

2016 Congestion Management Process Summary Report



Introduction

Southwest Washington Regional Transportation Council's (RTC's) federally required Congestion Management Process (CMP) is a regional program that analyzes travel delay characteristics and provides system performance information on major streets and state highways. Monitoring of congestion is a planning tool that provides reliable data to support investment decisions which advance community land use and economic growth plans.

Key Findings

The 2016 data confirms that the region's economy continues to grow, resulting in an increase in both morning and evening peak hour delay. Between 2011 and 2016, Clark County's population increased by 35,647 people or 8.3%. The Bureau of Labor Statistics (BLS) shows the Portland/Vancouver region added over 116,000 or 10.4% jobs during the same time period. This increase in population and employment has resulted in additional trips, especially during peak periods, on the transportation system.

The Congestion Management Process shows that implementation of the 20-year Regional Transportation Plan (RTP) can address most of the corridor capacity needs. However, the lack of transportation revenue for the I-5 Bridge replacement along with other key corridors, is contributing to worsening traffic conditions. The lack of progress on select projects will result in delay in achieving the RTP benefits and add to future costs.

The I-5 corridor is of strategic importance to the economy of the Portland/Vancouver and the Pacific Northwest regions. The I-5 Columbia River Bridge, along with sub-standard interchanges at both sides of the bridge, is a major choke point in this critical corridor. The Bridge carries over 135,000 vehicles daily and performs adequately during the non-peak hours. However, the hours of congestion are increasing as growth in traffic and economic activity expands. Heavy traffic, narrow lanes and the lack of emergency shoulders often contribute to congestion, collisions, and frustration for motorists. Future traffic demand will continue to grow in the I-5 corridor, which focuses the need to address the existing choke points. Targeted improvements in the I-5 corridor are among the region's highest priority bi-state need.

In the immediate to short-term, a need exists to study and implement low cost active freeway management strategies where long-term improvements have been delayed. The purpose of these strategies would be to enhance the existing system's performance by best utilizing existing freeway capacity. Implementation of active management strategies on freeways in other regions has resulted in safer driving conditions and more reliable travel times.

Regional Summary

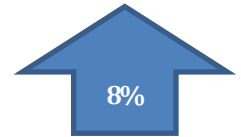
Clark Co. Population

2011 - 425,363

vs.

2016 - 461,010

OFM Populations



8%

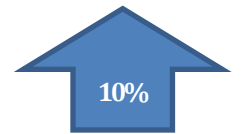
Portland/Vancouver Employment

2011 - 1.12

vs.

2016 - 1.23

In millions of jobs BLS



10%

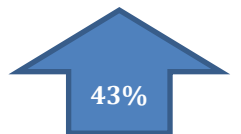
Clark Co. Taxable Sales

2011 - \$4.2

vs.

2016 - \$6.0

In billions of dollars



43%

Bi-State C-TRAN Ridership

2013 - 1,640

vs.

2016 - 1,499

Daily Evening Peak Riders



9%

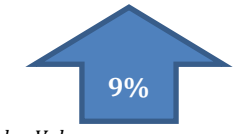
Columbia River Crossings

2011 - 273,169

vs.

2016 - 297,527

Daily I-5 and I-205 Bridge Volumes



9%

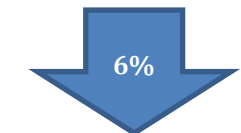
Evening Travel Speed

2011 - 31.7

vs.

2016 - 29.7

Average system speed



6%

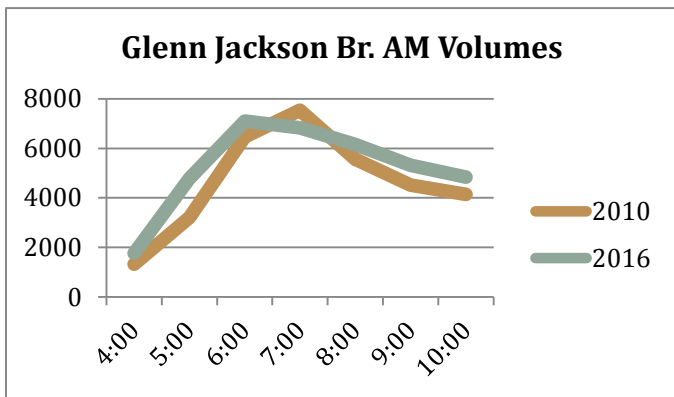
Bi-State & Regional Traffic

The demand between Clark County and Portland has placed significant pressure on the two Columbia River Bridges (I-5 and I-205) between Clark County, Washington and Portland, Oregon.

The demand for bi-state travel has increased each year. In 2016, over 297,500 vehicles crossed the two bi-state bridges on an average day, up from 273,000 vehicles in year 2011 (up 8.9% over five years).

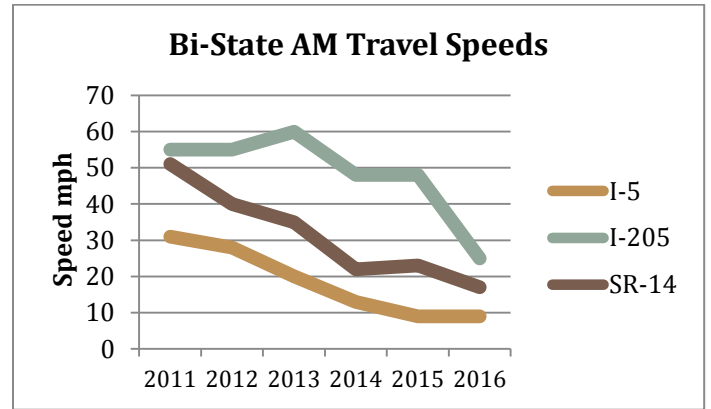
Year	I-5	I-205	Total	Annual Growth
2011	128,115	145,054	273,169	
2012	128,373	145,440	273,813	0.2%
2013	130,511	148,152	278,663	1.7%
2014	132,592	151,735	284,327	2.2%
2015	135,696	158,409	294,105	3.3%
2016	135,496	162,031	297,527	1.2%

Without additional operational improvements, both Columbia River bridges are at capacity in the peak periods and peak spreading will continue. Peak spreading leads to a flattening and longer peak period as trips shift to times immediately before and after the peak demand. This causes the peak hour to become a peak period. The following graphic shows the morning peaking spreading on the I-205 Bridge.

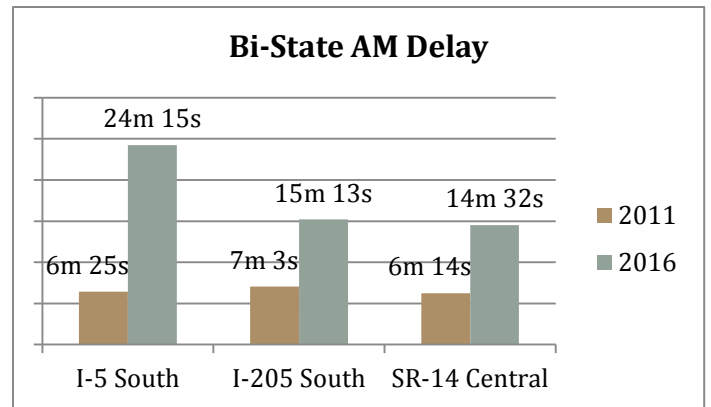


Clark County Morning Speed: Bi-State data shows that the morning speeds have been decreasing on the major bi-state corridors, resulting in additional delay. In 2016, the I-205 South corridor had the greatest decrease in speed. The major Bi-State corridors include the following:

- I-5 South: Main Street to Jantzen Beach
- I-205 South: SR-500 to Airport Way
- SR-14 Central: 192nd Avenue to I-205



Morning Delay: With this decrease in speed, the average delay has increased in each of the bi-state corridors. Between years 2011 and 2016 the morning delay has increased by almost 18 minutes in the I-5 South Corridor, and just over 8 minutes in both the I-205 South and SR-14 Central corridors.



Bi-State Travel Speed: A review of ODOT and WSDOT data stations along both the I-5 and I-205 bi-state corridors between Vancouver and Portland show traffic speeds throughout each corridor. This data is a good indicator of average annual speeds within a corridor segment, but does not reflect localized hot spots. The data indicates that both the I-5 and I-205 bridges and associated interchanges are choke points, as traffic approaches each bridge in the peak direction during peak periods.

