Montrealer in Amherst when I was young. At the time it was met with much fanfare and support of the local community and the late State Rep. Silvio Conte rode that train after boarding in Amherst. At that time and until very recently, there was no mention ofthat train being on a temporary route through Amherst much less a "detour" through Amherst. To the contrary, it was through the drastic efforts of the federal govermnent that the train was brought to Amherst after seizing a portion ofthe Connecticut River Line to the north from Guilford Transportation (now Pan-Am Railways). As you may very well know this was because Guilford had neglected the condition of the rails to the point where Amtrak made the hard decision to discontinue operation of it's passenger trains there. In the twenty years that Amherst has enjoyed being served by Amtrak, rider-ship has increased steadily and since the inception ofthe Vermonter on it's daytime running schedule, people from the area have embraced the train. I have ridden both the Montrealer and the Vermonter and always enjoyed the experience. In essence moving the train to Amherst has been a complete success. In addition to the success ofthe Amherst stop, the current line also passes through Palmer,

Ma., a town that needs to be included as a stop for passenger trains. Palmer already sees passenger trains traveling north and south as well as east and west. It would make perfect sense that Palmer be used as an interchange point so that passengers in Amherst as well as points north including Vermont cOuld have an easy conhettion to Boston and points east. We also cannot leave out the fact that Mohegan Sun has taken out a thirty year lease on land in Palmer and already houses an office downtown. It seems imminent that Palmer will have a casino in the future, creating even more of a demand for better transportation.

The bottom line here is that unlike the Ct. River line, these rails already are up to passenger train standards. Bringing passenger service to Northampton should not mean taking it out of Amherst.

I found it very curious that there was no mention of this history at the public meeting. It was not until I raised a question about it that it was even addressed and even then, the answers and explanations were very brief. I also found it interesting that no representative from Pan Am Railways was in attendance at the meeting. It would make sense that someone from the railroad that owns the line over which this service would be on should be at a public meeting about it. I am very concerned with the competency of Pan Am Railways and its part in this project. When I posed the question about Guilford and how we could be assured that a similar situation that happened over twenty years ago would now happen again it was answered with looking at the example ofAmtrak's "Downeaster" service which is operated over Guilford tracks. I would agree that this is an example of success with Guilford however this did not come easy. When researching the history of the Downeaster I found the following quote on the "Friends ofAmtrak" archive from 12/27/96 "The proposed rail route has been in the planning stages since 1993 but has been held up by Guilford Transportation Industries which owns the 78 miles oftrack.

Guilford refuses to pay any of the costs of upgrading the tracks and is demanding full
indenmification from Amtrak. The track is meant to handle slower freight equipment so
$38 million in track improvements would be needed for passenger rail traffic." It
concerns me that there is no real evidence that Pan Am has changed it's ways. According
to your representative at the public meeting, Pan Am Railways has not agreed to pay any
ofthe costs ofthis project. On the local level, Pan Am railways has not been a good
neighbor. It has owed back taxes in upwards of $300,000 to the town of Deerfield. Pan
Am has also just recently been convicted of enviromnental violations in Ayer. In a press
release dated March n rd 2009 from Atty. General Martha Coakley, "A Middlesex
Superior Court Jury convicted a New Hampshire railway company, and three of its
subsidiaries, of failing to report a hazardous spill and contamination on its rail yard
property in Ayer. Pan Am Railways, Inc., ofNashua, NH, a privately-owned freight
railroad that services northern New England, from Mattawamkeag, Maine, to Rotterdam
Junction, New York was found guilty of violating the Massachusetts Oil and Hazardous
Material Release Prevention Act (2 counts). Also found guilty were three subsidiary
companies based in North Billerica, Massachusetts. The Maine Central Railroad
Company, which owns the locomotive from which the spill occurred; the Boston &
Maine Corporation, which owns the Ayer rail yard; and the Springfield Terminal Railway
Company, which is the operator of both the locomotive and the rail yard, were also found
guilty of violating the Massachusetts Oil and Hazardous Material Release Prevention Act
(2 counts). Pan Am, and its three subsidiaries, are expected to be sentenced on March 30,
2009." These are not news items that exemplifY a competent and trustworthy company.
The Pioneer Valley Planning commissionas well as your consulting firm owe it to the
residents ofthe area to think long and hard about the railroad that owns the tracks, Pan
Am Railways. The state of Vermont, who funds the current Amtrak service should be no

strangers to the history of Pan Am and Guilford in their own state. From what I saw in the
presentation at the public meeting, there has been a clear effort to keep people in the dark
about Pan Am and Guilford. This is a disservice to the residents and ultimately the
taxpayers of the entire country who are the ones potentially funding the entire project. As
long as Pan Am is involved with this project I predict many problems ahead. I see the
only real solution to this problem is for the state to purchase the line in question. I fully
support expanding passenger rail. However it needs to be done very carefully and by
examining all of the factors. There is not leeway for failure here. If this money is granted
and the project becomes more than we bargained for, it will be used by critics in
Washington as an example ofwhy rail expansion shouldn't be funded. We already know
that there is no shortage ofpeople trying to stop funding for rail in our govermnent! We
need to mal,e sure this is done right before the state of Massachusetts and the railroad
industry once again falls victim to the shortcomings of Timothy Mellon and his Pan Am
Railways.

Sincerely,

Shawn L. Smith

Comment Received

From: Orange, MA
Organizational Affiliation:

Comment:

To Whom it May Concern,
I support expanded passenger rail service through the Connecticut River valley from New Haven to Vermont, as well as east-west from Boston To Greenfield.
We need to rebuilt rail lines with the help of federal funds.
Allen Young
75 Butterworth Rd.
Orange MA 01364

Comment Received

From: Northampton, MA
Organizational Affiliation: Northampton Norwottuck Rail Trail Advisory Committee

Comment:

To whom it may concern,
I would like to voice my strong support for the improvement of the Pan Am track from Springfield, MA to Brattelboro, VT, and switching the Amtrak Vermonter to this new track. The plan would provide incentive for the State of Vermont to continue funding the Vermonter, as Vermont towns would enjoy a 45-minute reduction in travel time.
It would also benefit Holyoke town, which is extremely underserved by public transportation compared to other urban centers in Western MA.
It would benefit Greenfield, MA and Northampton, MA both of which have concentrated walkable centers and serve as transit hubs for many regional bus lines (thus benefiting other car-limited residents in nearby communities such as Hadley, MA and Easthampton, MA).
It would provide much needed competition to Peter Pan Bus which sets monopolistic prices on certain Western MA fares.
I would like to add several suggestions to the current plan.
1)Plan for a bike/ped tunnel connecting the 13 mile Norwottuck Rail Trail (Northampton-Belchertown potentially Boston) with the 8 mile Manhan-Ryan rail trail (Northampton-Southampton potentially New Haven, CT). The two rail trails end at opposite sides of the Pan Am track and there is currently a lot of foot/bike traffic over the track there.
2)Make sure there is a coordinated schedule between the local buses (PVTA and FRTA) and the Vermonter service. Currently there is no such coordination at the Amherst, MA stop.
3)Plan for bike lockers at least at the Northampton stop, since the bike trail runs right by both proposed sites of the station.
4)Maintain the Amherst-Pelham track grade to allow for an eventual Amherst/UMass shuttle to the eventual Springfield, MA-Boston improved service.
Sincerely
Michael Sullivan
Northampton representative to the Norwottuck Rail Trail Advisory Committee
25 Fort Street

Northampton MA

Comment Received

From: South Duxbury, VT
Organizational Affiliation:

Comment:

To whom it may concern,
I'm a Vermonter who very much enjoys using the passenger rail service, and am in full support of enhancing the tracks along the knowledge corridor.
Thanks for taking my email!
Ben Smith
South Duxbury, VT 05660

Comment Received

From: ,
Organizational Affiliation:

Comment:

To Whom It May Concern:
I would like to submit these comments for inclusion in Massachusetts' application for federal stimulus funds for the Knowledge Corridor Commuter Rail.
I grew up in the Pioneer Valley, intern with a regional planning group, and live in the town of Longmeadow with my family. As a member of what some might call the first "green generation," and a future urban planner, I care deeply about the sustainability of our country and of my region. I learned the great importance of a comprehensive passenger rail system after spending the last semester living and studying in Denmark. In the Copenhagen metropolitan area, one can catch a train from nearly every population center, large and small, at least every 20 minutes. During peak hours, I could catch a train every 10 minutes. The system was reliable, clean, and fast. The rail system is a key element of their formula for reducing harmful automobile emissions and for their greater strategy of sustainability. To be honest, I went through a reverse culture shock when I returned to my home country and was forced to drive everywhere.
I and many others want the opportunity to take the train. My stepfather commutes daily on I-91 to the Hartford area and often comes home frustrated with the traffic congestion. I would love for him to have the opportunity to both have a less stressful commute and to reduce his carbon footprint by being able to ride the train. Later this summer I will commute to Northampton and will have no choice but to take my car. With commuter rail service, I could take the train to Northampton Center and walk the rest of the way to work. My stepfather and I are just two examples of the many concerned citizens who could take advantage of the proposed rail service.
Considering the geography, demography, and political leanings of the Pioneer Valley, we are well-suited to a rail system. The purpose of the federal stimulus is to create jobs and prepare our country for the future. We have the opportunity to accomplish both of these goals with the Knowledge Corridor Rail in the Pioneer Valley of Western Massachusetts.
Sincerely,
Philip C. LaCombe

Comment Received

From: Longmeadow, MA
Organizational Affiliation: 174 Green Hill Rd.

