HOT Lane Validation

1. HOT lane volumes

Figure 1 and Figure 2 below compare the observed HOT volumes with the Wasatch Front travel demand model estimates. The observed volumes were downloaded and processed to average weekday volumes by direction from UDOT’s PEMS website. It includes data of Tuesday, Wednesday, and Thursday volumes during year 2015 excluding the holidays. The modeled summary of all south bound hot lane volumes is 2% higher than the observed summary. And the modeled summary of all north bound hot lane volumes is 5% higher than the observed summary. Ideally in Figure 1 and Figure 2 you would want a tight conglomeration of points around the 45-degree line.

Figure 1 South Bound HOT lane volumes (Observed vs. Modeled)

Figure 2 North Bound HOT lane volumes (Observed vs. Modeled)

The modeled 2030 RTP HOT lane volumes are also compared to the modeled 2015 HOT lane volumes. Several Hot links between Kaysville to Farmington City have less volumes in 2030 than 2015 due to the new freeway capacities from West Davis Corridor and Freeway 89 in Davis county.

Hot Lane Volumes (2030 Vs. 2015)

1. HOT lane Speed validation

The observed HOT lane speed in 2015 were downloaded from PEMS at three time stamps in 2015. And the median speeds at link level are compared to modeled HOT lane speed as in below. The observed low HOT lane speeds at 123 south area may be caused by construction projects there. This situation can not be modeled by our macro average weekday model.

HOT Lane Speed South Bound (Modeled vs. Observed)

HOT Lane Speed North Bound (Modeled vs. Observed)

1. HOT lane Toll validation

The toll charges frequencies at modeled link level from 2030 are compared to 2015 as below. Generally, the more congested traffic in 2030 causes higher HOT charges. However, in North of Utah county, the capacities of freeway GP lanes and HOT lanes increase more than the demand. Therefore, the Mid day charges at those area actually decrease.



