

# **2030 UPDATE TO TRANSIT TRAVEL MARKETS TECHNICAL MEMORANDUM**

Report



## **Title VI**

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# ACRONYMS

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CRC	Columbia River Crossing
HCT	High Capacity Transit
HOV	High Occupancy Vehicle
PTBA	Public Transportation Benefit Area
SOV	Single Occupancy Vehicle
TAZ	Traffic Analysis Zone

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# 1. Executive Summary

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*The analysis in this memorandum is based on data from the 2005 existing conditions transportation model for the Columbia River Crossing (CRC) project. The 2030 analysis is an update to the 2020 Transit Travel Markets report, which was in part included in the New Starts Initiation Package submitted to the FTA on May 22, 2006. Compared to the 2020 report, this 2030 update includes an additional analysis of person trips during the 4-hour AM peak travel period, which was not included in the 2020 analysis or in the I-5 Trade Partnership Study.*

*For this study, potential transit markets are defined as geographic concentrations of regional person trips, from either Oregon or Washington, that use I-5 or I-205 to travel between the states. Person trips are defined as the sum of one-way trips made by all persons in single occupancy vehicles (SOV), high occupancy vehicles (HOV), and transit. For the year 2030 it was assumed that no major bridge improvements would be constructed for either river crossing (i.e., a No-Build scenario)<sup>1</sup>. The data shows that from 2005 through 2020 and 2030 the transit market expands over time, primarily as an increase in overall population and employment numbers, not a change in location or geographic distribution. For comparison, Table ES-1 below shows the northbound PM peak period actual mode split in 2005 for the person trips over the I-5 bridge as well as the forecasted mode split for 2020 and 2030.*

**Table ES-1. Comparison of Northbound PM Peak Period Mode Split**

Mode	2005	2020	2030
SOV	63.4%	57.2%	64%
HOV	30.5%	36.7%	25%
Transit	6.1%	6.1%	11%

*Analysis of the 2030 data, and comparison to the 2005 data, led to the following findings for trips expected to use the I-5 bridge:*

- In 2030, during the AM peak period, 75% of all I-5 person trips are traveling southbound from Clark County to Oregon, a decrease of 2% from 2005 where 77% of all I-5 person trips are traveling southbound, and 25% are traveling northbound. In 2030, during the PM peak period, 68% of all I-5 person trips are traveling northbound from the Portland metropolitan area to Clark County (an increase of 8% over the 2005 PM peak period) with the remaining 32% traveling southbound. Whereas in the 2005 PM peak period 60% of all I-5 person trips are traveling northbound and 40% are traveling southbound.*

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<sup>1</sup> The only significant 2030 road improvements on I-5 included the Delta Park to Lombard widening, and improvements to the Rose Quarter I-5 ramps.

2. *In 2030, of the total AM trips originating in Clark County 72% (20,461 person trips) are destined to the five districts that comprise the I-5 corridor (Hayden Island, Delta Park, Rivergate, North Portland, and Portland Central City). In the PM peak period these I-5 corridor districts also account for 72% (24,083) of all person trips originating in the Portland metropolitan area and traveling to destinations in Clark County. This is compared to 2005 where in the AM peak period 68% of the trips (16,692 person trips) are destined to these five districts, and in the PM peak period 69% (18,771 person trips) of all person trips originate in these districts.*
3. *In 2030, during the AM peak period Portland Central City (including downtown Portland, the Lloyd District, and Central Eastside Industrial District) is the largest generator of person trips from Clark County (approximately 8,600 person trips and an increase of 1,616 person trips from 2005). Salmon Creek is the primary origin of these trips (3,605 up from 2,030 in 2005). In 2030, during the PM peak period Portland Central City is the largest generator of trips to Clark County (approximately 9,500 person trips an increase of 1,955 person trips from 2005). Again, Salmon Creek is the primary destination with 3,330 trips, up from 1,955 person trips in 2005.*
4. *In 2030, during the PM peak period and within the five districts that comprise the I-5 Corridor, North Portland is the second largest trip producer to Clark County (approximately 6,500 person trips). This is followed by Hayden Island with 3,550 person trips, Rivergate with 2,600 person trips and Delta Park with 1,950 person trips to Clark County. In 2005, North Portland is also the second largest trip producer to Clark County with 5,114 person trips followed by Hayden Island with 2,922 person trips, Rivergate with 1,931 person trips, and Delta Park with 1,481 person trips.*
5. *The Bridge Influence Area is a significant destination for AM peak period trips from Clark County and origin for PM peak trips to Clark County. In 2030, of the 33,239 person trips from the Portland metropolitan area to Clark County in the PM peak period, approximately 5,500 trips (17%), originate from either Hayden Island or Delta Park; both of which are within the Bridge Influence Area. In 2005, 3,412 person trips (13%) originate from either Hayden Island or Delta Park.*
6. *In the 2030 and 2005 AM and PM peak periods Salmon Creek is the primary origin for four of the eight Portland sub-markets. Roughly one-third of all southbound AM trips and northbound PM trips using the I-5 bridge have origins or destinations in the Salmon Creek district.*
7. *For the 2030 analysis, similar to 2005, the AM and PM peak periods indicate that the top five potential transit markets for trips using the I-5 bridge are:*
  - *Travel between Clark County and Portland Central City*
  - *Travel between Clark County and North Portland*
  - *Travel between Clark County and Rivergate*
  - *Travel between Clark County and Delta Park*
  - *Travel between Clark County and Hayden Island*



9. *For the 2030 analysis, similar to 2005, Clark County can be divided into two types of markets, which may require different types of transit services:*
- *A “suburban fringe” market consisting of the Salmon Creek district, East Clark County, and Outer Clark County. This market is outside of the Bridge Influence Area and, for 2030, comprises 74% of the southbound AM trips and 73% of the northbound PM person trips across the Columbia River.*
  - *An “inner urban” market consisting of downtown Vancouver, West Vancouver, Fort Vancouver and SR 500, which attracts fewer trips but is a more densely populated (i.e., productive) area.*

*The I-205 bridge is directly impacted by travel conditions on I-5 and as such cannot be excluded from consideration in this evaluation. Person trips using the I-205 bridge were also evaluated to assess the potential I-5 transit market (i.e., how many trips might switch to I-5 if the bridge area is improved?).*

*The following findings have been made for trips expected to use the I-5 bridge or the I-205 bridge in 2030:*

1. *In the AM peak period the vast majority of trips using I-205 to cross the Columbia River originate in East Clark County or Outer Clark County (only 1,686 person trips from these areas use the I-5 bridge).*
2. *In the PM peak period East Multnomah County (e.g., Gresham, Troutdale, and Clackamas County) or Northeast Portland generate the vast majority of person trips. Only 2,080 person trips from these areas use the I-5 bridge compared to 33,241 person trips that use the I-205 bridge.*
3. *From the top five Oregon transit markets listed above, the analysis shows that in the AM period approximately 20,500 person trips on I-5 have destinations within this area and approximately 5,400 trips use the I-205 bridge. The combined transit market of 25,900 person trips is approximately 26% larger than I-5 alone.*
4. *In the PM period approximately 24,100 people with origins in the I-5 corridor in Oregon use the I-5 bridge and approximately 3,900 use the I-205 bridge. The combined transit market of 28,000 person trips is approximately 12% larger than I-5 alone.*
5. *In the AM peak period, the I-205 bridge produces 4,000 trips to Portland Central City. Most of these trips are originating in East Clark County and Outer Clark County. Some of these trips could be attracted from I-205 to I-5 if congestion is improved.*
6. *In the PM peak period, the I-205 bridge produces 2,900 person trips from Portland Central City. Most of these trips are destined to East Clark County (about 1,800) and Outer Clark County (about 1,100). Some of these trips could potentially be attracted from I-205 to I-5 if the congestion is improved.*

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## 2. Analysis Completed

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Using projected data forecasted by Metro's regional travel demand models, this report summarizes the potential 2030 transit travel markets for the I-5 corridor. Information on projected travel was derived from data developed for the CRC project's 2005 existing conditions transportation model. This data and report is more comprehensive than the 2020 data developed for the I-5 Trade Partnership Study, in that it includes an analysis of:

- 4-hour AM peak period using I-5 bridge;
- 4-hour AM peak period using both bridges; and
- 4-hour PM peak period using both bridges.

For the purposes of this report, a potential transit market is defined as a geographic concentration of regional person trips (from either Oregon or Washington) that use I-5 or I-205 to travel between the states. To assess the potential I-5 transit markets, trips that currently use the I-205 bridge were also evaluated to determine those trips that may switch to I-5 if the bridge area is improved. Only bi-state travel across the Columbia River was analyzed. Person trips are defined as the sum of one-way trips made by all persons in SOVs, HOVs, and transit. They include all trip purposes during the 4-hour AM and PM peak period.

To determine the major travel patterns and potential markets for transit trips with origins/destinations in the study area, an analysis of projected trip-making patterns, or travel demand, in the region was conducted for the year 2030. This study assumes that no bridge improvements are built for either river crossing (i.e., a No-Build scenario).

