



MEMORANDUM

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Dean Lookingbill, Transportation Director
DATE: June 25, 2013
SUBJECT: **I-205 Corridor Study Update**

AT A GLANCE – DISCUSSION

The purpose of this memorandum is to introduce the RTC Board to the types of traffic operations strategies and measures to be used for the short term 2022 analysis. The short term analysis will examine how well the corridor would perform if the funded 18th Street Interchange is the only capital improvement to the corridor and how the addition of operational improvements can manage the corridor most effectively.

QUESTIONS FROM THE JUNE BOARD MEETING

During the June 2013 meeting, there were several questions from Board members related to the I-205 Corridor Study. RTC staff has prepared an initial response to the questions from the Board. Some of the questions will also be addressed in more detail during the course of the study process. Questions from the Board are listed below with responses contained in Attachment 1.

- Is there a Washington State Department of Transportation policy for a maximum number of general purpose lanes?
- Why not have high occupancy vehicle lanes in the I-205 corridor?
- Is the I-205 Corridor Study being coordinated with the Oregon Department of Transportation?
- Will the analysis evaluate the benefits of the core projects as they affect or change the need for other capital projects in the Metropolitan Transportation Plan (MTP), such as the SR-14 to Mill Plain braided ramps?
- Why not build four lanes on SR-14? How was it determined that only three lanes are needed? What is the additional cost of adding a fourth lane?
- It would be beneficial to conduct sensitivity analysis of transit service at higher levels than that assumed in the adopted MTP.
- The I-205 Core Project map should include the location and cost of the 18th Street Park and Ride facility.

I-205 OPERATIONAL STRATEGIES

A workshop was held on March 19, 2013 to discuss and select operational strategies and evaluation criteria that will be used to formulate the operational recommendations for the I-205 corridor. The workshop included participation by technical advisory committee members and modeling staff from

WSDOT, Clark County, City of Vancouver, and C-TRAN. Attachment 2 lists the preliminary operational strategies from the workshop including a description of each strategy and its potential application to the I-205 corridor. The strategy list does not include improvements or strategies that are in the committed system or in the MTP. For example, they do not include additional transit service or park and ride capacity beyond what is listed in the MTP.

The I-205 TAC met June 24 to begin discussion of the candidate strategies for the 2022 short term operational analysis. The short term analysis will look at corridor performance with only the 18th St. Interchange in place and examine benefits of implementing operational strategies in the corridor. Although the final list of strategies will be determined after completing the 2022 No Build analysis, listed below are the most promising set being considered:

- Ramp meter at Mill Plain to I-205 northbound
- Ramp meter at Padden Parkway to I-205 southbound
- Ramp meter at SR-500 westbound to I-205 southbound
- Signage on I-205 northbound south of SR-14
- 134th Street Flyover to I-205 southbound

The last strategy, the planned flyover ramp from 134th Street to I-205 south, was included in the I-205 Corridor Study recommendations and will be analyzed during this phase of the study.

TYPES OF ANALYSIS

Development of the 2022 VISSIM model is currently underway. At the July meeting, RTC staff will use the 2010 VISSIM model to show an example of the type of information that will be used in preparing the short term analysis. In addition, proposed measures for the 2022 analysis will include:

- AM and PM travel time by segment and time of day
- AM and PM congestion hotspots
- Mainline and ramp queuing/delay
- Merge/diverge problem locations
- Vehicle hours of delay

NEXT STEPS

2022 VISSIM modeling, forecasts, and analysis will be completed during the summer. Under the current schedule, the next update proposed for the RTC Board will be in September and would consist of the following:

- 2022 operational analysis and findings with the 18th Street project
- 2022 operational analysis and findings with operational strategies



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TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Bob Hart, Project Manager
DATE: June 25, 2013
SUBJECT: I-205 Corridor Study: RTC Board Questions

Is there a Washington State Department of Transportation policy for a maximum number of general purpose lanes?

There is no policy regarding maximum through lanes. The Washington Highway System Plan envisions no more than three through lanes on I-5 and I-205. All other facilities are no more than two general purpose lanes.

In addition, Moving Washington principles established by WSDOT uses a three tiered approach to mitigate congestion or add capacity on their facilities. Moving Washington principles are to:

- Operate efficiently: Get the most out of existing highways by using traffic management tools to optimize the flow of traffic and maximize available capacity.
- Manage demand: Shift travel times, use public transportation or reduce the need to travel altogether, managing demand on overburdened routes to allow the system to function better.
- Add capacity strategically: Target the worst traffic hotspots or filling critical system gaps to fix bottlenecks that constrain traffic flow.

Why not have high occupancy vehicle lanes in the I-205 corridor?

According to WSDOT HOV Policy and Guidelines, converting an existing general-purpose lane for an HOV lane is not prohibited, but is also not desirable. It may, however, might be justified when the conversion provides greater people-moving capability on the roadway.

In addition, experience in the Puget Sound region and with the I-5 Vancouver HOV Pilot project has shown HOV lanes are most effective in long corridors and connected to a larger regional HOV system.

Is the I-205 Corridor Study being coordinated with Oregon Department of Transportation?

