WHAT’S NEW

Wasatch Front Travel Demand Model

Version 9.0.2

WFRC / MAG

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# Overview

Version 9.0.2 is a minor update to the Wasatch Front Travel Demand Model. The model processes and parameters are the same as version 9.0.0 and version 9.0.1. Version 9.0.2 includes all network edits completed in version 9.0.1-patch2 (06-24-2024) as well as having the same segment shapefile. Although, minor changes were made to a few of the primary input files. These changes were primarily to accommodate changes brought about by Amendment #1 of the Regional Transportation Plan (RTP). It is not anticipated that the changes made to the model would affect project decisions, except possibly those in or around Amendment #1 project areas. Model users are encouraged to verify for individual projects.

Changes to the model inputs in version 9.0.2 include updates to the highway network and transit networks, as well as the creation of a few new folders and files that serve as resources. The updates to the highway network and transit network include those related to projects from Amendment #1 of the RTP. A few of the projects to highlight include network adjustments around the prison site in Lehi, adjustments to I-15 due to the results of an environmental impact study (EIS), and commuter rail speed changes due to the results of a FrontRunner study. Because of the changes to the highway and transit networks, network related reporting in version 9.0.2 is not backward compatible with version 9.0.1.

Model comparisons between version 9.0.2 and version 9.0.1-patch2 were created to ensure roadway and transit volumes remained similar.

# Changes To Input Files

## Highway Network

### Network Changes Due to Amendment #1

The highway network was updated to align with new projects from Amendment #1 of the RTP. The primary projects within Amendment #1 included:

* Lehi Prison Site
* I-15 EIS
* FrontRunner Speed Study

In addition to these three main projects, Amendment #1 included a variety of other smaller updates. Most of the updates consisted of updating link/node fields. However, a few new links were added and adjusted to better align with the Amendment #1 projects.

#### Lehi Prison Site

At the Lehi Prison Site, located at the Point of the Mountain, a new Bluffdale commuter rail station was added into the network. Speeds for the rail links were assigned based on the UTA high investment scenario which used infill station speeds.

Centroid connectors were also adjusted in all phases to accommodate the changes that occur at the prison site.

Various transit related improvements were made, which are discussed in Section 2.2.1.

#### I-15 Freeway

An HOT Lane on I-15 from Farmington to 2600S was converted to a general-purpose lane (4 GP + 2 HOT 🡪 5 GP \_ 1 HOT) as a direct result of the EIS (section R-D-45). Highway network attributes were also updated in all phases of the plan to accommodate additional passing lanes for the operational project on I-15 in Box Elder from US-91 North to 3000 N.

#### FrontRunner Speed Study

As a direct result of the FrontRunner Speed Study conducted by UTA, 6 network attributes were added to the highway network:

* **TRNSPD\_FF1**
* **TRNSPD\_FF2**
* **TRNSPD\_FF3**
* **TRNSPD\_FF4**
* **TRNSPD\_FF5**
* **TRNSPD\_FF6**

These network attributes correspond to the 6 phases of the FrontRunner Speed Study (FF1 – FF6). They exist on the network purely as a reference. However, transit speed highway network attributes were updated in certain phases based on the results of the study. Table 2.1 shows in which phase the study results were implemented, the assumptions made, the changes to transit speed highway network attribute, and any additional notes.

Table 2.1 Transit Speeds based on FrontRunner Study Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Plan Phase (2023-2050) | | Assumptions | Field Calculation | Field Calculation (Additional) |
| Phase 1 | Fiscally Constrained | 15/30, POTM Station, Payson Extension | TSPD23\_32 = TRNSPD\_FF1 | Provo to Payson (TSPD23\_32 = TRNSPD\_FF2) |
| Needed | 15/30, POTM Station, Payson Extension | TSPD23\_32U = TRNSPD\_FF1 | Provo to Payson (TSPD23\_32U = TRNSPD\_FF2) |
| Phase 2 | Fiscally Constrained | 15/30, POTM Station, Payson Extension | TSPD23\_42 = TRNSPD\_FF1 | Provo to Payson (TSPD23\_42 = TRNSPD\_FF2) |
| Needed | 15/30, POTM Station, Payson Extension, Electrification | TSPD23\_42U = TRNSPD\_FF3 |  |
| Phase 3 | Fiscally Constrained | 15/30, POTM Station, Payson Extension, Electrification | TSPD23\_50 = TRNSPD\_FF3 |  |
| Needed | 15/30, POTM Station, Payson Extension, Electrification | TSPD23\_50U = TRNSPD\_FF3 |  |

