

# New Haven Line Capacity and Speed Analysis Study

## Scope of Work (Condensed) – Draft

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### Overview

The New Haven Line Capacity and Speed Analysis Study is focused on a complete assessment of the rail infrastructure, equipment and service plans to identify opportunities to create a more dynamic commuter rail service. The study will include a comprehensive look at both the commuter rail travel market in southwestern Connecticut and the role and the capability of the New Haven Line to service that market. The New Haven Line, which extends 73 miles from State Street Station in New Haven to Grand Central Terminal in New York City, has historically served the commuter market to New York City. Over the past 30 years the market has evolved and travel patterns have changed. There has been growth in the reverse commute market as well as in off-peak and weekend travel. While new stations have been added, infrastructure improvements constructed, and service changes implemented, the basic structure and delivery of the commuter rail service has remained unchanged. This study is focused on examining the rail infrastructure, facilities, equipment and the services to develop a plan of near term and long term schedule enhancements to better serve the needs of the south coastal Connecticut rail travel market.

The study will be developed through six (6) general tasks. Each task of the study will have specific deliverables defined that support the overall assessment. The six (6) tasks of work are anticipated to be:

- Task 1 will review and document the existing infrastructure, facilities and services
- Task 2 will develop an operations simulation model of the New Haven Line
- Task 3 will examine the rail travel market identifying current and future projected travel patterns and demands
- Task 4 will examine the near term (2030) planning horizon with the focus on identifying schedule enhancements addressing the projected travel market needs
- Task 5 will examine the long term (2050) planning horizon with the focus on identifying schedule enhancements addressing the projected travel market needs
- Task 6 will assemble the work efforts and results into a final report document

### Limits of Work

The study will be examining both the physical infrastructure of the New Haven Main Line as well as the travel shed associated with existing and potential users of the rail services operated along the line. The physical limits for the rail service assessment are:

- The New Haven Main Line from State Street Station in New Haven (MP 72.8) to Grand Central Terminal in New York City (MP 0.0).
- Future conditions analyses will include Amtrak's Hell Gate Line from CP 216 Shell Interlocking in New Rochelle NY to Penn Station NY in addition to the New Haven Main Line.

The limits for the travel assessment will be defined by the findings of the Task 3 review but are generally expected to encompass seven (7) out of the nine (9) MPOs in CT. The seven (7) MPOs include Southeastern, Lower CT River Valley, South Central, Capitol Region, Naugatuck Valley, Greater Bridgeport and Western. The NYC market should include the south Westchester County, Bronx and New York County as well as northern sections of Kings and Queens County.

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## Services

The study will include the following services:

- The New Haven Line and its three branches (New Canaan, Danbury, Waterbury)
- Shore Line East
- Hartford Line
- Amtrak Acela and Regional
- Freight rail

Amtrak services are included for operational capacity analysis purposes only. The study does not include an evaluation of Amtrak services.

## Tasks

### Task 1: Existing Conditions

The purpose of Task 1 is to document existing physical and operating conditions along the New Haven Line. The focus of the document will be on the capabilities and limitations of the existing infrastructure. The effort will also include documentation of the services operated and the equipment utilized in the delivery of the services. Operating costs and revenues will be summarized as part of the documentation. The task does not include a conditional assessment of the assets. The documentation will include the following elements:

- 1.1 Infrastructure, Facilities and Operations
- 1.2 Services and Equipment
- 1.3 Operating Costs and Revenue

### Task 2: Rail Operations Simulation Model

The key activities for this task of the study are to build an operations simulation using the Rail Traffic Controller (RTC) software package and validate it for existing conditions. The operations simulation model will also be used to test various alternative future services under Tasks 4 and 5. **The selected firm must have demonstrated experience using the RTC model on the Northeast Corridor (NEC) or in similar complex operating environments.**

The purpose of the Rail Operations Simulation Model is to determine the potential operating impacts and capacity restraints of future conceptual schedules/services and the effects it may have on service currently operating. The results of the simulation model will help define a future conceptual schedule for NHL service within the limits of work.

Work under this task will include the following:

- 2.1 Review Prior Operations Studies
  - 2.2 Data Collection
  - 2.3 Model Buildout
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### **Task 3: Market Assessment**

The Market Assessment task will examine the existing rail service and current travel demands as well as identify future travel demands and patterns. It will include a review of existing travel demand models and the use of the Federal Transit Administration's STOPS model to estimate future ridership. The Market Assessment will be used to identify current and future travel demands which will be used to develop the Task 4 and 5 service plans. Work under this task will include the following:

- 3.1 Existing Travel Patterns
- 3.2 Define Planning Horizons
- 3.3 Review of Travel Demand Models
- 3.4 Assess Future Travel Needs and Demands

### **Task 4: Near Term Enhancements**

For the near term (2030 horizon year), the focus will be on developing service enhancements to address the projected demand and travel patterns utilizing the existing infrastructure and currently programmed capital enhancements. The effort will include the development of operating plans, infrastructure and equipment needs, order of magnitude capital and operating costs and a trade-off analysis as follows:

- 4.1 Programmed Capital Investments
- 4.2 Identify/Develop Service Plan Options
- 4.3 Testing of Service Plan Options
- 4.4 Capital and Operating Costs
- 4.5 Trade-off Analysis

### **Task 5: Long Term Enhancements**

For the long term (2050 horizon year), the focus will be on developing service enhancements to address the projected demand and travel patterns utilizing the infrastructure identified as the basis for the near term horizon (2030) and any future long term (2050) planned improvements. The effort will include the development of operating plans, infrastructure and equipment needs, order of magnitude capital and operating costs and a trade-off analysis as follows:

- 5.1 Programmed Capital Investments
- 5.2 Identify/Develop Service Plan Options
- 5.3 Testing of Service Plan Options
- 5.4 Capital and Operating Costs
- 5.5 Trade-off Analysis

### **Phase 6: Study Documentation**

The final phase of the study will focus on the development of the documentation as follows:

- 6.1 Draft Report
  - 6.2 Final Report
  - 6.3 Report Appendices
  - 6.4 Rail Operations Simulations
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