Comment:

To Whom It May Concern:
We strongly urge and support receiving federal stimulus funding to enhance the use of the rails between Springfield and Hartford as well as Springfield and Boston. This is a service very under-served and needed and would drastically reduce the use of fossil fuel for auto transport.
--
Mr and Mrs William F K Monks
174 Green Hill Road
Longmeadow, MA 01106
413-567-8231
bmonks@aol.com

Comment Received

From: St. Albans, VT
Organizational Affiliation: New England Central Railroad

Comment:

To Whom This May Concern:
My name is Charles Hunter, and I am the Director of State Relations- East for RailAmerica, Inc. RailAmerica is the owner of the New England Central Railroad, the host of the current Amtrak Vermonter route between St. Albans, VT and Palmer, MA. I have attended all three Knowledge Corridor public meetings- Springfield, MA, Northampton, MA, and Bellows Falls, VT. Below are my comments which I request be made part of your study and official records.
The New England Central Railroad and our customers are within the Pioneer Valley, and during this planning process, we request that the following points be taken into consideration:

- The current route of the Vermonter is not a detour, as has been previously reported. The train service has been routed via the NECR and it's predecessor, the CN since 1990. The Vermonter has always traversed the present route. At one time in the 1990s the train actually continued down the NECR from Amherst/Palmer to New London, CT where it entered Amtrak's Northeast Corridor.
- The New England Central RR has an established track record of working with Amtrak and VTRANS to support the Vermonter service. Recent reports from Amtrak concerning intercity passenger train on time performance showed that the Vermonter was at the top of the list, at 98.5%. This shows the dedication that NECR and our parent corporation, RailAmerica, have towards this service.
- The NECR route could benefit from infrastructure upgrades and scheduled running times could be shortened incrementally, based on project investment. So, if accelerating the schedule to and from Vermont is the main focus, improvements could be made on the existing route. Possible extension of the route could include a stop at Palmer and even routing the train through Willimantic and Uncasville, CT to serve the adjacent Mohegan Sun Casino. Currently the Conn DOT is looking at extending their Shore Line East Commuter Service to New London. The option of extending that service up the NECR route and into Central MA could also be explored. There is also a possible casino in the future for Palmer, with the Mohegan Sun already purchasing the property for future development.
- The NECR has provided and continues to provide economic development possibilities for Central MA businesses. Continued investment in the current route pays dividends for both passenger and freight traffic. Thereby providing mobility opportunities for everyone and helping to reduce and control road congestion while providing jobs to local residents.
- The NECR has invested millions of our own dollars to maintain our infrastructure for efficient passenger and freight operations. We are willing to

continue to invest in our infrastructure and welcome public-private partnerships, such as through the recent stimulus programs, where we can work to improve the existing route and share in the benefits with the public for improved rail passenger and freight service.

Please contact me if you need further information on these issues and opportunities.

Sincerely yours,

/S/ Charles D. Hunter

Charles D. Hunter
Director State Relations- East
2 Federal Street, #201
St. Albans, VT 05478
802-527-3434

Comment Received

From: Bondsville, MA
Organizational Affiliation: Mapleleaf Distribution Services, Inc.

Comment:

To Whom This May Concern:
My name is Mark Marasco, and I am the President of Mapleleaf Distribution Services, Inc., a rail freight distribution company located in Palmer MA. We have over 30 employees who live in the Pioneer Valley, and we are the highest property taxpayer in Palmer (excluding utilities), supporting local schools and local services. I am also a resident of Amherst MA, and I attended the Knowledge Corridor public meeting held in Northampton MA on 20 May 2009.
I would like to make the following comments which I request be included in your planning process:

- As a resident of Amherst MA, it was made very clear to me by the comments at the public meeting that residents of both Amherst and Northampton would like to have passenger rail service in their towns. In fact, many comments indicated that residents would like to see more rail service, particularly going east to Boston. Rather than spending millions of dollars of public money simply to move existing service from NECR to the Conn River line, I think that money would be better spent adding service to both lines, including service to Boston.
- As a business located on the NECR, we have invested millions of dollars of private money in our facilities and equipment to grow our business here in the Pioneer Valley over the past 23 years. The NECR has also invested in their rail infrastructure with private money, which is why the Amtrak service was moved from the Conn River line, which has not been maintained to Amtrak standards. The proposed investment of public money to move passenger service from NECR back to the Conn River line will improve that line for freight as a "free" competitive upgrade to modern standards. NECR is seeking funding to upgrade their lines to 286,000 lb capacity, and I think they should receive funding as part of this project so that together we can remain competitive in this market. NECR has invested millions of their own dollars to maintain the Amtrak service in this region – some form of compensation to NECR is justified for the loss of Amtrak revenue that NECR has worked hard to retain.

Please contact me if you have any questions regarding these comments.
Sincerely,
/S/ Mark A. Marasco
Mark A. Marasco – President
Mapleleaf Distribution Services, Inc.
A member of the Baldwin Logistics Group
14 Third Street, Bondsville MA 01009-1074
Office: 413-283-1901
mmarasco@baldwinlogistics.com

Comment Received

From: ,
Organizational Affiliation: Holyoke Planning Board

Comment:

Totally in favor of this project!

Comment Received

From: Longmeadow, MA
Organizational Affiliation:

Comment:

Trains are part of our past and need to be a more prominent part of our future.
My name is Mia Nolan, 97 Longmeadow Street, Longmeadow, MA 01106.
I fully support monies being appropriated for the Knowledge Corridor and hope to see the government back this initiative as well.

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

We are unable to attend tonight'sPVPC public hearing on the proposed upgraded rail service to Northampton and the Pioneer Valley. We wish to add our names to the list of supporters of this project as well as the proposed tunnel connecting the trails to Leeds and Boston. We are committed users of public transportation, and look forward to using rail service to move us up and down the Pioneer Valley, especially to John's work outside of Springfield. In addition, we bike commute year round--to work, school and market--and rely heavily on rail trails to transport us safely. As we face a future of rising energy costs, we thank you for helping the Valley expand its alternative transit system and thus strengthen our resilience to these energy constraints.

Comment Received

From:	,
Organizational Affiliation:	Progressive Democrats of America (PDA)

Comment:

We want rail.

Comment Received

From: Northampton, MA
Organizational Affiliation:

Comment:

We're Northampton residents located just off King Street. Priscilla and I would like to indicate our strong support for the project. We feel that this project would be a big step in the right direction for the Valley, and for the region. A good rail connection could a great for Springfield, Northampton and Greenfield. A rail connection would bring tourists in from New York, we're looking at creating an accessory apartment to rent. It could provide access to the brain trust that is the 91 corridor to economic interests in NYC. As a former NYC resident, Priscilla can tell you that in NY having a viable rail connection suddenly brings outlying areas into the fold. Lopping the 45 delay off the trip to Vermont is could be the factor that eventually saves the Vermonter and improving rail connections in the Valley will pay dividends for years to come. We feel that this is a great opportunity for the region as a whole and could be the tipping point that brings together the affordable housing in Green field and Springfield, the fabulous architecture and available space Holyoke and the educational opportunities and educated workforce in Northampton and Amherst. Eventually, commuter rail could make the region greater than the sum of it's parts. We we're just by the train station in Holyoke last week and looked to the boarded, but beautiful rail rail station there and thought what its revival might eventually mean to Holyoke. Of course, this is true of every city on the route but Holyoke, with so much promise and so little resource is always special to me. We cannot derail this for a few skiers leaving Amherst and the occasional eastbound college student. Please contact us if we can help move this forward in any way.

Comment Received

From: Amherst, MA
Organizational Affiliation: Amherst Public Transportation & Bike Committee

Comment:

While I strongly support increase passenger rail & commuter service in the Wegtein Mass Region, I do not support discontinuing rail service to Amherst, which has the second largest ridership of any station outside of the Boston region. It is important to work to have rail service east & west including from Amherst-Palmer-Worchester-Boston from environmental and economic development reasons. Unrelated to above it is important if this happens to create a tunnel for Rail Trail near King St. as this will be otherwise very hazardous.

Comment Received

From: Palmer, MA
Organizational Affiliation: P.R.A.

Comment:

With a heavily saturated bus transportation system in place, at such a low cost to take the bus vs. the train, you will end up running emptry trains in that corridor. It makes no sense. A study performed on a virtually abandoned line, and no study performed on an existing line, with far greater outreach to central Massachusetts, it makes more sense to run the train in Palmer, where there is more population, than the proposed knowledge corridor. The PVPC has opposed stopping the Vermonter train in Palmer for years, and has stopped great potential growth in Central Massachusetts, where there is no public transportation. A Palmer stop also offers the benefit of the Vermonter being able to pull passengers twice from the state of Connecticut, and all of Central Massachusetts. The PVPC has been road blocking Central Massachusetts for long enough when it comes to passenger service, way back, even when we met with Tim Doherty almost four years ago, that worked for the PVPC. The study will not prevail over the Population Corridor, and will become a failure.

Comment Received

From: Holyoke, MA
Organizational Affiliation: Ward 3 Neighborhood Association

Comment:

Dear Mr. Roscoe:
The Board of Directors of the Ward 3 Neighborhood Association of Northampton is very interested in the concept of restoring passenger rail service from Springfield through Northampton to Vermont. The rail line that would accommodate this additional passenger traffic runs through our neighborhoods so we are in close geographic proximity to this line. At our most recent board meeting, on June 9, we adopted, by unanimous vote, a motion to approve the concept of restoring this Knowledge Corridor rail service and to offer one of our board members to serve on any advisory panel that might be established to analyze and/or implement this idea.
We just wanted to let you know of our collective interest in, and support of, this Knowledge Corridor concept for enhanced passenger rail service through Northampton. We hope you will feel free to call upon us if we can assist in any way in helping bring the trains back to our city. The Ward 3 Neighborhood Association is an organization dedicated to pursuing important issues and objectives for the people who live or work in our area of Northampton. We have committees dealing with sustainability, traffic calming, and transportation, among other issues of interest to our membership. This issue fits nicely with the other items on our organizational agenda. We look forward to working with other interested parties in the effort to restore passenger rail service through Northampton.

From the board of directors of the Ward 3 Neighborhood Association

Comment Received

From: Northampton, MA
Organizational Affiliation: Northampton TPC

Comment:

Dear Mr. Roscoe:

I am writing on behalf of the City of Northampton's Transportation and Parking Commission (TPC) regarding the possible rerouting and upgrading of Amtrak service between Springfield and Vermont. The TPC voted unanimously to voice our strong support for the proposed improvements that will shave an hour off the run, make the service less expensive to subsidize and more attractive to riders, and bring rail service back to Northampton.

