Chapter 5: Goods Movement and Aviation

Washington County is often dubbed “the Economic Engine of Oregon.” Led by established industry clusters in high-tech, clean tech and activewear, Washington County is home to over 232,000 jobs and the highest average weekly wages in Oregon. Critical to maintaining and raising this status is the efficient movement of goods by road, rail, and air. This chapter discusses existing conditions and future needs for roadway freight, freight rail, and air cargo. General aviation and pipelines are also covered.

5.1 ROADWAY FREIGHT CONNECTIONS

This section deals primarily with the transport of freight on roadways because it is the only mode of freight travel over which Washington County has control. Although it is recognized that significant amounts of freight are also transported by rail and pipeline, and to a much lesser extent air, the planning for these modes is done by private companies or other government agencies. Rail, pipeline, and air modes are more specifically discussed as separate elements later in this chapter.

Given the close connection between freight movement and economic growth, it is critically important for Washington County’s freight connections to provide efficient and reliable access for the transport of goods. To keep pace with regional trade volumes that are expected to double by 2035\(^2\), the Washington County Transportation Plan must identify and address gaps and deficiencies in the freight network. The following section identifies key freight connections and summarizes existing freight needs. Also included are previous findings regarding freight system needs from the Metro Regional Transportation Plan, the Metro Regional Freight Plan, and the ODOT Portland Region Economic Corridor Evaluation Report.

Freight is transported via intermodal, roadway, rail, air and marine facilities. Each of these modes provides an important element of goods movement in Washington County and the Portland Metro region. While all modes are important the majority of freight is moved via roadways, as approximately 67% of freight tonnage in the Portland Metropolitan area moved by truck in 2000\(^3\). The following section identifies freight roadway designations and truck demand in Washington County.

5.1.1 Freight Route Destinations

The Countywide Through-truck route system is an important element of the plan. To provide for the most efficient transport of freight and to minimize impacts on residential neighborhoods, through-truck routes are designated primarily on Arterial and Collector roads. However through-truck route designations in this Plan encourage the use of these routes for through-truck travel, but do not restrict through-truck travel or local pickup and delivery by truck to these routes. The primary purpose of designating through-truck routes in this plan is to ensure that any future improvements on these roads provide for the safe and efficient movement of trucks.

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2 Regional Freight Plan, Metro, June 2010, pg. 32
3 2035 Regional Transportation Plan, Metro, June 2010, pg. 1-17
Figure 5-1

* Additional through-truck route designations to be determined by further study.

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Care was taken in the mapping but there are no warranties for this product. However, notification of any errors will be appreciated.
Hazardous Materials

The transport of hazardous materials is regulated by the Federal Motor Carrier Safety Administration under Title 49 Code of Federal Regulations, Parts 390-397, and is not governed by local jurisdictions. Hazardous materials include a variety of substances, ranging from radioactive and medical wastes to gasoline. The transport of non-radioactive hazardous materials requires that vehicles transporting these materials comply with any routing designations of a state, be placarded or marked and not go through or near heavily populated areas, places where crowds are assembled, tunnels, narrow streets or alleys, except where there is no practicable alternative. The transport of radioactive materials is generally restricted to designated preferred routes on interstate highways, beltways or bypasses, where alternative routes have not been designated by a state.

Transport of hazardous materials is permitted on all Through Truck Routes within the County, however the Vista Ridge tunnel (on US 26 near downtown Portland) is closed to such traffic. As a result, hazardous materials are frequently transported via Cornelius Pass Road.

Regional Freight System

Freight (i.e., truck) route designations are applied at the state, regional, county and local level. ODOT, Metro, Washington County as well as cities in Washington County each have their own designations that reflect the needs for transporting goods within and through the respective agency jurisdictions. Roadways on these routes should be designed, constructed, and maintained to support the efficient movement of freight.

The 1999 Oregon Highway Plan identifies the State Highway Freight System. In Washington County, this designation is applied to all freeways (I-5, US 26, and OR 217) as well as OR 99W and OR 6. At the regional level, Metro identifies a more-detailed set of significant freight infrastructure. The Metro Regional Freight Network in Washington County is illustrated below. It identifies main roadways and road connectors for freight trucks, railroad lines, rail yards, marine facilities, and airports. The map also identifies major employment areas, industrial areas, and urban areas that are most likely to generate freight traffic.
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Care was taken in the mapping but there are no warranties for this product. However, notification of any errors will be appreciated.
5.1.2 Truck Demand

Truck Counts

Counts of truck traffic have been taken at various locations within Washington County. These provide an understanding of truck operation within the county, but only at the points where the counts are taken. Specific path information about truck trips is extremely limited.

For operational purposes, FHWA classifies vehicles into the following 13 categories:

![Figure 5-3: FHWA Vehicle Classifications](image)

Washington County vehicle classification counts, use this classification scheme, and describe trucks as class 4 through 13.

Vehicle Classification Counts have been taken at most Washington County count stations over the last 5 years.
Count locations with Highest Truck Volumes:

- Tualatin-Sherwood Rd, W of Boones Ferry (5,948 trucks in 2007, and 4,085 trucks in 2012)\(^4\)
- Glencoe Rd, S of Beach (1,916 trucks in 2007, and 1,647 trucks in 2012)
- Murray Blvd, S of Beach (1,882 trucks in 2007, and 1,657 trucks in 2012)
- 185th Ave, N of Cornell (1,725 trucks in 2007, and 1,730 trucks in 2012)
- Roy Rogers Rd, S of Scholls Ferry (1,723 trucks in 2007, and 1,587 trucks in 2012)
- Scholls Ferry Rd, W of Nimbus (1,718 trucks in 2007, and 1,742 trucks in 2012)

Count locations with Highest Truck Percentages:

- Clark Hill Rd, S of Farmington (24% in 2007, and 14% in 2012)
- Grahams Ferry Rd, S of Cahalin St (22% in 2007, and 20% in 2012)
- Roy Rd, N of Cornelius-Schefflin (22% in 2007, and 27% in 2012)
- Cipole Rd, N of Tualatin-Sherwood (19% in 2007, and 17% in 2012)
- Tonquin Rd, S of Oregon St (18% in 2007, and 12% in 2012)
- Sellers Rd, S of Hwy. 26 (17% in 2007, and 15% in 2012)
- Gordon Rd, S of Beach (11% in 2007, and 15% in 2012)
- Farmington Rd, W of 209th (17% in 2007, and 14% in 2012)
- Tualatin-Sherwood Rd, W of Boones Ferry (16% in 2007, and 14% in 2012)

The Washington County information is also available in Appendix A.