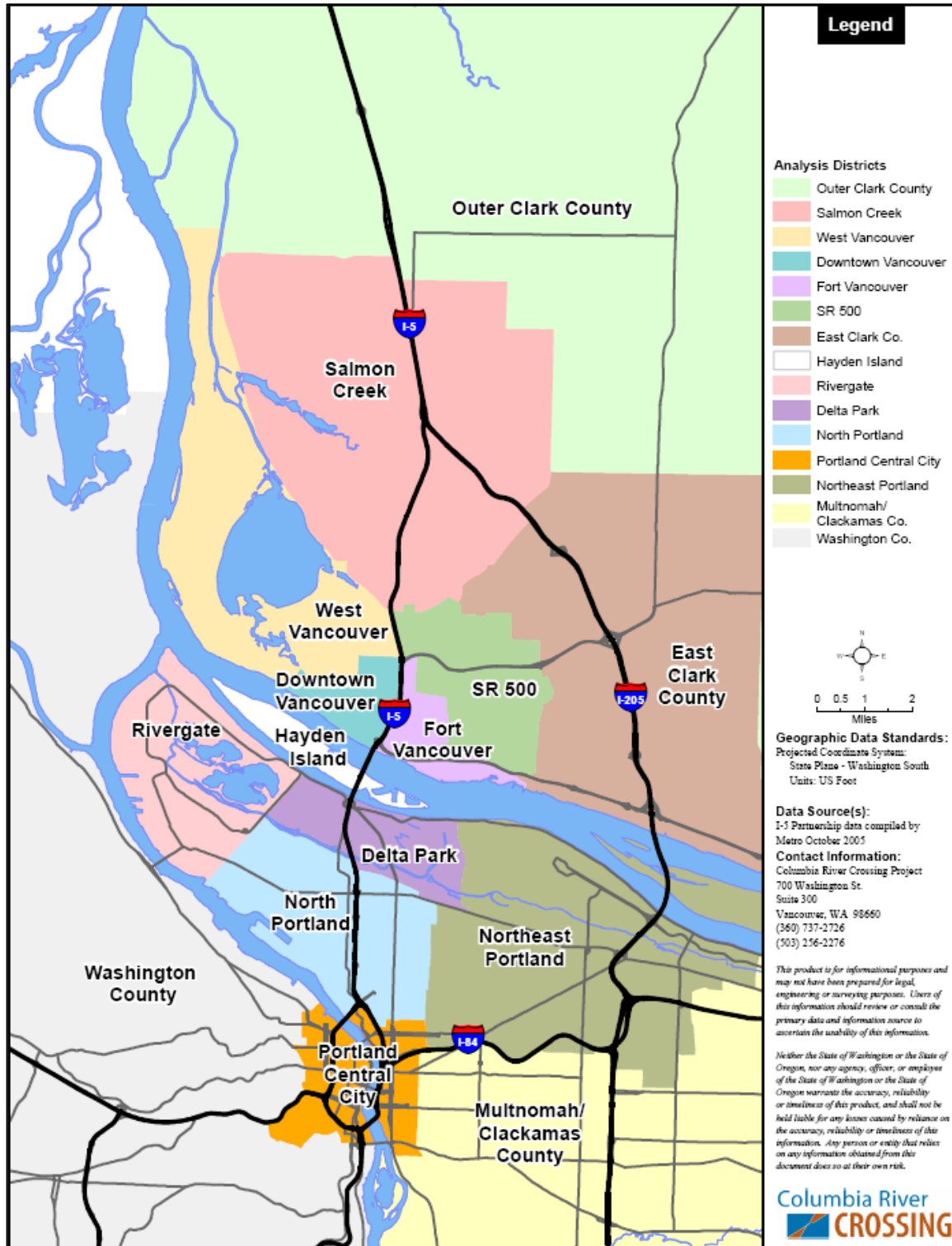
### 2.1 Geographic Districts Identified

For this analysis the study area includes all of Clark County in Washington State and Multnomah County, Washington County, and Clackamas County in Oregon. To analyze the travel demand, the traffic analysis zones (TAZs) within the study area were grouped into 15 geographic districts (see Figure 2-1). Seven of the geographic districts are within Washington State and eight are within Oregon. The districts have been identified as follows:

#### Washington State

1. Outer Clark County
2. Salmon Creek
3. West Vancouver
4. Downtown Vancouver
5. Fort Vancouver
6. SR 500
7. East Clark County

Figure 2-1. Districts for Transit Market Analysis



## Oregon State

1. Hayden Island
2. Rivergate
3. Delta Park
4. North Portland
5. Portland Central City
6. Northeast Portland
7. Multnomah/Clackamas County
8. Washington County

## 2.2 Existing Transit Service

The I-5 bridge is a critical link for transit patrons traveling between Vancouver and Portland. Existing bi-state transit service using the I-5 bridge includes limited local service between the states, subscription service from Clark County park-and-rides to OHSU and Bonneville Power Administration, and commuter-oriented, peak-hour express service from Clark County park-and-ride lots and transit centers to downtown Portland.

There are two transit agencies that currently provide service within the study area: TriMet and C-TRAN. TriMet is a municipal corporation that provides public transportation for the three counties in the Portland metropolitan area. TriMet's network consists of a 44-mile, 64-station, light-rail system; 93 bus lines; paratransit service for seniors and people with disabilities; and advanced amenities and passenger information. Within the Bridge Influence Area, TriMet operates one bi-state bus route (#6) to downtown Vancouver via North Portland and Hayden Island. TriMet also owns and operates the 5.8-mile Interstate MAX line, which operates through North Portland and includes ten stations between the Rose Quarter and its terminus at the Exposition Center just south of the Columbia River. TriMet operates 2,629,937 annual service hours (1,882,890 bus; 351,764 light-rail; 395,283 paratransit).

C-TRAN is the Public Transportation Benefit Area (PTBA) for Clark County, whose taxing authority was granted by the voters in the 1980 general election. As a taxing authority, state statute authorizes C-TRAN a maximum sales and use tax amount of 0.9 percent subject to local voter approval. C-TRAN operates a fleet of 111 vehicles to provide fixed-route service on approximately 380 route-miles. Within the Bridge Influence Area, C-TRAN operates five peak-period express routes and has three park-and-rides to serve the suburban commuter travel market. In 2005, C-TRAN logged approximately 375,862 annual service-hours (275,534 fixed-route; 100,328 paratransit) with 26 total bus-routes (17 local; nine commuter/express).

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Figure 3-1. 2030 No-Build I-5 AM Person Trips to Oregon