Promoting passenger rail is one of the policies adopted by the City of Northampton in its 2005 Transportation Plan. Bringing regular, frequent, and reliable passenger rail service back to Northampton would be an enormous boon to our city's transportation system. Thousands of city residents currently drive private automobiles to Springfield or Hartford, and hundreds of thousands per year drive to points north and south on Interstate 91. Meanwhile, visitors to Northampton, including tourists, friends and family of residents, and visitors to and students at Smith College and other Five College institutions either drive or take Peter Pan Bus. Many travelers between Northampton New York City and points south drive at least the section between Northampton and Springfield or even New Haven, then take the train from there.

Good Amtrak service to Northampton would provide all of those travelers with an excellent, convenient, safe, economical, and environmentally friendly option. We believe it will help Northampton economically by providing better access to the city for tourists and business travelers. It will help the downtown by bringing passengers right to Main Street. It will help the city reduce its carbon footprint, of which currently more than 25% is caused by private automobile travel. And it will help support healthy lifestyles in a time when most communities nationwide are struggling with an epidemic of obesity: more than 40% of the population of Northampton lives within 1 mile of downtown, so a downtown passenger rail stop or station will be within walking distance for over 10,000 residents. It will also provide additional travel options for the more than 100,000 Pioneer Valley residents with access to downtown Northampton through the PVPA bus system.

We wish to emphasize that we do not oppose continuing service to Ware and Amherst, and we are aware of those towns' interest in maintaining their passenger rail service. We do not wish to engage in a fight against our neighbors for train service, and we hope that both they and we emerge as winners in the current process. However, we feel that the benefits of bringing the main north-south Amtrak service back to its historical route along the Connecticut River, including Northampton and Greenfield, will better serve not only those two cities but also the great majority of through passengers on Amtrak, for whom the main benefit will certainly be shaving nearly and hour off the Springfield – Brattleboro (or New York to Montreal) trip. Reducing travel times will provide better and more sustainable passenger rail service to everyone along the corridor, including those in Ware and Amherst.

We know that Northampton Mayor Clare Higgins is in frequent contact with PVPC regarding this project. We want to add our voice of support to hers and thank you for your consideration of the Northampton Transportation and Parking Commission's input on this important decision.

Sincerely,
David J. Narkewicz
City Councilor and Chair
Transportation and Parking Commission

Comment Received

From: President Robert Pura
Organizational Affiliation: Greenfield Community College

Comment:

Dear Mr. Brennan:

I write to express enthusiastic support of the proposed Knowledge Corridor Rail Project to expand passenger rail service in the Pioneer Valley. The Concept of enhancing Amtrak service to the region is especially important to the residents of the Greenfield Community College service delivery area, as access to frequent and reliable public transportation has be a long standing barrier to success for many in rural Franklin and Hampshire Counties.

Greenfield Community College understands the benefits to students, staff, and faculty of improved commuter services and we appreciate this opportunity to realize a comprehensive vision of intermodal services. In addition, GCC has led the way in the development of renewable energy/energy efficiency academic programming that espouses environmentally conscience activities such as using public transportation over individual automobile trips; support of this project allows us to put that theory into practice.

Finally, the possibilities for new economic development opportunities for the region that would follow the development of the Knowledge Corridor project are great, positively impacting public and private sector organizations alike throughout the Pioneer Valley.

We wish you the best of luck with the application process and look forward to working with you in this very important effort to improve transportation services in the region.

Sincerely,

Robert L. Pura, Ph.D.
President
Greenfield Community College

Comment Received

From: President Carol T. Christ
Organizational Affiliation: Smith College

Comment:

Dear Mr. Roscoe:

I write to express Smith College's support of the Knowledge Corridor Rail Project to expand rail service for commuters and travelers in the Pioneer Valley. Our support is additionally reflected in our membership in the New England Regional Rail Coalition.

Alternative transportation options–including car-sharing, carpooling incentives alternative-fuel vehicles and public transit subsidies–are an important element of Smith's commitment to environmental sustainability. Adding passenger rail service to and from Springfield, extending to Vermont, would greatly enhance the transit options available to our students, employees, families, returning graduates and guests; reduce vehicle traffic and associated impacts on our campus and in the Northampton area; and position Smith as an accessible destination to/from the major metropolitan centers of New England and New York.

In addition, I am particularly enthused about the potential for passenger rail service to increase tourism to the Five College area, with associated economic benefits that day-and overnight visitors bring.

Sincerely,

Carol T. Christ
President
Smith College

Cc: Mayor Mary Clare Higgins

Comment Received

From: Mayor William F. Martin
Organizational Affiliation: City of Greenfield, MA

Comment:

Dear Mr. Brennan:

The City of Greenfield strongly supports your efforts and those of the Knowledge Corridor Passenger Rail Study to return passenger rail service to the I-91 Connecticut River Line tracks. The return of this service will be a valuable resource for the residents of Greenfield and all of Franklin County, and will dovetail with numerous local and regional efforts to enhance economic development, provide transportation alternatives, and improve quality of life in the area.

Demolition and site preparation has just begun at the site of a new Regional Transit Center located in the urban renewal district of downtown Greenfield. This facility will provide a hub for transit services in Franklin County, and the site was specifically selected because it is located on the railroad tracks. It has been our hope and belief that with proper planning and investment, passenger rail could be relocated to these tracks, providing much needed transportation options and investment in our community. Amtrak currently passes through Franklin County without stopping. Re-routing the service back to the Connecticut River Line with a stop in Greenfield is essential to a more balanced and robust transportation network in the region. In addition, the potential for future commuter service along the Connecticut River with connections north to Brattleboro and south to Northampton, Holyoke, and Springfield and beyond offer exciting possibilities for our area related to employment, housing, and economic development.

Please accept our strong support for the investment of funds to upgrade the tracks of the Connecticut River Line and relocate Amtrak service. We are committed to assisting this effort in any way possible.

Sincerely,

William F. Martin, Mayor
City of Greenfield
Cc: Hon. John Olver, Linda Dunlavy, Maureen Mullaney, Tina Cote

Comment Received

From: Linda Dunlavy
Organizational Affiliation: Franklin Regional Council of Governments

Comment:

Dear Mr. Brennan:

As a member of the Knowledge Corridor Passenger Rail Study Technical Advisory Committee, and the Regional Planning Agency for Franklin County, the Franklin Regional Council of Governments (FRCOG) strongly supports efforts to upgrade the tracks of the Connecticut River Line and return passenger rail service to the I-91 corridor. The return of this service will be the culmination of many years of work to enhance alternative transportation in the region, stimulate economic development, and improve quality of life for Franklin County residents.

The FRCOG has been involved in numerous projects geared towards these efforts, however one project in particular stands out. The development of the Franklin Regional Transit Center in downtown Greenfield is currently underway and will provide a transit hub for the region. The site of the Transit Center was specifically chosen because it is located on the tracks known as the Connecticut River Line, and while currently only freight travels the tracks, it has been one of our goals to return passenger rail to this line and Franklin County. Currently, Amtrak does not stop in Franklin County. With the proper investment in the Connecticut River Line tracks and the re-routing of Amtrak, it will be possible to stop at the new Transit Center and provide passenger rail service in Franklin County for the first time in over twenty years. In addition, the potential for future commuter service along the Connecticut River Line with connections north to Brattleboro and south to Northampton, Holyoke, Springfield and beyond offers exciting possibilities for our area related to employment, housing and economic development.

Please accept our strong support for the investment of funds to upgrade the tracks of the Connecticut River Line and relocate Amtrak service. We are committed to assisting in this effort in any way possible.

Sincerely,

Linda Dunlavy, Executive Director
Franklin Regional Council of Governments

C: Congressman John Olver, Tina Cote, FRTA, William Martin, Mayor of Greenfield

Appendix E

Newsletters

Catalyst for Regional Progress
pvpc

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Knowledge Corridor Passenger Rail Study

Issue 1

January 2009 Newsletter

About the Study

The Pioneer Valley Planning Commission (PVPC), with support from the Vermont Agency of Transportation, is leading the Knowledge Corridor Passenger Rail Study, which is examining possible future rail options within the study area (see map). The study intends to develop an action plan for improving speed, maximizing access, and providing viable transportation alternatives. Key objectives are to improve mobility and spark economic development.

The Knowledge Corridor describes the cluster of communities between Springfield, Massachusetts and White River Junction, Vermont located along I-91 within the Connecticut River Valley. The communities consist of a mix of high-density and more rural areas that feature a multitude of important cultural, educational, business, and medical facilities.

Expansion of rail services along the Knowledge Corridor could provide significant economic revitalization and investment. The study will evaluate effects on traffic and congestion. As gas prices continue to fluctuate, it could provide an affordable travel option for the communities along the line.

The Plan

The study has three major components:

Aspect 1: Move Amtrak service to the Connecticut River Line

Currently, Amtrak's Vermonter service makes one trip in each direction daily between St. Albans, Vermont and Washington, D.C. via Springfield, Massachusetts and New Haven, Connecticut (see map). The Vermonter route now travels on CSX Railroad east of Springfield to Palmer, then on the New England Central Railroad north to the Amherst station, then to East Northfield, and through Vermont to St. Albans. This study will examine the feasibility of routing the Vermonter to the existing Pan Am Railways Connecticut River line (in red on the map) between Springfield and East Northfield. While this would end service to the Amherst station, the new alignment would speed the trip to Vermont and serve the Holyoke, Northampton, and Greenfield communities.

Aspect 2: Evaluate Commuter Rail Options

The study will evaluate future commuter rail options for the line between Springfield and points north (including Holyoke, Northampton, and Greenfield), including evaluating market demand, existing conditions, and identifying desirable station locations. Integration with a related project by ConnDOT, which is examining commuter service between New Haven and Springfield, will be evaluated.

Aspect 3: Look at Intercity Service

Another part of the study will evaluate current and future intercity travel options, such as enhanced intercity rail service. The successful Portland to Boston Downeaster Service will be considered as an example to evaluate in the Knowledge Corridor. In addition, related High Speed Rail initiatives and studies, including segments from Springfield to Boston, Albany to Buffalo, and service to Montreal will be considered in evaluating future options for the I-91 Knowledge Corridor rail services.