The Washington County traffic count stations do not include ODOT or City operated roadways. ODOT has a limited number of Automatic Traffic Recorder (ATR) count stations that count trucks on their roads in Washington County. A comparison of 2008 and 2010 (latest comparable data available) truck volumes and percentages for five ODOT ATR stations is listed below.

- OR 6 west of Glenwood Lane (549 trucks or 12% trucks in 2008, 1,070 trucks or 22.6% trucks in 2010)
- U.S. 26 @ Hwy. 47 (302 trucks or 4.7% trucks in 2008, 583 trucks or 8.39% trucks in 2010)
- U.S. 26 west of Glencoe Rd. (2,218 trucks or 10.6% trucks in 2008, 2,129 trucks or 10.13% trucks in 2010)
- I-5 south of Boones Ferry Rd. (20,632 trucks or 13.6% trucks in 2008, 15,596 trucks or 10% trucks in 2010)
- OR 8 west of NW 334th Ave. (1,482 trucks or 4.38% trucks in 2008, 1,349 trucks or 4.06% trucks in 2010)

As indicated by the data, there is no clear trend in change. Two of the five count stations exhibited increased truck volumes and percentages whereas the other three locations showed decreased truck volumes and percentages. Although this is a very limited sample size that should be viewed with caution, this data reflects an overall decrease of approximately 4,500 trucks or just under 18 percent in truck traffic between 2008 and 2010. One possible explanation for this downward trend is that the 2008 to 2010 time period coincides with the height of the economic recession, reduced business activity and an expected commensurate decline in truck activity.

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\(^4\) All of Tualatin-Sherwood has extremely high truck volumes, a listing of the highest truck volumes in Washington County would be a description of the count station locations along Tualatin-Sherwood Rd. It is listed once with the highest truck volume location.
Freight & Truck Traffic Generating Areas

The Roadway Freight System needs to serve industrial and employment locations within Washington County. Many of these locations within the Urban Growth Boundary are identified by Metro Title 4, as shown in figure 5.4 on the following page. Other truck generating uses include many rural activities such as rock quarries, logging, and farming. No map of these activities is included, as they span most of the rural area.
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Care was taken in the mapping but there are no warranties for this product. However, notification of any errors will be appreciated.

Department of Land Use and Transportation
Long Range Planning Division

Figure 5-4
5.2 ROADWAY FREIGHT GAPS AND DEFICIENCIES

Significant regional efforts have previously been conducted to analyze the movement of goods in the region. Three studies in particular have provided valuable information on gaps and deficiencies in the freight network in Washington County:

- Metro Regional Transportation Plan,
- Metro Regional Freight Plan,

Findings relevant to Washington County are summarized in the following section.

5.2.1 Metro RTP

The 2035 Metro Regional Transportation Plan (RTP) was completed in June 2010 and characterizes freight travel in the state and the region. The RTP provides a vision for the regional freight network; to enhance freight mobility and access to industrial area and intermodal facilities by focusing strategies on the most critical locations where roadway congestion occurs. That vision is focused on a system approach to plan and manage the freight system in order to reduce delay, increase reliability, protect industrial lands and freight transportation investments, address critical marine and rail needs, and utilize ‘clean, green, and smart’ technologies and practices.

Performance thresholds for reliability on the regional freight transportation system are identified in the Interim Regional Mobility Policy. The threshold is a midday (9 AM to 3PM) one-hour peak period with demand capacity ratio of 0.99 or 0.90, depending on the facility\(^5\). These thresholds are intended to support off-peak freight mobility and reliability.

The RTP identifies long-term multi-modal needs for key regional corridors. The eight RTP ‘mobility corridors’ that were located in Washington County are listed in Table 5-1, as are the regional freight needs identified for each corridor. Also noted in Table 5-1 are arterial and throughways needs that may be significant to local freight mobility and reliability or address other potentially freight-related concerns. The RTP recommends implementation of the Regional Transportation Functional Plan and Urban Growth Management Functional Plan as the applicable strategy to address the identified freight needs for these corridors. Future Corridor Refinement Plans are recommended for two of the corridors; the Portland Central City to Wilsonville and Sherwood, and from Beaverton to Forest Grove.

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\(^5\) 2035 Regional Transportation Plan, Metro, June 2010, Table 2.4
Table 5-1: Metro RTP Mobility Corridor Freight Needs

<table>
<thead>
<tr>
<th>Mobility Corridor</th>
<th>Regional Freight Needs</th>
</tr>
</thead>
</table>
| Portland City Center to Tigard | Performance thresholds not met in 2035 midday on:  
  • I-5 between Tualatin Town Center and SW Durham Road (both directions)  
  • I-5 around the Lake Grove Town Center (both directions)  
  • SW Durham Road between I-5 and SW Pacific Hwy at the King City Town Center (both direction)  
  • OR 217 between Denney Road and SW Hall Blvd.  
  
