



## Modeling Tools

Background information about the modeling tools being used to help identify the eight service alternatives for the Rail Vision is provided below.

### RDM

#### What is it?

The Regional Dynamic Model (RDM) is a strategic simulation tool of how an urban area evolves over time, with particular emphasis on how transportation, land-use, population and employment all interact.

It is based in the software package “Vensim,” but all its inputs/outputs are Excel-based, allowing easy analysis/summarizing of outputs.

#### What information does it use/output?

The primary inputs will come from the existing CTPS travel demand model, including information on existing demand by mode, existing transportation options, and anticipated future growth.

The RDM will output a range of important metrics to be used within the development of the Rail Vision, including:

- Rail ridership and revenue projections
- Access to opportunities
- Vehicle-miles and passenger miles traveled
- Future capacity constraints
- Economic growth

#### How it will help us in our evaluation

The RDM will help our evaluation in 3 key ways:

1. To help understand the impacts of future transportation investments on ridership, system constraints and land use
2. To consider the relative success of different transportation scenarios under alternative growth/land-use projections
3. To enable a quick turn-around in assessments, of particular use in earlier stages of the evaluation when seeking to filter a wide range of possible scenarios



## ATTUne

### What is it?

ATTUne is a scheduling tool that allows us to check schedules against planning rules. It was originally developed in the UK, and is recommended for use by Network Rail for the evaluation of service changes across the UK rail network.

### What information does it use/output?

ATTUne incorporates details of the rail infrastructure and services as they currently are today, and will be adapted to include alternative scenarios as part of our evaluation process. Its outputs include an assessment of the operational feasibility of any given scenario, along with key statistics – such as vehicle miles – to be used within the operating costs model.

### How it will help us in our evaluation

ATTUne will allow us to assess the operational feasibility of service alternatives at a conceptual level, without the need to develop a detailed RTC model simulation for each concept being considered. It will therefore be of particular use in earlier stages of the evaluation when seeking to filter a wide range of possible scenarios.

## Operating Costs Model

### What is it?

The operating costs model is based in Excel, and seeks to calculate the ongoing cost implications of service alternatives.

### What information does it use/output?

The model is grounded in existing cost data from the MBTA commuter rail, sufficiently disaggregated in order to understand the drivers of future costs.

The output from the model are projections of future operating costs, including the ability to analyze the incremental impacts of each service alternative on each element of these costs.

### How it will help us in our evaluation

The operating costs model will be used throughout the analysis, both in the filtering of possible scenarios, and in the more detailed analysis of the final scenarios selected. It will also allow us to test key risks related to costs, and the implications on the financial feasibility of different alternatives.