\*speeds received from UTA in March 2024 and coded into the model networks in June 2024

More information regarding the process for determining the transit speeds based on the FrontRunner Speed study can be found in the *“CRTSpeedSummaryFile.xlsx”* located in the ”Inputs*/Transit”* folder (See also Section 2.2.2).

#### Other Network Edits

Amendment #1 led to a variety of other small network updates including the following:

* Updated 12600 S from 6400 W to Bacchus Highway to 5 lanes
* Added Freedom Point Way from 100 W to Pony Express Rd (3 lanes)
* Removed lanes in 2023 and 2028 from Granville Ave from Old Bingham Highway to 10200 S
* Fixed **HOT23\_32** through **HOT23\_50UF** fields to correctly reflect the RTP projects and Amendment from Farmington to the Utah/Salt Lake County Line
* Fixed auxiliary lane **FT** on I-15 from Farmington to 400 S in Salt Lake
* Added new underpass north of 2600 S in North Salt Lake/Bountiful
* Added new configuration at 1000 N to 600 N interchanges on I-15
* Cleaned up **HOT** fields for future projects
* Altered Davis-SLC Community Connector from 400 W to 300 W
* Added local circulator to Farmington Station area
* Added Maker Way to accommodate for the circulator

#### Summary of Link/Node Changes

A numeric summary of the specific edits done to the link and nodes (in comparison to v901-patch2) are shown below:

**Links**

* No new links were added to the highway network
* Over 300 links had at least one field variable updated (i.e. lanes, functional type, street name distance, direction)
* 30 links where the **LINK\_ID** attribute was renamed to point to a different node (24 in Salt Lake County, 4 in Utah County, 2 in Weber County)

**Nodes**

* No new nodes were added to the highway network
* 7 nodes were repositioned (5 in Salt Lake County, 1 in Utah County, 1 in Davis County)

### Added Network QA-QC Folder

In the *“1\_Inputs/3\_Highway/\_Network Processing Tools”* folder, the *“Network QA-QC”* folder was added containing new Jupyter Notebook files. The *“0-Network-QA-QC-Process.ipynb”* describes a process for verifying the quality of the highway network, segment shapefile, and transit networks before running/releasing a new version of the model. The *“1-Network-QA-QC-Checks.ipynb”* is a placeholder for the future checks that will be programmatically made. However, for now, this file is empty.

## Transit Networks

### Changes to Transit Line Files

The transit line files were updated to ensure consistency with the changes made to the highway network. Along with these updates, a few projects are important to highlight:

* Added a shuttle service at the Point of the Mountain in Phase 1 of the RTP
* Replaced BRT with LRT through the Point of the Mountain in Phase 2 of the RTP
* Added a new shuttle service, potentially autonomous, at the Farmington Transit Station

As described in Section 2.1.1.1, a new Bluffdale commuter rail station was added into the highway network and also reflected in the transit line file.

### Added “*CRTSpeedSummaryFile.xlsx”*

As previously mentioned in Section 2.1.1.3, the new file *“CRTSpeedSummaryFile.xlsx”* was added to the ”Inputs*/Transit”* folder.

## Segment Shapefile

No edits were made to the segment shapefile between version 9.0.2 and version 9.0.1-patch2.

# Compare Model Results

This section compares the model results between version 9.0.2 and version 9.0.1-patch 2.

## Road Volume Comparisons

## Transit Comparisons

### Transit Ridership

### Transit Share

#### Commuter Rail Station Boardings