



MEMORANDUM

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Matt Ransom, Executive Director
DATE: June 28, 2016 *MR*
SUBJECT: **RTC Region Freight Snapshot**

BACKGROUND

The study of the movement of people and goods are an important component of the regional transportation planning process. To support this work, RTC has dedicated a portion of their planning resources to analyze freight movements within the three county RTPO region (Clark, Skamania, and Klickitat Counties).

The purpose of this memorandum is to provide a snapshot of regional freight issues and data and to provide an update on the region’s effort to implement the 2009 Clark County Freight Mobility Study.

THE FUTURE OF FREIGHT

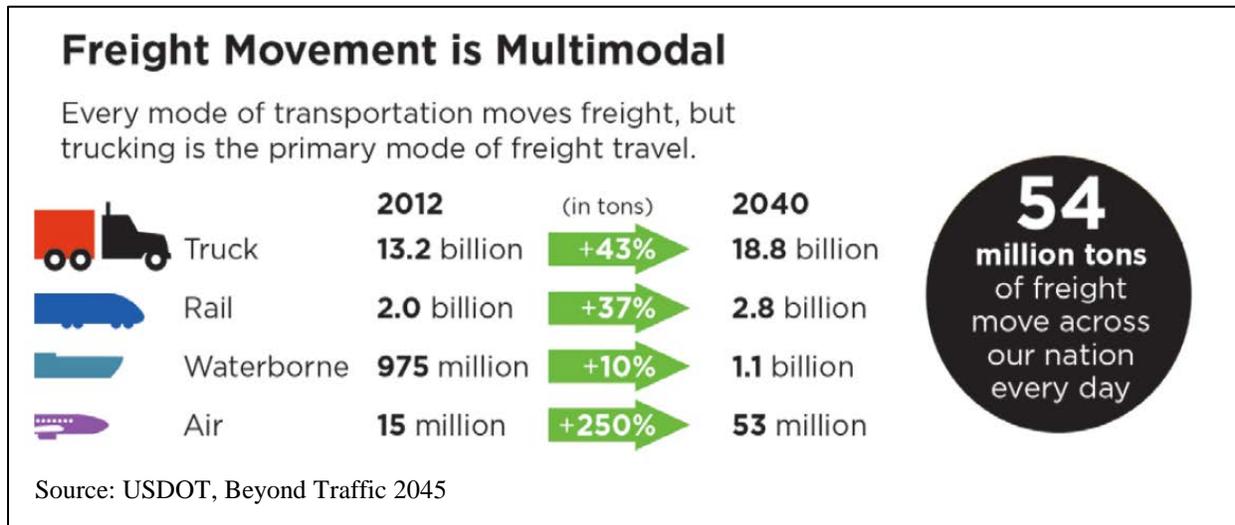
Freight movement is the backbone of the global economy. The Washington State Freight Mobility Plan states:

“Washington is one of the most trade-dependent states in the nation. Goods ranging from milk and medicine to Boeing plane parts ship into, out of, and around the state using every part of our freight system: highways and roads, railroads, waterways and marine, and airports. Industry supply chains moving goods from production to distribution and processing centers, ultimately to consumers via the State’s Freight Economic Corridors produced over \$129 billion in regional domestic output in 2013.”

National, state, and local forecasts of freight movement indicate continued strong growth as the population and economy continue to grow. Freight within the United States moves by many modes, including truck, rail, inland waterways, and air. Each mode is expected to see significant growth, with trucking continuing to be the primary mode of freight movement within the country.

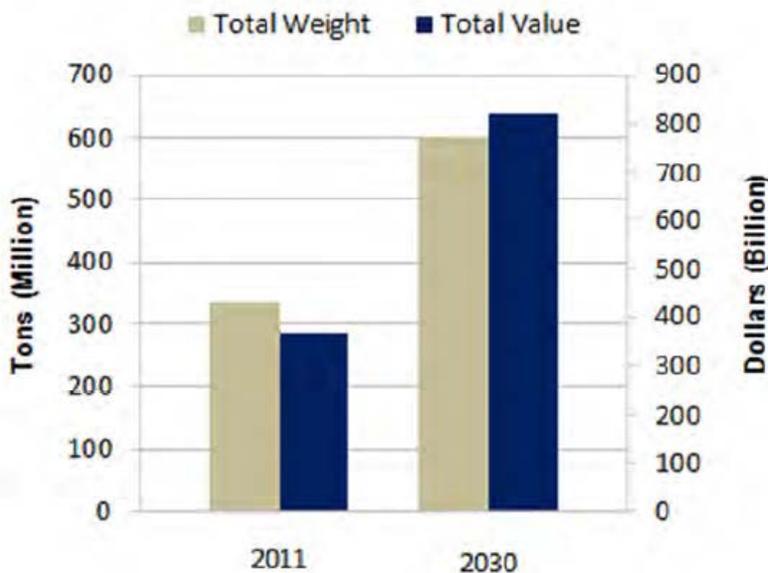
Nationally, freight moved by truck is forecast to increase by 43% between 2012 and 2040, growing from over 13 billion tons annually in 2012 to nearly 19 billion tons by 2040.

Figure 1: Freight Movement is Multimodal



As a state with significant ties to national and international freight movement, the forecast of growth in truck freight for Washington exceeds that of the national rate. According to the Freight Analysis Framework version 3 (FAF3), a national freight database, trucks moved a total of 335.8 million tons on the Washington State highway system in 2011 and that tonnage is expected to increase by about 80%, to over 600 million tons, by 2030.

Figure 2: Washington State Truck Annual Freight Volume and Value: 2011 - 2030



Source: FHWA FAF3 Origin-Destination Data, 2011.

Locally, freight growth for the Portland-Vancouver metropolitan area is expected to see similar growth trends. FAF3 data for the area show truck tonnage more than doubling between 2010 and

2040, from 183.6 to 388.3 million tons annually. Other modes show strong growth as well, with trucking continuing to be the primary mode, moving about 65% of the freight volume in the area.

Figure 3: Portland-Vancouver Annual Freight Volume by Mode: 2010 – 2040 (millions of tons)

Mode	2010	2040	Growth	% Increase
Truck	183.56	388.29	204.73	112%
Rail	40.04	77.01	36.97	92%
Water	18.00	37.21	19.22	107%
Air	0.23	0.64	0.41	183%
Pipeline	10.09	18.80	8.71	86%
Ocean	29.47	71.51	42.04	143%
Total	281.38	593.46	312.07	111%

Source: FHWA FAF3 Data, 2007

TRUCK DATA COLLECTION

Truck volume data was collected and analyzed to determine the magnitude of trucks using various highways and arterials. This data was used to understand how trucks move within the region and how these volumes have changed over the last decade. Truck volumes provide a basis for understanding the relationship between truck volumes and land use.

The Federal Highway Administration (FHWA) has established a vehicle classification system that uses 13 vehicle types distinguished by the number of axles and weight. For purpose of this effort, classes 5 thru 13 are considered trucks. Figure 4 (Attached) from the 2009 Clark County Freight Mobility Study provides pictures of trucks that meet these classifications.

The freight data was collected by Washington State Department of Transportation (WSDOT) and by a data collection firm under contract by RTC. Classification Counts were collected at 39 locations within Clark County, 15 locations in Skamania County, and 23 locations in Klickitat County. WSDOT Permanent Traffic Recording (PTR) stations provide daily traffic volumes by vehicle type for every day of the year, except when a counter malfunctions. This allows the determination of average daily truck volumes and how truck volumes fluctuate. Other classification counts are collected using mechanical counters over a few days and only provide a sample of vehicle mix.

Truck Volumes and Factors

Truck volumes were collected and analyzed at PTR's along state highways within the region. The data was collected from January 2006 thru December 2015, a ten year period. Truck volumes at these recorders include medium and heavy trucks as defined in Figure 4. There are three classification count stations in Clark County and two in Klickitat that are used for this analysis.

Analysis by month shows a reduction of trucks during the winter months, with the sharpest decline between November and January.