Project Meetings

Partnering Session

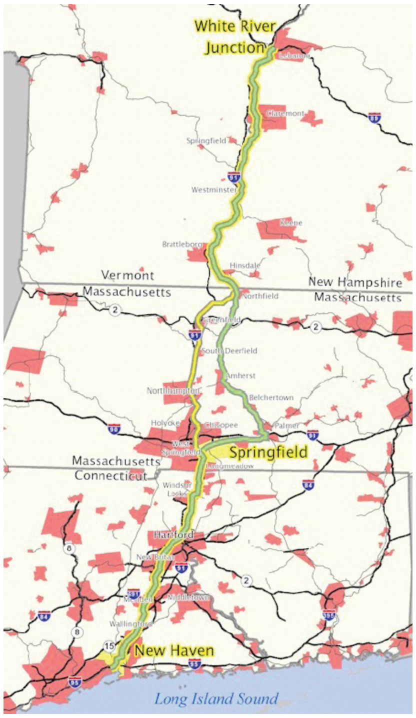
On June 26, 2007, the study team held a Partnering Session to form an alliance of stakeholders, agencies, and companies to work together to deliver a quality plan that will provide the best recommendations for the communities they serve. The partners committed to work towards achieving several goals and objectives involving planning, sustainability, livability, and economic development. The presentation from this session is available on our website.

Technical Advisory Committee (TAC) Meetings

The study's TAC is comprised of various agencies, experts, and organizations that represent the public and interests within the study area. TAC meetings are held to review study progress, build consensus, solve technical challenges, and ensure the quality of the project as it moves forward. The TAC has met twice, on September 24, 2008, and on November 19, 2008, to discuss technical issues relating to the development of the Knowledge Corridor Study. The first meeting outlined the purpose and need, route, related projects, and provided an early summary of the travel market demand and economic development analysis. A video tour of the route was given to better understand the physical condition of the existing Connecticut River rail corridor from Northfield to Springfield. The second meeting examined in greater depth the economic and ridership development factors, as well as provided an overview on early operations planning.

Presentations from both meetings are available on our website.

Economic Development



Can restored and enhanced passenger rail be an important component of efforts to revitalize the Pioneer Valley's economy? Can transit-oriented development (TOD) efforts be successful in generating more jobs, residents and ultimately ridership? What are the opportunities, constraints, and timing for economic development growth in the four proposed station cities in Massachusetts - Greenfield, Northampton, Holyoke, and Springfield? To begin to evaluate these questions, the project team has taken three key steps:

- Interviews have been held with economic development experts from 12 organizations in the Pioneer Valley to assess the context for development opportunities and to gather relevant data on development initiatives.
- Detailed data has been gathered on land use, population and employment trends, and relevant studies of passenger rail and economic development have been reviewed.
- A risk-based modeling methodology was developed to estimate square feet of development, jobs and population while accounting for uncertainty in key variables and assumptions.

The resulting analysis generated preliminary estimates of increased economic development potential as a result of new and/or enhanced rail service in the four station cities – as well as the impacts on Franklin, Hampshire and Hampden counties.

The preliminary draft results were presented to the Technical Advisory Committee (TAC) on November 19 for review and feedback. As a follow-up, the project team is preparing a workbook of key modeling data, factors and assumptions for detailed review by the TAC in early 2009. The model and results will be refined based on this stakeholder feedback and used as input to the ridership and cost-benefit analysis of the rail service alternatives.

Next Steps

The TAC will continue to meet in the coming year as ridership estimates, costs and benefits of different scenarios, and operations scenarios are refined.

The project team expects to conduct public meetings in the spring of 2009 to present findings and solicit feedback.

Get Involved

- Visit the project website at www.pvpc.org/corridor/ to sign up for the mailing list.
- Forward this newsletter to colleagues and interested parties!

For more information about the project, please contact Dana Roscoe, Pioneer Valley Planning Commission, at (413) 781-6045 or email droscoe@pvpc.org.

Appendix F

Web site

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Catalyst for Regional Progress
pvpc

Knowledge Corridor
Passenger Rail Study
Springfield to White River Junction

Join us May 27 (Bellows Falls, VT) for an open house to learn more about the project.
See flyer for more information.

Welcome

Thank you for visiting the Web site for the Knowledge Corridor Passenger Rail Study. The Knowledge Corridor Passenger Rail Study is examining reestablishment of passenger rail service on the Conn River Line between Springfield, MA and White River Junction, VT. In addition, the study is considering various other projects, including a commuter rail study by ConnDOT to link New Haven and Springfield.

Be sure to check back periodically for updates as the project progresses, or sign up for the e-newsletter.

About the Project

Expansion of rail services along the “Knowledge Corridor” is anticipated to provide significant economic revitalization and investment. It will reduce traffic and congestion and take vehicles off the road, improving the environment. As gas prices continue to rise, it will provide an affordable travel option for the communities along the line.

The Knowledge Corridor, along I-91 and the Connecticut River Valley, consists of high-density communities in addition to a multitude of important cultural, educational, business and medical facilities. It is an important cultural and economic backbone for New England.

Springfield serves as a transportation hub for Western Massachusetts and this project will emphasize its status as such.

The Plan

The scope of the study has three major aspects:

Aspect 1: Move Amtrak service to the Conn River Line

Currently, Amtrak’s Vermonter service, which makes one trip in each direction daily (see map), veers East of Springfield to Palmer, then North to East Northfield, stopping at Amherst station. This study will examine the feasibility of instead moving this segment to the existing Conn River line (in red on the map), which runs west of the existing alignment, to the interlocking at East Northfield. While this would end service to the Amherst station, the new alignment would speed the trip to Vermont and serve the Holyoke, Northampton, and Greenfield communities.

In a separate initiative, the Vermont Agency of Transportation is looking at purchasing Diesel Multiple Units (DMUs) for the line. See Related Projects.

Aspect 2: Evaluate Commuter Rail Options

The study will evaluate commuter rail options for the line between Springfield and White River Junction, including evaluating market demand, existing conditions, and identifying desirable station locations. Integration with a related project by ConnDOT, which is examining commuter service between New Haven and Springfield, will be evaluated.

Aspect 3: Look at Intercity Service

Another part of the study will evaluate current and future intercity travel options. Related High Speed Rail studies are underway within the region, including segments from Springfield to Boston, Albany to Buffalo, and service to Montreal. See Related Projects.

Related Projects

Boston-Springfield-Hartford High Speed Rail Corridor Feasibility Study

A separate proposal to evaluate the feasibility High Speed Rail between Boston, Springfield, and Hartford Haven has also been identified for study by the Federal Railroad Administration by the PVPC. This study will look at reestablishing connectivity and providing better transportation access to the Boston metro area, and promoting economic development in Springfield and Western Massachusetts. Funding for this effort was established in the Federal Appropriations bill in FY2005.

Union Station Revitalization

The 1926 train station in Downtown Springfield, Union Station, and surrounding areas, is undergoing renovation and revitalization. As related to the New Haven/Springfield Commuter Rail proposal (above), Union Station would again become the Springfield station for Intercity Passenger Service (Amtrak) as well as the terminus for new commuter rail service.

DMU Equipment for Vermonter Line

The Vermont Agency of Transportation is looking at replacing Vermonter equipment, currently push/pull coaches with a diesel locomotive, with Diesel Multiple Units (DMUs) which could potentially reduce operating costs and allow for additional frequency of service on the line. DMUs do not have locomotives but instead smaller diesel engines in each car, so train length can be easily varied based on passenger demand.

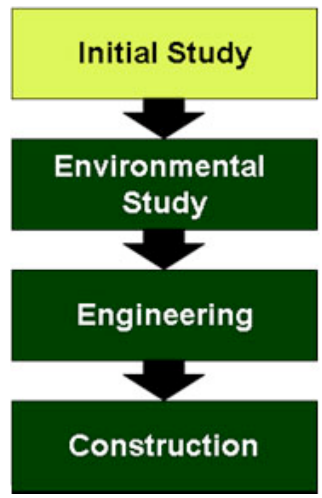
History

The Connecticut River Valley has long served as a critical rail transportation corridor for New England and as a connection between New York and Eastern Canada. Some of the earliest north south railroads in North America connected the cities and towns along the Connecticut River providing the first rail links between Boston, New York, and Montreal.

The rail corridor that developed along the Connecticut River hosted significant levels of both passenger and freight service well into the last century. Different segments of the rail corridor were constructed and owned by different railroad companies and that condition remains today. From the south, the 62 mile long rail segment between New Haven CT, Hartford CT, and Springfield MA, was originally the New Haven Railroad and is currently owned and operated by Amtrak as the Springfield Line. The 54 mile long segment between Springfield and East Northfield, VT is the former Boston and Maine and is now Pan Am Railway's Conn River Line. The final 70 mile section between East Northfield, VT and White River Junction, VT is owned by New England Central Railroad and has trackage in both Vermont and New Hampshire.

Study Steps

This study will look at the demand and potential for new passenger rail service both Intercity and Commuter. In addition, the existing conditions, including infrastructure (track, switches, stations, etc.) condition, current and future service levels, and existing plans for improvement, will be assessed. It will further identify existing and anticipated future demand for ridership based on factors such as population and major employment centers. Once this analysis is complete, the study team will develop objectives, both long- and near-term. In the end, the study will issue recommendations, plans, and forecasts that can be further examined when the project proceeds to the draft environmental assessment stage.



From Idea to Construction

The project is currently in study phase. Once the study is completed, depending on its findings and priority, funding may be secured for the work required to meet NEPA and Preliminary Engineering. The recommendation from this stage may then be reviewed for funding for engineering, and finally construction. Throughout the project, input from the stakeholders, partners, and the community is vital.

Our Partners

The following organizations and officials joined us at our kick-off partnering meeting on June 26, 2008. If you want to be our partner, please contact us.

- Amtrak
- Capital Region Council of Governments
- City of Holyoke
- City of Northampton
- Connecticut Department of Transportation
- Cooley Dickinson Hospital
- Massachusetts Executive Office of Transportation
- Federal Transit Administration
- Franklin Regional Council of Governments
- Greater Hartford Transit District
- HDR, Inc.
- Howard/Stein-Hudson Associates
- ICLEI – Local Governments for Sustainability
- Independent Business Alliance of Western MA
- New England Central Railroad
- Pan Am Railway

- Peter Pan Bus Lines
- Pioneer Valley Advocates for Commuter Rail
- Pioneer Valley Planning Commission
- Springfield Office of Planning and Economic Development
- Two Rivers-Ottauquechee Regional Commission
- UMass Amherst
- Vermont Agency of Transportation
- Windham Regional Commission
- Transit Safety Management
- Vermont Transit/Greyhound Integration

Documents and Presentations

May 2009 Public Open Houses

- May 27, 2009 Bellows Falls, VT Flyer (PDF)
- May 19/20, 2009 Springfield/Northampton MA Flyer (PDF)
- Presentation made to public (PDF)

April 15, 2009 Technical Advisory Committee (TAC Meeting)

- Notes and Presentation (PDF)

January 22, 2009 Ridership and Economic Development Technical Advisory Subcommittee meeting

- Notes, Presentation, and Workbook (PDF)

November 19, 2008 Technical Advisory Committee (TAC) meeting

- Notes and Presentation (PDF)

September 24, 2008 Technical Advisory Committee (TAC) meeting

- Notes and Presentation (PDF)

June 26, 2008 Partnering Session Meeting

- Presentation at June 26, 2008 Partnering Session (PDF)

Contact Us

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Phone: (413) 781-6045

Get Involved

Sign up for the E-Newsletter to receive notice when there are opportunities for involvement.

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Email:

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Multiple forms of outreach are planned during this study, including:

- Public Meetings
- Steering committee
- Interviews
- Working Groups
- Discussion Groups

Visit this site regularly or sign up for our e-newsletter to learn about upcoming events you can be involved with.

Gallery

Photos from June 26, 2008 Partnering Session

Click on an image to enlarge.








Appendix G

News Clippings

Weather: BRATTLEBORO, VT | Now: 50ºF | High: 57ºF | Low: 48ºF | 5-Day Forecast

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Groups study improving train service

By CHRIS GAROFOLO, Reformer Staff

Tuesday, May 26
BELLOWS FALLS -- Three regional planning groups in Vermont and Massachusetts are teaming up to explore the possibility of improving passenger rail service in the Connecticut River Valley.

The Windham Regional Commission and the Southern Windsor County Regional Planning Commission have joined the Springfield, Mass.-based Pioneer Valley Planning Commission in an effort to upgrade passenger service between Springfield, Mass., and White River Junction.

The Knowledge Corridor Passenger Rail Study is studying the feasibility of moving Amtrak's existing route of the Vermonter from Springfield via Palmer and Amherst, Mass., over to the Connecticut River line now owned by Pan Am Railways.

The move to the river route, which runs parallel to Interstate 91 and last saw passenger trains in the late 1980s, would again provide service to Holyoke, Northampton and Greenfield, Mass., and provide a faster, more direct route to Brattleboro. Supporters say the change would serve more people than the current Vermonter route.

While this specific project is focused on the 120-mile portion between Springfield and White River Junction, the improvements are expected to enhance the entire Amtrak Vermonter line from St. Albans to Washington, D.C.

PVPC executive director Tim Brennan said the two participating states have explored alternatives to make the railroad more attractive to customers.

"This is a detour that takes Vermonters away from the population centers," said Brennan. By moving the rail line back toward the population centers of the Pioneer Valley, more passengers will board the Vermonter, he added.

WRC transportation planner Matt Mann said one of the main goals is to encourage more Vermonters to use the train while improving the rail service along the entire corridor. If the project is successful, preliminary reports from consultants say the overall ridership could increase as much as 50 percent.

"This project will have the advantage of saving 45 minutes to an hour of the time the train takes to get to New York, so it will be a faster trip," said Christopher Parker, executive director of the Vermont Rail Action Network. "If Vermont can make this train run an hour faster, that's an hour less labor costs for the train and an hour less cost to run the train in general. This is a good thing for the long-term economic health of Brattleboro."

The No. 1 complaint about trains is it takes too long to get around, said Parker.

If more people use trains, Brennan said it will get them out of their cars and cut the amount of greenhouse gas emissions, which in turn is better for the environment.

Bellows Falls will host the next public meeting regarding the project at the Waypoint Center beginning at 7 p.m. on May 27. Two public forums will be held in Massachusetts earlier in the week.

According to Brennan, the public is overwhelmingly in favor of the project. However, residents in Amherst and Palmer have expressed concern because they are potentially losing an income source.

But Brennan said moving the train back toward the Pioneer Valley's larger municipalities will better serve New England than going through smaller towns.

"It's really what the region and the two states can get, not just about what municipality gets," he said.

For more information about the project, residents may visit the Pioneer Valley Planning Commission Web site at www.pvpc.org/corridor or the Vermont Rail Action Network's site at www.railvermont.org.

Chris Garofolo can be reached at cgarofolo@reformer.com or 802-254-2311, ext. 275.

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- Top aides boycott budget hearing
- Residents vote to keep Twin Valley School
- Listers finish Wilmington reappraisal
- Funding may slow Internet expansion

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PLAN TO INCREASE RAIL IN VALLEY

Proposal would use stimulus funds to increase stations between Springfield and White River Junction, Vt.

By G. Michael Dobbs

Managing Editor

WEST SPRINGFIELD -- Officials at the Pioneer Valley Planning Commission (PVPC) are awaiting the release of guidelines for $8 billion in federal transportation funding to apply for $30 million to improve passenger rail service between Springfield and White River Junction, Vt.

Dana Roscoe, principal planner and transportation manager for the PVPC, told Reminder Publications the agency will apply for $30 million to repair existing tracks of the Connecticut River line of the former Boston and Maine railroad so the Amtrak service between Springfield and Vermont could be shifted to allow station stops at Northampton, Greenfield and possibly Holyoke.

"The federal funding is part of the recently passed American Recovery and Investment Act and would be available for projects that are 'shovel ready,'" Roscoe said. "If approved, the project would take two construction seasons to complete. Roscoe said the grant guidelines are expected to be released in the next 30 to 60 days."

The owners of the Boston and Maine line as well as Amtrak support the project and construction could start within 90 days of funding.

Currently, the Amtrak train "The Vermonter" takes a route from Springfield to Palmer and then to Amherst before it crosses the border at Brattleboro, Vt. It then stops at White River Junction, Vt., and concludes in St. Albans, Vt.

Roscoe said the train only makes a stop at Amherst and detouring the train to the Palmer route adds 50 minutes to the trip to Vermont.

"By shifting the route onto the tracks on the west side of the Connecticut River, the train would service far more potential riders," Roscoe said. "The current Amherst riders could still catch the train by using the free bus service between Amherst and Northampton," he said, adding that "The Vermonter" currently makes one round-trip a day and the track improvements could see a growth in the frequency.

Roscoe said the tracks in need of repair need crosstie and rail replacement, rehabilitation of grade crossings, reactivation of passing sidings and upgrading of switches among other improvements. The tracks are currently rated at a speed limit of 10 miles per hour and the improvements would allow a speed limit of 40 miles per hour, Roscoe added.

The repair of the tracks and shifting of "The Vermonter" is the first step in a three-part report by the PVPC called "The Knowledge Corridor Passenger Rail Study." The second part of the study would be to determine commuter rail options for the western part of the state linking Springfield to points north to Greenfield and how such a service could be integrated into the proposed Connecticut commuter rail service that would link Springfield to New Haven, Conn.

Roscoe noted that unlike the PVPC's project, the Connecticut commuter rail project wouldn't qualify for funding through this program, as its permitting process will not be completed until 2010.

The third part of the study would examine the future of intercity travel such as enhanced rail services

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PLAN TO INCREASE RAIL IN VALLEY
Six recognized as 2009 Women of Distinction
Freedom to Repair
Toy Fair 2009 upbeat, despite economy
'Warming Hearts & Homes' program makes a big difference
Turtles' birthday celebrated at New York Comicon
Good News, Bad News: Lt. Gov. Tim Murray Delivers
It's Hammer Time: Agawam, Southwick, Westfield, W. Springfield react to cuts
It's Hammer Time: Chicopee, Granby, Holyoke, S. Hadley Springfield react to cuts

View Archives

and high-speed rail.

For more information on the project, log onto www.pvpc.org/corridor.

Comments From Our Readers:

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News

Train Departing Amherst Station

Federal stimulus money might extend rail passenger service throughout the Pioneer Valley, but not everyone is on board.

Comments (24)

By Mark Roessler
Thursday, May 07, 2009


Photo by Mark Roessler

The 4:20 Vermonter departs Amherst station. Soon, the Vermonter may be redirected via Greenfield.

MEDIA: Photo Gallery »

Long before Interstate 91 tore its way through farms, homes and downtowns along the banks of the Connecticut River, providing a multi-lane ribbon of auto traffic between New Haven and northern Vermont, there were thousands of miles of rail, both steam and electric, knitting communities and industry together. A hundred years ago, people stepping outside their houses in most towns in the Pioneer Valley had far more transportation options available to them than they do today. Without having their own vehicles, they could go farther and to a wider range of places.

A few years ago at the Hadley flea market, I found the September 1909 edition of *Stapleton's Valley Guide* [to Rail Travel]. The 112 pages of train schedules and advertising was printed by Wm. R. Stapleton Publishing Co., Holyoke, and it boasted a circulation of 15,000. It's thick with ads for hundreds of Holyoke businesses who depended on the rails to bring them customers ("Utley's Wholesale and Retail Manufacturer and Designer, College Novelties—Fraternity Banners—Leather Goods... Specialties and Artistic Decoraters [sic] of all kinds," "La France Hotel, American and European Plan, Center of Theatre and Business District, Rooms 50 cents and Upwards," "R.A. Prentiss, Fine Footwear"), but the majority of the little volume is devoted to detailed listings of all the train times for the dozens of train and trolley lines. Government subsidies weren't required to sustain public transportation then: rail was big business and there were many steam and electric railroads vying for passengers and freight. They laid track, bought cars, built stations and maintained, managed and tried to grow their enterprises. Valley readers needed a clear, comprehensive guide to make sense of all the options afforded, and that's what Stapleton's provided.