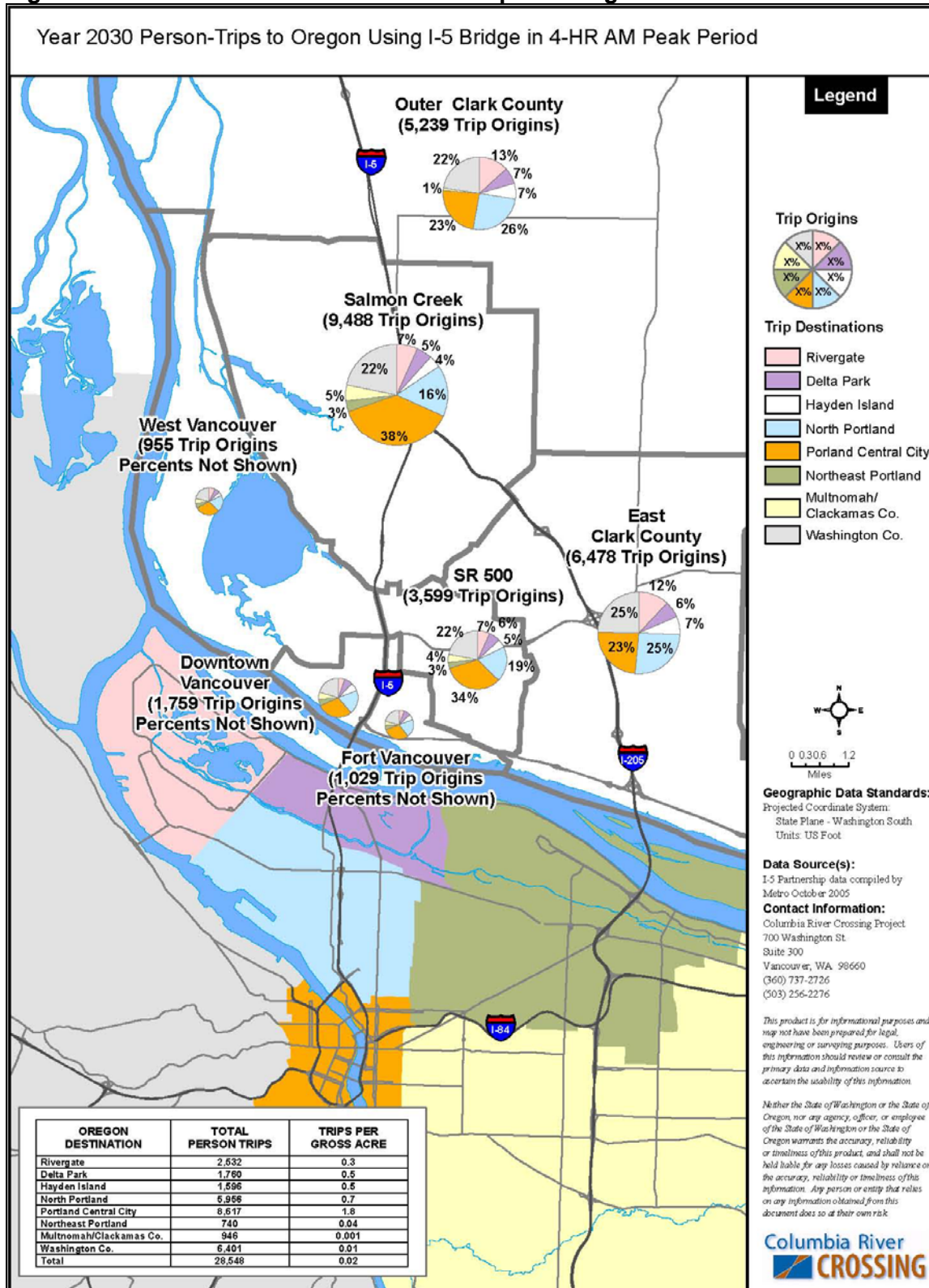




Table 3-1 shows that in the morning peak period 28,548 person trips use the I-5 bridge to travel southbound from Clark County to the Oregon side of the Columbia River. This is 75% of all morning trips over the I-5 bridge. One-third of these southbound trips originates in the Salmon Creek area (9,488 person trips). In addition to the Salmon Creek district, the East Clark County (6,477 person trips or 23%) and Outer Clark County (5,239 trips or 18%) districts produce a large amount of person trips across the I-5 bridge. Together, these three districts combine to create a “suburban fringe” market in Clark County which produces 21,204 or 74% of all morning southbound person trips across I-5.

The SR 500 district is also a major generator of AM trips across I-5 (3,599 person trips or 13%). When person trips are normalized to account for the size of the origination zone downtown Vancouver has the greatest density of trips across the I-5 bridge at approximately 0.93 person trips per gross acre. Similarly, at 0.73 person trips per gross acre West Vancouver has a higher density of trips than other Clark County districts. The SR 500, downtown Vancouver and West Vancouver, together with the Fort Vancouver district, combine to create an “inner urban” market in Clark County that generates 7,344 or 26% of all morning southbound person trips across I-5.

Of the total AM trips that originate in Clark County and travel across the Columbia River, 20,461 person trips (72%) are destined to five districts in Oregon: Rivergate, Delta Park, Hayden Island, North Portland, and Portland Central City. Collectively, these five districts comprise the I-5 Corridor. The single largest destination of the southbound AM peak period trips is the Portland Central City district (8,617 person trips or 30%), which includes downtown Portland, the Lloyd District, and the Central Eastside Industrial district. Accordingly, the Portland Central City district also has the highest density of trips per acre at 1.84 trips per acre (see Table 3-2). The largest AM trip generator to downtown Portland is the Salmon Creek district, with 3,605 person trips or 42% of all trips to Portland Central City.

Within the five districts that comprise the I-5 Corridor, North Portland is the next largest destination for trips from Clark County. North Portland receives 5,956 person trips in the morning peak period of which over half are from two districts in Clark County; the Salmon Creek district (1,542 person trips or 26%), and East Clark County (1,651 person trips or 28%). Rivergate and Delta Park receive 2,532 person trips and 1,760 person trips respectively, and Hayden Island also receives a lot of person trips at 1,596 person trips. Table 3-2 shows that the five districts within the I-5 corridor have a greater density of trips per acre than the remaining districts in Oregon.

**Table 3-2. 2030 No-Build I-5 AM Southbound Trips per Acre**

Oregon Destination	Total Person Trips	District Area (in Acres)	Trips per Gross Acre
Rivergate	2,532	7,725	0.33
Delta Park	1,760	3,858	0.46
Hayden Island	1,596	3,299	0.48
North Portland	5,956	7,942	0.75
Portland Central City	8,617	4,677	1.84
Northeast Portland	740	19,664	0.04
Multnomah/Clackamas County	946	992,542	0.01
Washington County	6,401	574,408	0.01
<b>Total</b>	<b>28,548</b>	<b>1,614,115</b>	<b>0.02</b>

Table 3-3 shows that, even if no improvements are made to I-5, the travel demand for the AM peak period is projected to increase approximately 32% between 2005 and 2030. This table shows that, despite existing and future forecasted congestion, I-5 AM person trips continue to grow because there are no other options for traveling between Clark County and the main destination of Portland Central City and other locations along the I-5 corridor.

**Table 3-3. Comparison of 2005 and 2030 No-Build I-5 Person Trips to Oregon, AM Peak Period**

Origin of I-5 Crossing	2005		2030	
	Person Trips	Percent	Person Trips	Percent
Inner Urban Clark County	6,878	32%	7,344	26%
Suburban Fringe Clark County	14,678	68%	21,204	74%
<b>Total</b>	<b>21,556</b>	<b>100%</b>	<b>28,548</b>	<b>100%</b>

### 3.1.2 Transit Only Travel

Of the total trips using the I-5 bridge in the southbound AM peak period direction (shown in Table 3-3 above), Table 3-4 provides a comparison of the person trips using transit in 2005 and the forecasted transit trips in 2030. For the 2030 southbound transit trips over the I-5 bridge, Figure 3-2 shows where within the seven Clark County geographic districts the transit trips originate from, and which of the eight Oregon districts is the destination.

Table 3-4 shows that by 2030 the suburban fringe market within Clark County has a significant increase in trips using transit to cross the I-5 bridge; over three times the amount in 2005. Of these trips Figure 3-2 shows that the district with the greatest origin of transit trips is Salmon Creek with 2,034 person trips or 58% of all southbound AM transit trips. The primary destination of all of the Clark County transit trips is the Portland Central City district with 2,231 person trips or 64% of the total AM transit trips crossing the I-5 bridge.

Of the total person trips from the Inner Urban Clark County Market and the Suburban Fringe Clark County Market Table 3-5 shows the mode split for the AM peak period person trips over I-5 to Oregon for both 2005 and 2030.

**Table 3-4. Comparison of 2005 and 2030 No-Build I-5 Transit Trips to Oregon, AM Peak Period**

Origin of I-5 Transit Crossing	2005		2030	
	Transit Trips	Percent	Transit Trips	Percent
Inner Urban Clark County	578	43%	945	27%
Suburban Fringe Clark County	768	57%	2,545	73%
<b>Total</b>	<b>1,346</b>	<b>100%</b>	<b>3,490</b>	<b>100%</b>

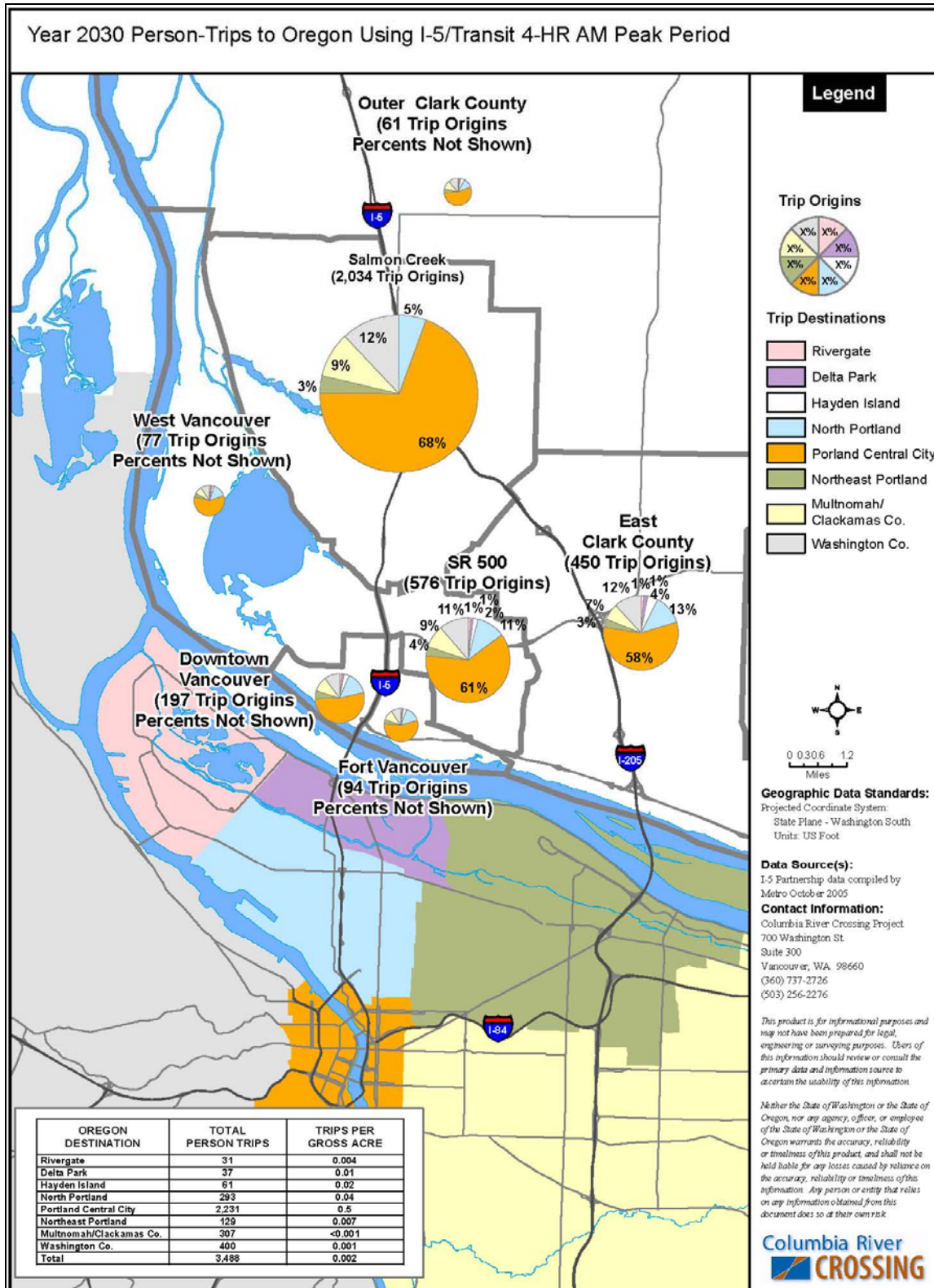
**Table 3-5. 2005 and 2030 No-Build Mode Split Comparison for the Clark County Transit Travel Markets, to Oregon, AM Peak Period**

