



Lynnwood Link Extension

Highway Travel Time Comparison Memorandum



SOUNDTRANSIT

401 South Jackson Street
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1 HIGHWAY TRAVEL TIMES

The existing and future roadway network in the Lynnwood Link Extension corridor is severely constrained. Travel times on Interstate 5 (I-5) reflect several periods of congestion throughout the day and high variability between days. This memorandum includes a comparison of actual and model-estimated highway travel times for base year conditions for select-pairs relevant to the Lynnwood Link Extension project.

Observed travel times for general purpose (GP) and high occupancy vehicles (HOV) on Interstate 5 are shown in Figure 1. The times shown represent the 50th- and 95th-percentile travel times on three segments between downtown Seattle and Lynnwood Transit Center for an AM peak hour, PM peak hour, and a midday hour.

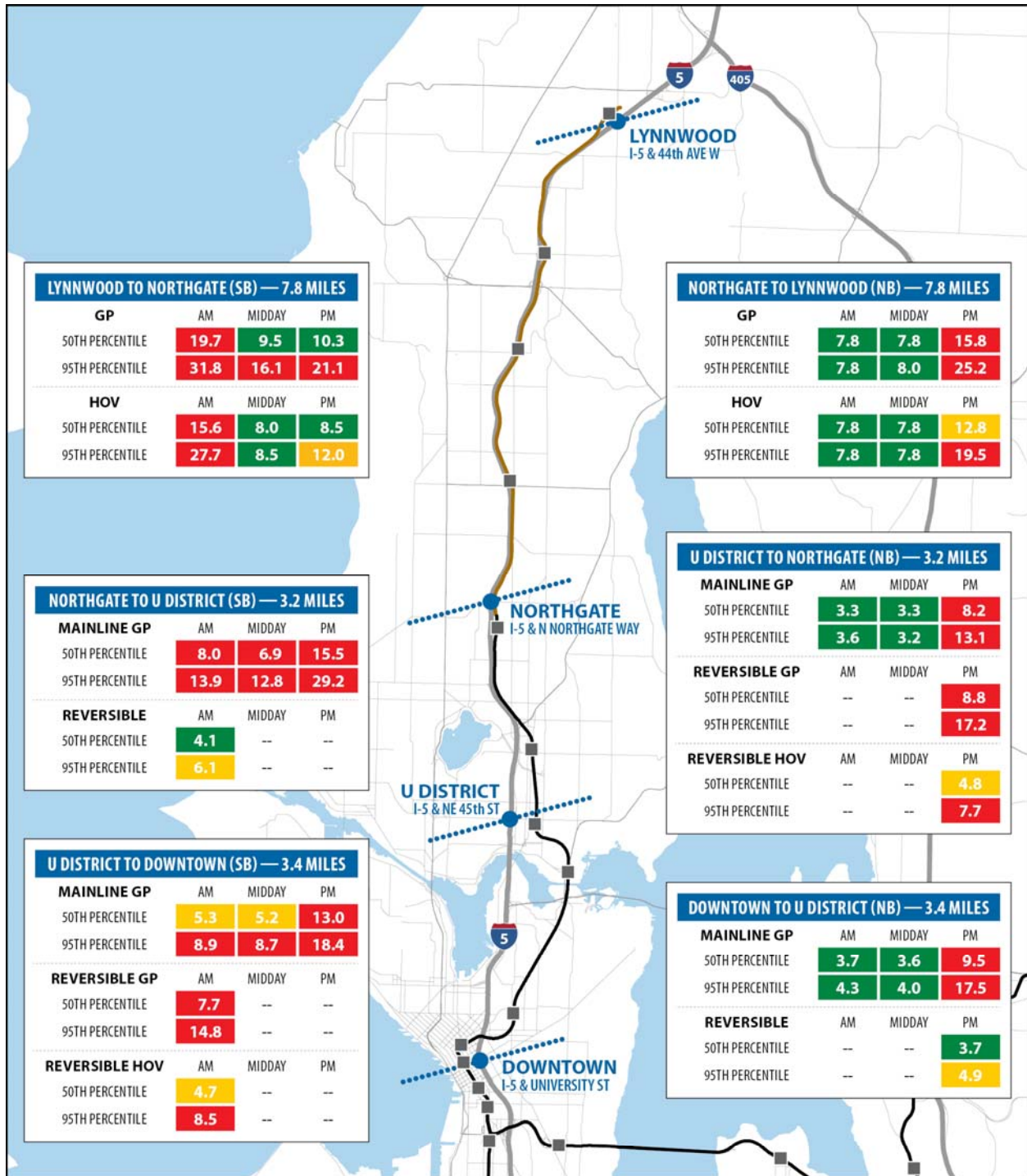
2 COMPARISON OF OBSERVED AND ESTIMATED TRAVEL TIMES

The Sound Transit model relies on a well-tested version of the Puget Sound Regional Model (PSRC) model for highway travel times. Table 1 shows a comparison of observed and model-estimated highway travel times for base year conditions for the highway segments discussed above. Here are some key highlights:

- Model-estimated vehicle travel times are all generally similar or faster than observed travel times.
- A few travel time segments from the model are a few minutes slower than observed. The largest of these model over-estimations is midday between Northgate and Lynnwood for GP traffic in both directions.
- Peak period travel times in the off-peak direction are notably underestimated in the highway model. This is due to two key factors:
 - I-5 has reversible lanes that operate in the peak direction, improving flow in the peak direction at the expense of the off-peak direction, plus
 - The model tends to underestimate PM peak period trips distributed to and through downtown Seattle.
