Agenda

• Recap Progress reported at last meeting
• Progress since last meeting
• Review Model Results
Working T2040 Modeling Prep Timeline

Draft

- **July 2017**
  - SoundCast Limited Re-estimation
  - TWG

- **August 2017**
  - Integrate Metro KC Long-Range Plan Transit Network (includes ST3, CT) (ReMix export)
  - TWG

- **September 2017**
  - SC Limited Recalibration & Testing, Validation
  - Preliminary
  - Future Year Networks
  - TWG (email update)

- **October 2017**
  - TPB T2040 Draft Work Plan
  - TPB T2040 Final Work Plan

- **November 2017**
  - Draft: LUV 2.1
  - Pre-final

- **December 2017**
  - T2040 Call For Project Revisions
  - Reconciliation edits if needed
  - Release
Progress Reported at last TWG

• Reviewed Estimation Results
  – Auto Ownership Model
  – Tour Mode Choice Models
• Truck Model Improvements
• Reviewed T2040 Plan Update Timeline
Progress Since Last Meeting

• Received GPS Expanded Survey from RSG
  – Survey VMT per capita went from 14.9 to 17.3
• Major run time improvements
  – Full model run now takes ~17 hours.
• External, Airport Trips
  – Using observed data to create trip tables
• Estimated Models:
  – Model Estimation is basically complete
• Beginning Model validation/calibration
External and Airport Trips

• IXXI Work trips are now based on LEHD Flow Data
  – Increased volume further into the region.
  – Non Work Trips distributed using gravity model.
  – Updated external flows now match WSDOT counts
  – Using a Daysim feature that accounts for IXXI trips.

• Using Airport Survey to create trip table.
  – Implemented a mode choice model for these trips.
Estimation Status

- Auto Ownership
- Transit Pass Ownership
- Pay to Park at Work
- Tour Mode
- Trip Mode
- Exact Number of Tours
- Work Location*
- School Location
- Work-based Subtour Generation
- Other Tour Destination
- Tour Time models
- Trip Time Model
- Intermediate Stop Generation/Location*
Results: 4K & SoundCast
## Results: Screenlines

### Screenline Vehicle Volumes - All Facilities

<table>
<thead>
<tr>
<th>Number</th>
<th>Screenline Name</th>
<th>Type</th>
<th>Observed Daily Volume</th>
<th>Model Daily Volume</th>
<th>% Difference</th>
<th>Model Daily Volume</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Tacoma - East of CBD</td>
<td>Primary</td>
<td>283,164</td>
<td>306,908</td>
<td>8%</td>
<td>333,100</td>
<td>18%</td>
</tr>
<tr>
<td>14</td>
<td>Auburn</td>
<td>Primary</td>
<td>540,866</td>
<td>264,948</td>
<td>2%</td>
<td>271,000</td>
<td>0%</td>
</tr>
<tr>
<td>15</td>
<td>South King</td>
<td>Primary</td>
<td>285,669</td>
<td>285,669</td>
<td>0%</td>
<td>269,200</td>
<td>0%</td>
</tr>
<tr>
<td>22</td>
<td>Tukwila</td>
<td>Primary</td>
<td>245,433</td>
<td>212,336</td>
<td>-13%</td>
<td>222,500</td>
<td>-9%</td>
</tr>
<tr>
<td>23</td>
<td>Renton</td>
<td>Primary</td>
<td>85,258</td>
<td>66,955</td>
<td>-21%</td>
<td>61,700</td>
<td>-28%</td>
</tr>
<tr>
<td>29</td>
<td>Seattle - South of CBD</td>
<td>Primary</td>
<td>469,433</td>
<td>511,447</td>
<td>9%</td>
<td>516,200</td>
<td>10%</td>
</tr>
<tr>
<td>30</td>
<td>South Bellevue</td>
<td>Primary</td>
<td>362,151</td>
<td>347,782</td>
<td>-4%</td>
<td>378,600</td>
<td>5%</td>
</tr>
<tr>
<td>32</td>
<td>Cross-Lake</td>
<td>Primary</td>
<td>234,150</td>
<td>252,072</td>
<td>8%</td>
<td>242,500</td>
<td>4%</td>
</tr>
<tr>
<td>35</td>
<td>Ship Canal</td>
<td>Primary</td>
<td>507,450</td>
<td>594,003</td>
<td>17%</td>
<td>557,500</td>
<td>10%</td>
</tr>
<tr>
<td>37</td>
<td>Kirkland-Redmond</td>
<td>Primary</td>
<td>375,697</td>
<td>409,412</td>
<td>9%</td>
<td>403,100</td>
<td>7%</td>
</tr>
<tr>
<td>41</td>
<td>Seattle - North</td>
<td>Primary</td>
<td>338,825</td>
<td>368,268</td>
<td>9%</td>
<td>371,100</td>
<td>10%</td>
</tr>
<tr>
<td>43</td>
<td>Lynnwood-Bothell</td>
<td>Primary</td>
<td>255,467</td>
<td>276,712</td>
<td>8%</td>
<td>275,200</td>
<td>8%</td>
</tr>
<tr>
<td>44</td>
<td>Bothell</td>
<td>Primary</td>
<td>268,625</td>
<td>282,331</td>
<td>5%</td>
<td>287,500</td>
<td>7%</td>
</tr>
<tr>
<td>46</td>
<td>Mill Creek</td>
<td>Primary</td>
<td>365,342</td>
<td>379,249</td>
<td>4%</td>
<td>383,000</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>Parkland</td>
<td>Secondary</td>
<td>275,733</td>
<td>258,406</td>
<td>-6%</td>
<td>244,800</td>
<td>-11%</td>
</tr>
<tr>
<td>3</td>
<td>Puyallup</td>
<td>Secondary</td>
<td>119,401</td>
<td>118,452</td>
<td>-1%</td>
<td>113,300</td>
<td>-5%</td>
</tr>
<tr>
<td>7</td>
<td>Tacoma Narrows</td>
<td>Secondary</td>
<td>80,000</td>
<td>87,374</td>
<td>9%</td>
<td>90,200</td>
<td>13%</td>
</tr>
<tr>
<td>18</td>
<td>Maple Valley</td>
<td>Secondary</td>
<td>75,982</td>
<td>72,404</td>
<td>-5%</td>
<td>67,800</td>
<td>-11%</td>
</tr>
<tr>
<td>19</td>
<td>SeaTac</td>
<td>Secondary</td>
<td>72,335</td>
<td>81,292</td>
<td>12%</td>
<td>71,900</td>
<td>1%</td>
</tr>
<tr>
<td>20</td>
<td>Kent</td>
<td>Secondary</td>
<td>557,842</td>
<td>526,061</td>
<td>-6%</td>
<td>497,400</td>
<td>-11%</td>
</tr>
<tr>
<td>54</td>
<td>Gig Harbor</td>
<td>Secondary</td>
<td>61,503</td>
<td>77,895</td>
<td>27%</td>
<td>93,300</td>
<td>52%</td>
</tr>
<tr>
<td>57</td>
<td>North Kitsap</td>
<td>Secondary</td>
<td>100,890</td>
<td>83,363</td>
<td>-17%</td>
<td>78,100</td>
<td>-23%</td>
</tr>
<tr>
<td>58</td>
<td>Agate Pass Bridge</td>
<td>Secondary</td>
<td>21,000</td>
<td>25,891</td>
<td>23%</td>
<td>23,100</td>
<td>10%</td>
</tr>
<tr>
<td>60</td>
<td>Cross Sound</td>
<td>Secondary</td>
<td>17,412</td>
<td>25,624</td>
<td>47%</td>
<td>30,000</td>
<td>72%</td>
</tr>
<tr>
<td>66</td>
<td>Preston-Issaquah</td>
<td>Secondary</td>
<td>91,451</td>
<td>87,590</td>
<td>-4%</td>
<td>82,300</td>
<td>-10%</td>
</tr>
<tr>
<td>71</td>
<td>Woodinville</td>
<td>Secondary</td>
<td>87,944</td>
<td>129,877</td>
<td>48%</td>
<td>123,800</td>
<td>42%</td>
</tr>
</tbody>
</table>

