Freight Element
Washington County is often dubbed the “Economic Engine of Oregon.” Led by established industry clusters in high-tech, clean-tech, and active-wear, Washington County is home to more than 230,000 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 element includes information on existing conditions and future needs for roadway freight, freight rail, and air cargo; general aviation and pipelines are also covered. In addition, this element includes the Truck Route map and the Aviation, Railroad, and Pipeline map. Efficient freight movement is also addressed in TSP Goal 2: Economic Vitality, which provides specific objectives and strategies related to goods movement.

ROADWAY FREIGHT CONNECTIONS
This section primarily addresses the transport of freight on roadways because it is the only mode of freight travel over which Washington County has control. Significant amounts of freight are transported by rail and pipeline, and, to a much-lesser extent, air. However, planning for these modes is done by private companies or other government agencies. Rail, pipeline, and air travel modes are described as separate elements later in this element. 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 transportation of goods. To keep pace with the demand for freight movement, which is expected to double by 2035, Washington County must identify and address gaps and deficiencies in the freight transportation network.

The following section identifies key freight connections and summarizes existing freight needs, including previous findings regarding freight system needs from Metro’s 2014 RTP, 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 is an important element of the goods movement system in Washington County and the Portland metropolitan region. While all modes are important, the majority of freight is moved via roadways. Approximately 67 percent of freight tonnage in the Portland metropolitan area moved by truck in 2000. The following section identifies freight roadway designations and truck demand in Washington County.

Freight Route Designations
The Countywide Truck Route system is an important element of the County’s transportation system plan. To provide for the most efficient transport of freight, and to minimize negative impacts on residential neighborhoods, Truck Routes are designated primarily on Arterial and Collector roads. Truck Route designations in the TSP encourage the use of these routes for truck travel, but do not restrict truck travel or local pickup and delivery by truck to these routes. The primary purpose of designating Truck Routes in this plan is to ensure that any future improvements on these roads provide for the safe and efficient movement of trucks. Washington County Truck Route designations are defined and mapped later in this element.

Hazardous Materials
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 materials and medical wastes to gasoline. The transport of nonradioactive 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 Washington County. However the Vista Ridge tunnel just east of Washington County on US 26 is closed to such traffic. As a result, hazardous materials are often transported via NW Cornelius Pass Road or OR 217.
Regional Freight System
Freight (i.e., truck) route designations are applied at the state, regional, County, and local level. ODOT, Metro, Washington County, and the 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. Metro’s Regional Freight Network in Washington County identifies main roadways and road connectors for freight trucks, railroad lines, rail yards, marine facilities, and airports.

Truck Demand
Truck Counts
Counts of truck traffic have been taken at various locations within Washington County. These counts provide an understanding of truck operations within the county, but only at the points where the counts are taken. Specific path information about truck trips (origin, destination and route) is extremely limited. For operational purposes, FHWA classifies vehicles into 13 categories, as shown in Figure 3-17. Washington County vehicle classification counts use this classification scheme and describe trucks as classes 4 through 13. Vehicle classification counts have been taken at most Washington County count stations over the last five years. Summary information is provided below for locations with the highest truck volumes and the highest truck percentages of traffic. More detailed information is available in the Technical Appendix of the Existing Conditions and Future Needs Report.

Figure 3-17: FHWA Vehicle Classifications

Source: FHWA
Count locations in Washington County with the highest truck volumes include:

- Tualatin-Sherwood Rd, west of Boones Ferry (5,948 trucks in 2007, and 4,085 trucks in 2012),
- Cornelius Pass Rd, north of Cornell (2,172 trucks in 2007, 2,359 trucks in 2012),
- Glencoe Rd, south of Beach (1,916 trucks in 2007, and 1,647 trucks in 2012),
- Murray Blvd, south of Allen (1,882 trucks in 2007, and 1,657 trucks in 2012),
- 185th Ave, north of Cornell (1,725 trucks in 2007, and 1,730 trucks in 2012),
- Roy Rogers Rd, south of Scholls Ferry (1,723 trucks in 2007, and 1,587 trucks in 2012), and
- Scholls Ferry Rd, west of Nimbus (1,718 trucks in 2007, and 1,742 trucks in 2012).

Count locations in Washington County with the highest percentages of truck volumes include:

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

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. Truck volumes and truck percentages of total traffic were compared for 2008 and 2010 (latest comparable data available) for the five ODOT ATR stations listed below:

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

As indicated by the data, there are no clear trends. 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 may have occurred during this period.