Analysis by day of the week shows truck volumes being significantly lower on weekends (Saturday and Sunday), with the highest volumes on Wednesday and Thursday. This pattern is

similar to auto volumes, although the truck volume decline on the weekend is significantly higher than the auto volume decline on weekends.

Unlike auto traffic that has a distinctive directional morning and evening peak, truck volumes have a single bi-directional peak that occurs during the middle of the day. Within Clark County, that peak occurs between 10 am and 2 pm, while in Klickitat County the truck peak is an hour later between 11 am and 3 pm.

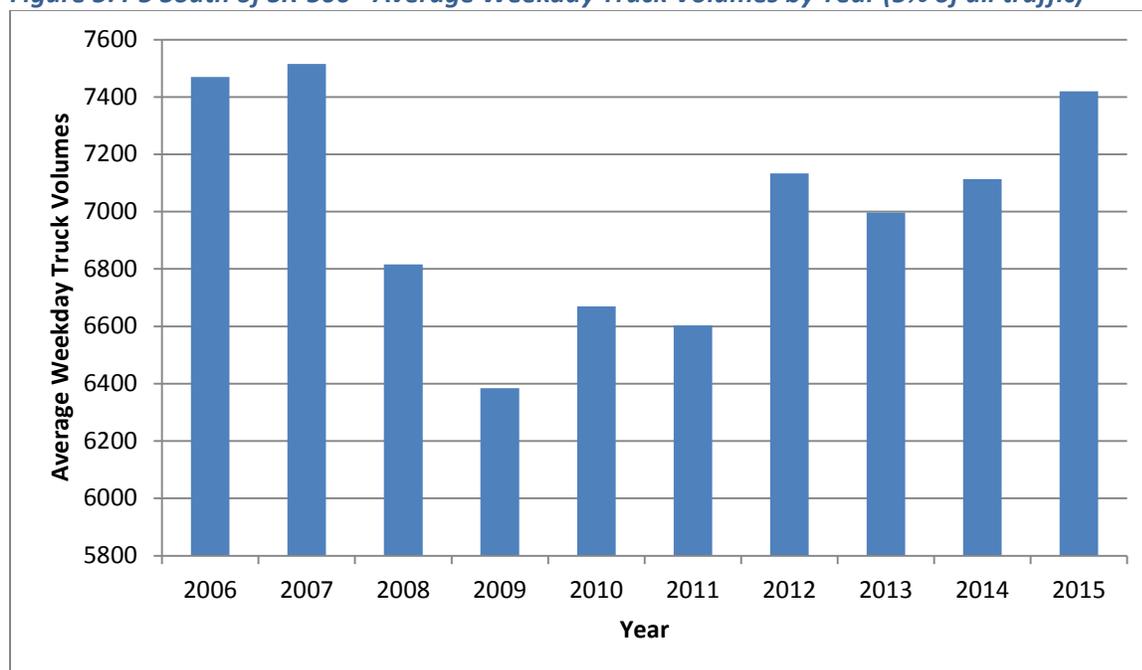
Often an overall percentage is used to represent truck percentage. Analysis of PRT stations in Urban Clark County show that truck percentage during morning and evening peaks represent 5% or less of the overall traffic, but increase to around 10% during the middle of the day. A similar pattern appears to be present on other arterial freight corridors.

Change in Truck Volumes by Year

In Clark County, the ten year truck volume data is reflective of the recent recession, with volumes declining to a low in 2009, and then slowly increasing back to pre-recession levels by 2015. All three PTR stations within Clark County indicate that truck volumes are at or near 2007 levels.