Mode	Inner Urban Clark County		Suburban Fringe Clark County	
	2005	2030	2005	2030
SOV	65%	64.4%	71.5%	67.5%
HOV	26.5%	22.8%	24%	20.5%
Transit	8.5%	12.8%	4.5%	12%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### 3.1.3 Northbound Travel

Table 3-1 shows that in 2030, 9,662 person trips (25%) crossing the I-5 bridge in the morning are heading in the northbound direction from Oregon to Clark County. Most of these trips originate from the five districts that comprise the I-5 corridor (6,025 person trips or 62%). Of the trips originating in Oregon in the AM peak period, a significant amount of trips are headed to the inner urban market of Clark County (4,180 person trips or 43%), with downtown Vancouver receiving 1,625 person trips, 5,482 person trips (57%) are headed to the suburban fringe market in Clark County.

Figure 3-2. 2030 No-Build I-5 AM Transit Trips to Oregon



## 3.2 Four-Hour PM Peak Travel Period

### 3.2.1 Northbound Travel

Table 3-6 shows the estimated 4-hour PM peak person trips between the 15 geographic districts that would use the I-5 bridge in 2030. This table includes all trips by SOVs, HOVs, and transit. Figure 3-3 shows the trip information in Table 3-6 graphically. In 2030, the total number of person trips forecasted to cross the I-5 bridge in the PM peak period is 48,532, which is approximately 27% more people than the total traveling in the AM peak period, and approximately 7% more than the total traveling in the 2005 and 2020 PM peak period.

**Table 3-6. Origins/Destinations of 2030 No-Build PM Person Trips Using I-5 Bridge**

From		To	Rivergate	Delta Park	Hayden Island	North Portland	Portland Central City	Northeast Portland	Multnomah/Clackamas Co.	Washington County	East Clark County	Fort Vancouver	SR 500	Outer Clark County	Salmon Creek	West Vancouver	Downtown Vancouver	Total
Northbound	Rivergate		0	0	0	0	0	0	0	0	804	72	248	681	625	70	118	2,618
	Delta Park		0	0	0	0	0	0	0	0	495	89	249	416	491	62	149	1,952
	Hayden Island		0	0	0	0	0	0	0	0	990	152	375	795	819	117	300	3,549
	North Portland		0	0	0	0	0	0	0	0	1,777	266	743	1,442	1,592	202	460	6,481
	Portland Central City		0	0	0	0	0	0	0	0	2,358	360	1,169	1,355	3,330	284	626	9,483
	Northeast Portland		0	0	0	0	0	0	0	0	71	81	160	64	369	65	146	955
	Multnomah/Clackamas Co.		0	0	0	0	0	0	0	0	131	82	179	71	465	62	135	1,125
	Washington County		0	0	0	0	0	0	0	0	1,869	283	854	1,255	2,105	228	483	7,076
<b>Total</b>											<b>8,495</b>	<b>1,386</b>	<b>3,977</b>	<b>6,079</b>	<b>9,796</b>	<b>1,090</b>	<b>2,416</b>	<b>33,239</b>
Southbound	East Clark County		262	233	578	1,046	741	48	40	823	0	0	0	0	0	0	0	3,772
	Fort Vancouver		51	54	152	237	231	88	67	225	0	0	0	0	0	0	0	1,104
	SR 500		99	109	270	445	417	107	89	363	0	0	0	0	0	0	0	1,899
	Outer Clark County		176	144	325	654	470	55	47	477	0	0	0	0	0	0	0	2,348
	Salmon Creek		183	188	441	681	803	208	183	659	0	0	0	0	0	0	0	3,346
	West Vancouver		33	33	90	146	138	59	47	146	0	0	0	0	0	0	0	692
	Downtown Vancouver		93	100	319	444	438	177	142	419	0	0	0	0	0	0	0	2,132
	<b>Total</b>		<b>896</b>	<b>861</b>	<b>2,174</b>	<b>3,653</b>	<b>3,239</b>	<b>742</b>	<b>614</b>	<b>3,114</b>								


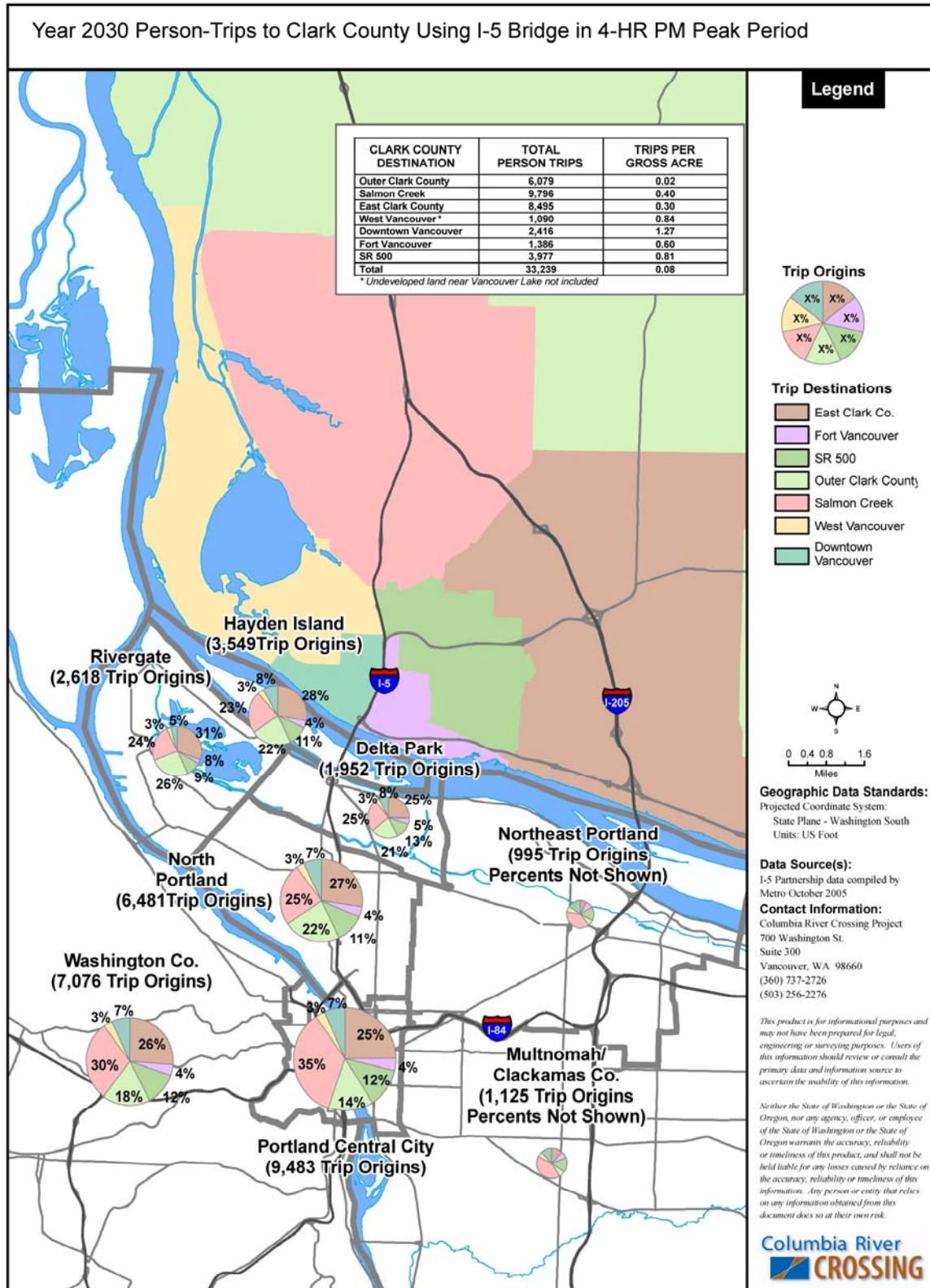
 Represents the I-5 Corridor

Table 3-6 shows that in the 2030 afternoon peak period 33,239 trips (68%) use the I-5 bridge to travel northbound from the Oregon side of the Columbia River to Clark County; an increase of approximately 23% from 2005. Of these trips, a significant majority (24,083 or 72% in 2030 compared to 18,771 in 2005) come from the five districts that comprise the I-5 corridor: Hayden Island, Delta Park, Rivergate, North Portland, and Portland Central City.

Figure 3-3. 2030 No-Build Person-Trips to Clark County Using I-5 Bridge in 4-HR PM Peak



In 2030, the Portland Central City district is the largest generator of trips to Clark County (approximately 9,500 person trips and an increase of 1,955 person trips from 2005) in the afternoon peak travel period. Of these trips, approximately 35% (3,330 person trips, up from 1,955 trips in 2005) are destined to the Salmon Creek area of Clark County and approximately 25% (2,358 person trips) are destined to East Clark County.

In 2030, of the five I-5 corridor districts, North Portland is the next largest trip producer to Clark County (6,481 person trips) in the northbound direction of the PM peak period. Similar to the Portland Central City district, it sends most of its trips to Salmon Creek (1,592 person trips or 25%) and East Clark County (1,777 person trips or 27%). Hayden Island and Rivergate produce 3,549 person trips and 2,618 person trips to Clark County, respectively. Delta Park is also a major trip generator to Clark County, producing 1,952 person trips. In 2005, North Portland is also the second largest trip producer to Clark County with 5,114 person trips followed by Hayden Island with 2,922 person trips, Rivergate with 1,931 person trips and Delta Park with 1,481 person trips.

Table 3-6 and Figure 3-3 show that, in 2030, the Salmon Creek area attracts the most trips from Oregon overall (with 9,796 person trips or 30%; an increase of approximately 45% from 2005). When person trips to the other two Clark County districts that comprise the “suburban fringe” market are also considered (East Clark County with 8,495 person trips and Outer Clark County with 6,079 person trips), the total increases to approximately 24,400 trips (an increase of 27% from 2005). In 2030 this “suburban fringe” market comprises 73% of all afternoon northbound person trips using the I-5 bridge; an increase of 3% from 2005.

Similar to the AM peak period, when person trips are normalized to account for the size of the destination zone downtown Vancouver attracts the greatest density of trips at approximately 1.3 person trips per gross acre. Similarly, the other districts that comprise the “inner urban” market in Clark County (Fort Vancouver, West Vancouver, and SR 500) have a higher trip density than the “suburban fringe” districts. In 2030, the four inner urban districts generate 8,869 person trips or 27% of all afternoon northbound trips; a decrease of 2% from 2005. See Table 3-7 below.

**Table 3-7. 2030 No-Build I-5 PM Northbound Trips per Acre**

Clark County Destination	Total Person Trips	District Area (in Acres)	Trips per Gross Acre
Outer Clark County	6,079	343,000	0.02
Salmon Creek	9,796	24,600	0.40
East Clark County	8,495	28,200	0.30
West Vancouver	1,090	1,300	0.84
Downtown Vancouver	2,416	1,900	1.27
Fort Vancouver	1,386	2,300	0.60
SR 500	3,977	4,900	0.81
<b>Total</b>	<b>33,239</b>	<b>406,500</b>	<b>0.08</b>

Table 3-8 shows that, even if no improvements are made to I-5 and it continues to operate at or near capacity, travel demand on the I-5 bridge during the PM peak period is still projected to increase approximately 22% between 2005, 2020 and 2030. Although, by 2030, most of the growth in demand across the Columbia River in the PM peak period will be served by the I-205

bridge (see Section 4 for a discussion of both bridges), I-5 person trips continue to grow because there are no other options for travel between Clark County and the Portland metropolitan area.

**Table 3-8. Comparison of 2005, 2020 and 2030 No-Build I-5 Person Trips to Clark County, PM Peak Period**

Origin of I-5 Crossing	2005		2020		2030	
	Person Trips	Percent	Person Trips	Percent	Person Trips	Percent
Portland Central City	7,324	27%	8,482	29%	9,483	29%
Rest of I-5 Corridor	11,448	42%	16,782	55%	14,600	55%
Rest of Portland Region	8,331	31%	4,982	16%	9,156	16%
<b>Total</b>	<b>27,103</b>	<b>100%</b>	<b>30,246</b>	<b>100%</b>	<b>33,239</b>	<b>100%</b>

### 3.2.2 Transit Only Travel

Of the total trips using the I-5 bridge in the northbound PM peak period, shown in Table 3-8 above, Table 3-9 provides a comparison of those person trips using transit to travel across I-5 in 2005, 2020, and 2030. For the 2030 transit trips using the I-5 bridge, Figure 3-4 shows where, within the eight Oregon geographic districts, these trips are originating from and which of the seven Washington State districts is the destination.

Table 3-9 and Figure 3-4 show that Portland Central City has the most person trips using transit to travel to Clark County. Of the 2,402 person trips from Portland Central City in 2030, 1,056 person trips (44%) are traveling to the Salmon Creek District. Another 841 person trips (35%) are traveling to the East Clark County District. Of the total I-5 PM northbound person trips using transit 2,885 (78%) are headed to the three “suburban fringe” districts (Salmon Creek, East Clark County, and Outer Clark County). The “inner urban” districts (downtown Vancouver, West Vancouver, Fort Vancouver, and SR 500) account for 816 person trips using transit, which is approximately 22% of the total northbound transit trips crossing the I-5 bridge in the PM peak period.

**Table 3-9. Comparison of 2005, 2020 and 2030 No-Build I-5 Transit Trips to Clark County, PM Peak Period**

Origin of I-5 Transit Crossing	2005		2020		2030	
	Transit Trips	Percent	Transit Trips	Percent	Transit Trips	Percent
Portland Central City	1,028	62%	1,528	83%	2,402	65%
Rest of I-5 Corridor	183	11%	202	11%	410	11%
Rest of Portland Region	448	27%	113	6%	890	24%
<b>Total</b>	<b>1,659</b>	<b>100%</b>	<b>1,843</b>	<b>100%</b>	<b>3,702</b>	<b>100%</b>

Table 3-10 shows the overall mode split for northbound PM peak period traffic on I-5 for 2005, 2020, and 2030.



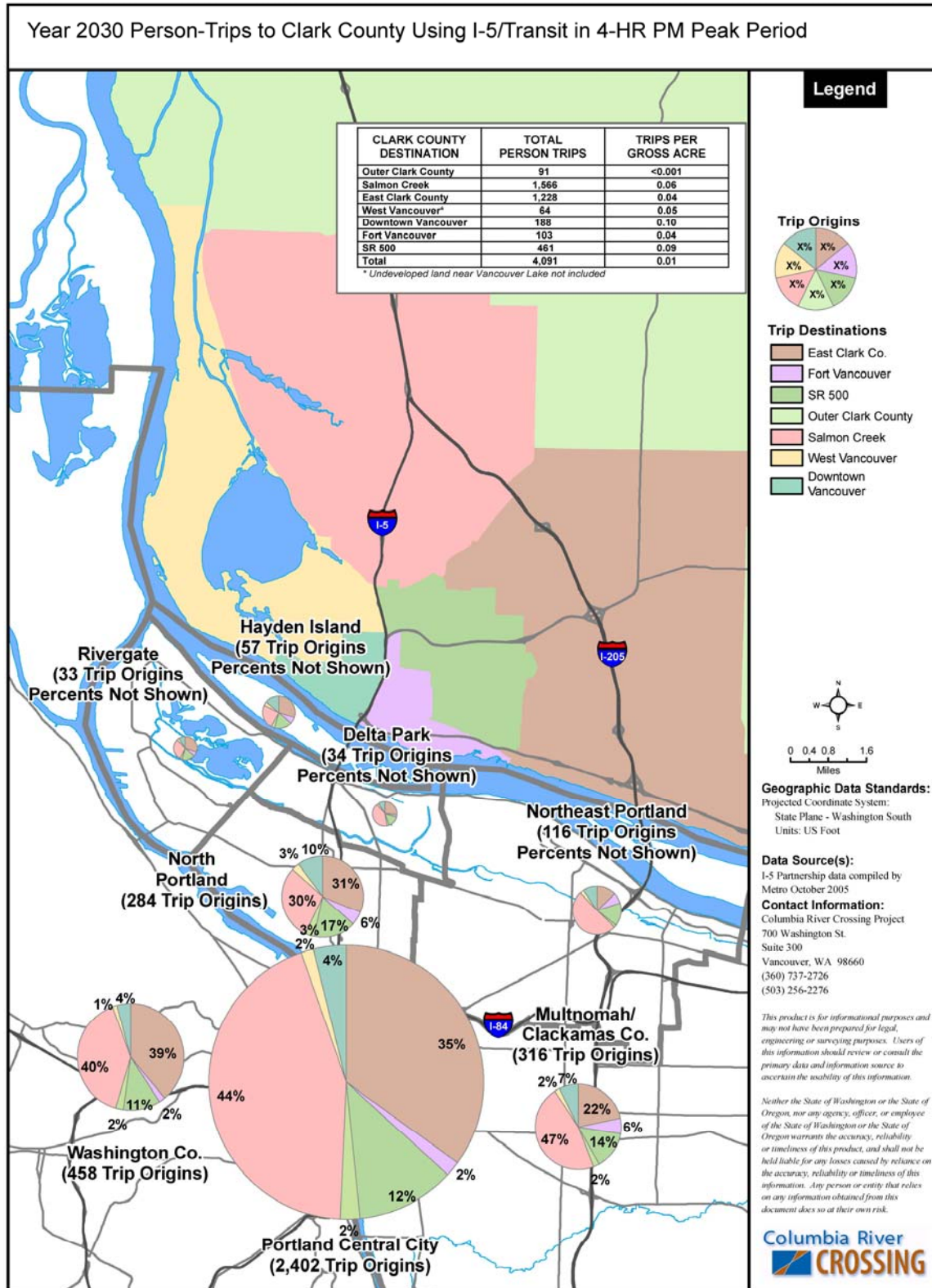
**Table 3-10. Comparison of Northbound PM Peak Period Mode Split**