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5 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. 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.

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. These include:

- Metro 2014 Regional Transportation Plan,
- Metro Regional Freight Plan, and

Findings from these regional efforts relevant to Washington County are summarized in the following sections.

Metro 2014 RTP
The RTP vision for the regional freight network is, “to enhance freight mobility and access to industrial areas and intermodal facilities by focusing on the most critical locations where roadway congestion occurs.” The vision focuses on a systems approach in planning and managing 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 RTP identified long-term multimodal needs for key regional transportation corridors; the eight RTP “mobility corridors” located in Washington County are listed in Table 5-1 in the Existing Conditions and Future Needs Report, along with the regional freight needs identified for each corridor. Table 5-1 also identifies arterial and throughway needs that may be significant to local freight mobility and reliability, or that address other potential freight-related concerns. The RTP recommends implementation of the and Urban Growth Management Functional Plan 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 corridor and the Beaverton to Forest Grove corridor. The RTP includes a long list of candidate transportation system improvements. Many of these projects will address freight mobility needs as well as mobility needs of general traffic.
Metro Regional Freight Plan

The 2010 Metro Regional Freight Plan, an element of the RTP, provides data and analysis of freight and goods movement in the Portland metropolitan region. The plan describes the close relationship between freight transportation, trade, and economic growth; and 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. Locations and issues identified in Washington County include:

- 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); and
- Last-mile chokepoints: 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 has been identified as one of the highest priority road improvements in the region. OR 99W through Tigard also is 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 also were identified as critical transportation needs. A prioritized project list developed by Metro’s Regional Freight and Goods Movement Task Force (2008) is included in the Regional Freight Plan.

These 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 freight-related projects identified for Washington County were identified as medium-high priority projects in the RTP, since the Task Force did not identify any high priority freight projects for Washington County.

Portland Region Economic Corridor Evaluation Report

The 2011 ODOT Portland Region Economic Corridor Evaluation identified eight key corridors serving the region’s top economic centers for existing and future industrial employment. Five of the 14 regional economic centers are located in Washington County: Beaverton, Hillsboro, Tigard/SW 72nd, Tualatin/Sherwood, and Wilsonville. Two of the eight economic corridors are 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 Washington County corridors were not determined to be in the top eight regional economic corridors serving industrial uses. Regional corridors were prioritized based on an assessment of regional truck traffic, industrial traffic, traffic generated from the identified economic centers, and the 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 assessment. Analysis of the operational performance of these corridors predicts significantly more congestion by 2035, resulting in increased travel delay, and degradation of travel time reliability. Table 3.10 summarizes daily performance measures for the Washington County economic corridors in 2005 and 2035.
Table 3.10: Daily Traffic Performance Measures for Key Economic Corridors in Washington County

<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</td>
<td>north-bound</td>
<td>42</td>
<td>0.87</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>south-bound</td>
<td>44</td>
<td>0.72</td>
<td>36</td>
</tr>
<tr>
<td>US 26</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>

*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.


Of all the economic corridors analyzed for the region, the I-5 segment between Elligsen Road and OR 217 would degrade the most under projected future conditions. The corridor is projected to experience one of the greatest drops in average speed and the greatest degradation in travel-time reliability (as measured by the buffer index). Limited peak-period congestion experienced today would change to congested conditions spanning many hours of the day; the worst congestion of any of the corridors would occur on I-5 in the northbound direction. Travel speeds on U.S. 26 would degrade by approximately 3 mph in each direction, with the key bottleneck location remaining at the Vista Ridge tunnel approaches.

The regional picture of economic centers is important to understand freight travel patterns in Washington County. Opportunities and constraints for growth 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 (e.g., Cornelius Pass Road, and Brookwood Parkway). The opportunities for growth are categorized as “fair” based on the location and level of reliance on congested facilities for access.

- Tualatin/Sherwood would benefit from improving the connectivity and performance of existing arterial corridors that connect to I-5 and OR 99W, and corridors parallel to I-5 to better connect OR 217 and Wilsonville. The opportunities for growth are categorized as “constrained” due to the 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 on 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 in this analysis.
Roadway Freight Findings

Existing and Future Industrial Areas
Key industrial centers in Washington County are located in Hillsboro, Beaverton, Tigard/SW 72nd, Tualatin/Sherwood, and Wilsonville. “Regionally Significant Industrial Areas” with high growth potential are located in Hillsboro, Tualatin/Sherwood, and Wilsonville. Mobility and reliability in accessing these locations should be improved, especially to the regional freeway corridors.