I- 5 Corridor	Southbound AM Peak	Northbound PM Peak
Main St. to Columbia River	15 mph	47 mph
Columbia River to I-84	19 mph	16 mph
I- 205 Corridor	Southbound AM Peak	Northbound PM Peak
SR-500 to Columbia River	28 mph	50 mph
Columbia River to I-84	38 mph	25 mph

Corridor Summaries

<h3>I-5 Corridor Summary</h3>	<h3>I-205 Corridor Summary</h3>	<h3>SR-14 Corridor Summary</h3>
<p>I-5 Bridge Volumes 2011 - 128,115 vs. 2016 - 135,496 <i>ODOT</i></p> 	<p>I-205 Bridge Volumes 2011 - 145,054 vs. 2016 - 162,031 <i>ODOT</i></p> 	<p>SR-14 (E. of I-205) Volumes 2011 - 81,000 vs. 2016 - 86,000 <i>WSDOT</i></p> 
<p>PM Transit Ridership 2013 - 1,489 vs. 2016 - 1,329 <i>C-TRAN</i></p> 	<p>PM Transit Ridership 2013 - 151 vs. 2016 - 170 <i>C-TRAN</i></p> 	<p>PM Transit Ridership 2013 - 522 vs. 2016 - 562 <i>C-TRAN</i></p> 
<p>Morning Travel Time Main St. to Jantzen Beach</p> <p>2011 - 6m 25s vs. 2016 - 24m 15s <i>Probe Vehicle</i></p> 	<p>Morning Travel Time SR-500 to Airport Way</p> <p>2011 - 7m 3s vs. 2015 - 15m 13s <i>Probe Vehicle</i></p> 	<p>Morning Travel Time 192nd Av. to I-205</p> <p>2011 - 6m 14s vs. 2015 - 14m 32s <i>Probe Vehicle</i></p> 
<p>Transit AM Travel Time 99th St. to Portland</p> <p>2011 - 33m 25s vs. 2016 - 60m 46s <i>C-TRAN</i></p> 	<p>Transit AM Travel Time Fisher's Landing to Portland</p> <p>2011 - 36m 41s vs. 2016 - 43m 2s <i>C-TRAN</i></p> 	<p>Transit AM Travel Time Fisher's Landing to Portland</p> <p>2011 - 36m 41s vs. 2016 - 43m 2s <i>C-TRAN</i></p> 
<p>2016 Average Speed Main St. to I-84</p> <p>AM SB - 17 mph vs. PM NB - 20 mph <i>ODOT/WSDOT Data Stations</i></p> 	<p>2016 Average Speed SR-500 to I-84</p> <p>AM SB - 32 mph vs. PM NB - 35 mph <i>ODOT/WSDOT Data Stations</i></p> 	<p>2016 Average Speed 192nd Av. to I-205</p> <p>AM WB - 21 mph vs. PM EB - 54 mph <i>RTC Pilot Car</i></p> 
<p>I-5 Bridge Peak Hours</p> <p>2011 - 5 hrs. vs. 2016 - 7 hrs. <i>Average Speed <30 mph</i></p> 	<p>I-205 Bridge Peak Hours</p> <p>2011 - 2 hrs. vs. 2016 - 3 hrs. <i>Average Speed <30 mph</i></p> 	<p>SR-14 Peak Hours</p> <p>2011 - 1 hr. vs. 2016 - 2 hrs. <i>Average Speed <30 mph</i></p> 