### Seattle

- 1,315,708 (1,473,718) 12% 1,444,800 10%
- 2,997,734 (3,018,729) 1% 2,979,300 1%
- 819,801 (849,035) 4% 874,700 7%
- 620,809 (655,961) 6% 658,200 6%
- 139,302 (134,878) 3% 131,200 6%

Total: 5,893,354 (6,132,321) 4% 6,088,200 3%
Results: Freeways

4K - freeway

Observed

Model

y = 0.9952x + 6343.5
R² = 0.9363

SC - freeway

Observed

Model

y = 1.0952x + 3231
R² = 0.9659
Results: Arterials

4K - arterial

\[ y = 1.0678x - 321.19 \]

\[ R^2 = 0.8086 \]

SC - arterial

\[ y = 1.0028x - 30.19 \]

\[ R^2 = 0.7919 \]
Test: No Arterial Delay

Arterial Delay at 50%

No Arterial Delay
Results: Tableau

http://public.tableau.com/profile/brice.nichols#!/vizhome/Soundcast-Survey-Comparison/SoundcastResults
• Light Truck Category is intended to capture commercial vehicle trips.
• Both the Survey and Soundcast do include some portion of these types of trips.
• This is a hard category to validate:
  – No counts.
  – No observed Data (flows).
Light Trucks/Commercial Vehicles

- Soundcast currently meets the regional target of 82.5 million VMT.
- Soundcast is low on Tours Per Person
  - 1.27 vs. 1.65
- Soundcast is low on Survey VMT per capita:
  - Soundcast: 15.9
  - Survey: 17.5
  - That is 6.0 million additional VMT (but 17.3 is only 5.2)
  - Light truck model produces ~5.2 million VMT
  - We will test dropping light trucks and calibrate Daysim (e.g. tours per person) in an attempt to come close to 17.5 Survey VMT per person and still hit the target of 82.5 million VMT.
  - [https://public.tableau.com/shared/Q7J9BM3N9?:display_count=yes](https://public.tableau.com/shared/Q7J9BM3N9?:display_count=yes)
Next Steps

• Calibrate Time of Day models.
• Calibrate Transit.
  – Observed Boardings and Survey tell a slightly different story!
• Test Dropping Light Trucks: