2015 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. The information and data contained in the congestion management report is used to identify transportation needs and encourages cost-effective improvement strategies that complement major capital needs. Within the annual transportation funding program, prioritization is given to projects which address deficiencies identified through the CMP.

Key Findings

The Clark County data confirms that the region's 2015 traffic is exceeding pre-recession travel levels. Region-wide traffic congestion has been on the rise for the past five years, and has resulted in an increase in both morning and evening peak hour delay.

The amount of delay was influenced by the growth in population and employment. Between 2011 and 2015, Clark County's population increased by 26,457 people or 6.2%. The Bureau of Labor Statistics (BLS) shows the Portland/Vancouver region added over 41,000 jobs during the same time period. This increase in population and employment has resulted in additional trips, especially during peak commute periods and on bi-state corridors.

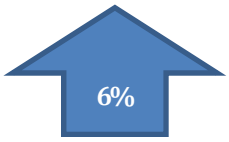
The Congestion Management Process shows that implementation of the 20-year Regional Transportation Plan (RTP) can address most of the corridor capacity needs over the next 20 years. The lack of transportation revenues and regional consensus for the I-5 Bridge replacement along with other key corridors,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

The region should consider implementing low cost system operation and management strategies where long-term improvements have been delayed. There is an immediate need to implement additional low-cost strategies for the I-5 South Corridor as an interim response to increased bi-state travel demand.

Regional Summary

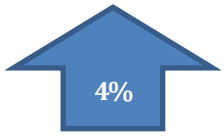
Clark Co. Population

2011 – 425,363
vs.
2015 – 451,820
OFM Populations



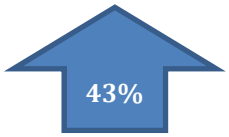
Portland/Vancouver Employment

2011 – 1.11
vs.
2015 – 1.15
In millions of jobs BLS



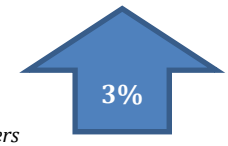
Clark Co. Taxable Sales

2011 – $4.2
vs.
2015 – $6.0
In billions of dollars



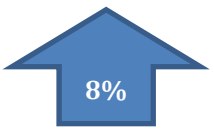
Bi-State C-TRAN Ridership

2013 – 1,640
vs.
2015 – 1,686
Daily Evening Peak Riders



Columbia River Crossings

2011 – 273,169
vs.
2015 – 294,105
Daily I-5 and I-205 Bridge Volumes



Evening Travel Speed

2011 – 31.7
vs.
2015 – 29.9
Average system speed

Bi-State & Regional Traffic

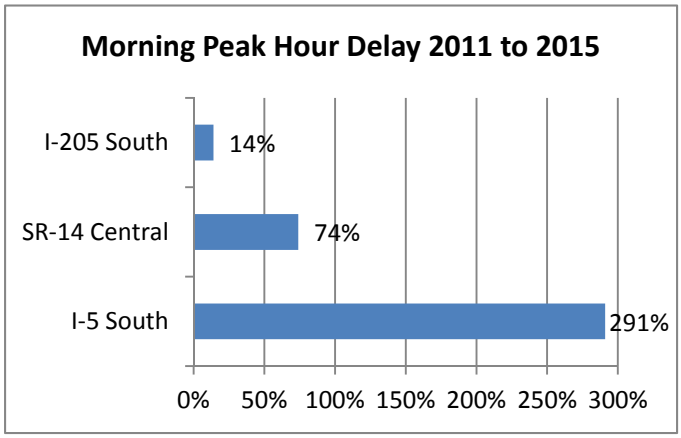
The major hot spots for regional congestion are at the Columbia River bridges for travel between Clark County and Portland. The demand for bi-state travel has increased each year over the last five years. Both the I-5 and I-205 traffic volumes continue to grow and set all time daily records. In 2015, over 294,000 vehicles crossed the two bridges on an average day, up from 273,000 in year 2011 (up 7.7%).

Year	I-5	I-205	Total	Growth
2011	128,115	145,054	273,169	0.4%
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%

Both Columbia River bridges and connecting corridors experience daily congestion, which is most acute during morning and evening peak periods. Due to the levels of peak period congestion, the total volume of traffic served is reaching a saturation point resulting in the flattening of total peak hour volumes and a longer peak period.

When non-recurring events (collisions, breakdowns, debris in roadway, construction, and special events), occur in one of the bi-state corridors, not only can the corridor experience extensive delays, but other regional and local corridors can experience significant congestion.

Morning peak hour delay has significantly increased over the last five years. The morning backup on the I-5 South corridor regularly extends north to Main Street, on I-205 north to Padden Parkway, and on SR-14 Central east to 192nd Avenue.



Significant congestion also occurs on I-5 and I-205 heading from Oregon into Washington during the evening commute. A review of traffic data shows that the Glenn Jackson Bridges has the highest total daily volume and the I-5 Interstate Bridge has the highest density of traffic per travel lane within the region:

Location	Total Volume	Volume Per Lane
I-5/Columbia River	136,321	**22,720**
I-205/Columbia River	**161,738**	20,217
I-205/Columbia Blvd	128,960	21,493
I-5/Terwilliger	117,913	19,652
I-84/Hollywood	133,891	22,315
Hwy 26/Tunnel	132,213	19,350

I-5 Corridor: A review of both ODOT and WSDOT data stations shows a break in speed patterns near the Interstate Bridge. In the morning peak, the I-5 corridor experiences slow speed from Vancouver to Portland, with the slowest speed just north of the Interstate Bridge (14 mph). During the evening peak most of the congestion in the I-5 corridor occurs south of the Interstate Bridge (15 mph). An analysis of weekend data also shows significant speed reduction (12 mph) between Lombard to the Interstate Bridge during the evening peak period.

I- 5 Corridor	Southbound AM Peak	Northbound PM Peak
SR-500 to Columbia Rv.	14 mph	46 mph
Columbia Rv. to I-84	22 mph	15 mph

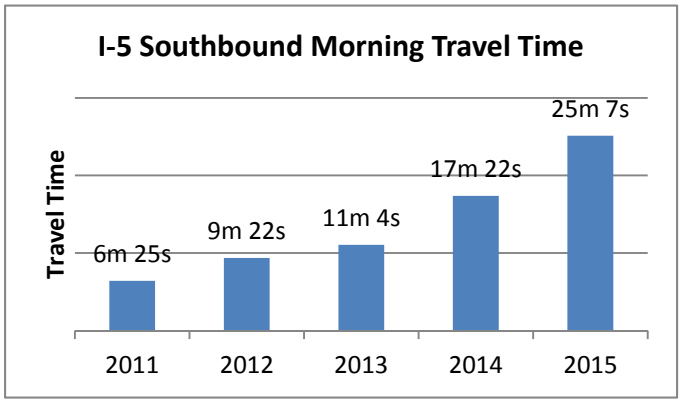
I-205 Corridor: This corridor can accommodate a high traffic demand without significant impacts to speed. The corridor usually operates near capacity and posted speed limit during the morning commute. During the evening commute, regular slowing occurs on the Portland side of the Columbia River, especially around major interchanges. Slowing can also occur around interchanges on the Washington side of the Columbia River

I- 205 Corridor	Southbound AM Peak	Northbound PM Peak
SR-500 to Columbia Rv.	47 mph	46 mph
Columbia Rv. to I-84	48 mph	25 mph

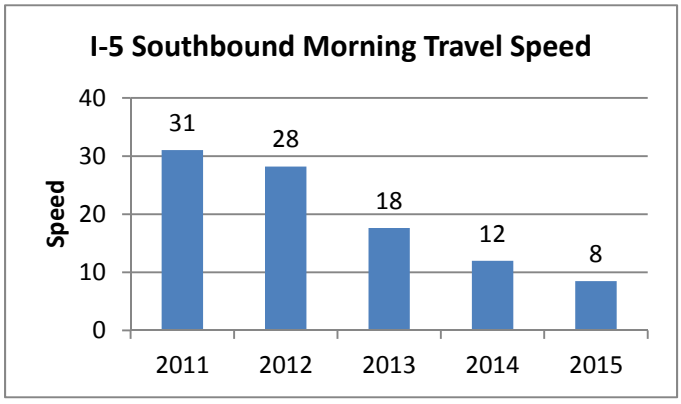
SR-14 Corridor: Just east of I-205, the SR-14 corridor experiences a high demand, with slowing associated with access between SR-14 and I-205.

I-5 Interstate Bridge Delay

Travel time data is collected annually, by using global positioning system (GPS) units and by driving corridors multiple times during the morning peak period (6:30-8:30 AM). Between 2011 and 2015 the probe vehicle data showed a significant increase in travel time on I-5 between Main Street and Jantzen Beach exits. C-TRAN also experienced a significant increase in travel time for commuter trips using the I-5 corridor. Over the past five years, travel time increased from 6 ½ minutes to just over 25 minutes.



Between 2011 and 2015 the morning travel speed declined from 31 mph to 8 mph in the I-5 South Corridor. With a posted speed limit of 50 mph, the I-5 Southbound morning travel is the lowest performing speed corridor in Clark County (travel speed is 15% of the posted speed limit). The I-5 corridor is so congested during the morning peak, that many commuters use Vancouver's Main Street and St. Johns Boulevard as an alternative during the morning commute, creating congestion on these local major arterials.



The majority (82%) of C-TRAN's ridership occurs on the C TRAN's urban routes, with approximately 12% of the ridership occurring on commuter routes. However, the highest morning transit ridership (1,100+ passengers) occurs across the Interstate Bridge as Clark County commuters connect to employment opportunities in Portland. C-TRAN's On-Time Performance Report shows that transit routes that cross the Interstate Bridge had the lowest on-time performance.

I-5 Corridor Summary

Morning Travel Time
Main St. to Jantzen Beach
2011 – 6m 25s
vs.
2015 – 25m 7s
Probe Vehicle
291%

Morning Travel Speed
Main St. to Jantzen Beach
2011 – 31 mph
vs.
2015 – 8 mph
Probe Vehicle
291%

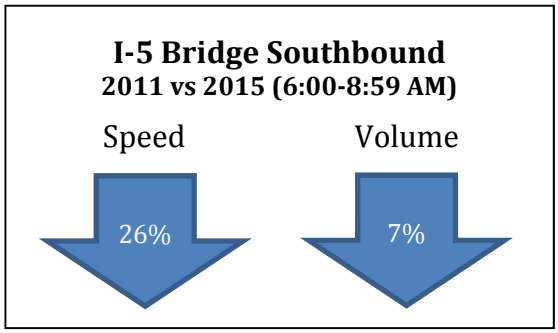
Transit Travel Time
99th St. to Portland
2011 – 33m 25s
vs.
2015 – 52m 23s
C-TRAN
57%

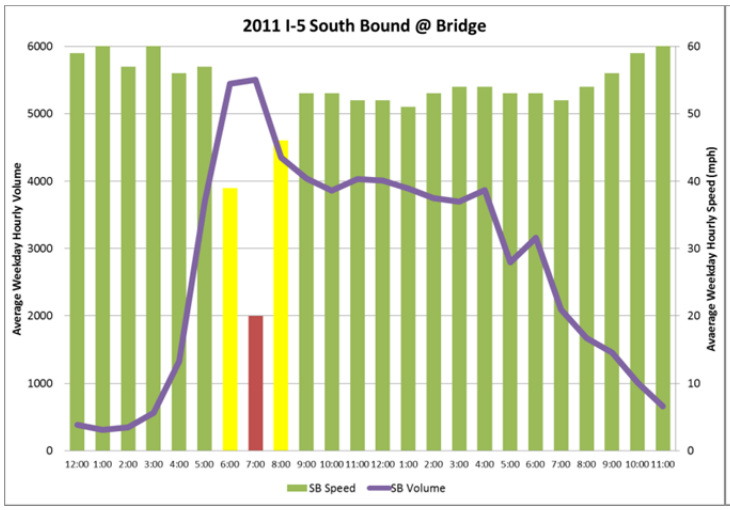
Evening Travel Time
I-84 to Interstate Bridge
2011 – 25m 14s
vs.
2015 – 26m 6s
ODOT Data Stations
3%

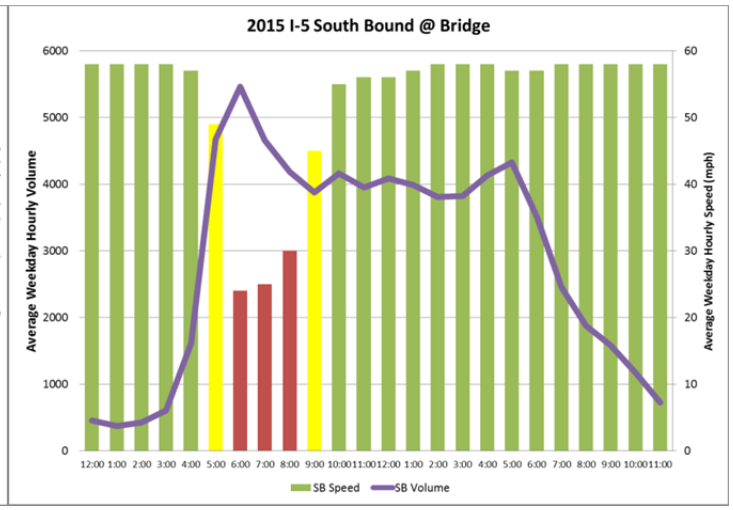
PM Weekday vs Weekend
I-84 to Interstate Bridge
Weekday - 26m 6s
vs.
Weekend - 20m 8s
ODOT Data Stations
23%

I-5 Bridge Hours of Delay
2011 – 5 hrs.
vs.
2015 – 7 hrs.
Average Speed <30 mph
40%

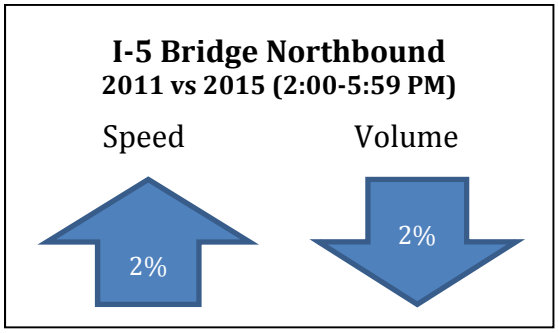
I-5 Bridge Southbound: Southbound morning operations across the Interstate Bridge have significantly declined over the past five years. Corridor turbulence, associated with interchanges and the bridge geometry, is leading to lower speed and throughput during peak periods. Between 2011 and 2015, over 1,000 fewer trips are crossing the bridge in the morning peak two hour period. Commuters are also leaving earlier to make their destination on time. In 2011, the morning southbound peak lasted three hours with speeds under 50 mph. By 2015, the morning southbound peak was five hours. The following graphs demonstrate the relationship between speed and volumes for southbound travel on the Interstate Bridge.

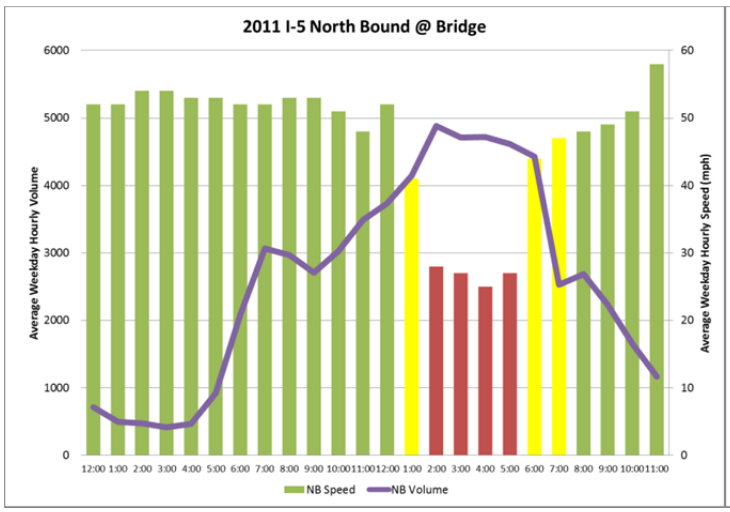


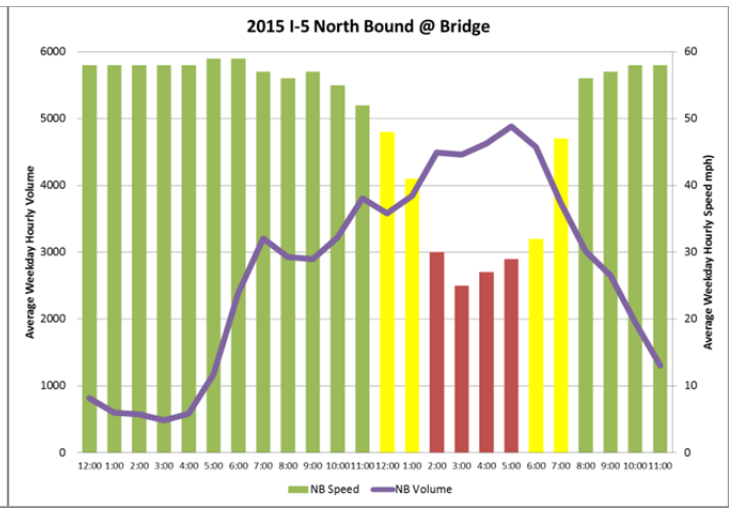




I-5 Bridge Northbound: Northbound evening operations across the Interstate Bridge have changed little over the past five years, as the corridor reached a saturation point during the evening period in the early 1990's. Corridor speed and throughput during the peak period has remained constant between 2011 and 2015. The afternoon peak is starting an hour earlier at noon, and the highest volume has shifted to a later time period of 5 pm. The corridor is consistently congested, with major failures occurring when an incident occurs on the bridge.







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)	**>0.90**
4	I-205, Airport Way to SR-500 (AM)	**>0.90**
5	Main Street, Ross Street to Mill Plain (AM)	**>0.90**
6	Fourth Plain, 117th Av. to 162nd Av. (PM)	**>0.90**
7	SR-503, NE 119th St. to Fourth Plain (PM)	**>0.90**

** 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)	**15%**
2	Andresen, Mill Plain to SR-500 (PM)	**40%**
3	SR-14, 164th Avenue to I-205 (AM)	**44%**
4	Fourth Plain, 117th Av. to 162nd Av. (PM)	**48%**
5	*Mill Plain, I-5 to Fourth Plain (PM)	**50%**
6	SR-500, I-5 to Andresen Road (PM)	**50%**
7	SE 164th Avenue, SR-14 to Mill Plain (PM)	**50%**

**Construction closed a lane in part of the corridor*

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)	**182 Sec.**
2	*Mill Plain/Columbia St (E)	**157 Sec.**
3	Fourth Plain/SR-500 (E)	**122 Sec.**
4	SR-500/42nd/Falk Rd. (E)	**103 Sec.**
5	*Padden Pkwy./NE 94th Av. (W)	**102 Sec.**
6	NE 139th St./NE 20th Av. (S)	**102 Sec.**
7	NE 134th St./NE 20th Av. (S)	**101 Sec.**
8	NE 99th St./Hazel Dell Av. (S)	**94 Sec.**
9	NE 99th St./Highway 99 (S)	**91 Sec.**

**Construction near intersection*

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 (RTP):

- 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 complete an assessment of TSMO and TDM strategies that could be implemented in the I-5 Corridor.

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****.*