New Haven - Hartford - Springfield Commuter Rail Implementation Study
Alternatives Report Summary

Transportation Strategy Board Meeting
August 24, 2004

Maximum and Minimum Build Scenarios:

The Connecticut Department of Transportation (ConnDOT) is currently conducting a study to develop an implementation plan for commuter rail service between New Haven and Hartford, CT, and Springfield, MA. This document is a summary of the report produced to document potential alternatives for initial implementation of commuter rail service and presents the start-up service proposed by the study Steering Committee. The study documentation and proposed recommendation will be presented to the public for comment in November 2004. A final report, which will respond to public comments and include an assessment of equipment type, potential financial resources and implementation schedule, will subsequently be prepared and published by the end of 2004. Detailed information can be found on the study website at www.nhhsrail.com.

Before a set of implementation alternatives were developed, two scenarios, a "minimum" and "maximum" build, were identified as two extremes in possible service on the line. Using the data from these two initial alternatives, a set of four possible service implementation alternatives were created for initial startup of the service along with a menu of options that could be added to the service either immediately or over time. The following is a table of the minimum and maximum build scenario service and results.

Table 1
Minimum and Maximum Build Scenarios

	Minimum Build	**Maximum Build**
Scenario	No additional tracks	Double track entire line
Stations	Nine Existing with limited additional parking	Existing plus Seven New – all improved with high-level platforms, pedestrian crossing and buildings
Peak Hour Train Frequency	30 – 35 minute	15 minute
Off-Peak Service	No - Only Amtrak	Hourly Weekday plus Weekend
Estimated Daily Trips	1,800	5,000 , (including Amtrak)
Capital Cost	$86 million	$558 million
Operating Cost (annual)	$7.1 million	$48.3 million
Operating Deficit (annual)	$6.2 million	$44.7 million
Per Passenger Subsidy	$13.81	$32.56

Upon evaluation of the minimum and maximum build scenarios, both were found to have a number of caveats to implementation. The minimum build schedule was found to be unreliable due to the high degree of schedule adherence necessary. Reliable bi-directional service can only be provided by double tracking at least some additional segments of the rail line. The maximum build was found to have a number of costly elements that may not be necessary for the initial implementation of the line, especially 15 minute peak hour service headways.

Therefore, using the costs, ridership, and other analysis from the minimum and maximum build scenarios, four implementation alternatives were derived with varying service plans. Other elements of the maximum build scenario were broken down into a menu of additional elements that can be added initially or as funding or other benchmarks are in place. The following is a summary of each of the alternatives considered to be feasible for initial service implementation. All implementation alternatives use only existing stations along the line.

Implementation Alternatives:

The difference in the level of service provided by the implementation alternatives is described in the table below:

Table 2
Implementation Alternatives Service

CT1	CT2	Bi-State1	Bi-State2
Windsor Locks to New Haven	Windsor Locks to New Haven	Springfield to New Haven	Springfield to New Haven
30 minute peak hr one-directional service (SB AM, NB PM)	30 minute peak hr bi-directional service	30 minute peak hr bi-directional service	30 minute peak hr bi-directional service
No new double track	Double track sections added where needed	Double track sections added where needed	Double track sections added where needed
No adjustments to Amtrak schedule, but fares would be adjusted for commuter use	No adjustments to Amtrak schedule, but fares would be adjusted for commuter use	No adjustments to Amtrak schedule, but fares would be adjusted for commuter use	Amtrak schedule adjusted to accommodate ideal meet times in urban centers

The resulting service characteristics, ridership, costs and performance measures are shown in the following table:

Table 3
Implementation Alternatives Results

	CT1	CT2	Bi-State 1 & 2
One-way train trips	6	14	14
New track required	None	12.4 miles	15.6 miles
Capital cost	$80.8 million	$121.4 million	$139.4 million
Annual Operating cost	$3.0 million	$7.0 million	$8.8 million
Annual Revenue	$368,000	$667,000	$869,000
Annual Operating deficit	$2.6 million	$6.3 million	$7.9 million
Projected Ridership (new daily trips)	900	1,500	1,800
Per passenger subsidy	$11.82	$16.71	$17.71
Farebox recovery	12.3%	9.6%	9.9%

All of these implementation alternatives include only existing stations on the line with existing low level platforms and at-grade pedestrian crossings. These alternatives include peak hour service only and a shuttle bus connection to Bradley Airport. Such enhancements as high level platforms, new station locations and off-peak service can be added to any implementation alternative from the menu of additional options.

Menu of Additional Options:

The items in the following menu of additional options can be added initially or as funding or other benchmarks are in place. These items can be added to any implementation alternative with the cost and impacts shown below:

- Off-peak Service
  - $1.3 million per round-trip run (5 days per week)
  - Maximum build = 577 additional trips daily (using 8 added trains)

- Weekend Service
  - $550,000 per round-trip run (2 days per week)
  - Maximum Build = 1,964 additional trips daily (using 10 added trains)

- Rail Airport Connection (alternatives include shuttle bus connection)
  - Estimated $28 million capital cost
  - No appreciable ridership difference

- Full high level platforms at all stations
  - $3.85 million per station (cost based on SLE)

- Grade-separated pedestrian facilities at all stations
  - $3.85 million per station (cost based on SLE)

- New or updated station buildings at all stations
  - $0.8 million per station (cost based on National experience)