Six times a day, for instance, someone in Charlemont could hop a steam train on the Boston & Maine line running the course of the Mohawk trail and be in Greenfield 40 minutes later. Heading the other way, the trip to North Adams, through the Hoosac Tunnel, was only 30 minutes. Riding a train an hour from Greenfield, passengers could arrive in Springfield to the south, Athol in the east, or Brattleboro to the north. An extensive street trolley network ran between Greenfield and Springfield with tendrils running as far as Williamsburg in the hilltowns, and beyond Westfield in the west and Palmer in the east. Different companies owned the rails and employed legions of conductors, engineers, and a multitude of other professions related to keeping engines arriving on time.

In its way, a hundred years ago, the region's rail system was its own kind of Internet, transporting people and their things rather than data. Along with the jobs and shopping made available to someone living within range of a rail station, trains brought students to school, news and information from faraway, and foreign vacationers to the region's hotels, theaters, restaurants, resorts and parks.

In recent months, with the promise of $8 billion in federal stimulus money available for rail transit improvements, an idea that had been percolating at the Pioneer Valley Planning Commission (PVPC) for some time has come to a boil. There's a possibility some of the freedom and industry rail access provides will return to parts of the Valley that haven't seen it in decades: Holyoke, Northampton and Greenfield.

Others, though, in Amherst and Palmer, may lose what relatively sparce train traffic they've enjoyed.

*

Working for the PVPC, Dana Roscoe has been the project manager for the Knowledge Corridor Passenger Rail Study, investigating how improving passenger train travel between Springfield and White River Junction might be achieved and what its effect on the region might be in terms of population and economic growth.

The project began over two years ago, and in addition to being a "catalyst for regional progress" as the PVPC seeks to be, it was taken on to resolve a long standing problem faced by the last remaining passenger service in Western Massachusetts. Since the mid-1980s, the daily trip the Amtrak's Vermonter makes between St. Albans,Vt. and Washington, D.C.—each day the train travels the length once, turns around and returns the next day—has hit a 45-minute snag between Brattleboro and Springfield.

Roscoe explained the situation.

From New Haven northward, the train follows the river along what had once been the main rail thoroughfare, but when it comes to Springfield, the track that crosses the river into Holyoke and beyond has fallen into disrepair. For decades, Guilford Rail owned and operated the track, maintaining it only for infrequent freight trips, and now, on some stretches of the route, cars can only travel at 10 miles per hour. It is now maintained by Pan Am Railways. Coal is brought up from Rhode Island for a plant in Holyoke, Roscoe said, and another manufacturer north of Northampton occasionally makes rail shipments that inconvenience Damon Road traffic. Other than that, the line's little used. The previous owners haven't been interested in attempts to work with Amtrak, and a major update and overhaul of the track was needed if passenger service was to continue.

Amtrak was forced to turn to plan B and look for alternate routes. Instead of heading north, the train switches to a line owned by CSX Railroad and speeds along east for 15 minutes away from the river to Palmer—making its way through Indian Orchard and Ludlow. At the Palmer switching yard, once a busy nexus, the train switches track again. After waiting 10 minutes with the doors shut, the engine begins pulling the cars off slowly through the hills to Belchertown and beyond on a rail owned by the New England Central Railroad. It makes its one and only passenger stop in Amherst, and then gradually makes its way back to the river via Millers Falls. Near Northfield, it crosses the river, and just shy of the Vermont border the train reconnects with the original rail. On a good day, a 45-minute detour.

The $2.6 million spent to keep the Vermonter running is paid entirely by the state of Vermont. Once the train went all the way into Canada (and was known as the Montrealer), and expenses were shared, but now the taxpayers of the Green Mountain State keep it running as a connection to points south, hopefully one that attracts visitors. 12,679 passengers got onto the train at the Amherst station stop in 2008, but, as Dana Roscoe points out, "not all of those people live in Amherst."

The small brick station down the hill from Emily Dickinson's house was always intended as a spur off the main line, and it was only an accident of fate that turned it into the exclusive rail stop in the upper Pioneer Valley. Roscoe was tasked with finding a way to revive the main line in order to improve traffic and bring the advantages of rail to as many communities as possible. From the outset, he says, for the good of the Pioneer Valley as a whole, there was no question that adding three station stops in Holyoke, Northampton and Greenfield on a revamped river line was worth losing Amherst's stop on the scenic detour. Asked whether the PVPC ever considered including Amherst in the study, he said, "No."

*

The March 22 *Springfield Republican*, quotes Blake E. Lamothe, chair of the Palmer Redevelopment Authority, as saying the region around his town has more train passengers than the proposed station stops. "They should be looking at Palmer and putting that on the front burner," he said, adding that plans for the river line should be scrapped. The April 27 *Daily Hampshire Gazette* reports that Amherst's town manager, Larry Shaffer, is equally firm, but more philosophical.

"We want to be positive about this," he said. "We don't want to prevent anybody from getting a benefit that they think makes sense for their communities, but we don't want that benefit to be at the expense of Amherst."

Roscoe insists that he and the PVPC are working for a solution that's in the best interests of the Valley as a whole and meets the needs of Vermonters, who keep the train running. Though the planning has been going on for two years, people are only starting to take notice now because funding has suddenly appeared, coinciding with the near completion of Roscoe's work.

He and his team have established the feasibility of updating the rails to support the Vermonter, and they are currently working with the municipalities involved on reports that project economic and population growth. These impact studies will include two public meetings, one to be held May 19 in Springfield at the TD Banknorth Conference Center on Main Street, and the other on May 20 in Northampton at the Clarion Hotel on Atwood Drive. Both events start at 7 p.m.

Roscoe believed that the $30 million for this project was the only funding the state intended to request as Massachusetts' slice of the $8 billion federal stimulus pie. In addition to these funds made available by President Obama's recovery act, coincidentally, longtime efforts in Connecticut for a new commuter rail between Springfield and New Haven are beginning to move forward. If the improved Vermonter route and the Connecticut commuter rail both come to fruition, Roscoe believes extending the commuter service (more trains, more rides, more often) to at least as far as Northampton is within reach.

A reliable daily train commute between the cities and towns along the Connecticut River would burst the region's job market wide open, creating all kinds of interesting new opportunities for employers and job-seekers, while the local tourism trade could begin serving a much wider audience.

The mayors in Greenfield, Northampton and Holyoke are already working with the PVPC to pick out new station stops. Holyoke's Mayor Sullivan has recommended a spot at the intersection of Dwight Street and Main Street. In Northampton, where the former station now houses two restaurants and a bar, the plan is to construct a temporary station nearby at the back of the adjacent parking lot. Roscoe said that he and Northampton's Mayor Clare Higgins had discussed other, more permanent possibilities, but he didn't think any were firm enough for an announcement. The rail lines run parallel to King Street, and given the many empty lots, there are many possible locations. A recently announced $12.8 million transit hub for buses and taxis in Greenfield is to be located in the former Toyota dealership near the Energy Park. It also stands directly adjacent to the rail line, and Roscoe points out it would make a fine train station stop.

*

The Shelburne Falls Trolley Museum houses, along with a museum and many train relics, the only functioning trolley car in the Northeast that runs on its original rails.

For nearly 30 years, from the end of the Victorian era until after the First World War, a trolley system ran between Shelburne Falls and Colrain, making stops in Charlemont, Griswoldville and Lyonsville. While the cars included seating for passengers, half was reserved for freight. The rail system was built by the local cotton mills chiefly to get their inventory to the Boston & Maine Rail Road that still runs through Shelburne Falls. The region was the chief supplier of gauze during "the war to end all wars." The mills built the power generators, laid the track and provided the cars. When trucking became cheaper than trolleys, the trolley closed down.

Sam Bartlett, an electrical engineer by trade, manages the Shelburne Falls Trolley Museum. While he and the volunteer crew he works with clearly love their last-of-its-kind trolley car they keep running on the less than a mile of original track, he's not counting on the return of light electric rail any time soon. Though romantics at heart, a lot of train enthusiasts are practical, technical people who understand that commerce and efficiency are what governs a rail company's success or failure. Indeed, rail history is one of routine technological achievements causing both great triumphs for those who discover them and miserable defeat for those who don't.

Bartlett went to UMass, and sometimes when the weather was warm, he used to head down to the Amherst station for lunch, where he'd watch the trains go by. His father had also gone to school in that town and had also eaten his sandwiches there. Bartlett promised to send me some pictures his dad had taken when steam engines still rumbled through the Amherst station, but he didn't offer much encouragement when asked whether he though maybe Dana Roscoe and the PVPC should consider adding Amherst and Palmer to his plans for the Holyoke, Northampton and Greenfield stops.

"Maybe," he said. "The new commuter line between Boston and Portland, Maine is gaining riders. It could work here." But, he added, "People like their cars. From what I hear, the Pioneer Valley Transit Authority does a good job down there." As someone whose goal is to build a masonry trolley shed and to extend the rails further down the hill into town, he knows the expense involved with keeping cars running on the rails. A lot would have to change, he says, for the Valley to be able to accommodate a main line and a spur.

*

But a lot is changing if mayors are beginning to start picking out locations for train stations.

The money's not yet in hand and nothing's finalized, but even the promise of recovery money has started to stimulate some exciting activity. Given the two years the feasibility report has been in the works and the relative quiet from local politicians about the possibility of train travel returning, it would appear that while they are hopeful, they've adopted a prudent wait-and-see attitude. Until very recently, no one had any reason to expect that the government was going to spend $8 billion on rail infrastructure.