Mode	2005	2020	2030
SOV	63.4%	57.2%	64%
HOV	30.5%	36.7%	25%
Transit	6.1%	6.1%	11%

### 3.2.3 Northbound Travel

Table 3-6 shows that in 2030, 15,293 person trips (32%) of the afternoon trips crossing the I-5 bridge are heading southbound from Clark County to Oregon. Most of these trips originate from the three “suburban fringe” districts of East Clark County (3,772 person trips), Salmon Creek (3,346 person trips), and Outer Clark County (2,348 person trips). These three districts comprise 62% of the southbound trips in the PM peak. In the southbound direction the “inner urban” districts of downtown Vancouver, Fort Vancouver, West Vancouver, and SR 500 generates 5,827 person trips (38%) across the I-5 bridge. Of the trips originating in Clark County in the PM peak period, the majority are destined to either North Portland (3,653 person trips or 24%), Portland Central City (3,239 person trips or 21%), or Washington County (3,114 person trips or 20%).

Figure 3-4. 2030 No-Build Transit Trips to Clark County Using I-5 Bridge in PM Peak



## 4. 2030 Person Trips Using the I-5 or I-205 Bridge

To fully assess the potential I-5 transit market, trips using the I-205 bridge were also evaluated. This provides a basis for determining how many trips might switch to using I-5 if the I-5 bridge area is improved. Section 4.1 discusses the estimated 4-hour AM peak person trips to Multnomah, Clackamas, or Washington Counties that use either the I-5 bridge or the I-205 bridge in 2030, and Section 4.2 discusses the PM peak person trips to Clark County using both bridges. Figure 4-1 and Figure 4-3 show the AM and PM trips that use the I-205 bridge alone, and Figure 4-2 and Figure 4-4 graphically show the AM and PM information for both bridges.

### 4.1 Four-Hour AM Peak Travel Period

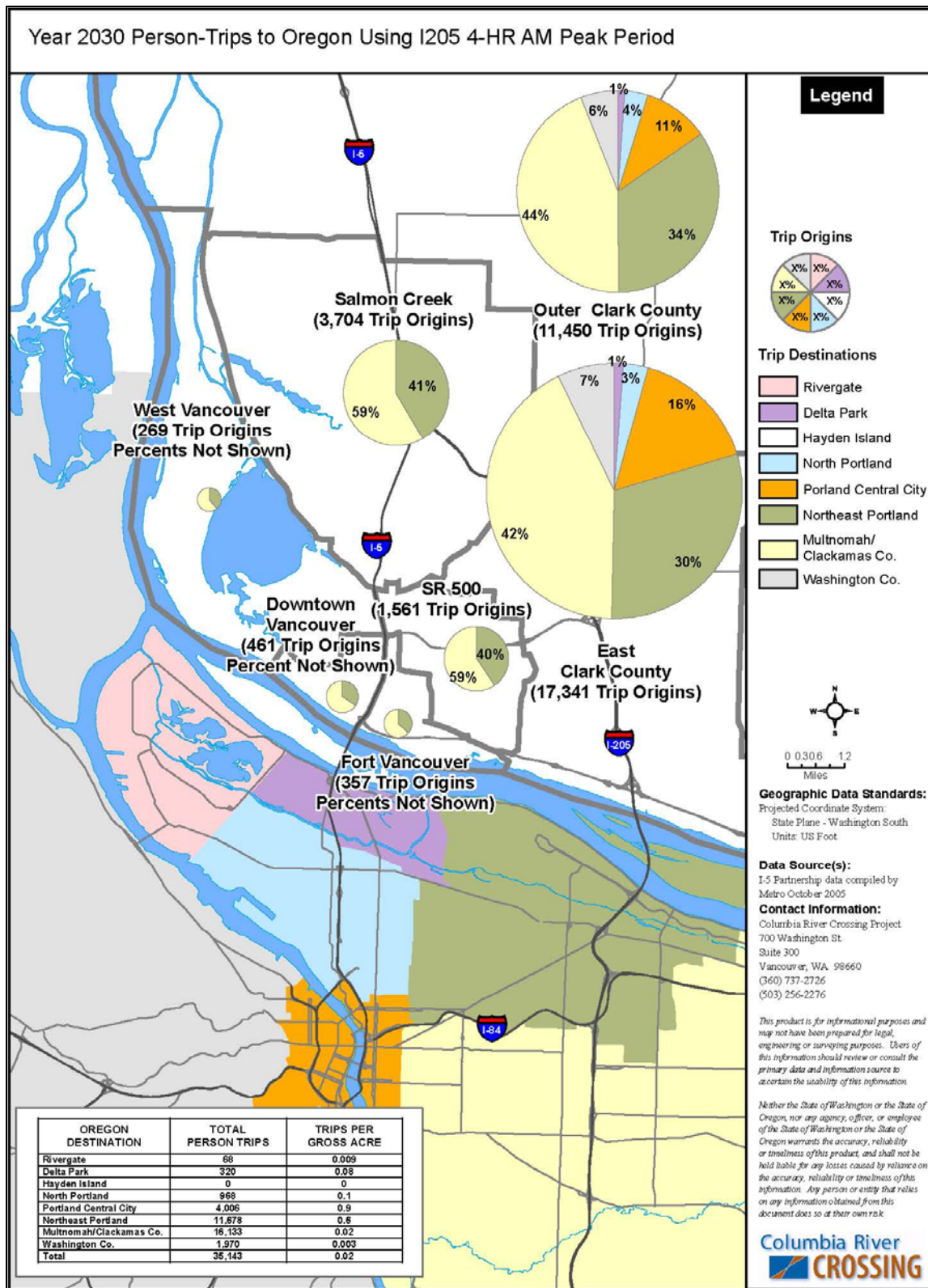
Table 4-1 shows the estimated 4-hour AM peak person trips between the 15 geographic districts that would use either the I-5 or I-205 bridge in 2030.

