ORIGIN-DESTINATION SURVEY VS METRO MODEL

This analysis compares the origin-destination patterns discerned from the weekday origin-destination postcard survey conducted on March 10, 2009 with the existing trip table in the METRO model. As detailed in the tables below, the origin-destination survey validated the existing trip tables in the METRO model.

The license plate survey was conducted over a period of twelve hours. The data from the postcard survey was compared to the trip tables from the three peak periods (4 hour AM, 1 hour MD, 4 hour PM) of the METRO model. These trip tables were summed and weighted to produce a origin-destination percentage from zone to zone.

Figure 1 below shows a local zip code map with the outline of the study area in the METRO VISUM model.

The current METRO VISUM model contains 965 Transportation Analysis Zones (TAZs). Of the 965 TAZs, 115 are external zones which serve as entry/exit points into the model. In order to make an accurate comparison, since the VISUM model only covers a small subarea of the larger EMME-2 regional model, trips that were assigned to these external TAZs were ignored for this comparison. The remaining TAZs were grouped by zip code and compared to the origin-destination results from the postcard survey. Figure 2 below shows the individual TAZs from the METRO VISUM model.
Figure 1 – Area Zip Codes versus METRO Model Study Area
Figure 2 – Transportation Analysis Zones (TAZs) from METRO model
Table 1 below compares the O-D survey results with the METRO model for trips crossing the I-5 Bridge in the northbound direction. Each percentage in the table is the percentage of total trips assigned from the origin zip code to the destination zip code in the METRO model. The green highlighted section is the corresponding percentage of respondents from the origin-destination survey making that same trip. As you can see, most o-d pairs are within a few percentage points of the model’s trip table.

The top four origin zip codes (97203, 97210, 97211, and 97217) are the highest four origin zip codes for both the METRO model and the origin-destination survey. Likewise, the top three destination zip codes (98661, 98660, and 98665) are consistent between the model and the survey.

Given the superior detail in the METRO model, you would expect to see some locations with differences between the model and the survey, especially in larger geographical areas covered by one zip code. For example, in order to be classified in zip code 98642 for the origin-destination survey, a respondent would have had to list Ridgefield, Washington as their origin or destination. The METRO model, however, has 60 TAZs for this zip code. This added level of detail may help to explain why 7.9% of model trips are destined for this zip code versus 3.2% in the survey.

### TABLE 1

I-5 NB – TRIP TABLE VS O-D SURVEY RESULTS BY ZIP CODE

<table>
<thead>
<tr>
<th>Origin Zip Code</th>
<th>98604</th>
<th>98606</th>
<th>98629</th>
<th>98642</th>
<th>98660</th>
<th>98661</th>
<th>98662</th>
<th>98663</th>
<th>98664</th>
<th>98665</th>
<th>98668</th>
<th>98674</th>
<th>98682</th>
<th>98683</th>
<th>98684</th>
<th>98685</th>
<th>98686</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Total</td>
<td>0.5%</td>
<td>0.0%</td>
<td>0.6%</td>
<td>0.5%</td>
<td>2.7%</td>
<td>2.5%</td>
<td>2.6%</td>
<td>3.9%</td>
<td>2.6%</td>
<td>2.9%</td>
<td>3.9%</td>
<td>2.6%</td>
<td>1.5%</td>
<td>1.5%</td>
<td>1.0%</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Survey Total</td>
<td>1.7%</td>
<td>0.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>2.2%</td>
<td>2.2%</td>
<td>2.2%</td>
<td>1.7%</td>
<td>2.2%</td>
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<td>2.2%</td>
<td>2.2%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

Trip data was not collected or reported in the survey for these zip codes.

Table 2 summarizes the METRO trip table versus the O-D survey for I-205 NB. Again the results are similar, with one exception. The model assigns almost 25% of the trips over I-205 northbound from zip code 97220 compared to 14% of trips from the survey. This zip code contains the Portland airport and therefore trips from this area may not be accurately captured in the survey as a large number of these trips could be non-area residents.

### TABLE 2

I-205 NB – TRIP TABLE VS O-D SURVEY RESULTS BY ZIP CODE

<table>
<thead>
<tr>
<th>Origin Zip Code</th>
<th>98014</th>
<th>98016</th>
<th>98019</th>
<th>98021</th>
<th>98023</th>
<th>98025</th>
<th>98037</th>
<th>98039</th>
<th>98041</th>
<th>98043</th>
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<th>98051</th>
<th>98053</th>
<th>98055</th>
<th>98057</th>
<th>98059</th>
<th>98061</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Total</td>
<td>1.8%</td>
<td>2.1%</td>
<td>0.6%</td>
<td>0.6%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>0.8%</td>
<td>0.8%</td>
<td>0.8%</td>
<td>0.8%</td>
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<td>0.8%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Survey Total</td>
<td>0.6%</td>
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</tr>
</tbody>
</table>

Trips between O-D pair exist, but represent less than 0.1% of total trip table.
Table 3 summarizes the METRO trip table versus the O-D survey for I-205 NB with the removal of zip code 97220. Once trips from the 97220 zip code were removed, origin-destination pairs were re-weighted.

### Table 3

I-205 NB – Trip Table vs O-D Survey Results by Zip Code
ZIP Code 97220 Removed

| Destination Zip Code | Origin Zip Code | 97201 | 97202 | 97203 | 97204 | 97205 | 97206 | 97208 | 97210 | 97211 | 97212 | 97213 | 97214 | 97215 | 97216 | 97217 | 97218 | 97219 | 97220 | 97221 | 97222 | 97223 | 97224 | 97225 | 97226 | 97227 | 97229 | 97230 | 97232 | 97233 | 97234 | 97235 | 97236 | 97238 | 97239 |
|---------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | Mode Total     | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 4.9%  |
|                     | Survey Total   | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 5.8%  |

| Destination Zip Code | Origin Zip Code | 97201 | 97202 | 97203 | 97204 | 97205 | 97206 | 97208 | 97210 | 97211 | 97212 | 97213 | 97214 | 97215 | 97216 | 97217 | 97218 | 97219 | 97220 | 97221 | 97222 | 97223 | 97224 | 97225 | 97226 | 97227 | 97229 | 97230 | 97232 | 97233 | 97234 | 97235 | 97236 | 97238 | 97239 |
|---------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | Model Total     | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 9.7%  |
|                     | Survey Total   | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 4.9%  |

| Destination Zip Code | Origin Zip Code | 97201 | 97202 | 97203 | 97204 | 97205 | 97206 | 97208 | 97210 | 97211 | 97212 | 97213 | 97214 | 97215 | 97216 | 97217 | 97218 | 97219 | 97220 | 97221 | 97222 | 97223 | 97224 | 97225 | 97226 | 97227 | 97229 | 97230 | 97232 | 97233 | 97234 | 97235 | 97236 | 97238 | 97239 |
|---------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | Model Total     | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 5.8%  |
|                     | Survey Total   | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 4.9%  |

### Notes
- Trips between O-D pair exist but represent less than 0.1% of the total trip table.
Table 4 summarizes the METRO trip table versus the O-D survey for I-5 SB. In order to ensure no duplicate postcards were sent to travelers crossing the Columbia River, any time a driver was recorded in both the northbound and southbound direction, they were removed from the southbound data set. Therefore, southbound data was factored up to include the removal of these users. Again, the major origin-destination pairs match very well between the survey and the METRO trip tables.

Table 5 summarizes the METRO trip table versus the O-D survey for I-205 SB. The same factoring process detailed above was applied to the I-5 SB dataset as well.