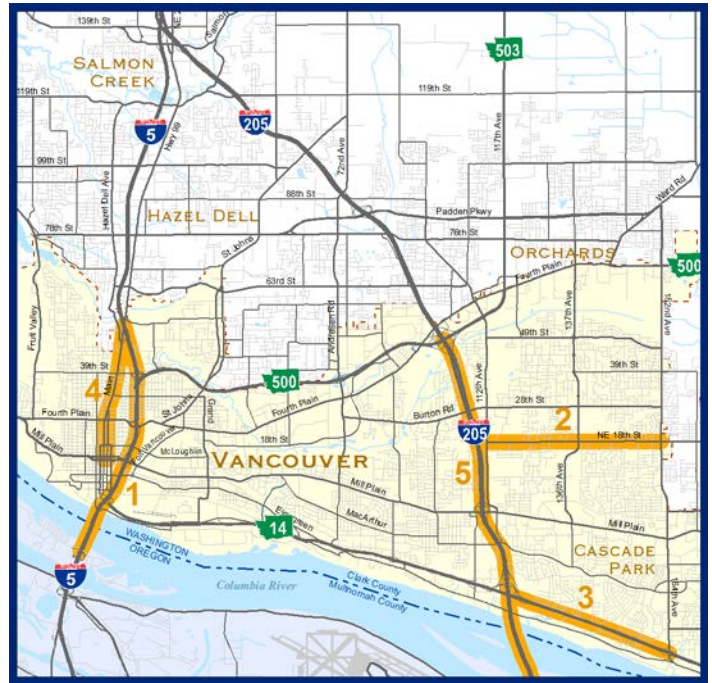
Corridors: Volume to Capacity

The corridor capacity ratio is an aggregation of the volume/capacity ratios for the individual segments that make up a corridor. The capacity ratio provides an indication of how well the transportation facility carries the existing traffic volumes. A ratio above 0.90 is an indicator of significant congestion. A ratio of 1.00 and above indicates the worst traffic congestion.

The five worst volume to capacity corridors are:

- 1 *I-5, Main St. to Jantzen Beach (AM) >1.00
- 2 18th St., 112th Ave. to 162nd Ave. (PM) >1.00
- 3 SR-14, I-205 to 164th Avenue (AM/PM) >0.93
- 4 Main Street, Ross Street to Mill Plain (AM) >0.92
- 5 I-205, Airport Way to Padden Parkway (PM) >0.91

* At the I-5 Bridge, traffic demand exceeds available capacity during the morning commute. The result is that fewer vehicles are able to get through the corridor.

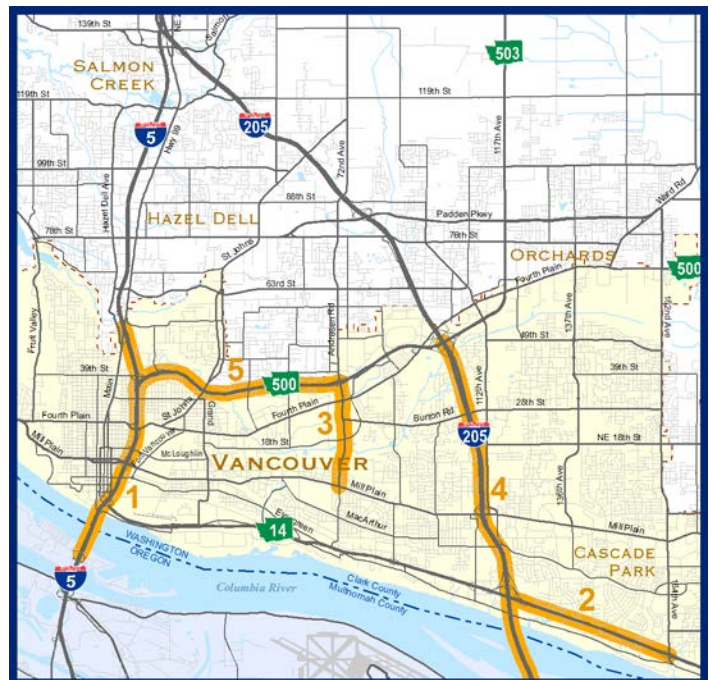


Corridors: Lowest Speed Percentage

The level of speed in the corridor is ranked by comparing actual measured travel speed to the posted speed limit. The percentage along arterials is often directly connected to delay at signalized intersections. Improved progression and coordination between signals will improve overall travel time and safety. A travel speed lower than 60% of the posted speed limit is below average and is an indicator of delay.