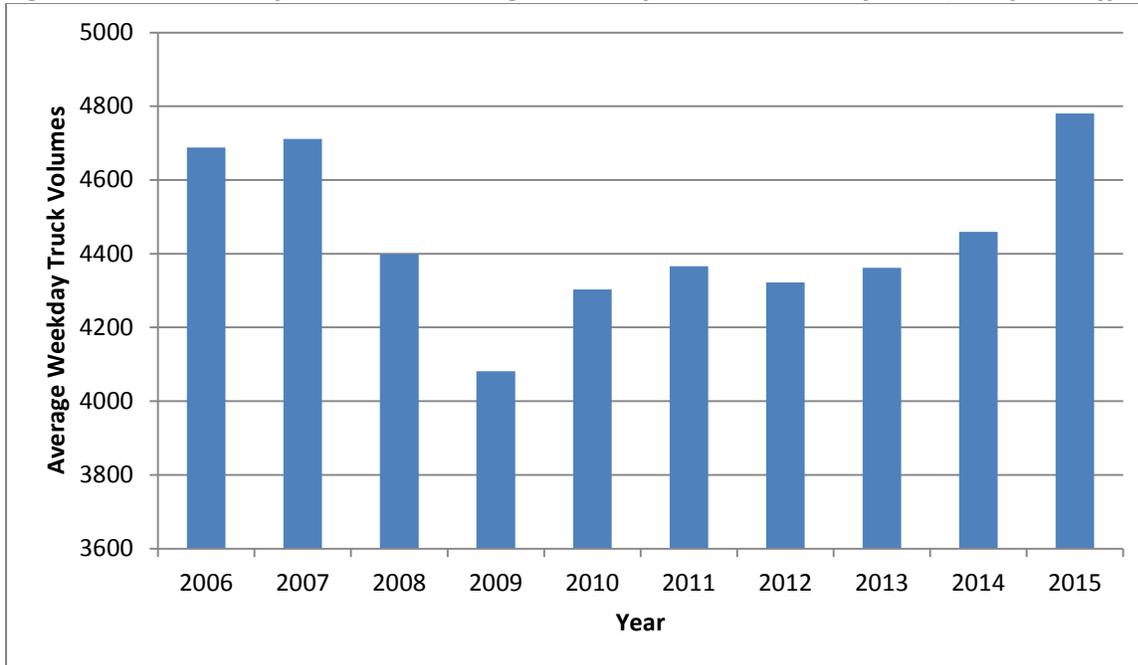
In Klickitat County, the truck volumes were not significantly impacted by the recession, but were impacted by major bridge construction work on the SR-97 Bridge (Biggs Bridge) over the Columbia River. The recession likely had a smaller impact in rural Klickitat County, as a higher percentage of truck volumes are associated with agricultural business.

Figure 5: I-5 South of SR-500 - Average Weekday Truck Volumes by Year (5% of all traffic)



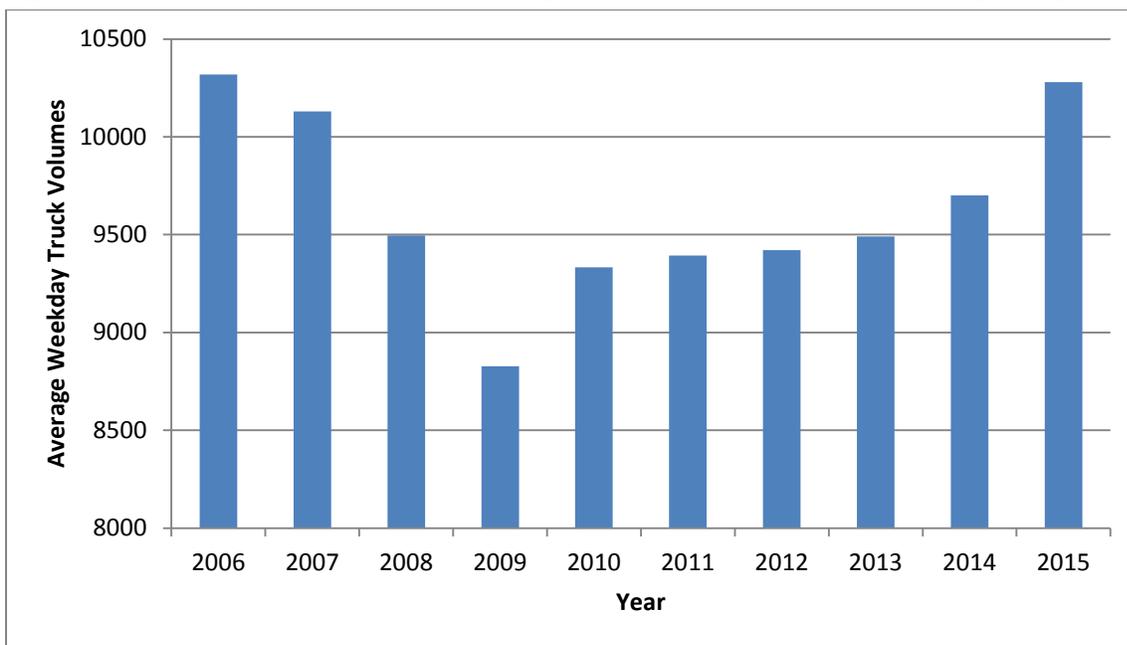
Source: WSDOT, PTR P5, I-5 milepost 1.98. Class 6 – 13, medium and heavy trucks.

