



MEMORANDUM

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Matt Ransom, Executive Director 
DATE: April 25, 2017
SUBJECT: 2016 Congestion Management Process – Initial Data

AT A GLANCE – INFORMATION

The purpose of this memorandum is to provide an overview of the initial data for the 2016 Congestion Management Monitoring Report. The Congestion Management Process is a federal Planning requirement. The Congestion Management Process provides data and analysis for the effective management and decision making on the regional transportation system. Staff will seek endorsement of the findings from the 2016 Congestion Monitoring Report at the June RTC Board meeting.

BACKGROUND

The Congestion Management Process (CMP) is a federal planning requirement. All metropolitan planning organizations with a population over 200,000 must have a process for developing performance measures, system monitoring, and identifying strategies. As part of our regional congestion management process, RTC staff prepares an annual monitoring report that uses multiple measures. Multiple measures are used because the use of one measure can never fully capture the complexity of the transportation system. Overall, the region’s monitoring report provides a consolidated assessment of the regional transportation system’s operating conditions and deficiencies.

It then becomes the responsibility of local agencies to identify improvements that correct identified deficiencies. These improvements are then incorporated within the Regional Transportation Plan and implemented through the Transportation Improvement Program. Within the regional grant process, prioritization is given to projects that address deficiencies identified in the Congestion Monitoring Report.

The purpose of this memorandum is to summarize initial data for the 2016 congestion monitoring effort. The full 2016 Congestion Monitoring Report will be brought to the June RTC Board meeting for Board action.

OVERALL

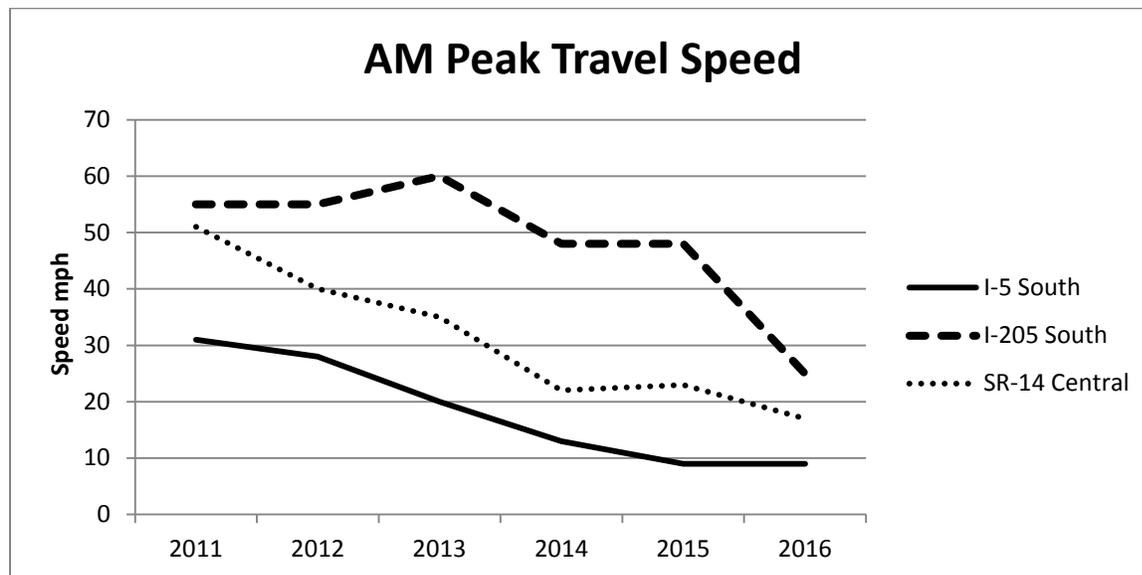
With continual growth in regional employment and population, more commute trips are being added to the regional transportation system resulting in additional demand on many of the region’s corridors. This increase in demand generally represents an increased movement of people and goods. Yet in select corridors, the high travel demands are contributing to delay and peak congestion, which is most apparent in the morning and evening commute as people try to cross both the I-5 and I-205 Bridges between Washington and Oregon.

In 2016, the region experienced the greatest year-over-year change of performance indicators on the I-205 corridor from SR-500 to Airport Way during the morning peak period.