Key Access Routes for Truck Movement

Cornelius Pass Road
Trucks traveling to the region’s ports often use Cornelius Pass Road to reach U.S. 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 percent of the 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. Despite this, trucks constitute five percent of the traffic on German-town Road. Improved connections between the Washington County industrial areas and the river ports are needed; this need is particularly important for transport of hazardous materials.

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

Gaps and Deficiencies
Washington County Truck Route designations generally reflect intuitive connections between economic activity areas and regional highways, primarily using the arterial roadway system. In a capacity-constrained context the 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:

- I-5 between I-84 and Wilsonville - grades and travel time reliability issues;
- U.S. 26 between I-405 and Brookwood Parkway – grades, travel time reliability issues, and hazardous materials may not pass through the Vista Ridge Tunnel on Highway 26;
- Cornelius Pass Road - safety concerns; and
- Tualatin-Sherwood Road - reliability issues.
DESIGNATED TRUCK ROUTES
The primary purpose of designating Truck Routes in the TSP is to ensure that any future improvements on these roads provide for the safe and efficient movement of trucks; and to ensure that these facilities are designed to accommodate use by trucks of all sizes. Truck Route designations encourage the use of these routes for truck travel, but do not require that trucks use these routes. The Roadway Freight System Map shown in Figures 3-18 and 3-19 identify designated Truck Routes and Over-Dimensional Truck Routes in Washington County. These routes are on roadways where high volumes of freight traffic are anticipated, and where roadway system improvements should consider the needs of these vehicles as well as other travel modes using the facility.

**Truck Routes**
Truck Route designations are for planning purposes only and are used to guide the design of road and bridge improvements to handle a greater frequency of truck and other heavy vehicle traffic. Truck routes are identified roadways where a high percentage of vehicles larger than personal vehicles are expected. These routes may connect freight corridors and/or serve industrial areas.

The design of improvements or changes to truck routes should consider the needs of large vehicles such as broader turn radii, wider lanes, acceleration/deceleration characteristics, longer turn pockets, longer start up and stopping time built into signal timing and high overhead clearance. It should be noted that all county roads are open to vehicles that do not exceed statutory or permitted weights and dimensions. It is the responsibility of the vehicle’s driver to operate the motor vehicle safely and legally, abiding by all posted limitations, temporary restrictions and/or emergency situations. Additionally, it is the driver’s responsibility to navigate the County’s road network taking into consideration of the geometry of the road.

**Over-Dimensional Truck Routes**
Certain truck routes routinely carry or have the ability to carry vehicles that exceed the statutory limits for weights and dimensions. These Over-Dimensional Truck Routes should be given special consideration for the operation of larger than standard vehicles.

When considering improvements or other actions within or adjacent to the right-of-way along Over-Dimensional Truck Routes, the design should not preclude the operation of larger vehicles. The design of improvements within or along these routes should consider (but is not limited to):

- Large turn radii;
- Mountable curbs and/or medians;
- Placement and/or type of street trees, street furniture and street lighting;
- Placement of sidewalks and design of pedestrian crossing treatments;
- Placement of signal poles, utilities and signage;
- Placement of planting strip, median design and vegetation treatments; and
- Building placement and setbacks.

Any new fixed object placed within the right-of-way should be evaluated for its effect on larger than standard vehicle operations.

The identification of these routes in this plan does not relieve a motor carrier from obtaining a trip permit. The route identification is solely intended for use in planning and design of roads and bridges.
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**FREIGHT RAIL**

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 of fuel required for most trucks.

While the role of railroads in Washington County’s overall freight network is relatively small, a number of local firms continue to use them regularly, particularly in the forest products industry. Portland & Western Railroad (PNWR) is the primary operator of freight railroads within Washington County, with lines stretching from Banks to Wilsonville, and from Lake Oswego to Sherwood.

**Railroad Routes, Owners, and Users**

Washington County has more than 90 miles of active “short line” freight railroads; all operated PNWR, a Salem-based subsidiary of short line holding company Genesee & 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 by rail include aggregates, brick, and cement, chemicals, construction and demolition debris, food and feed products, forest products, metallic ores and minerals, and steel and scrap.

**Freight Rail Demand**

Class I railroads such as Union Pacific and BNSF have experienced major business growth in the past decade, largely due to increased fuel costs that make rail shipping less expensive than trucking. However, Washington County 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. Reliance on a single customer, such as the Stimson lumber mill at the terminus of the Westside-Seghers Branch, puts some short lines at further risk. While freight rail demand is uncertain, existing County policy is to preserve these corridors for future needs for freight and passenger service.

**Railroad Crossing Considerations**

The majority of roadway rail crossings in Washington County are at-grade, posing potential hazards and conflicts between rail traffic and other travel modes, including vehicles, pedestrians, and bicyclists. The ODOT 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 installed if the traffic expected at the crossing warrants this treatment. Passive railroad crossing signs also may be accompanied by active flashing lights, which are to be treated the same as a red traffic light.
A 2011 USDOT report indicated that passive crossings are almost 10 times more risky than active crossings. This same report indicated 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. Today, trespassing has become the leading cause of railroad fatalities (USDOT FRA Annual issues). Each year, approximately 500 people are killed nationally 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 organization devoted to ending collisions, fatalities, and injuries at highway/railroad crossings and on railroad rights-of-way. To accomplish their mission, they promote the 3 E’s of safety: 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 operation of a number of roadways in Washington County such as Tualatin-Sherwood Road and TV Highway.

**Pipelines**

The most significant pipeline crossing Washington County 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 in 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. The primary concerns with major pipelines in the County 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,
- 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,
- Minimizing impacts that any new pipelines would have on the community, and
- Minimizing impacts of new development on major pipeline corridors.

Existing high-pressure gas pipelines (60 pounds per square inch or greater) are shown in the TSP Aviation, Railroad and Pipeline System map.

**Aviation**

Washington County has one medium-sized general aviation airport, two smaller private airports, and approximately 23 other airstrips or helipads, as described in the following sections. Washington County’s Comprehensive Plan identifies Public Use Airports and state-recognized Private Use Airports with land use overlay designations (entitled Airport Overlay Districts) in the map elements of the Rural/Natural Resource Plan and/or Community Plans. Private use facilities fall under two general categories: private use airports identified by the Oregon Department of Aviation (pursuant to ORS 836.608(2)) that are subject to LCDC’s Airport Planning Rule (OAR 660-013); and personal use facilities that are subject to local regulation. Land use related policies and strategies regarding the overlay-designated airport facilities are addressed in the Rural/Natural Resource Plan and in the Comprehensive Framework Plan for the Urban Area. Development standards for all airport and heliport related uses, including personal use airports and heliports, are outlined in the Community Development Code.
Hillsboro Airport

Hillsboro Airport (HIO), located northeast of downtown Hillsboro, is operated by the Port of Portland. HIO is defined by the Federal Aviation Administration (FAA) as a reliever airport for Portland International Airport (PDX); whose function is to preserve capacity at PDX by offering an alternative facility for general aviation aircraft, that is 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 serves corporate air traffic associated with Intel and other large Washington County companies, while also accommodating personal aircraft. HIO has two runways, one 6,600 feet in length, the other 4,050 feet. In 2012, HIO had 277 “based aircraft” (aircraft that are typically stored and flown from the airport), down from the nearly 400 based aircraft in 2002. In 2008, HIO averaged 695 operations (takeoffs and landings) daily. The demand analysis included 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 percent increase in operations. However, based aircraft and operations both dropped significantly during the “great recession”.

Other Airports

Two smaller, public use airports are located in the rural areas of Washington County:

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

Both airports are general aviation facilities, limited to small-engine airplanes and helicopters. In addition to these two facilities, Washington County has 23 other air facilities, including small airstrips and helipad facilities at hospitals. No change to the operation of these airports is planned, and no additional public use airports are currently planned within Washington County.

Air Cargo to PDX

Much of Washington County’s high tech cargo is shipped by air, due in part to the small size of the products and their high value. Air cargo is either shipped from Portland International Airport (PDX), where a number of established air freight carriers such as UPS, FedEx, and Asiana Cargo have multiple daily flights, or it is consolidated and shipped by truck to larger airports such as Seattle-Tacoma or San Francisco. The key transportation concern for air cargo traveling from Washington County to PDX is congestion and travel time reliability on routes between Washington County and PDX, particularly Sunset Highway. Aviation, railroad, and pipeline facilities in Washington County are shown in Figures 3-20 and 3-21.
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