- New Stations:
  - Enfield = estimated 210 daily trips
  - Newington = estimated 250 daily trips (with busway)
  - Wharton Brook = estimated 156 daily trips
  - North Haven = estimated 138 daily trips
  - Capital cost
  - $1.4 - $2.2 million per station for minimum (similar to existing stations)
  - $9.5 - $10.3 million per station for maximum (including high level platforms, grade separated pedestrian crossings, station buildings and expanded parking)

Steering Committee Comments:

The Steering Committee for this study consists of representatives from the towns, cities and regions along the corridor, national and state agencies, and other interested parties. The implementation alternatives and menu of additional items were presented to the Steering Committee on June 30, 2004. To initiate this proposed service, the committee expressed support for Alternative Bi-State 2 or Bi-State 1 (bi-directional service between New Haven and Springfield, Massachusetts) with the immediate addition of new stations in Enfield and North Haven, and a station in Newington being constructed in conjunction with the New Britain - Hartford Busway. Some sort of high-level platforms were also supported to be constructed at all stations with canopies and small enclosures. Full station buildings with restrooms and grade-separated pedestrian overpasses were not considered to be necessary. A shuttle bus connection to the airport is initially preferred to a rail connection from Windsor Locks rail station, with canopies/covered shuttle loading areas, and an enclosed station waiting area. Off-peak and weekend service are not deemed necessary with the anticipation that Amtrak schedules provide these services.

Letters in support of a commuter rail being implemented on the line in the format of one of the two Bi-State Alternatives have been received by the South Central Regional Council of Governments, the Capitol Region Council of Governments, Pioneer Valley Planning Commission, Connecticut Public Transportation Commission, and the I-91 Transportation Investment Area. In their letter, SCRCOG also gave support to a station in North Haven, expanded parking in Wallingford and Meriden, inclusion of weekend service, and new stations similar to those being constructed along Shore Line East. In their letter, CRCOG also gave

support to integrating Amtrak and commuter rail service, a station in Enfield, and a shuttle bus to Bradley Airport. CRCOG also expressed their concern that the ridership estimates are too conservative. The Town of North Haven also wrote in support of a station in North Haven at Devine Street as well as a potential station at the old Pratt & Whitney facility (referred to as the Wharton Brook station). Finally, Bradley Airport wrote in support of the shuttle connection to the airport for initial implementation. Copies of all substantive comments will be included in the final study report.

Draft Recommended Action for Initial Commuter Rail Service:

The start-up service recommended by the Steering Committee is based upon the Bi-State 1 service option (Table 3). The new commuter service would operate seven trains in each direction (bi-directionally) daily, Monday through Friday, between New Haven and Springfield on a 30-minute peak hour schedule. The new service would supplement existing Amtrak service on this corridor. Double track sections would be added where needed. No adjustments would be made in the Amtrak schedule but fares would be adjusted for commuter use. Along with the existing nine passenger stations being served along this corridor, three additional stations would be constructed, at North Haven, Newington and Enfield. The existing Windsor Locks station would be enhanced to provide adequate facilities to accommodate a waiting area and transfers between the train and shuttle bus service to Bradley Airport. All stations would have high level platforms and grade-separated pedestrian facilities. (The grade-separate facilities are considered to be necessary from an operational standpoint). Table 4 provides a preliminary estimate of the expectations of the Steering Committee recommended Bi-State 1 start-up service for the new commuter service.

Table 4
Steering Committee Recommended Bi-State 1

One-way train trips	14 - 7 NB / 7 SB (plus 16 Amtrak trains)
New track required	15.6 miles
Capital cost	$250.0 million
Annual Operating cost	$8.8 million
Annual Revenue	$1 million
Annual Operating Deficit	$7.8 million
Projected Ridership (total new daily trips)	2,000
Per Passenger Subsidy	$15.35
Farebox Recovery	11 %

The ridership projections developed for this implementation plan are based upon a rigorous evaluation process and a customized application of ConnDOT's Statewide Travel Model. However, some stakeholders have suggested that these ridership projections may be conservative. To obtain an indication of a possible upper projection for this implementation plan, the Department performed a further review of the 2000 Census Journey to Work data for towns being served by the Shore Line East (SLE) commuter rail service. The SLE service is a peak-period commuter rail service, which has been operating since 1990 along Amtrak's northeast corridor, between New Haven and Old Saybrook, with through service to Stamford and connections with New Haven Line (New Haven - New York Grand Central Terminal) commuter rail service.

This review indicated that the SLE service capture rate of the potential commuter market is approximately 5 percent, which is more than double the projection from the Statewide Travel Model application for the New Haven-Hartford-Springfield (NHHS) rail service plan. While the two systems are not directly comparable, the higher captured rate experienced by SLE could be considered the higher end of a range for the NHHS plan. The resulting high range in ridership (5,000) would affect the values reported in Table 4 regarding Annual Revenue ($2.4 million), Annual Operating Deficit ($6.4 million), Per Passenger Subsidy ($5.04), and Farebox Recovery (27%). This higher range is anecdotal and so would be viewed as an optimistic figure. Although there is a range in projected capture, the anticipated NHHS ridership and cost analysis in this plan is based upon the evaluation process derived from application of the ConnDOT Statewide Travel Model. It should be noted that this recommended service is to initiate commuter rail along this corridor and that the opportunity remains to enhance the initial service (with additional scheduled trains and stations) as the demand warrants.

Next Steps (September - December 2004):

- Conduct Meetings with Corridor Municipalities.
- Publish Draft Final Report.
- Conduct Public Information Meetings along the Study Corridor.
- Develop Final Recommendation Plan and Implementation Strategy.
- Publish Final Report.