**Table 4-1. Origins/Destinations of 2030 No-Build Person Trips Using I-5 or I-205 Bridge (No-Build Scenario)**

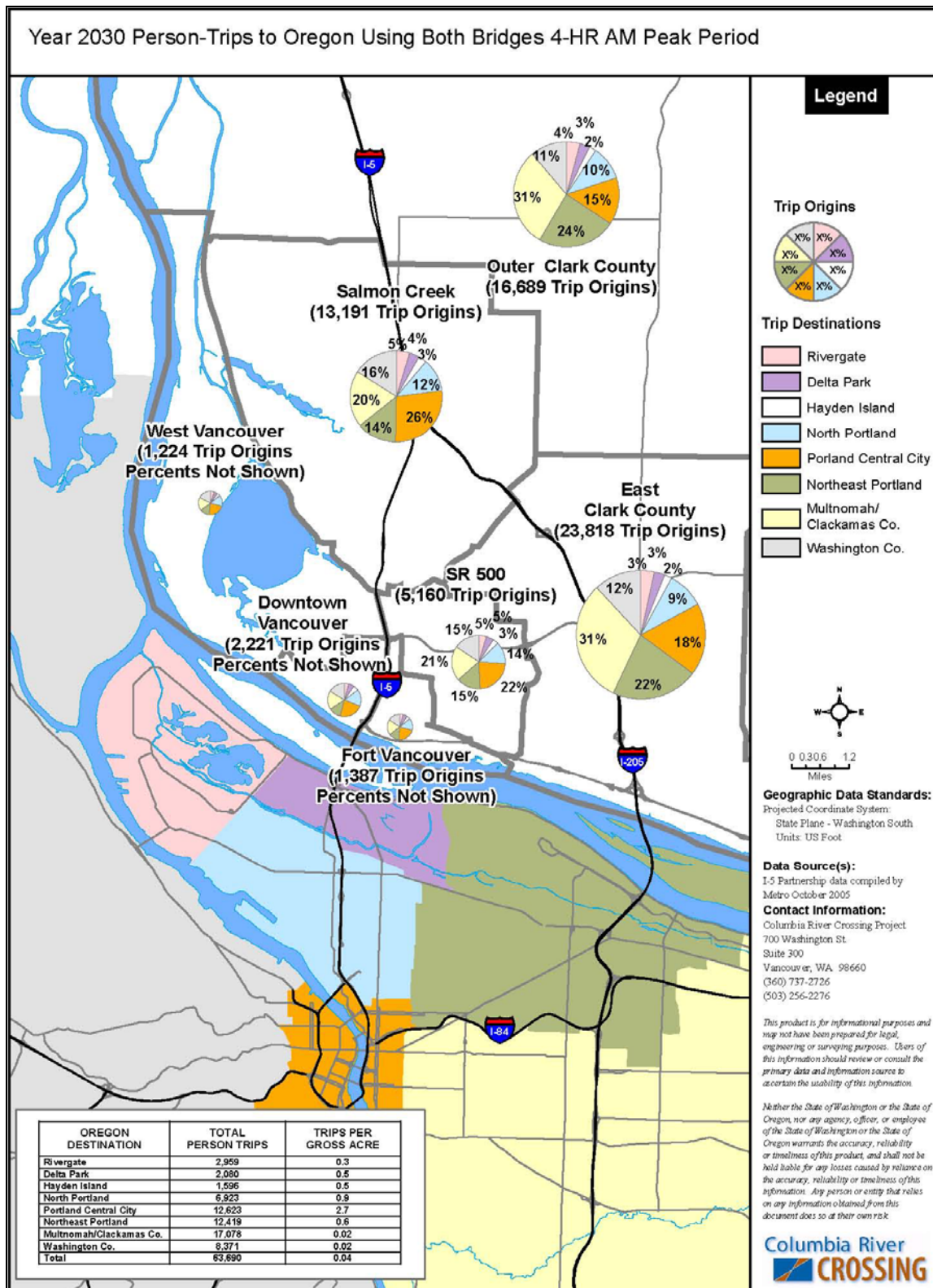
From		To	Rivergate	Delta Park	Hayden Island	North Portland	Portland Central City	Northeast Portland	Multnomah/Clackamas Co.	Washington County	East Clark County	Fort Vancouver	SR 500	Outer Clark County	Salmon Creek	West Vancouver	Downtown Vancouver	Total
Northbound	Rivergate		0	0	0	0	0	0	0	0	166	46	62	103	102	23	75	577
	Delta Park		0	0	0	0	0	0	0	0	147	37	57	90	95	20	61	507
	Hayden Island		0	0	0	0	0	0	0	0	166	58	74	105	127	30	104	664
	North Portland		0	0	0	0	0	0	0	0	694	204	267	403	393	103	353	2,418
	Portland Central City		0	0	0	0	0	0	0	0	753	158	237	471	434	91	305	2,449
	Northeast Portland		0	0	0	0	0	0	0	0	1,848	255	300	1,109	552	92	282	4,438
	Multnomah/Clackamas Co.		0	0	0	0	0	0	0	0	4,131	689	656	2,371	1,211	219	709	9,986
	Washington County		0	0	0	0	0	0	0	0	1,046	257	302	586	477	141	453	3,261
<b>Total</b>											<b>8,952</b>	<b>1,705</b>	<b>1,955</b>	<b>5,237</b>	<b>3,390</b>	<b>718</b>	<b>2,342</b>	<b>24,300</b>
Southbound	East Clark County		816	611	460	2,195	4,294	5,218	7,382	2,843	0	0	0	0	0	0	0	23,818
	Fort Vancouver		60	75	61	210	308	179	274	219	0	0	0	0	0	0	0	1,387
	SR 500		240	233	169	701	1,188	750	1,080	798	0	0	0	0	0	0	0	5,160
	Outer Clark County		695	513	366	1,740	2,426	3,997	5,096	1,857	0	0	0	0	0	0	0	16,689
	Salmon Creek		628	470	371	1,542	3,613	1,856	2,625	2,087	0	0	0	0	0	0	0	13,191
	West Vancouver		67	57	50	187	275	160	220	209	0	0	0	0	0	0	0	1,224
	Downtown Vancouver		93	121	120	348	519	259	402	359	0	0	0	0	0	0	0	2,221
	<b>Total</b>		<b>2,599</b>	<b>2,080</b>	<b>1,596</b>	<b>6,923</b>	<b>12,623</b>	<b>12,419</b>	<b>17,078</b>	<b>8,371</b>								

Table 4-1 shows that when trips using the I-205 bridge in the AM peak period are also considered, the district producing the most amount of southbound person trips is East Clark County with 23,818 person trips. More than half of the person trips (12,600 trips or 52%) from

**Figure 4-1. 2030 No-Build Person-Trips to Oregon Using I-205 Bridge Only in 4-HR AM Peak Period**



**Figure 4-2. 2030 No-Build Person-Trips to Oregon Using Both Bridges in 4-HR AM Peak Period**



**Figure 4-3. 2030 No-Build Person-Trips to Clark County Using I-205 Bridge Only in 4-HR PM Peak Period**

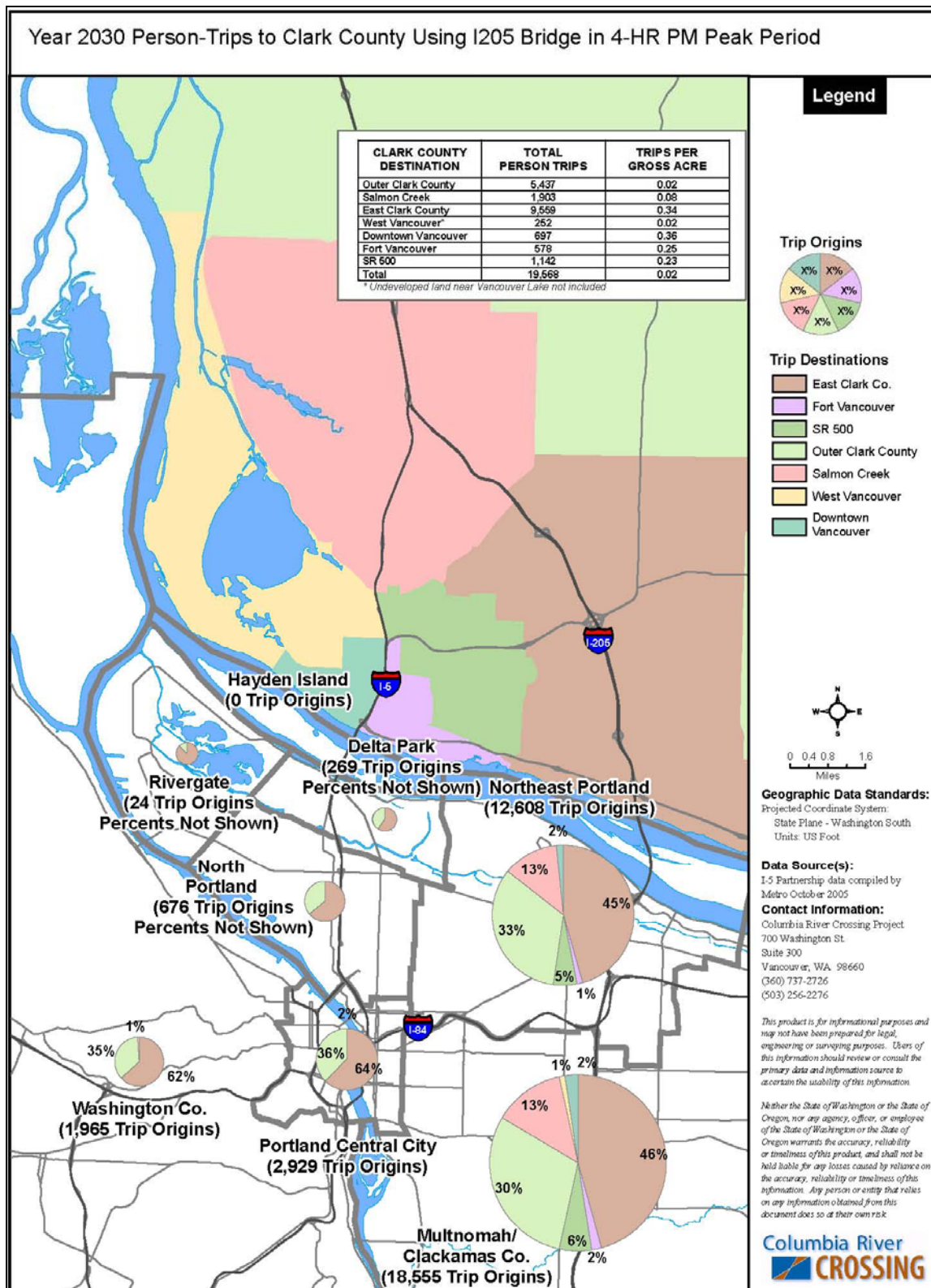


Figure 4-4. 2030 No-Build Person-Trips to Clark County Using Both Bridges in 4-HR PM Peak Period