- Given the reasonableness of the model-estimates, especially in the peak direction, these results show that the highway model is an appropriate tool for developing freeway congestion estimates in the Lynnwood Link Extension corridor.

It should be noted that the Sound Transit incremental model relies solely on differences in highway travel times between a future year and base year, not absolute highway travel times. This has effectively resulted in a limited contribution to transit ridership growth from changes in highway travel times in the Sound Transit model staged ridership forecasting process.

Figure 1: Observed I-5 Highway Travel Times (minutes)



Source: WSDOT Loop Data, 2014

XX.X Highway Travel Time (Minutes)

- Speed > 45 mph
- Speed 30–45 mph
- Speed < 30 mph

- Segment Endpoint
- Link Light Rail Station
- Link Light Rail
- Lynnwood Link Extension



0 1 2 MILES

AM: 7:30–8:30 am; Midday: 12:00–1:00 pm; PM: 4:30–5:30 pm

Table 1: Comparison of Observed and Model-Estimated Highway Travel Times for Base Year (2014) Transit

	Highway Travel Times (minutes)							
	Observed (2014) – 50 th Percentile				Model-Estimated			
	Midday Hour		PM Peak Hour		Midday Hour		PM Peak Hour	
	GP	HOV	GP	HOV	GP	HOV	GP	HOV
Interstate 5								
Northgate to Lynnwood N Northgate Way to 44 th Ave W								
<i>Northbound</i>	7.8	7.8	15.8	12.8	11.5	8.2	17.3	10.9
<i>Southbound</i>	9.5	8.0	10.3	8.5	12.0	8.2	11.0	8.2
U District to Northgate NE 45 th Street to N Northgate Way								
<i>Northbound via Mainline</i>	3.3	-	8.2	-	5.3	-	5.6	-
<i>Northbound via Reversible Lanes</i>	-	-	8.8	4.8	-	-	6.5	4.4
<i>Southbound via Mainline</i>	6.9	-	15.5	-	5.4	-	6.0	-
Downtown to U District University St to NE 45 th Street								
<i>Northbound via Mainline</i>	3.6	-	9.5	-	5.3	-	5.1	-
<i>Northbound via Reversible Lanes</i>	-	-	3.7	-	-	-	3.6	-
<i>Southbound via Mainline</i>	5.2	-	13.0	-	5.2	-	6.8	-

Notes

- I-5 does not have mainline HOV lanes between Northgate Way and downtown Seattle.
- Observed reversible lane data is insufficient to determine midday travel times.

Observed Travel Time Source

WSDOT Traffic Travel Times (2014), based on calibrated speeds from loop detectors.