

APPENDIX K

Transit Sensitivity North of the “Y” Technical Memo

TECHNICAL MEMORANDUM

To: Darby Watson
Parametrix

From: Jennifer Emerson-Martin
Iteris, Inc.

Date: January 21, 2021

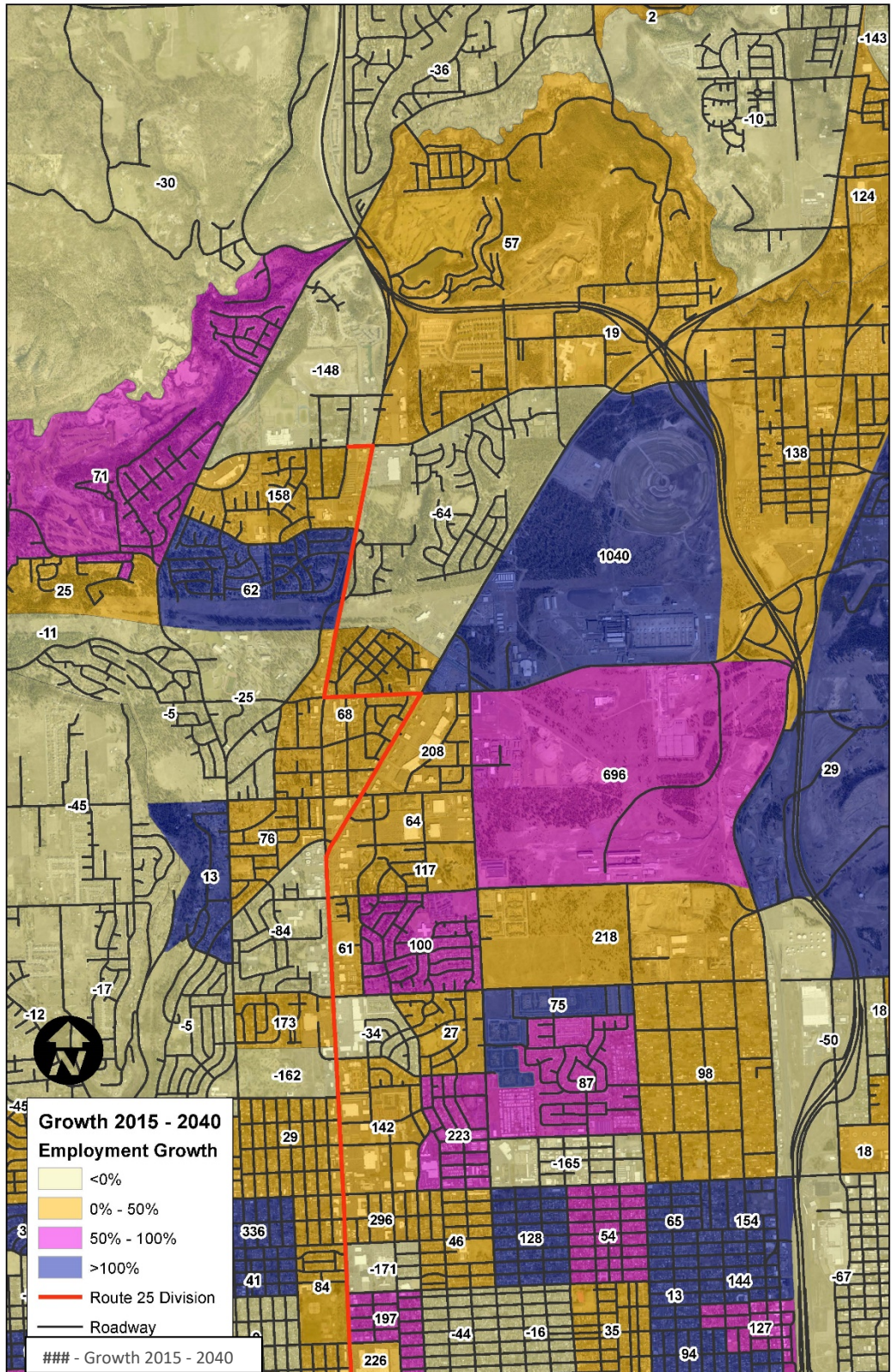
RE: Transit Sensitivity – North of the “Y”

The purpose of this memo is to document the transit sensitivity of different scenarios related to boarding numbers for the future year (2040) as it relates to options for the transit route alignment north of the “Y”. The results of the analysis can be used to inform a decision by SRTC, STA, and WSDOT regarding the alternative(s) to advance for the Division Corridor Study.

1 EMPLOYMENT AND HOUSEHOLD GROWTH

The SRTC model includes economic data related to employment and housing and maintains that information at the transportation analysis zone (TAZ) level. Figures illustrating employment and household growth were made in the areas north of the “Y” from the year 2015 to 2040 and demonstrate the total (the label on the TAZ) and relative growth (the shaded area for each TAZ) in the area north of the “Y”. **Figure 1** illustrates employment growth along Division Street and north of the “Y” along Newport Highway. **Figure 2** illustrates households growth in the same area. As illustrated in both figures, the area north of the “Y” is forecast to experience significant growth, with approximately 2,000 employees and 1,300 households.