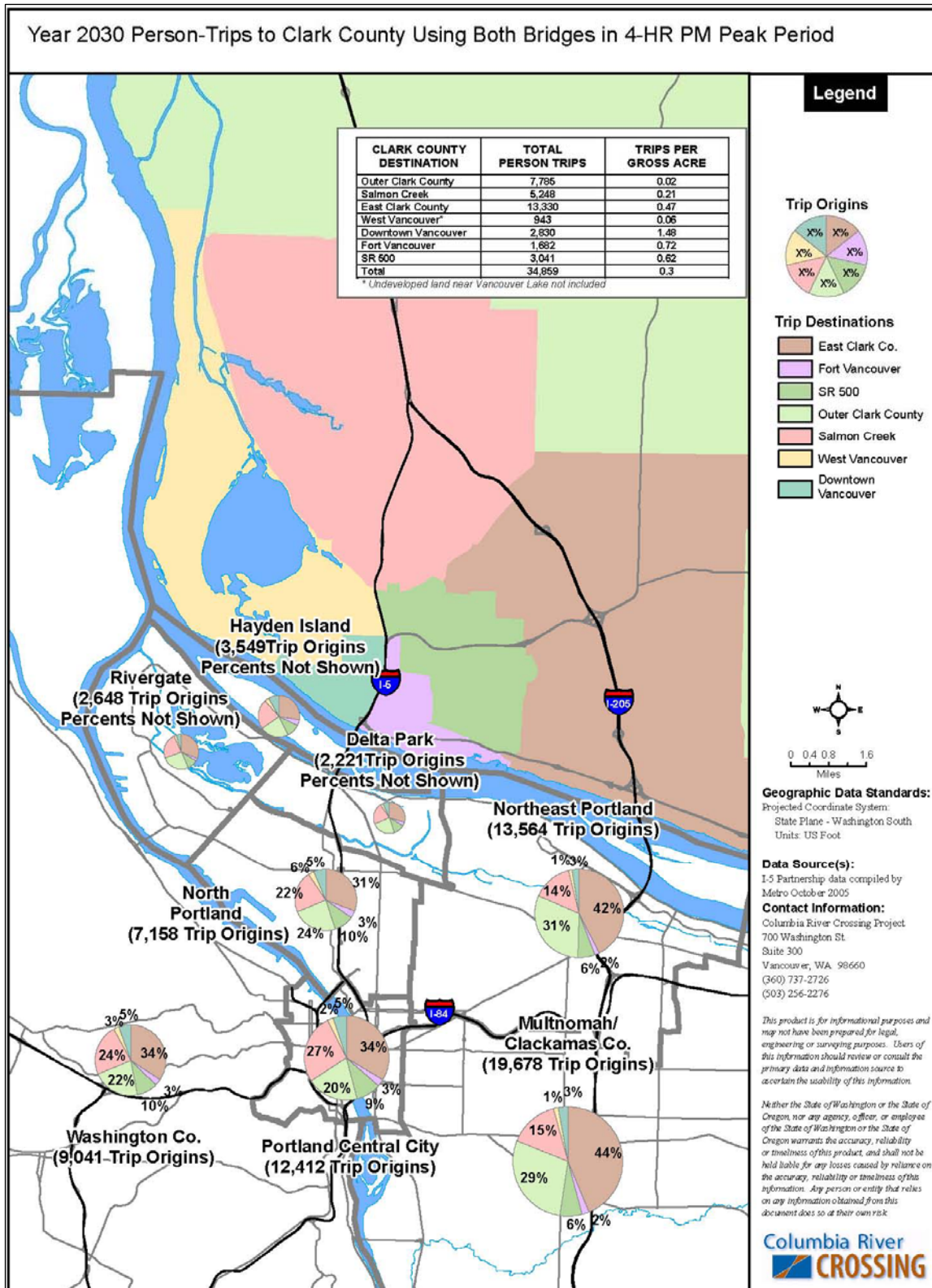






Table 4-2 shows that in the PM peak period, when trips using the I-205 bridge are also considered, the largest trip producing district is Multnomah/Clackamas County with 19,677 person trips. Almost half of these trips (8,615 person trips or 44%) are destined to East Clark County. With both bridges, the Portland Central City district is the third largest trip producer, producing about 12,400 total person trips; approximately 2,900 person trips greater than just trips crossing the I-5 bridge. Most of these additional person trips are destined to East Clark County (about 1,800) and Outer Clark County (about 1,100). If the bottleneck at the I-5 bridge is improved, some of these trips to East Clark County and Outer Clark County could be attracted from I-205 to I-5.

Compared to Portland Central City, travelers from Hayden Island, Delta Park, Rivergate, and North Portland to Clark County (the other I-5 corridor districts) are much less inclined to use I-205 as a substitute route for I-5. When I-205 is considered, trips to these four districts only increase by a total of 970 person trips. Again, if the bottleneck at the I-5 bridge is improved, some of these trips could be attracted from I-205 to I-5. Similarly, the vast majority of afternoon trips from Northeast Portland and Multnomah/Clackamas County use I-205 exclusively. Together, the Northeast Portland and Multnomah/Clackamas County districts produce only 2,080 person trips on I-5, which is roughly 6 percent of the total 33,241 person trips that use both bridges.

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## 5. 2030 Transit Service Considerations

### 5.1 Existing Land Use Characteristics

As part of this transit market analysis, a qualitative assessment of land use, population, and employment was conducted for each of the 15 geographic districts. The purpose of assessing these characteristics was to generally review the transit ridership potential based on these factors. This assessment was not based on 2030 TAZ data.

Table 5-1 describes the general land use characteristics and transit ridership potential of the 15 districts. Generally, all of the districts have the potential to generate new transit ridership. In most cases the five I-5 corridor districts identified in Oregon have a moderate to high potential to generate new transit ridership. In addition, the seven districts identified in Washington, have a moderate to high potential to generate additional transit ridership. For the seven districts in Clark County, consideration must be given to the two types of markets identified in this report; the “suburban fringe” and the “inner urban.” (See Section 5.3 below.) The potential for new transit ridership will depend on the types of transit services offered to these markets.

**Table 5-1. General Land Use Characteristics and Transit Potential of Analyzed Districts**

District	Existing Characteristics	Relative Transit Ridership Potential
Outer Clark County	Low density rural, growing small cities with infrequent transit service (e.g., Battleground, Camas).	Low
Salmon Creek	Low to mid-density residential with commercial/employment located in nodes and corridors. Some fixed route transit service; significant commuter park-and-ride use.	Moderate/High
East Clark County	Low to mid-density residential with commercial/employment located in nodes and corridors. Fixed route transit service and moderate park-and-ride use.	Moderate/High
West Vancouver	Low to mid-density residential with limited commercial/employment. Limited fixed route transit service; new park-and-ride planned.	Moderate
Downtown Vancouver	Moderate residential and employment density, pedestrian friendly design, high level of transit service.	Moderate/High
Fort Vancouver	Historic uses, open space, and Clark College. Some residential and commercial uses.	Moderate
SR 500	Mid-density residential with significant commercial/employment located in nodes and corridors. High level of fixed route transit service.	Moderate/High
Hayden Island	Limited residential, significant retail employment, limited transit service.	Moderate
Rivergate	Port-oriented and heavy industrial uses, mid-density residential/commercial district in St. Johns, open space/natural preserve. Moderate level of transit service.	Moderate
Delta Park	Industrial uses and regional attractions (e.g., sports fields, Expo Center, PIR). Limited residential. Low level of transit service.	Moderate
North Portland	Mid-density residential with commercial/employment located in nodes and corridors. Pedestrian and transit-friendly street connectivity. High level of transit service.	Moderate/High
Portland Central City	High-density residential and employment, transit oriented urban design, highest level of transit service and transit use.	High
Washington County	Mix of low- to mid-density residential with commercial/employment centers and corridors. High levels of transit service.	Not served directly by CRC transit improvements

District	Existing Characteristics	Relative Transit Ridership Potential
Northeast Portland	Mid-density residential with commercial/employment located in nodes and corridors. Pedestrian and transit-friendly street connectivity south of Lombard St. Industrial and airport-oriented land uses north of Lombard St. High levels of transit service.	Moderate/High
Multnomah/Clackamas County	Mix of low- to mid-density residential with commercial/employment centers and corridors. High levels of transit service.	Not served directly by CRC transit improvements

## 5.2 Forecasted Land Use Changes and Travel Patterns

Between 2005 and 2030 much of the land use changes within the 15 geographic districts analyzed in this study are forecasted to occur in the outer suburban areas of Clark County and Multnomah County, and within a greater regional area within Clackamas County and Washington County. In particular, by 2030 Clark County is estimated to have a large increase in households in the Fort Vancouver area and Outer Clark County. Outer Clark County will also have a substantial increase in employment by 2030. In Oregon, Gresham and the Northwest Industrial Area are projected to have large increases in employment. The anticipation that more regional growth will occur in the suburban areas is reflected in the travel patterns analyzed in this report.

## 5.3 Potential Transit Strategies

Transit service should be designed to serve those parts of the travel market that are most likely to be attracted to transit. Characteristics to look for in deciding which markets could attract ridership are:

1. **Characteristics of the Destination.** Transit ridership is most likely where the destination is characterized by high density mixed use development, paid parking, and pedestrian friendliness.
2. **Size of the market.** A large number of trips are needed to justify good service levels, without which transit ridership is apt to be low.

Generally, transit over I-5 between Clark County and the Portland Metropolitan Area should offer relatively high speed and frequent service and offer transfer opportunities at places that would best serve Clark County travelers.

An appropriate strategy for the “inner urban” market identified in this report would be a traditional fixed route service, which would connect the urban centers of downtown Vancouver and Portland Central City. A fixed route service, such as a High Capacity Transit (HCT) system, would allow for quick travel times and a direct connection between these major employment and residential centers with intermediate stops at other high density and mixed use areas. For the “suburban fringe” market identified in this report a potential transit strategy would be a timed transfer center system. These systems, which often use dedicated off-road park-and-ride facilities, are used to coordinate the timed meeting of buses for ease of transferring to and/or connecting buses and vehicles with HCT. For the “suburban fringe” market this type of service works well because it creates a focal point for a radial transit network.