Now that expanded passenger rail service is a possibility and perhaps even a likelihood, maybe it's a good time for Pioneer Valley planners to update their thinking beyond a time when the world lived happily within a housing bubble and gas prices hadn't yet quadrupled. Instead of abandoning the time and money spent over the years to keep the Palmer-Amherst line functioning, why not consider occasionally including it once a week in the current Vermonter itinerary? Similarly, if Greenfield's going to become a rail destination again, why not investigate opening the east-west Boston & Maine Rail Road to resume traffic between North Adams, and perhaps, one day, Boston? While $30 million once seemed an unattainable goal, perhaps asking for $50 million would allow the region to begin thinking beyond the Vermonter to a day when train travel in the Pioneer Valley isn't just a means for leaving the state, but traveling inside it.

Comments (24)

▼Post a Comment

I don't think they should shut Amherst out. It is very unfair to the people of Amherst.

Posted by thisisit on 5.5.09 at 19.16

You never mentioned that going to Palmer requires Amtrack to use 2 engines, one at each end of the train (it reverses not turns). Expensive! But, if the the train were to split in half in Palmer, you could send 2 cars to Boston and another 2 into Springfield with no additional equipment costs..

Posted by Tom Donovan on 5.5.09 at 21.09

I know when the students are here they give the station a lot of bussines and it would be truely missed by the town's people.

Posted by Kathy on 5.6.09 at 5.17

This is great work being done by the PVPC! I am convinced that the rebirth of efficient commuter trains in our State and beyond is the most powerfull economic development tool there is. Springfield would undoubtedly become a destination for residents and businesses if and when the Union Station development is complete and commuter rail to Northampton ,Vermont,New Haven and some day Boston is a reality....It is not only a great idea..It is the answer to Springfields and the regions economic woes!!! The Business community and city leaders need to be "All Aboard" on this one!

Evan C Plotkin

Let me know what I can do

Posted by Evan Plotkin on 5.6.09 at 8.10

Many of the 5 College area's ca. 25,000 students commute to points south and east. It seems downright silly to deliberately exclude them by putting the nearest station in 'Hamp, to which there is no public transport.

Posted by John Ragle on 5.6.09 at 18.32

There is plenty of FREE public transportation to Northampton on the PVTA for Amherst/Umass residents to get to the train if it moves. The people of Holyoke and Greenfield have to drive 20 minutes or more, or pay for a bus to catch the train. Holyoke and Greenfield need all the economic incentives they can get. I think Amherst can stand to lose a train stop.

Posted by youthelectronix on 5.6.09 at 19.36

As usual, folks from Amherst focus on keeping what they think they're entitled to (and already have plenty of). So they lose a train stop. But they still have an incredible *free* bus network to get them to Northampton or Springfield to catch a train. Of course, they don't care about the larger, and poorer, population to the South... "keep `em there!" Amherst, of course, is much more important than "those towns south of the `Range". Liberal, progressive, elitist, racist Amherst... never failing to live up to its reputation.

Posted by Joe K. on 5.7.09 at 7.39

The state of Vermont has threatened to cut funding for the "Vermonter" more than once over the past few years. If that happens train stations in Pioneer Valley are a moot point because all Amtrak trains would terminate at Springfield. Maybe the Commonwealth of Massachusetts should consider financing this train service to ensure its survival.

Posted by Samuel Augustus Jennings on 5.7.09 at 16.36

Hey Joe K,

You know, the people of Northampton can also take the bus to Amherst. You know there is plenty of public transportation for the people of Noho to get to Amherst. I really want to stand and wait for a train in Holyoke and Greenfield. Just because someone lives in Amherst doesn't make them rich. The train station is a part of the Amherst history. When I was a child we would watch the trains. It was magical. Do we ask other towns to tear down something that is being used in their town? Why should the people who live in Amherst, Sunderland and other areas always have to go to the "big" cities to get services. And calling the people of Amherst racist, and elitist what the hell does that make you? You should be ashamed of yourself. Why don't you work to have them "add a train stop" to your town instead of taking service away from another. It sounds like you are bitter and greedy. If you don't like where you live then move. And also it doesn't help your cause to resort to immature name calling. I think a little growing up needs to happen on your part.

Posted by me on 5.7.09 at 22.24

I don't care for Joe K's exact language, but I share his sentiment that the Amherstite comments reflect a painful shortsightedness akin to the way Boston treats Western Mass. If we ask the question of what is best for our Valley, not just our own square mile, the overwhelming choice is the River route. A rail station in Amherst is like Boston having its airport on the harbor - convenient for those on the Blue Line, but a pain in the butt for everyone else. To quote the German expression, "there are people on the other side of the hills, too!" I don't know what to think of someone complaining about a 6-mile drive to Noho versus their 2-mile drive across town, especially in a nice car; do you even ride the train once a year? Do you even leave Amherst? The rail stops mean so much for Holyoke and Greenfield, much like the return of rail service to Brockton in 1997. These places need help, especially since Amherst is buying their Chinese-made tools and textiles from the Hadley big boxes. So I look forward to the River route, and hopefully one day Amherst will overcome its "opposed to anything (from parking garages and golf courses to American flags) groups" and open a 50 mph light rail spur past stalled Route 9 traffic. That, as the article suggests, is the best vision. Though I guess, for now, Amherst coughed its last dime on a school superintendent and will need 6 mill in stimulus money to fix its potholes and keep its schools open.

Posted by Tim R. on 5.8.09 at 6.55

Tim it seems like you are a bitter man. Amherst is nothing like Boston so that is really reaching for it. And again you assume all people in Amherst are rich. Hey I am not. And you also assume that we don't use the train system, and I do. If you read the article quite a few people do use the train system. As much as I respect Holyoke and Greenfield I still think it is wrong to take away something Amherst has had all my life. Hey and it isn't Amherst's fault that Hadley is full of Big Box stores. Are you blind Greenfield and Holyoke are not big box virgins. And don't tell me no one in Greenfield and Holyoke frequent them. Because that is a lot of BS. Amherst has the right to decide how their town will grow. If you want parking garages go to Noho the Mayor wants to build another one. I think you are just jealous that Amherst is a quaint town. And it doesn't have any big box store. If they decide to build the rail in other towns that will be great. But Amherst would be a fool to lay down and take it. Hey I will wave to you at Walmart and Home depot when you are picking up your toilet. Because what you wrote and your hateful attitude will need to be flushed so pick up the toilet that can flush the BUCKET of golf balls because you will need it when you flush your rude post.

Oh and if you look around you most of the communities will need to decide on an override! lol And honey what does that superintendent have to do with train service. Good try!

Posted by thisisit on 5.8.09 at 7.29

Interesting article, Mark. Thanks for all of this good information.

Posted by Mary Serreze on 5.8.09 at 10.12

They really should try to fit the Palmer and Amherst depots in. If they open the casino in Palmer they will make a lot of money having people hop on the train to get to the casino. Hey I would and so would tons of seniors too.

Posted by holly222 on 5.8.09 at 13.25

Hey never thought of that. I love the train and I could take it to the new casino!!!!!!!!!!! yes.

Posted by thisisit2 on 5.8.09 at 13.28

Okay silly-billys: the current situation of having to switch tracks and change directions near Palmer takes 45 minutes, which is longer than it takes to ride the bus to Northampton. It also deters people from choosing Amtrak during times when the Peter Pan rates to places like New York might be comparable (more recently I found the train to be a few dollars cheaper if I switched to MetroNorth in New Haven, but this wasn't the case at least 2006-2009 and probably not around school holidays).

I wouldn't be surprised if the old Amherst station could become a quaint historical site with some museum pieces that you can still enjoy on weekends (minus the whopping two trains per day you might have seen pass). And Northampton has more people, not that either town has a terribly high population density considering that we manage to run buses at all. I just hope that the new station stops will be adjacent to town centers and multiple bus routes no matter what.

Posted by TabithaBos on 5.8.09 at 23.14

Some posts pitch this as a Amherst versus Northampton/Greenfiled/Holyoke debate.
It's not. The rail stop in Northampton BENEFITS
Amherst for several reasons:

1)As TabithaBos mentioned, it decreases overall
transit time: 65 minutes from Amherst to Springfield
(assuming no delays on the most delay-prone route in nation)
versus 25 minutes Northampton -Springfield, plus
time to get to Northampton

2)Vermont State will fund 1-3 daily trips through Northampton,
and threatens to stop funding if trip is through Amherst.

3)Many many more passengers will ride this line,
ensuring survival of train in Upper Valley. (For example, Northamptoners like me will get on at Noho instead of at Springfield)

People mention this hurts UMass students. Not true.
Almost none ride the train at Amherst since it's too expensive.
Increased ridership should help spur demand for
cheaper MetroNorth to Springfield. This will break
monopolistic price of Peter Pan Bus. Benefits students.

AMHERST RESIDENTS: Please consider these points
when forming your opinion.

Posted by Amtrak_Rider on 5.10.09 at 4.45

First of all, Mark, reading your article once again, I have to say you did a really great job with this, a thorough coverage of past, present, and possible future. It's very nostalgic and exciting at the same time. It reminds me that we are seeing many "old" concepts returning - family farms, glass containers, etc - that are suddenly practical once again.

Second, TabithaBos, I think you made the most insightful note, that in fact the new line is also quicker for Amherst, too! You know, in my limited view I was focused on the angle that the River route was better for the Valley overall, with a slightly longer drive from Amherst. But you're right - if I think of the places I've lived in town over the years, from my "quaint" confines in Southwest, to my North Amherst "six-family," or even the Strong St place where I walked to Amtrak and Peter Pan, a 45-minute savings on the train pays off. From where I am now, I could even pump up my bike tires, ride to Noho, and still save time. I'd have to live on the far side of Belchertown before the drive would lose me time on this deal. Sorry to my not-so-far neighbors over there if I offend(!).

Re-reading the article, though, I guess our sentiments are probably all moot because of the almighty dollar. I mean, if Amtrak takes 2.6 mill a year from Vermont to keep this train running in the first place, I find it highly unlikely that Amtrak will balk at offering better service at lower operational cost, any more than a broke hamlet will come up with the cash to justify its detour. Granted, this is a strange netherworld where even Boy Scouts selling Christmas trees find stiff opposition, but I have to expect that this project will get railroaded along because the logic and practicality are so strong and extend far beyond Boltwood Walk ....