The eight lowest speed percentage corridors are:

- 1 I-5, Main St. to Jantzen Beach (AM) 16%
- 2 SR-14, 164th Av. to I-205 (AM) 30%
- 3 Andresen, Mill Plain to SR-500 (PM) 32%
- 4 I-205, SR-500 to Airport Way. (AM) 42%
- 5 SR-500, I-5 to Andresen Road (PM) 49%



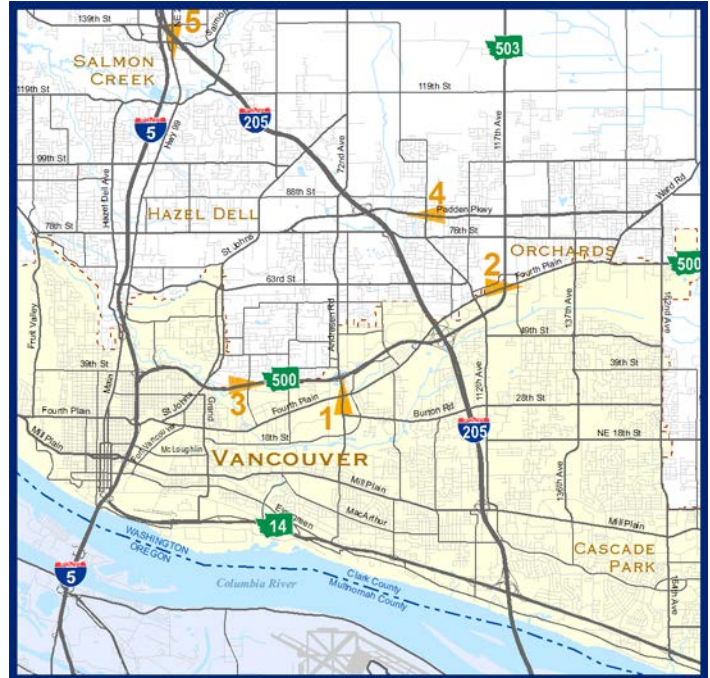
Intersection Delay

A long average delay for the through movement at an intersection adds to the overall travel time and increases congestion at intersections. The longest evening delays are at the following intersections:

1	Fourth Plain/Andresen Rd. (N)	256 Sec.
2	Fourth Plain/SR-500 (E)	180 Sec.
3	SR-500/42 nd /Falk Rd. (E)	146 Sec.
4	Padden Parkway/NE 94 th Av. (W)	100 Sec.
5	NE 134 th St/NE 20 th Av. (S)	95 Sec.

In signal timing, the higher volume movement is generally favored over lower volume movements, to improve the overall intersection operations.

In the above table, the greatest concern is with the top three intersections, each have an average evening delay greater than two minutes in the peak direction.



Key Regional Strategies

The information and data contained in the Congestion Management Report is used to identify appropriate congestion management strategies for the region. The following strategies have been identified through the Regional Transportation Plan:

- Transportation System Management and Operations (TSMO) and Transportation Demand Management (TDM) strategies should be a part of cost-effectively managing each corridor. These strategies are a recommended approach from the 2014 Regional Transportation Plan.
- Capacity should be selectively added where other strategies have been exhausted and where consistent with locally adopted Comprehensive Plans.
- The region should continue to work towards implementation of an I-5 bridge replacement project, consistent with the 2014 Regional Transportation Plan.
- In the near-term, the region should conduct an assessment of freeway operational strategies (ramp metering, transit, etc.). RTC has programmed \$150,000 and will need additional partners to fully fund this analysis.

Local Strategies

Because each roadway corridor has its own characteristics, congestion management efforts must be tailored to meet the needs of an individual roadway. Local agencies must employ a variety of strategies to effectively manage congestion. The CMP Toolbox, contained in the CMP Report, is a reference tool for the development of local strategies.

Congestion Monitoring Report

The Congestion Management Process Monitoring Report includes a warehouse of transportation data and an analysis of transportation system performance. The data is translated into tables and maps that are contained in the full report. The full CMP report, including transit and other multimodal data, is available on RTC's website.

For More Information

You can get more information on the Congestion Management Process by contacting the Regional Transportation Council at 360-397-6067 or by visiting the project website at <http://www.rtc.wa.gov/programs/cmp>.