Figure 6: I-205 North of Mill Plain – Average Weekday Truck Volumes by Year (4% of all traffic)



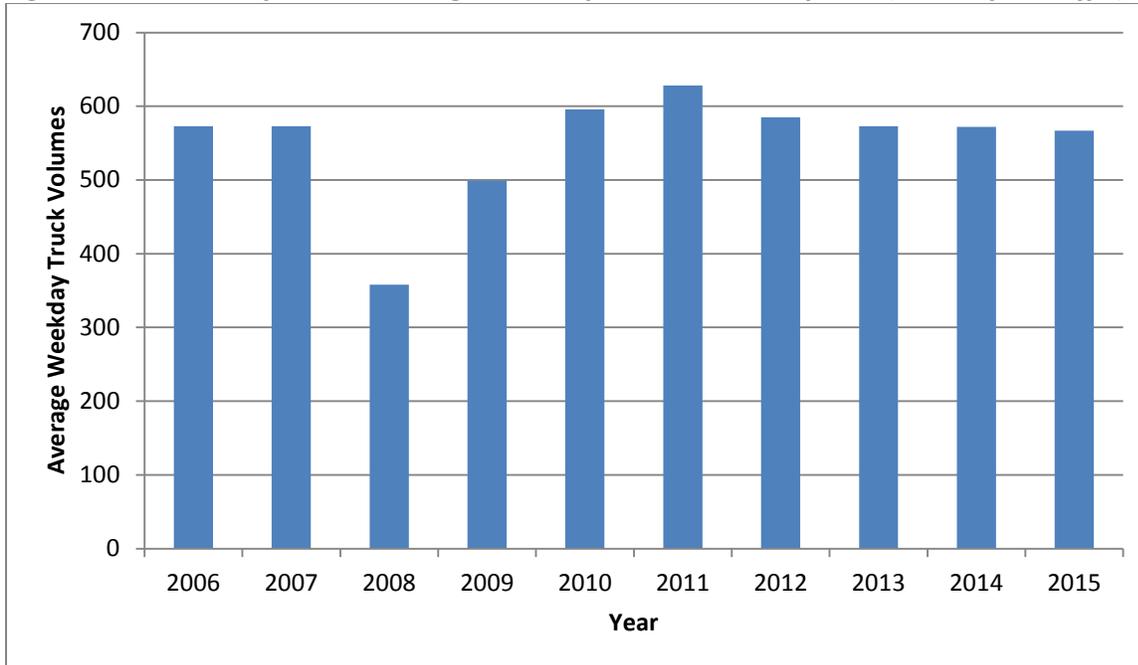
Source: WSDOT, PTR R051, I-205 milepost 28.84. Class 6 – 13, medium and heavy trucks.

