

## **APPENDIX D. SERVICE PLAN**



# Plaistow Commuter Rail Extension Service Plan

## Introduction

The Plaistow Commuter Rail Extension Service Plan is a component of the Plaistow Commuter Rail Extension Study, a New Hampshire Department of Transportation (NHDOT) study that is evaluating alternatives for extension of MBTA Commuter Rail service to the Plaistow, New Hampshire area. The study is being conducted in partnership with the Towns of Plaistow and Atkinson and the Rockingham Planning Commission and includes construction of a new train station and layover facility. The Plaistow Service Plan builds on existing MBTA service that currently terminates in Haverhill, Massachusetts and is necessary to understand the implications of extended Massachusetts Bay Transportation Authority (MBTA) commuter rail service on existing MBTA schedules, equipment, and other partner railroad's operations.

## Methodology

The Plaistow Commuter Rail Extension Service Plan assumes that all existing MBTA Commuter Rail service that currently terminates at Haverhill Station would be extended north to a new Plaistow area station upon opening of the station. Plaistow Station will act as the new terminal for Haverhill Line trains, with the station capable of handling a single train set at a time along an exclusive station track. It is also assumed that an exclusive station track and layover facility will be built in close proximity to the train station, allowing all train sets operating on the line to layover near the terminal.

It is assumed that the Plaistow Station will be located south of Main Street in Plaistow, New Hampshire. For the purposes of developing the Service Plan, the Plaistow Main Street site is the northern most alternative site under consideration, allowing evaluation of the maximum impact to MBTA schedules and operations. Further refinement may be required upon selection of the preferred station and layover sites.

A Train Performance Calculator (TPC) was used to estimate train speed between Haverhill Station and Plaistow Station. A TPC program determines train trip times based on existing MBTA rolling stock performance ability, condition of the track, and track geometry. A total of ten minutes, including a minute of pad time, was determined by the TPC model for the travel time from Haverhill Station to Plaistow Main Street.

## Schedule Development

The goal in developing a new timetable for MBTA Haverhill Line operations was to minimize the impact to existing MBTA service while providing service to Plaistow, New Hampshire. Additionally, the Service Plan sought to minimize non-revenue train movements or train trips whose primary purpose is for train positioning, typically evidenced by off-peak (non-peak direction) trains that carry few passengers that would be possible with larger capacity layover facilities envisioned in Plaistow.



The August 2014 MBTA Commuter Rail schedule for the Haverhill Line was used as the basis to survey MBTA operations. Currently, passengers on Trains 203 and 213 are bussed between Bradford and Haverhill stations and Trains 212 and 222 are bussed between Haverhill and Bradford stations due to restrictions on the Merrimack River Bridge between Haverhill and Bradford Stations; the Plaistow Extension Service Plan assumes that the Merrimack River Bridge will be repaired and trains will operate normally upon completion of Plaistow Station. Additionally, trains 203 and 213 provide for extra travel time between Lawrence and Bradford that is assumed to be eliminated in the Plaistow Service Plan.

The service plan assumes trains will take ten minutes to travel from Haverhill to Plaistow, need at least 10 minutes of layover time in Plaistow, and take another ten minutes to travel from Plaistow back to Haverhill. Thus, the new service plan will increase Haverhill Line operations by approximately 20 minutes per round trip because the MBTA already allots at least ten minutes for train layover at Haverhill Station. Currently, all but seven trains have sufficient layover time at Haverhill Station to accommodate operations at Plaistow Station without having to change schedules.

## Results

This proposed Service Plan would allow the majority of Haverhill Line services to maintain existing schedules, with trains beginning or ending runs ten minutes earlier than existing operations. A full Haverhill/Plaistow Line schedule is found in Appendix A, with the new MBTA and existing Amtrak service operations profiled.

Five train operations will have to be modified in order to accommodate scheduled stops at Plaistow Station. Four southbound (Plaistow to North Station) changes due to existing turn times in Haverhill that do not allow for the added 20 minute trip time. The single northbound schedule change (North Station to Plaistow) accommodates a late arriving train in Plaistow. The necessary changes are not expected to impact other equipment operations at North Station. Also, trains in the Plaistow terminal tracks do not present conflicts as train operations are not frequent enough to conflict with other movements. Changes are summarized in Table 1 and Table 2 and are necessary due to short layover times currently at Haverhill Station.

Additionally, two non-revenue operations will be eliminated through the Plaistow Extension Service Plan due to increased capacity of the train layover facilities in the Plaistow area. The MBTA currently runs a deadhead train from Haverhill to North Station and then to the Commuter Rail Maintenance Facility (CRMF) in Somerville at 1:25 AM and deadheads a train northbound to Haverhill at 4:00 AM. This train movement will be eliminated because train layover facilities will be constructed in Plaistow to store six train sets; currently only four train sets can layover in Bradford. With adequate layover space in Plaistow, trains will be able to terminate near the last station stop and reduce employee time and fuel useage.



**Table 1.1: Modified Southbound Train Movements**

Train	Current Departure Haverhill	Current Arrival North Station	Future Departure Plaistow	Future Arrival North Station	Notes
210	8:55 AM	10:24 AM	9:05 AM	10:24 AM	Train shuts down in North Station until 1:58 PM
212	9:44 AM	11:09 AM	9:41 AM	11:09 AM	Elimination of Haverhill to Bradford Bus allows better schedule
218	2:40 PM	3:49 PM	2:40 PM	3:59 PM	Allows for the 5:10 Lowell Line to depart at the same time
220	4:30 PM	5:40 PM	4:28 PM	5:40 PM	Arrival at 5:40 allows for the departure of the 5:50 PM Lowell Line train
222	6:04 PM	7:25 PM	6:12 PM	7:25 PM	Elimination of Haverhill to Bradford Bus allows better schedule
226	10:15 PM	11:23 PM	10:10 PM	11:28 PM	Terminates at the Commuter Rail Maintenance Facility (CRMF) in Somerville

**Table 1.2: Modified Northbound Train Movement**

Train	Current Departure North Station	Current Arrival Haverhill	Future Departure North Station	Future Arrival Plaistow	Notes
205	10:30 AM	11:38 AM	10:22 AM	11:40 AM	Terminates at the CRMF in Somerville



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