COLUMBIA RIVER CROSSINGS

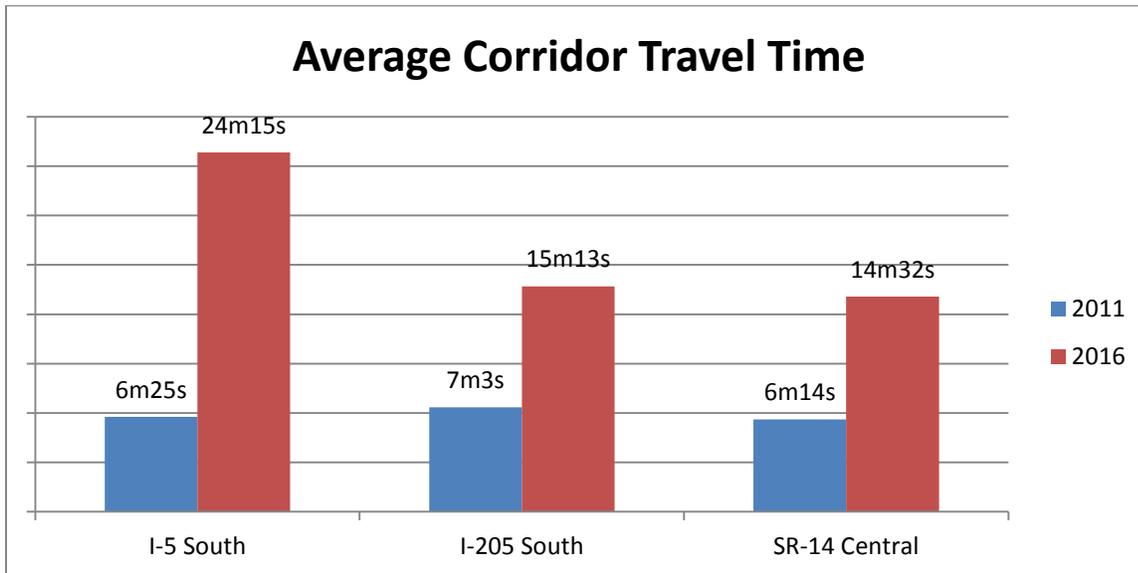
Both the I-5 and I-205 traffic volumes continue to grow and set all-time daily averages. This has also resulted in additional congestion and slower commutes during peak hours. People commuting in the morning peak on I-5 South, I-205 South, and SR-14 east of I-205 experience the most delay. Morning backup on the I-5 South corridor regularly extends north of Main Street; backup on the I-205 South corridor extends past SR-500; and backup on the SR-14 Central corridor extends to 192nd Avenue. In the evening peak, similar backups occur on the Oregon side of the Columbia River bridges.

Over the past five years, the morning speeds have decreased by 71% on the I-5 corridor from SR-500 to Jantzen Beach, 55% on the I-205 Corridor from SR-500 to Airport Way, and 67% on SR-14 from 192nd Avenue to I-205. Over the last year, the I-205 corridor hit saturation level and experienced a significant drop in average speed from 48 mph to 25 mph.



With this decrease in speed, the average travel time in these bi-state corridors have increased. Between years 2011 and 2016 the morning travel time 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.

However, reliability in all three corridors can be significantly impacted by incidents (stalled vehicle, collision, bad weather, etc.) within the region. A single incident can impact travel on multiple corridors as it can take multiple hours for the transportation system to recover. In response, WSDOT is in the process of completing a ramp meter study, and the region has identified funding for an Urban Freeway Operational Study to maximize the use of existing capacity and is deploying additional incident response vehicles to support corridor operations.



The I-5, I-205, and SR-14 corridors are all experiencing peak spreading as total peak volume is reaching a saturation point. Resulting in a longer peak period that is starting earlier in the day as commuters leave prior to the most congested time period.

CORRIDOR CAPACITY RATIO

The capacity ratio provides an indication of how well the transportation facility carries the existing traffic volumes. The higher the ratio, the more traffic congestion a driver is likely to experience. A facility with a corridor capacity above 0.90 will feel congested. Once a facility is beyond capacity the corridor capacity ratio can appear to improve, but in reality the corridor is failing as increased delay results in fewer vehicles getting through the corridor. The I-5 corridor during the morning commute has reached saturation level resulting in slower speeds and fewer vehicle throughputs.

The highest volume to capacity ratio corridors include:

1. I-5, Jantzen Beach to Main St. (AM) - > 1.00*
2. 18th Street, 112th Av. To 162nd Av. (PM) - > 1.00
3. SR-14, I-205 to 164th Avenue (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 slower speeds and fewer vehicles are able to get through the corridor in the peak period.*

SPEED AS PERCENT OF SPEED LIMIT

Speeds significantly lower than the posted speed limit is another measure of delay and congestion. Slow corridor travel speed will limit a facility's ability to carry planned traffic volumes. The lowest speed corridors when compared to posted speed limit include:

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, Airport Way to Padden Parkway (AM) – 42%
5. SR-500, I-5 to Andresen Road (PM) – 49%

Over the last few years, the region is also experiencing significant reduction in speed along arterials that are connecting with the low speed freeway facilities. Backups are occurring where vehicles are trying to join congested freeways. For example, morning delays are occurring at SR-14, Mill Plain, Fourth Plain, and SR-500 near their interchanges with I-5 and I-205.

INTERSECTION DELAY

Long average delay for the through movement at an intersection adds to the overall travel time and increases congestion at these locations. The five longest evening delays are at the following locations:

1. Fourth Plain/Andresen Rd. (Northbound) – 256 Seconds
2. Fourth Plain/SR-500 (Eastbound) – 180 Seconds
3. SR-500/42nd/Falk Rd. (Eastbound) – 146 Seconds
4. Padden Parkway/NE 94th Av. (Westbound) – 100 Seconds (Off-Peak Direction)
5. 134th Street/NE 20th Avenue (Southbound) – 95 Seconds (Off-Peak Direction)

The goal of signal coordination is to get the greatest number of vehicles through a corridor with the fewest stops in the safest and most efficient manner. The higher volume movement is favored over lower volume movements when traffic signals are coordinated. In this situation, the benefit gained by traffic on the higher volume approach exceeds the degradation in operations experienced by the lower volume approach and overall intersection operations are improved.