Figure 7: I-5 South of Woodland Exit – Average Weekday Truck Volumes by Year (12% of all traffic)



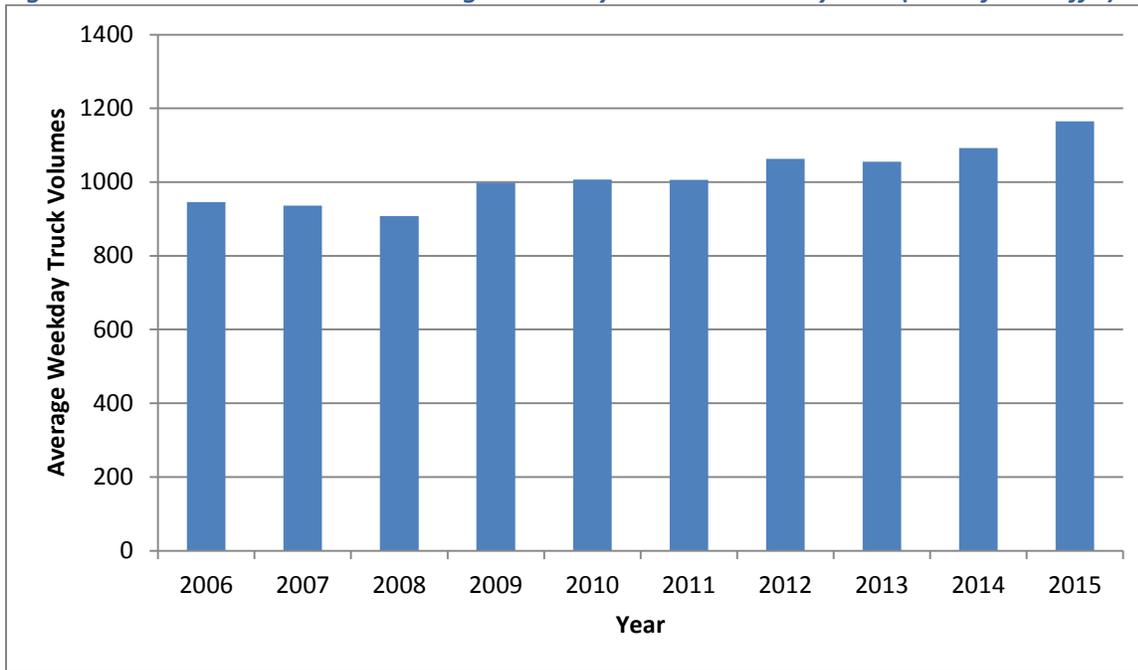
Source: WSDOT, PTR R045, I-5 milepost 20.14. Class 6 – 13, medium and heavy trucks.

Figure 8: SR-14 East of SR-97 – Average Weekday Truck Volumes by Year (31.0% of all traffic)



Source: WSDOT, PTR R076W SR-14 milepost 102.27. Class 6 – 13, medium and heavy trucks.
*Biggs Bridge construction in 2008 with closures

Figure 9: SR-97 at Goldendale – Average Weekday Truck Volumes by Year (19% of all traffic)



Source: WSDOT, PTR R041 SR-97 milepost 13.41. Class 6 – 13, medium and heavy trucks.
*Biggs Bridge construction in 2008 with closures

2015 Truck Volumes

The attached map displays truck volumes on major routes within Clark County. The map shows that the highest volumes occur along the interstate system. The routes leading to the Port of Vancouver (Mill Plain, Fourth Plain, and to a lesser extent Fruit Valley Road) all carry significant truck volumes. Mill Plain and Fourth Plain near the Port are most notable for their high percentage of Heavy Trucks (greater than 15%). Also, SE Columbia Way, 192nd Avenue, and Padden Parkway all carry a significant number of trucks. The highest volume of trucks, off the interstate system, was recorded at Padden Parkway west of I-205. The combination of truck volumes along Mill Plain and Fourth Plain would exceed the Padden Parkway count, with a significantly higher percentage of heavy trucks.

Compared to the 2006-2009 counts collected for the 2009 Clark County Freight Mobility Study, counts along arterials with over 500 trucks per day are all up, while 2015 counts along the interstate system are about the same as pre-recession counts.

In Skamania and Klickitat Counties, approximately 500-600 trucks a day use SR-14, and volumes increased to over 600 trucks a day in urban areas of Stevenson, White Salmon, and Bingen. Based on a previous study, some trucks are using SR-14 thru the Columbia River Gorge to avoid the Oregon Weight Mile Tax. These are mostly small independent operators, but add 50-80 mostly heavy trucks a day to SR-14 in the Columbia River Gorge. Up to 1200 trucks a day use SR-97 south of Goldendale, with 800 trucks a day using SR-97 north of Goldendale towards the Yakima Valley.