Figure 1 – 2015 – 2040 Employment Growth



2 TRANSIT SCENARIO RIDERSHIP

For the transit sensitivity analysis, it was assumed that all transit routes will maintain the same headways throughout the day and will have the same configurations south of the “Y” into downtown. The headways used for the modeling effort represent the assumed typical weekday service. All of the transit scenarios (including the No Build scenario) assume that all regional transit improvements assumed in the SRTC MTP are included in the background conditions. The alignment for the 2040 No Build scenario is identical to the existing conditions and is illustrated in **Figure 1** and **Figure 2**.

The headways for the sensitivity scenarios were assumed as typical weekday service, assumed in the modeling for 5:00 AM to 12:00 PM with frequencies as assumed below:

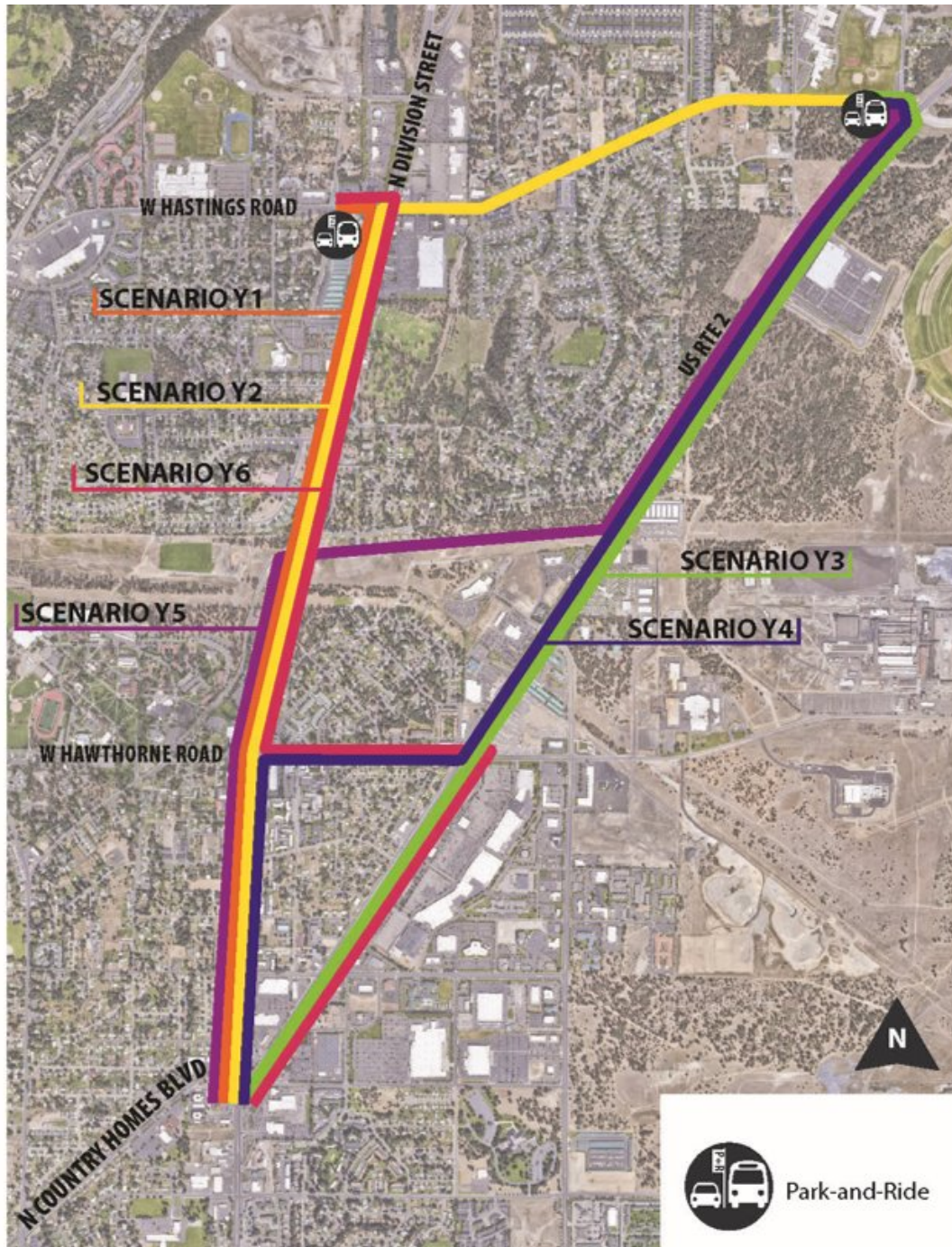
- 5:00 AM to 6:00 AM: 30 Minute Headways
- 6:00 AM to 8:30 AM: 7.5 Minute Headways
- 8:30 AM to 5:30 PM: 10 Minute Headways
- 5:30 PM to 8:00 PM: 7.5 Minute Headways
- 8:00 PM to 11:00 PM: 15 Minute Headways
- 11:00 PM to 12:00 AM: 30 Minute Headways