Throughway needs identified include the close spacing of I-5 interchanges south of the Ross Island Bridge (US 26) and additional crossings over I-5. Fanno Creek, the rail line, and I-5 are located close to each other and function as barriers to crossings. Most of I-5 does not meet peak hour performance thresholds. Arterial connectivity gaps exist between OR 43 and I-5, OR 99W and I-5 (south of Durham Road), between Taylors Ferry Road and Oleson Road, and between I-5/Terwilliger and Washington Square. Arterial performance deficiencies include segments of OR 43, OR 99W, and Boones Ferry Road. |
| Tigard to Wilsonville      | The Grahams Ferry undercrossing of the P&W line and WES has a height restriction which affects freight vehicles. It is a safety hazard and limits mobility.  
  
The Tonquin-Day-Graham’s Ferry-Boones Ferry route between the Tualatin Industrial Area and the Elligsen interchange has geometric deficiencies that need to be improved to function reliably for freight traffic.  
  
Performance thresholds not met in 2035 midday on:  
  • I-5 from I-205 to Boones Ferry Road  
  • I-5 between Wilsonville Road and the next interchange south (both directions)  
  • I-5 around the Lake Grove Town Center (both directions)  
  
Throughway needs include the less than one-mile distance between I-5 interchanges at Nyberg Road and I-205, including merge-weave conflicts on northbound I-5. 2035 PM peak hour performance thresholds are not met on I-5 between I-205 and Wilsonville Road. Arterial gaps are identified east of I-5 and south of I-205, and on either side of Tualatin-Sherwood Road. Arterial deficiencies are identified for crossing the Tualatin River, Willamette River, and I-5. Arterial performance thresholds will be exceeded for segments of Boones Ferry Road, Stafford Road, and Grahams Ferry Road. |
| Beaverton to Tigard        | Performance thresholds not met in 2035 midday on:  
  • OR 217 from south of Denney Way to Hall Blvd (northbound)  
  
Throughway needs include performance thresholds on OR 217, OR 99W, Beaverton-Hillsdale Highway, Canyon Road. The close spacing of OR 217 interchanges and design constraints due to Fanno Creek are identified as well. Arterial deficiencies are noted around Washington Square regional center, as well as on OR 99W, Scholls Ferry Road, and Oleson Road. Arterial connectivity gaps are noted in multiple locations on either side of OR 217. |
### Washington County TSP 2035 • Existing Conditions and Future Needs Report • Draft, January 2013

<table>
<thead>
<tr>
<th>Mobility Corridor</th>
<th>Regional Freight Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigard to Sherwood &amp; Sherwood to Newberg</td>
<td>Future (2035) midday freight reliability is compromised by intersection operations and driveway turn movements on OR 99W between SW McDonald St and SW Beef Bend Road and from Durham Road to just north SW 124th Ave (both directions)</td>
</tr>
<tr>
<td></td>
<td>Performance thresholds not met in 2035 midday on:</td>
</tr>
<tr>
<td></td>
<td>• Tualatin Sherwood Rd. from Avery Street to NE Oregon Street</td>
</tr>
<tr>
<td></td>
<td>Throughway needs include the close spacing of traffic signals and driveways along OR 99W south of the I-5 interchange. Performance thresholds are exceed along OR 99W between I-5 to 124th Avenue. Several arterial connectivity gaps are identified around OR 99W and another is identified south of Tualatin-Sherwood Road. Arterial performance deficiencies are identified for segments of Scholls Ferry Road, OR 99W, Roy Rogers Road, Hall Boulevard, Boones Ferry Road, Tualatin-Sherwood Road, and 72nd Avenue.</td>
</tr>
<tr>
<td>Portland Central City to OR 217</td>
<td>Performance thresholds not met in 2005 and 2035 midday on:</td>
</tr>
<tr>
<td></td>
<td>• US 26 near the Vista Ridge tunnel (both directions)</td>
</tr>
<tr>
<td></td>
<td>• US 26 from Central City to Scholls Ferry Road (westbound)</td>
</tr>
<tr>
<td></td>
<td>Performance thresholds not met in 2035 midday on Cornelius Pass Road, which also includes SPIS locations on the section north of the Urban Boundary including hairpin turns.</td>
</tr>
<tr>
<td></td>
<td>Throughways needs note the close spacing of six interchanges on US 26 between OR 217 and Portland Central City. Arterial gaps in connectivity include south of US 26, between Scholls Ferry Road and Barbur Boulevard, north of US 26, and north of Beaverton-Hillsdale Highway. Arterial deficiencies are identified for Cornell Road, Barnes Road, and Burnside Road.</td>
</tr>
<tr>
<td>OR 217 to North Plains</td>
<td>Performance thresholds not met in 2005 and 2035 midday on:</td>
</tr>
<tr>
<td></td>
<td>• US 26 between 158th Ave and Cedar Hills Blvd</td>
</tr>
<tr>
<td></td>
<td>Lack of freight reliability on Murray Blvd between TV Hwy and US 26.</td>
</tr>
<tr>
<td></td>
<td>Throughways needs include more crossings across US 26 and note the close spacing of interchanges on US 26 between OR 217 and Brookwood Parkway. Arterial deficiencies are identified for Walker Road (between OR 217 and 185th Avenue)</td>
</tr>
<tr>
<td>Forest Grove to US 26</td>
<td>Better freight reliability on Zion Church Road.</td>
</tr>
<tr>
<td></td>
<td>Throughways needs are identified for OR 47 intersections approaching Forest Grove Town Center. An arterial gap is identified for east/west connectivity, with no alternative to TV Highway (OR 8) available.</td>
</tr>
<tr>
<td>Beaverton to Forest Grove</td>
<td>No regional freight needs were identified.</td>
</tr>
<tr>
<td></td>
<td>Throughways needs are identified along TV Highway (OR 8), between OR 47 and OR 217 and a need is identified for an east-west connection between Forest Grove and Hillsboro. Arterial gaps are identified south of TV Highway (OR 8), and between Farmington Road and Scholls Ferry Road. Arterial deficiencies are identified for Walker Road (between OR 217 and 185th Avenue).</td>
</tr>
</tbody>
</table>