2009 CLARK COUNTY FREIGHT MOBILITY STUDY RECOMMENDATIONS

The 2009 Clark County Freight Mobility Study recommended ten freight mobility strategies. These strategies resulted from the analysis of freight movement, economic condition, transportation policies, and discussion with stakeholders. In addition, the Clark County Freight Mobility Study identified priority projects that benefit freight. The follow table summarizes the progress on implementation of these priority projects.

Figure 10: Implementation of Freight Strategies

2009 Identified Freight Strategies	In RTP	Funded	Completed
I-5 Salmon Creek Interchange (Completed 2014)	N/A	✓	✓
I-5, I-205 to 179 th Street Auxiliary Lanes (Completed 2014)	N/A	✓	✓
I-5/Mill Plain Interchange (2026 Construction)	✓	✓	
I-5 Columbia River Crossing	✓		
I-5 Salmon Creek Interchange, Phase II	✓		
I-5/SR-500 Interchange	✓		
I-5, 179 th St. to SR-502 Auxiliary Lanes	X		
I-205 Corridor Study (Completed 2014)	N/A	✓	✓
I-205, Mill Plain to NE 18 th Street, Stage 1 (Completed 2009)	N/A	✓	✓
I-205, Mill Plain to NE 18 th Street, State 2 (Under Construction)	✓	✓	
I-205/SR-500 SB Lane Modification (Construction 2016)	✓	✓	
I-205, 28 th St. to SR-500 Auxiliary Lanes	✓		
I-205/Padden Interchange with 72 nd Av slip ramp	✓		
I-205, SR-500 to Padden Widening	✓		
Ramp Meters: Mill Plain/18 th St./Padden Parkway	✓		
I-205/SR-14 Interchange	X		
I-205/Padden to 134 th Street Widening	X		
SR-14, NW 6 th Avenue to Union St. (Completed 2013)	N/A	✓	✓
SR-14 Camas Slough Bridge (Construction 2020)	✓	✓	
SR-14, I-205 to 164 th Avenue Widening	✓		
SR-14, Union Street to 32 nd Street	✓		
SR-14 at Columbia Shores Portal	✓		
SR-500, Extend SR-500 Westbound Auxiliary Lane (Completed 2010)	N/A	✓	✓
SR-500/St. Johns Interchange (Completed 2013)	N/A	✓	✓
SR-500/42 nd Av. And 54 th Av. Grade Separation	✓		
SR-500/SR-503/Fourth Plain	✓		
Pioneer Street Rail Crossing (2018 Construction)	✓	✓	
SR-502, NE 10 th Av. To Battle Ground Widening (Under Construction)	✓	✓	
SR-503/SR-502 Intersection Improvements (2019 Construction)	✓	✓	
Mill Plain, Port of Vancouver to I-5 (Construction 2020)	✓	✓	
SR-503/Padden Parkway Interchange	X		

Since 2009, seven of the priority projects have been completed, two projects are currently under construction, and six other projects are fully funded.

Attachments

Figure 4: Example Truck Classifications

<p>Class 5: Single Unit Delivery Truck Light Truck</p>	
<p>Class 7: Four-Axle Single Truck Medium Truck</p>	
<p>Class 8: Four Axle Tractor Trailer Heavy Truck</p>	
<p>Class 9: 5 Axle Tractor Trailer Heavy Truck</p>	
<p>Class 12: Six Axle Truck (two trailers) Heavy Truck</p>	
<p>Class 13: Eight Axle Tractor Trailer Heavy Truck</p>	

Source : Heffron Transportation, Inc., June 2009. Some of the photos are from WSDOT's training website.

Truck Volumes on Major Corridors

-  Less than 500 trucks per day
-  500 - 999
-  1000 - 2499
-  2500 or more trucks per day

Regional Transportation Council, June 2016

