



MEMORANDUM

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Dean Lookingbill, Transportation Director
DATE: December 27, 2013
SUBJECT: I-205 Access and Operations Study Update

AT A GLANCE – DISCUSSION

The purpose of this memorandum is to provide an update to the RTC Board on recent I-205 Access and Operations Study activities. It describes 2022 transportation capital system improvements, I-205 corridor demographic characteristics and 2022 regional transportation system performance. It also lists the proposed 2022 low cost operational improvements being analyzed for the short term operational analysis.

BACKGROUND

The I-205 Corridor Study is analyzing both short and long term vehicle performance in the corridor. The 2022 short term analysis is made up of funded and operational alternatives. The funded alternative is assessing transportation performance if there are no additional improvements in the corridor except for already funded projects. The operational alternative is evaluating how the addition of low cost operational strategies to the base case can help optimize performance in the corridor.

The long term analysis will look at 2035 transportation conditions with the set of core capital projects in the corridor adopted by the RTC Board in November 2012. As a reminder, the recommended set of core projects is listed below.

- I-205 Widening (SR-500 to Padden)
- SR-14 Widening (I-205 to 164th)
- New SR-500 off-ramp/auxiliary lane from Mill Plain to SR-500
- Padden Interchange improvements with 72nd Avenue slip ramp
- I-205 Park and Ride at 18th Street

The core project list came out of the first phase of the I-205 Corridor Study. The currently adopted Metropolitan Transportation Plan calls for more than \$540 million of capital investment in the I-205 corridor projects.

With limited funds available for future infrastructure, the core project list has a lower capital cost of \$138 million. The core projects represent the most critical projects to address future capacity needs in the I-205 corridor and are well matched to the lower 2035 growth forecast.

Existing problems in the corridor are not primarily capacity related. North of the bridge, I-205 occasionally approaches, but operates below capacity. Volume to capacity ratios on the I-205 bridge are higher and near capacity more frequently, leading to increased queuing and delay. Problem

bottlenecks in the corridor occur at decision points such as exits and entrances to I-205 mainline resulting in turbulence and delay at merge/weave areas.

The 2022 low cost operational improvements being studied are intended to get the most out of existing capacity in the corridor by better managing access to the system and improving lane utilization.

2022 CAPITAL SYSTEM IMPROVEMENTS

The 2022 network includes today's transportation system together with state-funded Nickel/Partnership projects and improvements in local six year Transportation Improvement Programs. The Nickel/Partnership projects assumed in the I-205 corridor are the completion of the Salmon Creek Interchange Project and the 18th Street Interchange at I-205.

In addition, the 2022 network for I-205 includes a set of low cost geometric and operational strategies to the system intended to improve transportation efficiency and manage the corridor more effectively. Some of the strategies were previously discussed as part of the proposed 2022 operational alternative improvements; however, WSDOT has decided to implement them early in conjunction with the I-205 concrete rehabilitation project currently underway. The additional low capital improvements are listed below and shown in Attachment 1:

- I-205 at SR-500, northbound mainline lane drop change from left to right side
- Northbound off-ramp to SR-500, left lane dedicated to westbound SR-500, right lane dedicated to eastbound SR-500 and 112th Avenue/Gher Road
- 104th/105th Street realignment project at Mill Plain Boulevard
- Increase length of eastbound storage lane on Mill Plain Boulevard to I-205 northbound
- Lengthen Mill Plain Boulevard eastbound to southbound I-205 on-ramp
- Airport Way to I-205 northbound on-ramp project to provide separate on-ramp from westbound Airport Way

I-205 CORRIDOR DEMOGRAPHICS AND SYSTEM PERFORMANCE

The I-205 corridor geographic area is defined as Andresen Road to the west, 192nd to the east, the Columbia River to the south and 134th Street to the north. Demographic information for the corridor is summarized in the chart below. From 2010 to 2022, households are forecast to grow by 12% to 74,270 with employment growing by the same percentage to 61,950. Even with 12% growth, the I-205 corridor makes up 38.4% of the regional households and 37.8% of the regional jobs indicating its continued importance as a significant transportation corridor.