Source: Metro Regional Transportation Plan

The RTP includes a long list of regional projects to prioritize funding of transportation system improvements in the region. Many of the projects are focused on multi-modal improvements that will directly or indirectly benefit freight transportation.
5.2.2 Metro Regional Freight Plan

The 2010 Metro Regional Freight Plan is an element of the Metro RTP that provides data and analysis of freight and goods movement in the region. The plan describes the close relationship between freight transportation, trade, and economic growth. The plan provides an action plan and a tool kit of strategies designed to address freight needs and issues in conjunction with the RTP and the 2040 Growth Concept.

The plan identifies locations of recurring highway congestion (chokepoints) that affect freight movement. The locations and issues identified in Washington County are:

- **I-5 Corridor** (south of OR 217): the corridor is reaching capacity and carries a larger percentage of trucks.

- **OR 217**: Inadequate interchange spacing leads to merge/weave congestion and accidents near interchanges at Southwest Beaverton-Hillsdale Highway, Allen Boulevard, and Denney Road.

- **Non-continuous or awkward parallel arterials and connections**: improved connections to current or emerging industrial areas are needed (e.g., I-5/OR 99W connector)

- **Last-mile chokepoints**: various locations that experience congested last-mile local industry connectors (e.g., SW 124th Avenue from Tualatin-Sherwood Road to the I-5/Elligsen Road interchange)

Improved access to the North Wilsonville-Tualatin-Sherwood industrial area is identified as one of the highest road improvement priorities in the region. OR 99W through Tigard is also identified as a core throughway system bottleneck with substantial freight impacts. While truck traffic makes up the dominant share of freight movement, upgrades to rail main line and rail yard infrastructure were also found to be critical transportation needs. Included in the Regional Freight Plan is a prioritized project list developed by Metro’s Regional Freight and Goods Movement Task Force 2008. The projects are categorized as high, medium-high, medium-low, or low regional priority and may not be included in the financially constrained RTP project list. The highest priority projects identified for Washington County are listed in Table 5-2. The projects listed below were identified as medium-high priority, as no high priority projects where identified for Washington County by the Task force.
Table 5-2: Washington County Priority Freight Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>RTP Project #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tualatin-Sherwood/Boones Ferry Intersection</td>
<td>Grade separate Tualatin-Sherwood/Boones Ferry intersection.</td>
<td>10556</td>
</tr>
<tr>
<td>Grahams Ferry Rd Improvements</td>
<td>Widen Grahams Ferry Rd to 3 lanes, add bike/pedestrian connections to regional trail system, and fix undersized railroad overcrossing.</td>
<td>10588*</td>
</tr>
<tr>
<td>I-5/OR 99W Connector Related Arterial</td>
<td>Improve arterial roads to enhance the function of the I-5/OR 99W Connector.</td>
<td>10598</td>
</tr>
<tr>
<td>Improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR 217/72nd Ave. Interchange Improvements</td>
<td>Complete interchange reconstruction with additional ramps and overcrossings.</td>
<td>10599</td>
</tr>
<tr>
<td>US 26/Brookwood Parkway (formerly Shute)</td>
<td>Add westbound to southbound loop ramp, additional northbound through lane and relocate Jacobsen intersection.</td>
<td>10600*</td>
</tr>
<tr>
<td>Interchange Improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon-Tonquin Intersection &amp; Street</td>
<td>Intersection improvements (consider roundabout) on Oregon at Tonquin Road; sidewalks and bike access through the intersection.</td>
<td>10674*</td>
</tr>
<tr>
<td>Improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adams Ave Signal &amp; Interconnect on</td>
<td>Install traffic signal at Adams Ave. and interconnect the signals along Tualatin-Sherwood Road between Cipole and Borchers.</td>
<td>10675</td>
</tr>
<tr>
<td>Tualatin-Sherwood Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-205 SB to I-5 SB</td>
<td>Merge lane to I-5 south</td>
<td>10734**</td>
</tr>
<tr>
<td>OR 217 Overcrossing</td>
<td>Realign Hunziker Road to meet Hampton Street at 72nd Ave. and removes existing 72nd/Hunziker Road intersection.</td>
<td>10751*</td>
</tr>
<tr>
<td>72nd Ave. Intersection Improvements</td>
<td>Southbound right turn lane, northbound right turn overlap at 99W and 72nd; Southbound or Eastbound right turn lane at 72nd/Hampton/Hunziker.</td>
<td>10767</td>
</tr>
<tr>
<td>OR 99W Intersection Improvements</td>
<td>Provide increased capacity at priority intersections, including bus queue bypass lanes in some locations, improved sidewalks, priority pedestrian crossings, and an access management plan, while retaining existing 4/5-lane facility from I-5 to Durham Road.</td>
<td>10770*</td>
</tr>
<tr>
<td>I-5/OR 99W Connector Phases 1-6</td>
<td>Phase 1: Conduct study, complete environmental design work and NEPA for I-5 to OR 99W Connector and acquire ROW. Phase 2: Construct minimal connection to I-5 and two lane arterial to Tonquin Road/124th extension. Phase 3: Extend two lanes to OR 99W and construct interchange. Phase 4: Improve I-5 interchange connections and add braids on I-5. Phase 5: Construct mid-point interchanges. Phase 6: Widen from two lanes to four lanes on corridor.</td>
<td>10870, 10878-10882</td>
</tr>
<tr>
<td>SB I-205 to SB I-5 interchange ramp</td>
<td>Add lane to SB I-205 to SB I-5 interchange ramp and extend acceleration lane and add auxiliary lane on SB I-5 to Stafford Road.</td>
<td>10872**</td>
</tr>
<tr>
<td>OR 217 ramps</td>
<td>Braid OR 217 ramps between Beaverton-Hillsdale Highway and Allen Boulevard in both directions.</td>
<td>10875*</td>
</tr>
<tr>
<td>I-5 South Corridor Refinement Plan</td>
<td>Wilsonville to North Tigard.</td>
<td>11062</td>
</tr>
<tr>
<td>I-5 Auxiliary Lanes</td>
<td>Add auxiliary lane to I-5 southbound between Wilsonville Rd. and Elligsen Rd. Extend Boeckman Rd. overcrossing bridge on both ends.</td>
<td>11068</td>
</tr>
<tr>
<td>OR 217: Sunset Hwy to TV Hwy</td>
<td>Widen OR 217 and structures.</td>
<td>11122*</td>
</tr>
<tr>
<td>US 26: Cornell to 185th</td>
<td>Widen US 26 to 6 lanes from Cornell to 185th</td>
<td>11124**</td>
</tr>
</tbody>
</table>

Source: Metro Regional Freight Plan

*Included in Financially Constrained RTP project list

**Constructed or under construction
5.2.3 Portland Region Economic Corridor Evaluation Report

The 2011 ODOT Portland Region Economic Corridor Evaluation identified key corridors that serve the region’s top economic centers for existing and future industrial employment. Five regional economic centers (out of 14) were located in Washington County: Beaverton, Hillsboro, Tigard/SW 72nd, Tualatin/Sherwood, and Wilsonville. Two of the eight economic corridors identified were located in Washington County: I-5 (Elligsen Road to OR 217) and US 26 (I-405 to Cornelius Pass Road). OR 217, OR 99W, and other corridors were not determined to be in the top eight regional facilities serving industrial uses. Figure F4 shows the location of regional economic centers along with the top locations for industrial employment in 2005.

The regional corridors were prioritized based on assessment of regional truck traffic, industrial traffic, traffic generated from the identified economic centers, and total number of economic centers served by the corridor. Both the I-5 and U.S. 26 segments in Washington County were ranked in the second highest prioritization tier based on the amount of criteria satisfied.

Findings from analysis of the operational performance of these corridors indicate significantly more congestion occurring by 2035. As a result, the corridors will experience increases in travel delay and degradation of travel time reliability. Table 5-3 summarizes daily performance measures for the Washington County economic corridors.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Direction</th>
<th>Year 2005</th>
<th>Year 2035</th>
<th>Change (2035-2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average Speed (mph)</td>
<td>Buffer Index*</td>
<td>Average Speed (mph)</td>
</tr>
<tr>
<td>I-5 (Elligsen Rd to OR 217)</td>
<td>northbound</td>
<td>42</td>
<td>0.87</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>southbound</td>
<td>44</td>
<td>0.72</td>
<td>36</td>
</tr>
<tr>
<td>US 26 (I-405 to Cornelius Pass Rd)</td>
<td>eastbound</td>
<td>39</td>
<td>1.41</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>westbound</td>
<td>40</td>
<td>0.84</td>
<td>37</td>
</tr>
</tbody>
</table>

Note:
A buffer index score of 0.0 is free-flow, with larger numbers indicating increased speed variability. Generally, a buffer index between 1.0 and 2.0 represents corridors with significant peak period congestion and values above 2.0 represent severe congestion that spreads into multiple hours. Corridors with a buffer index greater than 2.0 are shown highlighted in bold font.

Amongst all the corridors analyzed in the region, the I-5 segment between Elligsen Road and OR 217 would degrade the most under future conditions. The corridor will experience one of the highest drops in average speed and greatest degradation in travel time reliability (as measured by buffer index). Limited peak period congestion today would change to congestion that spans many hours of the day, with the worst congestion of any of the corridors occurring on I-5 in the northbound direction. U.S. 26 would degrade by approximately 3 mph in each direction with the key bottleneck location remaining at the Vista Ridge tunnel approaches.
Figure 5-5: Regional Economic Centers and Top Industrial Employment Locations (2005)

Source: Portland Region Economic Corridor Evaluation Report, December 2011, Figure 2.
The regional picture of economic centers is important to assist with understanding freight travel patterns in Washington County.

The opportunities and constraints for growth to each regional economic site were also identified for sites expected to have significant industrial growth, including Hillsboro, Tualatin/Sherwood, and Wilsonville. The economic areas in Beaverton and Tigard/SW 72nd were not considered to have significant industrial growth in the future. The opportunities and constraints identified for each site analyzed are summarized below:

- **Hillsboro** would benefit from improved arterial performance on corridors that connect to US 26 (such as Cornell Road, Cornelius Pass Road and Brookwood Parkway). The opportunities for growth are categorized as ‘fair’ based on location and level of reliance on congested facilities.

- **Tualatin/Sherwood** would benefit from improving the connectivity and performance of existing arterial corridors that connect to I-5 and OR 99W, as well as corridors parallel to I-5 to better connect OR 217 and Wilsonville. The opportunities for growth are categorized as ‘constrained’ due to distance from freeways, the level of congestion expected on connecting roadways (without additional future improvements), and the level of congestion expected on the portion of I-5 accessed by the site.

- **Wilsonville** would benefit from improving the performance of I-5 and parallel corridors between OR 217 and the Willamette River. Similar to Tualatin/Sherwood, the opportunities for growth are categorized as ‘constrained’ due to limited freeway accessibility and congestion on I-5 to the north. This location may remain favorable to uses that rely on connections to the south, but connections to other regional portals would be limited.

It should be noted that the ODOT study only reported the opportunities and constraints based on comparing the level of traffic congestion and regional mobility options. Other factors, such as parcel aggregation and site suitability were not considered.
5.3 ROADWAY FREIGHT FINDINGS

Existing and Future Industrial Areas

Key industrial centers are located in Hillsboro, Beaverton, Tigard/SW 72nd, Tualatin/Sherwood, and Wilsonville. Hillsboro, Tualatin/Sherwood, and Wilsonville include areas identified as regionally significant industrial with high growth potential. Mobility and reliability in accessing these locations should be improved particularly to the regional freeway corridors.

Cornelius Pass Road

Trucks traveling to the region’s ports often use Cornelius Pass Road to reach US 30, where they either turn right to reach Port of Portland terminals, or turn left to reach ports in St Helens and Longview. Though Cornelius Pass Road has some sharp curves, it is a designated freight route. Approximately 14% of traffic on Cornelius Pass Road is trucks. Cornelius Pass Road also serves as a hazardous materials route for cargo that cannot pass through the Vista Ridge Tunnel. Germantown Road, though more direct for reaching Port of Portland terminals, is far less suitable for large trucks due to sharp curves and steep grades. Still, 5% of traffic on Germantown is truck traffic. There is a need for improved connection between the Washington County industrial areas, and the river ports; this need is particularly important for hazardous materials.

Tualatin-Sherwood Road

Tualatin-Sherwood Road has the highest truck volume of any arterial in Washington County. This road is congested during much of the day. Furthermore, the railroad crossing at Boones Ferry further affects freight traffic. Many of these trucks are accessing the industrial areas of Sherwood and Tualatin, and headed to or from Interstate 5 or Interstate 205. Chapter 2 shows that travel time along Tualatin-Sherwood Road is extremely unreliable. There is a need for improved freight reliability between the industrial areas in Sherwood and Tualatin and the Interstate system and/or the rest of the region.

Gaps and Deficiencies

Washington County through truck routes designations generally reflect the arterial roadway system and represent intuitive connections between economic activity areas and highways. In a capacity-constrained context the through truck route system may need to focus on identifying priority routes truck, facilities and systems. The gaps and deficiencies most often identified in previous studies for regional freight mobility in Washington County include:

- Interstate 5 between Interstate 84 and Wilsonville, grades and travel time reliability issues.
- U.S. 26 between Interstate 405 and Brookwood Parkway, grades, travel time reliability issues, and hazardous materials may not pass through the Vista Ridge Tunnel.
- Cornelius Pass Road, safety concerns.
- Tualatin-Sherwood Road, reliability issues.
5.4 Freight Rail

Many Washington County communities developed around railroads in the 19th century, from bustling Beaverton to tiny Timber. Railroad builders laid tracks to bring Coast Range logs and Tualatin Valley grain to markets in Portland and beyond. While the role of railroads in Washington County’s overall freight network has diminished, a number of modern day firms continue to use them regularly. Rail shipping remains the most fuel-efficient method of moving goods over land. A train can move one ton of goods 400 miles on one gallon of diesel, compared to three gallons on most trucks.6

5.4.1 Railroad Routes, Owners and Users

Washington County hosts over 90 miles of active “short line” freight railroads, all of them owned and operated by Portland and Western (PNWR), a Salem-based subsidiary of short line holding company Genesee and Wyoming. Washington County does not contain any Class I railroads, intermodal facilities or major rail yards. The PNWR system interchanges with the Albany & Eastern Railroad, BNSF Railway, Central Oregon & Pacific Railroad, Coos Bay Rail Link, Hampton Railway, Port of Tillamook Bay Railroad and Union Pacific Railroad. Commodities transported include aggregates, brick and cement, chemicals, construction and demolition debris, food and feed products, forest products, metallic ores and minerals, and steel and scrap. PNWR lines in Washington County, mapped in Figure 5-6, include the following:

- **Tillamook Branch**: This PNWR-operated line originates in Banks, where it serves the Banks Lumber Mill. Port of Tillamook Bay owns the segment from Banks to Schefflin, with the remainder owned by PNWR. The line proceeds generally southeastward, passing through Hillsboro, Aloha, Beaverton, Tigard and Lake Oswego, ultimately connecting with the Union Pacific main line in Milwaukee. Rail traffic on the busiest section of track (between Hillsboro and Beaverton) is currently two to four trains per day. It is expected that this may increase to six trains per day by 2014.7

- **Oregon Electric (OE) Line**: Once part of an extensive electric interurban rail network connecting much of the Willamette Valley, the OE now carries WES diesel commuter trains and P&W freight trains. The line officially begins in Tigard, where it diverges southward from the Tillamook Branch and passes through Tualatin and Wilsonville. The OE usually carries one freight round trip per day, in addition to 16 WES round trips. The OE is currently under consideration as one of the possible route for high-speed passenger rail between Portland and Eugene.

- **Newberg Branch**: This PNWR line diverges from the Tillamook Branch in the Lake Grove area of Lake Oswego, heading southwest through Tualatin, Sherwood and into Yamhill County. Cascade Steel is a major railroad client in McMinnville that occasionally sends trains through Washington County. The Newberg branch typically carries two to three freight round trips per week.

- **Westside-Seghers Branch**: One of two spurs heading west from the Tillamook Branch in Hillsboro, this PNWR line skirts the southern fringes of Cornelius and Forest Grove before turning south to reach the Stimson Lumber Mill near Henry Hagg Lake. The line typically carries one daily freight round trip. South of Seghers, the line is abandoned and being considered for a rail-trail to Carlton and McMinnville.

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- **Forest Grove Branch:** The other PNWR spur heading west from Hillsboro is rarely used. It passes through the northern half of Cornelius and ends just short of Pacific University in Forest Grove. The line has been considered for a future extension of MAX light rail from Hillsboro to Forest Grove.

- **United Railways Line:** Also called the BN Line, referring to its original ownership by Burlington Northern Santa Fe, this PNWR line connects Banks with existing BNSF tracks in Portland’s Northwest Industrial area. The line traverses Helvetia-area farmland before climbing to a tunnel through the Tualatin Mountains near Cornelius Pass. The line is technically the shortest rail link between Washington County and Port of Portland terminals.

The **Port of Tillamook Bay** (POTB) short line railroad operated between Tillamook and Banks until December of 2007, when flood waters from a major storm destroyed large sections of the roadbed in the mountainous area of the Salmonberry River Canyon. Prior to the storm, the railroad had hauled freight six days a week, carrying lumber and feed grains. Because of the extraordinary expense that would be entailed in rebuilding the damaged rail bed over the mountains, POTB has, instead, opted to use Federal Emergency Management Agency funds to expand and enhance the port's industrial park and airport facilities. The Port of Tillamook Bay retains ownership and now leases a 3.5 mile section from Banks to Schefflin to the Portland & Western Railroad. Table 5-4 describes the PNWR operations within Washington County. Since PNWR owns the right-of-way, public agencies have limited control over such operations. These operations are subject to changing needs and demands for freight rail service.

<table>
<thead>
<tr>
<th>Train</th>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock Train (Job 355)</td>
<td>On duty at 0530 Monday through Friday</td>
<td>Usually on duty at Reed Quarry near Hopmere on the former Oregon Electric between Greton and Salem. Routine varies according to the needs of Morse Brothers. Works from Reed Pit, Tonquin, Hillsboro, or Deer Island as needed by Morse Brothers. <strong>Note:</strong> This job uses remote control.</td>
</tr>
<tr>
<td>Beaverton Switcher (Job 684)</td>
<td>On duty at 1200 Monday through Friday</td>
<td>Services industries as need from Hillsboro to Kellogg Industrial Park.</td>
</tr>
<tr>
<td>Brooklyn Hauler (Job 686)</td>
<td>On duty at 2100 Sunday through Thursday</td>
<td>Normal work pattern is to pick up traffic from Union Pacific's Brooklyn yard. Usually works to Harbor Saturday nights.</td>
</tr>
<tr>
<td>Harbor Turn (Job 687)</td>
<td>On duty at 1900 Monday through Friday</td>
<td>Moves traffic between the Astoria line and St. Marys.</td>
</tr>
<tr>
<td>Hillsboro Switcher (Job 685)</td>
<td>On duty at 0930 Monday through Saturday.</td>
<td>Works St. Marys and Hillsboro area as needed. Usually this job runs to Stimson mill on the Seghers line west of Forest Grove and the former Oregon Electric Forest Grove branch.</td>
</tr>
<tr>
<td>St. Marys-Albany Turn (Job 342)</td>
<td>On duty at 0800 daily</td>
<td>Moves traffic between St Marys and Albany.</td>
</tr>
</tbody>
</table>

Source: Unofficial Portland & Western Fan Site  
*Information is not confirmed by ODOT Rail, or PNWR. Operations are subject to change without notice.*
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Care was taken in the mapping but there are no warranties for this product. However, notification of any errors will be appreciated.

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Figure 5-6
5.4.2 Freight Rail Users and Demand

Class I railroads such as Union Pacific and BNSF have seen major business growth in the past decade, largely due to increased fuel costs that make rail shipping less expensive than trucking. Washington County, however, has only short line railroads, which are generally in a distressed or static state. The railroads’ primary business – forest products – remains in an uncertain economic state, and few funds are available (public or private) for track maintenance or upgrades. Putting particular short lines at further risk is reliance on a single customer, such as the Stimson lumber mill at the terminus of the Westside-Seghers Branch.

While freight rail demand is uncertain, it is existing county policy to preserve these corridors for future needs, including freight and passenger service.8 (Passenger rail is discussed in the Transit section of this report – Chapter 4, Section 4-4.)

5.4.3 Railroad Crossing Considerations

The majority of roadway rail crossings in Washington County are at grade, posing potential conflicts and hazards. The Oregon Department of Transportation Rail Division authorizes any new rail crossing, or any modification to an existing rail crossing.

Trains are required to signal with horns when approaching a highway crossing. All Highway crossings are required to be marked with a passive stop sign and railroad crossing sign. Alternatively, an activated crossing guard arm may be implemented if the expected traffic at the crossing warrants this treatment.

Figure 5-7: Railroad Crossing Types

<table>
<thead>
<tr>
<th>Passive Railroad Crossing Sign</th>
<th>Activated Railroad Crossing Gate</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Passive Crossing Sign" /></td>
<td><img src="image" alt="Activated Crossing Gate" /></td>
</tr>
</tbody>
</table>

Passive railroad crossing signs may also be accompanied by active flashing lights. These are to be treated the same as red traffic light. A 2011 USDOT report9 indicates that passive crossings are almost 10 times more risky than active crossings. This same report indicates that the incidents per year at railroad crossings have been declining over the last 20 years.

Until recently, the State of Oregon regulated the length of time a railroad train may block a public highway-rail crossing. An Oregon Court of Appeals ruling determined that federal law preempted the State from continuing this practice. So, the State of Oregon can no longer control public crossings that are blocked by trains.

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9 RR 11-27 / December 2011
Today, trespassing has become the leading cause of railroad fatalities [USDOT FRA Annual issues]. Each year, approximately 500 people are killed as a result of trespassing on railroad rights-of-way. Railroads face the challenge of identifying sites vulnerable to trespassing, improving awareness, and installing fencing. Oregon Operation Lifesaver is a not-for-profit devoted to ending tragic collisions, fatalities and injuries at highway-railroad crossings and on railroad rights-of-way. To accomplish their mission, they promote the 3 E’s: Education, Enforcement, and Engineering. One particular area of concern is in Aloha, where people often cross the railroad tracks at unauthorized locations to reach bus stops and businesses along TV Highway.

Railroad crossings also significantly affect the operations of a number of roadways in Washington County Tualatin-Sherwood Road and TV Highway are perhaps the most significant.

### 5.5 Marine Shipping

No freight-navigable rivers pass through Washington County. While the Tualatin River is occasionally suggested as a possible route for moving goods, the river’s limited width, depth and surrounding environmentally sensitive areas prohibit the movement of large vessels.

Of greater relevance are the major west coast ports located just over the Tualatin Mountains from Washington County. The Port of Portland maintains four marine terminals: three on the Willamette and one on the Columbia, all within ten miles of Washington County. Other regional port facilities near Washington County are located along the Columbia River in St Helens, Oregon and in Vancouver, Kalama and Longview, Washington.

Cornelius Pass Road will continue its role as a freight and hazardous materials route for cargo reaching ports on the Columbia and Willamette Rivers. Considering that one out of every seven vehicles on Cornelius Pass Road north of Sunset Highway is a large truck, roadway safety and durability should be top values when considering improvements.

### 5.6 Pipelines

Figure 5-8 shows major pipelines that traverse Washington County. Most significant is the **Kinder-Morgan gas pipeline** that transports pressurized, refined gas products from a facility on the Willamette River in Northwest Portland to Eugene and points between. The pipeline generally follows a north-south BPA electric transmission line corridor through Bethany, Beaverton, Bull Mountain and Sherwood, portions of which also accommodate the Westside Regional Trail. Several other gas pipelines cross the county, including another north-south corridor from the Dairy Creek valley to Sherwood, and several east-west routes.

For Washington County Department of Land Use and Transportation, the primary concerns with major pipelines are:

- Protecting the functionality of these pipelines as a mode of transporting products;
- Accounting for pipeline buffer corridors within planned development;
- Avoiding the high cost of relocating pipelines for transportation projects; and
- Minimizing the community impacts of any future proposed pipelines, including liquefied natural gas (LNG) pipelines that have become more relevant in today’s booming natural gas market.
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Figure 5-8
5.7 AVIATION

Washington County contains one medium-sized general aviation airport, two smaller private airports, and approximately 23 other airstrips or helipads. These are identified in figure 5-9.

5.7.1 Hillsboro Airport

Hillsboro Airport (HIO) is located northeast of downtown Hillsboro and operated by the Port of Portland. HIO is defined by the Federal Aviation Administration (FAA) as a reliever airport for Portland International Airport (PDX). In this role, HIO’s function is to preserve capacity at PDX by offering an alternative facility for general aviation aircraft, separate from commercial airline and air cargo activities. At the state level, the Oregon Aviation Plan defines HIO as a Category 2 airport that accommodates “corporate aviation activities, including business jets, helicopters, and other general aviation activities.” HIO functions thusly, receiving corporate air traffic associated with Intel and other large Washington County companies, while also accommodating personal aircraft.

HIO features two runways, one 6,600 feet in length, the other 4,050 feet. In 2012, HIO had 277 “based aircraft” – meaning aircraft that are typically stored and flown from the airport – down from the upper 300s ten years prior. In 2008, HIO averaged 695 operations (takeoffs and landings) daily.

Future Demand

A demand analysis in the 2005 Hillsboro Airport Master Plan projected based aircraft to increase from 363 (in 2003) to 465 by 2025, and annual operations to increase from 253,847 to 323,000 – a 27% operational increase. However, based aircraft and operations both dropped significantly in the subsequent recession. The master plan envisions HIO’s role either as remaining a general aviation/reliever airport, or adding scheduled commuter airline operations with aircraft containing fewer than ten passenger seats.

Based on this assessment, the Port of Portland in 2009 proposed to construct a parallel runway at HIO. The project’s environmental assessment earned a federal Finding of No Significant Impact in 2010, but was appealed by community members. Federal circuit court remanded the case back to FAA for further study of potential impacts, a process that is still underway as of 2012. In the mean time, a new taxiway was constructed in summer 2011.

Surface Transportation

HIO is well-served by surface transportation. The airport terminal is accessed by four-lane Cornell Road between downtown Hillsboro and the north Hillsboro employment area. Two TriMet buses stop at the airport, MAX light rail is a 0.4-mile walk to the south, and private rental cars are available across Cornell Road.

No major future impacts are expected on the surface transportation system from increased operations at HIO, as currently forecasted. Increased operations may have more impacts on land use and community livability issues not addressed in this plan, including future development in the North Hillsboro urban reserve.

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10 Hillsboro Airport Master Plan, Port of Portland, 2005.
11 Oregon System Plan, Chapter 4, Oregon Department of Aviation, 2008.
5.7.2 Other Airports

Two smaller, privately-owned airports are located in the rural area:

- **Skyport Airport** near the village of Roy, and
- **Stark Twin Oak Airport** along River Road near Scholls.

Both airports primarily cater to single-engine hobby aircraft. In addition to these two facilities, Washington County has 23 other air facilities. These include small airstrips as well as helipad facilities at hospitals.

5.7.3 Air Cargo to PDX

Much of Washington County’s high tech cargo is shipped by air, in part due to the small size of the products. Air cargo is almost always shipped from Portland International Airport (PDX), where a number of established air freight carriers such as UPS, FedEx and Asiana Cargo fly out many times daily. The key transportation concern for air cargo traveling from Washington County to PDX is congestion and travel time reliability on Sunset Highway.
Airports

- Portland/Hillsboro
- Skyport
- Stark Twin Oak
- Other Airports and Airstrips

Rural Washington County

Figure 5-9

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