Posted by Tim R. on 5.10.09 at 4.49

If there hadnt have been such a short-sighted rush to turn rail lines into near-useless "recreation trails" then there could be a RAIL link between Amherst and Noho and have a station in BOTH places on the same route.(the train could cross back to greenfield up at East Deerfield) Those 'bike paths' are just a PC waste of tax money for 'feel-good ' politicians. I ride a bike a LOT and those paths are a total waste.would much rather have trains.

Posted by woody on 5.12.09 at 4.35

It is unfortunate that this piece (and similar pieces in the
DH Gazette and Amherst Bulletin) portrays this as a win-lose situation.

In addition to the over 12,000 passengers who take the Vermonter to
and from Amherst each year, there are many thousands more Amherst-area
residents who take the more frequent trains to and from Springfield.

If more frequent trains also come further north, then all of us - even
those of us in Amherst - will benefit.

But it is crucial to have good public (express bus) transportation
connections to these trains, and that's what needs to be argued for at
the same time.

It's also important to be future-thinking: rather than fearing this as
loss of north-south rail service through Amherst, this is also an
opportunity to improve east-west rail service between Springfield, Palmer,
Worcester and Boston.

Thousands of UMass students travel back and forth to the eastern part
of the state on a regular basis, as do many others in the area, so why
not upgrade the 18 miles of track between Amherst and Palmer for a
connecting rail shuttle to serve the many existing and potential
riders in our area?

Our focus should be not so much on what Amherst might *lose* if AMTRAK
moves its Vermonter to the other side of the river.

Instead, our focus should be on what we could all *gain* (in terms of
both economic and human development) by improving Amherst-area
passenger rail service to the east (as well as the south).

That would be a win-win, and isn't that what folks on both sides of
the river should be working together to accomplish?

Posted by Rob Kusner on 5.14.09 at 19.20

HeREnever thought of that. I love the train and I could take it to the new casino.

Posted by AVI to DVD on 5.19.09 at 22.35

Speaking as an outsider here (I live in Los Angeles) with no vested interest in the Vermonter staying through Amherst or being re-aligning via Northampton. It seems the interests of the upper Pioneer Valley as a whole are served better by the more direct route through bigger population centers. This is in addition to the benefits of quicker rail service to points south for the Vermont taxpayers.

But....

Could Amherst still be served by a simple cheap railcar that picks up passengers at the existing depot and make the 7 mile journey to Northampton station (on an existing line) to meet the Vermonter? Even picking up a used railcar from some transit system anywhere in North America shouldn't be too expensive and they only take one person to operate. Electrifying the stretch would make operating costs even cheaper (and better for the environment).

Posted by Erik on 5.19.09 at 23.30

Just to update my post above, looking closely at a railroad map of Amherst, I see the the line between Northampton and Amherst does not directly link to Amherst station, which is both surprising and unfortunate. It would require a time-consuming "switch-back" as the Vermonter currently does in Palmer. Despite the Amherst-Northampton "shuttle train" no being a workable idea, it still appears that the re-routing through Holyoke, Northampton and Greenfield to be the more beneficial option the whole of Pioneer valley residents as well as Vermont taxpayers.

Posted by Erik on 5.21.09 at 14.59

Using the Holyoke/Northampton line would make much more sense for the Vermonter through traffic, and would provide great economic benefits to the region. But since the Palmer/Amherst line is already upgraded for passenger traffic, why not just run a short shuttle train from Worcester to Palmer, then to Amherst, then up north to make a connection with the Vermonter. This train would not need to make a switchback at Palmer (meaning you'd only need one engine), would provide Amherst with a direct connection to Boston, and would still provide a relatively cheap option to keep passenger rail service going. For service south, if the New Haven-Springfield commuter service is expanded to Northamption, then a bus from Amherst to Northamption would suffice.

Posted by Art on 5.24.09 at 13.37

As a former Amherst resident, I would miss the train - but let's be realistic. Adding three stops, with greater access, is better than one stop now. PLUS, as a former rider of the trains to and from DC, I always got on in Springfield. Why? Because the delay going through Palmer was much longer than just driving down to Springfield and the cost was always higher. Amherst folks - Catch the train Northampton. Even if you took the PVTA bus and got on the train there, the trip will probably be faster than getting on the train in Amherst and going through Palmer! Have a friend drive you and your time would probably be cut in half!

Posted by Toby on 5.27.09 at 11.12

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Trains' route switch debated

By MICHAEL McAULIFFE and SUZANNE McLAUGHLIN
Staff writers

NORTHAMPTON – About 125 people Wednesday attended a public meeting here to weigh in on the possibility of altering passenger rail service north of Springfield in which a stop would be added in Northampton but removed from Amherst.

The Pioneer Valley Planning Commission held its second of two meetings this week, taking public comment at the Clarion Hotel and Conference Center on a study into expanding service provided by the Amtrak Vermonter. The study examines opening service to Holyoke, Northampton and Greenfield by upgrading the Connecticut River line. Such a switch, however, would eliminate the current stop in Amherst.

The minimum cost of improving the Connecticut River line would be $25 million to $32 million, and the project would qualify for funding from the $8 billion in federal stimulus money for rail infrastructure projects. The deadline to apply for the funding is August.

Amherst residents Roland and Elizabeth Chilton are train riders, having three times ridden the rails to the West Coast. Both believe altering the service makes the most sense.

"It's a straight route," said Roland Chilton.

"We don't want it, but we understand it," Elizabeth Chilton said.

Still, Roland Chilton thinks the time it would take to make the switch would be lengthy.

"We think it'll take years to redo those tracks," he said.

Jennifer B. Cosgrove, communications director of the group Pioneer Valley Advocates for Commuter Rail, said the group also believes in opening up station service to Holyoke, Northampton and Greenfield.

"We support this study, or something very close to it," she said.

The Vermonter runs daily between Washington, D.C., and St. Albans, Vt. Its only stops in Massachusetts are in Springfield and Amherst, and using the Connecticut River line would save about 45 minutes in travel time.

The Amherst Select Board, at the urging of Town Manager Laurence R. Shaffer, approved the creation of a nine-member task force called Save Our Stop. Shaffer wants the task force to study the effect the stop has on residents and the region, and the impact that the discontinuation would have.

Shaffer has pointed out that Amherst, with a population of 36,000, is larger than both Northampton and Greenfield.

"We're not a small town, and our population is a population that's predisposed to rail travel," Shaffer has said.

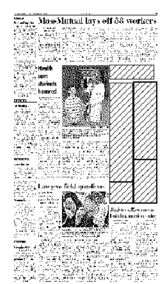
At the first public hearing, held Tuesday in Springfield, there were positive and negative comments about the project. Moira Murphy, of Longmeadow, said she used to take the train when she attended college in Burlington, Vt. Improving the train service by reducing the travel time by 45 minutes would be "a great thing for Springfield," she said.

Blake E. Lamothe of the Palmer Redevelopment Authority, who wants the Vermonter to stop in town, said he believes there are more train passengers in Palmer than along the Connecticut River route.

Ronald O'Blenis of HDR Engineering of Boston, providing consulting services for the study, said census figures show that growth in the region is along the Connecticut River corridor.

Timothy W. Brennan, executive director of the commission, said that eventually he would like to see both the north-south and east-west rail corridors improved. Brennan said currently there are no state funds available to improve the east-west rail corridor.

Staff writer Diane Lederman contributed to this report.



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Communities encouraged to apply for shovel ready site certification

The Department of Employment and Economic Development (DEED) encourages Minnesota communities to apply for the state's new Shovel Ready Site Certification Program to facilitate the attraction of new business and industry.

"The Minnesota Shovel Ready Site Certification Program makes the site-selection process easier, faster and more predictable for companies that are looking to grow in Minnesota," said DEED Commissioner Dan McElroy. "Businesses consider multiple properties in different states when determining where to locate, and shovel-ready sites give communities a competitive advantage in the selection process."

The term "shovel-ready" refers to commercial and industrial sites that have had all of the planning, zoning, surveys, title work, environmental studies, soils analysis and public infrastructure engineering completed prior to offering the site for sale. In addition, the sites are under the legal control of a community or in partnership with a third party.

"Sites that are certified 'shovel-ready' are more attractive to companies and site-selection consultants looking for locations for business expansions or relocations," said John Rhodes, a leading national site-location consultant with Moran, Stahl & Boyer of Lakewood Ranch, Fla. "Shovel-ready sites reduce the time and increase the predictability of getting the land developed, the building constructed, and the operation up and running."

Certified shovel-ready status is fast becoming a standard for sites that are marketed around the country. Minnesota's Certified Shovel Ready sites will be marketed at national conferences, trade shows and on the MnPRO.com Web site, the state's site-selection database.

Rhodes is available to assist communities with the certification process. Applications may be submitted at any time, but an estimated eight to 10 site-certification applications will be reviewed per quarter. The application fee for shovel-ready certification is $2,950. The fee covers the cost of initial review, on-site inspection, final certification and marketing.

The Minnesota Shovel Ready Certified Development Sites Initiative was created by the Positively Minnesota Marketing Partnership together with DEED.

Minnesota's Shovel Ready Site Certification partners include: Positively Minnesota Marketing Partnership, Briggs & Morgan PA, city of Chaska, city of Maple Grove, city of St. Cloud, Pope Associates-Architects, HDR Engineering-Environmental, First American Title Insurance Co., Short Elliott Hendrickson Inc.-civil, Progressive Railroad, Union Pacific Railroad, Xcel Energy and Pinnacle Engineering.

For more information on Minnesota's Shovel Ready Site Certification Program, contact Gene Goddard, senior business development specialist, DEED, (651) 259-7436, toll free 1-800-657-3858, e-mail gene.goddard@state.mn.us, or John Rhodes, senior principal, Moran, Stahl & Boyer, (941) 755-0074, e-mail john.rhodes@msbconsulting.com. The Minnesota Shovel Ready Certification Web site is located at www.PositivelyMinnesota.com.