Transportation analysis for the study includes use of both the regional travel model and VISSIM, the microsimulation transportation model application. While the regional model is anchoring the analysis of I-205 corridor performance, it is being supplemented by VISSIM to conduct the detailed operational analysis for the study. The following table displays regional transportation system performance for 2010 and 2022.

Comparisons include vehicle miles travelled, vehicle hours of delay, and freeway miles with a volume to capacity ratio of .9 or higher. The travel demand resulting from demographic growth in the corridor sees a decline in transportation system performance with capacity and performance problems emerging in the I-205 corridor.

Peak Hour Performance Measures	AM		PM	
	2010	2022	2010	2022
Vehicle Miles Travelled	94,427	137,931	106,605	121,672
Vehicle Hours of Delay	188	1,423	172	594
Lane Miles Congested	5.6	37.2	7.2	21.3

Additional information on 2022 system performance will be presented at the January 7th Board meeting including visualizations of PM operations, a comparison of volume to capacity ratios of 0.9 or greater, and I-205 northbound travel time and speeds in the corridor by time of day.

2022 OPERATIONAL STRATEGIES

The 2022 operational analysis is examining how the addition of low cost operational improvements to the base case can manage/improve vehicle flow on I-205. Identification of low cost operational strategies to include in the short term analysis has been developed based on regional model results, initial information coming out of the microsimulation analysis, the strategies that came out of the I-205 operational strategies workshop in March, and WSDOT staff review. The strategies are listed below and on Attachment 2.

2022 travel speeds and performance in the corridor represent a typical day and are not severe. However, the high volumes and levels of congestion on I-205 decreases reliability and increases delay and queuing if an incident or weather related accident occurs leading to a breakdown in system performance.

Northbound

- Ramp meter at Mill Plain Boulevard to I-205 north
- Convert SR-14 off-ramp to exit only drop lane with 3 through lanes continuing north of the exit.

Findings on the ramp meter will be presented at the January Board meeting. Development and analysis of the SR-14 off-ramp strategy is still underway.

Southbound

- Ramp meter at Padden Parkway to I-205 south
- Ramp meter at SR-500 westbound to I-205 south
- Extend southbound on-ramp to I-205 to provide longer merge distance
- Reduce I-205 southbound mainline from three to two lanes under the SR-500 overpass making the SR-500 on-ramp an add lane
- Extend the merge distance where the eastbound and westbound SR 500 ramps combine into a single lane prior to entering southbound I-205.
- 134th Street flyover ramp project

The last strategy was included in the I-205 Corridor Study recommendations and is being analyzed as part of the short term operations analysis.

NEXT STEPS

Analysis of the SR-14 off-ramp and calibration of the 2022 AM VISSIM model will also take place in January. Under the current schedule, findings on the remaining 2022 northbound strategy and the southbound strategies will be presented to RTAC in February and to the RTC Board in March.

Analysis of the 2035 core projects will follow the 2022 AM operational strategies. Depending on the timing to complete the 2035 VISSIM model development and the scoping of the Regional Transportation Plan, the 2035 findings may be folded into the RTP process rather than as a separate set of findings.

