



## Portland Area Mainline Needs Assessment

DRAFT

# Alternative 7 – Freight Rail Service

HNTB Corporation  
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## 7.1 Overview

Freight is currently moved using four modes of transportation: rail, truck, air, and water. Truck freight is the most common, with approximately 86 percent of the tonnage moved within the state of Maine being transported by trucks<sup>1</sup>. This alternative focused on the possibility of converting freight movement by truck to freight movement by rail. Truck trips greater than 500 miles are good candidates for possible conversion to rail<sup>2</sup>. However, other factors must also be taken into consideration, including freight content and time-of-delivery requirements. In this alternative, the freight rail system was evaluated to determine the effects of:

- Current number of truck trips greater than 500 miles, and the viability of converting them to freight rail assuming practicable improvements; and
- Corresponding decrease in future truck trips from the Maine Turnpike within the Portland study area.

## 7.2 Key Assumptions

To determine the potential truck freight that can be converted to freight rail, the potential market of commercial vehicles that may be able to shift to other modes was estimated. The estimated commercial truck traffic during the 2040 PM peak hour on the Maine Turnpike between Exits 46 and 47 is 3%. The number of commercial vehicle trips that travel greater than 500 miles was determined from the information in the 2010 Origin and Destination Study<sup>3</sup>. In the peak hour, approximately 5%, or 7 trucks are estimated to make trips longer than 500 miles, which represents the potential market that may divert to freight rail.

It was assumed that improved freight rail infrastructure (double track, intermodal facilities) was in place to accommodate this volume of new freight traffic and that the type of goods, timing and costs would be compatible for conversion.

## 7.3 Capital and Operating Costs

The capital costs to add additional infrastructure to accommodate increased freight rail is \$31.3 million. The additional operating costs for the additional infrastructure is \$8.8 million.

## 7.4 Findings

The total potential number of commercial vehicle trips that could be converted to freight rail is a maximum of 13 trips during the peak hour. With this reduction, the volume to capacity ratio would still be greater than one in 2040 (1.36). Therefore, this alternative does not address identified capacity issues on the Maine Turnpike.

This alternative was evaluated against several Measures of Effectiveness (MOEs) which are summarized in the Alternatives Evaluation Matrix, dated April 12, 2018. The key findings from that matrix for this alternative are as follows:

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<sup>1</sup> MaineDOT, *Maine Integrated Freight Strategy, Final Report* (Cambridge Systematics, November 2017)

<sup>2</sup> Massachusetts Institute of Technology, *Rail Services in New England* (Center for Transportation Studies, April 1992)

<sup>3</sup> Maine Turnpike Authority, *2010 Origin - Destination Survey Summary Report* (HNTB Corp., June 2011)

#### 7.4.1 Key Benefits

The key benefits of Alternative 7 – Freight Rail Service are the following:

- 0.6% reduction in regional vehicle mile traveled (VMT);
- 0.4% reduction in regional vehicle hours traveled (VHT);
- Reduction in NO<sub>x</sub> (-0.6%) and HC (-0.5%), improving air quality;
- No legal or policy obstacles to implementation; and
- Has a Benefit/Cost ratio of 1.8.

#### 7.4.2 Key Impacts

The key impacts and challenges of Alternative 7 – Freight Rail Service are the following:

- A volume to capacity ratio (v/c) that is still greater than one (1.36) on the Maine Turnpike;
- Potential wetland impacts;
- No capital and operations/maintenance cost funding viability; and
- Potential toll revenue loss.