The transit sensitivities will be evaluated for the following scenarios:

- **Scenario Y1:** From the “Y”, travel north on Division Street to the existing Hastings park and ride
- **Scenario Y2:** From the “Y”, travel north on Division Street to a stop at Hastings Road and Division Street, then continuing east on Hastings Road/Farwell Road to a new park and ride located at Farwell Road and Newport Highway
- **Scenario Y3:** From the “Y”, travel north on Newport Highway to a new park and ride located at Farwell Road and Newport Highway
- **Scenario Y4:** From the “Y”, travel north on Division Street to Hawthorne Road, turn east and continue to Newport Highway, turn north on Newport Highway to a new park and ride located at Farwell Road and Newport Highway
- **Scenario Y5:** From the “Y”, travel north on Division Street to the existing Bonneville power line right-of-way, turn east and continue to Newport Highway, turn north on Newport Highway to a new park and ride located at Farwell Road and Newport Highway
- **Scenario Y6:** Same as the existing service (2020), From the “Y”, travel north on Newport Highway to Hawthorne Road, travel west on Hawthorne Road to Division Street, the travel North on Division Street to the existing Hastings park and ride
 - o *The alignment for Scenario Y6 is identical to the existing service (2020) and the future No Build scenario.*

Figure 3 illustrates the transit scenarios north of the “Y”.

Figure 3: Transit Sensitivity Scenarios



The comparison of ridership was completed for the entire Route 25 for Inbound and Outbound. Additionally, the analysis captured the daily trips starting at the associated park and rides on the north end of the routes. **Table 1** summarizes the transit sensitivities for the six (6) scenarios. Park and ride capacity and person trip usage is also summarized in **Table 1**.

Notable comparisons include:

- Transit Ridership
 - o All future high-performing transit scenarios increase forecast ridership when compared with the No Build scenario.
 - o When comparing the six high-performing transit scenarios with each other, they generally perform similarly, with Scenario Y4 attracting the greatest number of average weekday boardings.
 - o The growth in average daily boardings ranges between 1,300 and 1,575 when compared with the No Build, which equates to an increase of approximately 30% (a range of 27% to 34% increase).
 - o The two high-performing transit scenarios with the lowest forecast ridership are Y3 and Y6, which both travel along Newport Highway between the “Y” and Hawthorne Road. This route alignment misses some of the ridership demand from the residential and non-residential development west of Division Street between the “Y”/Country Homes Boulevard and Hawthorne Road.
 - o The high performing transit scenario which has the lowest forecast ridership of all scenarios is Y3, which is the only scenario that does not provide service to Whitworth University.
- Park and Ride Usage
 - o In general, the park and ride at Hastings Road attracts more daily trip ends than the Farwell Road park and ride, with Hastings Road attracting between 385 and 460 daily boardings and Farwell Road attracting between 185 and 355 daily boardings.
 - o Using an estimated 2.35 persons per vehicle it is estimated that the approximate required parking at the Hastings park and ride exceeds the current capacity of 135 stalls for all future year scenarios.

Table 1: Transit Sensitivity Comparison

Year and Scenario	Total Route 25 Average Daily Boardings	Difference in Average Daily Boardings (Compared to No Build)	Park and Ride Location ^{1,2}	Park and Ride Peak Period Person Bus Trips (Raw Model Estimates)	Approximate Parking Required
Existing	3,075		Hastings	280	120
2040 – No Build <i>*Not high-performing</i>	4,650		Hastings	385	165
2040 – Scenario Y1	6,075	1,425	Hastings	460	195
2040 – Scenario Y2	6,025	1,375	Farwell	185	80
2040 – Scenario Y3	5,925	1,275	Farwell	275	120
2040 – Scenario Y4	6,225	1,575	Farwell	355	155
2040 – Scenario Y5	6,150	1,500	Farwell	240	105
2040 – Scenario Y6	5,950	1,300	Hastings	415	180

¹Hastings Park and Ride parking capacity assumed to be 135 stalls.

²Farwell Park and Ride parking capacity assumed to be 500 stalls.

3 ANALYSIS LIMITATIONS

Iteris discussed a park and ride forecasting issue with SRTC related to model forecasts, because the modeled return park and ride trips appeared lower than expected, and in some cases zero. It was noted by SRTC that this model anomaly was a recognized issue and one that SRTC has discussed with PTV (the software developer). The recommendation was to consider post-processing the results for return trips, or to use the model as-is for relative comparison. For this analysis, the modeling team used the relative comparison of growth in boardings and did not post-processing return park and ride trips.