Attachments

Attachment 1

I-205 Corridor Study

2022 Capital Improvements

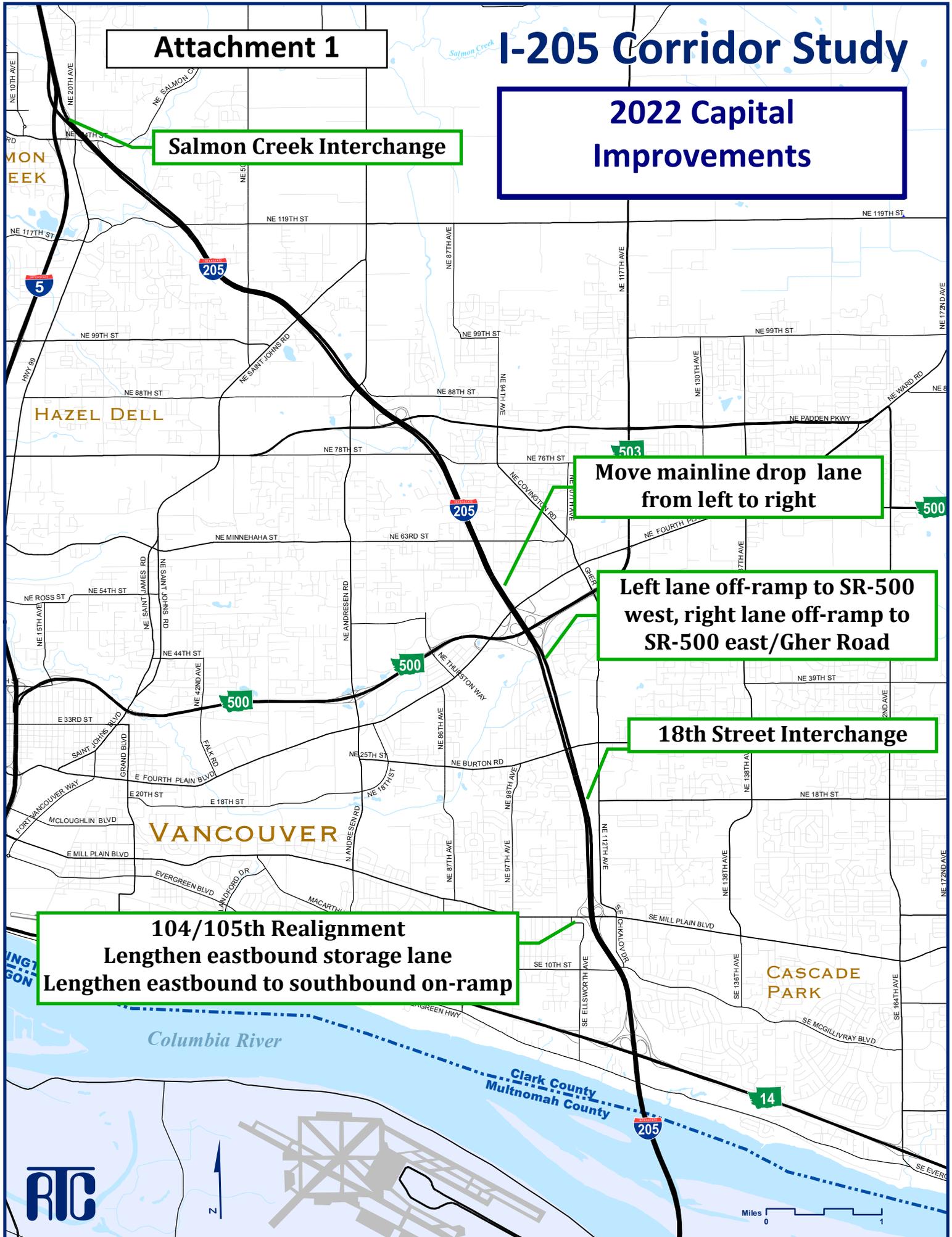
Salmon Creek Interchange

Move mainline drop lane from left to right

Left lane off-ramp to SR-500 west, right lane off-ramp to SR-500 east/Gher Road

18th Street Interchange

104/105th Realignment
Lengthen eastbound storage lane
Lengthen eastbound to southbound on-ramp



Attachment 2

I-205 Corridor Study

2022 Operational Strategies

134th flyover ramp to I-205 south

Ramp meter at Padden to I-205 south

Ramp meter at SR-500 westbound to I-205 south

Reduce southbound mainline from three to two lanes under SR-500

Restripe SR-500 on-ramp

Extend southbound on-ramp from SR-500

Ramp meter at Mill Plain to I-205 north

Exit only lane to SR-14 at I-205 northbound