RTC has met with ODOT staff to brief them on the I-205 Corridor Study and have agreed to coordinate as projects or strategies that affect bi-state travel are considered. There are two ODOT projects that RTC will pay attention to:

Airport Way Interchange Project: Is underway and will be completed in the fall of 2014. The project elements include:

- A new free-flowing right-turn ramp from westbound Airport Way to I-205 northbound
- Two turn lanes for eastbound drivers turning left to I-205 north who will no longer share signal time with westbound to northbound right-turning vehicles.
- Extend merge lanes to I-205 northbound

Congestion Bottleneck Operational Study: Identified several projects in the I-205 corridor that add auxiliary lanes at key locations to smooth traffic flow and reduce queuing on the mainline. They include the following auxiliary lanes between Stark/Washington and the Glenn Jackson Bridge:

- I-84 eastbound south to the Stark/Washington Street ramp
- I-84 westbound on-ramp north to Sandy and Columbia Boulevard ramps
- Stark/Washington interchange north to Glisan Street

Will analysis evaluate benefits of core projects as they affect or change the need for other capital projects in the MTP, such as SR-14 to Mill Plain braided ramps?

Study will look at how the core projects and the addition of operational strategies affect corridor performance and the future need for other major capital investment in the corridor including the braided ramps between SR-14 and Mill Plain Boulevard.

Why not build four lanes on SR-14? How was it determined that only three lanes are needed? What is the additional cost of adding a fourth lane?

SR-14 from I-205 to 164th is one of the core projects in the I-205 Corridor Study. The project adds an auxiliary lane in each direction to the existing general purpose lanes. The I-205 Corridor Study determined that this segment of SR-14 has enough future capacity for 2035 traffic demand which is consistent with the findings of the Washington State Highway System Plan and the Metropolitan Transportation Plan. The I-205 core project analysis will evaluate traffic operations at the east and west ends of the segment with the new auxiliary lanes in place.

Other issues affecting the capacity on SR-14 will be determined by the capacity of the Glenn Jackson Bridge feeding into SR-14 as well as right of way availability and cost.

It would be beneficial to conduct sensitivity analysis of transit service at higher levels than that assumed in the adopted MTP.

RTC staff is meeting with C-TRAN staff to determine what levels of future transit service should be tested for the I-205 Corridor Study.

I-205 Core project map needs to include location and costs of 18th Street Park and Ride

The 18th Street Park and Ride location and capital cost will be included in the update to the I-205 Core Project map.

Candidate Operational Strategies

Strategy	Description	Potential Application
<i>Flow Control</i>		
Ramp metering	Ramp metering is a method of limiting the rate at which traffic can enter the freeway so that capacity downstream of the onramp is not exceeded in order to reduce mainline bottlenecks.	Specific opportunities are available to apply ramp metering in the I-205 corridor. Potential ramp meters at Mill Plain to I-205 northbound and Padden Parkway to I-205 southbound.
Limited Access Meter Connector	Freeway-to-freeway metering regulates traffic flow between onramps connecting two limited access roadways.	Used at freeway to freeway interchange bottlenecks. Potential locations include: I-205 southbound to SR-14 eastbound, SR-500 westbound to I-205 southbound and SR-500 westbound to I-205 northbound.
<i>Active Traffic Management</i>		
Dynamic Lane Control	Dynamic lane control is the use of overhead electronic message sign panels displaying symbols indicating whether lanes ahead are open or closed (ex: green arrows or red x's). A typical use is to provide advance warning of a lane closure due to an incident.	The committee noted the application of this strategy in the Puget Sound area. A 'light' version could use VMS messages rather than full gantry deployments upstream for notice of critical bottlenecks. Could also be used to encourage through traffic to use inside lane near high volume exit ramps.
Variable Speed Control	Variable speed control also uses overhead gantries with electronic message sign panels to post dynamic speed limits that can change in response to current traffic conditions.	Variable speed limits provide a traffic smoothing effect to reduce incidents caused by drivers unexpectedly encountering a bottleneck. Application of this strategy is in the Puget Sound area, and potentially in Oregon.
<i>Arterial Signal Strategies</i>		
Ramp/arterial signal coordination	Coordinating ramp meter signals with nearby arterial signals to reduce traffic backups from I-205 ramps onto arterials.	Candidate locations include Mill Plain Blvd, Fourth Plain/SR-500 Blvd, and Padden Parkway.
Detour Route Signal Timing	Modified signal timing plans that can be implemented in the event of an incident that is diverting freeway traffic to arterials.	This strategy may build upon existing incident plans in the corridor, as well as recent traffic signal system updates by the City and County.
Integrated Corridor Management	Partner agencies manage the transportation corridor as a system-rather than the more traditional approach of managing individual assets. An ICM concept typically includes multiple technical and operational strategies and multiple modes and routes.	A key candidate corridor for is 112 th Avenue running parallel to I-205 for much of its congested length.
<i>Traveler Information</i>		
Static Guide signs	Traditional highway guide signs directing through traffic to stay in the mainline lanes to reduce bottlenecks at entrance/exit points.	Low cost approach to encourage through traffic to merge left away from ramp weave traffic. May apply to I-205 northbound south of SR-14 off ramp.
DMS route travel times	Dynamic message signs provided in advance of a freeway interchange providing the travel time to a common destination along two parallel routes, helping to divert traffic to the less-congested route.	Regional efforts are already underway to provide travel time information in the I-5 and I-205 corridors.
<i>Geometric Strategies</i>		
Auxiliary lane extensions	Provide an auxiliary lane connecting key entrance and exit locations to counter congestion caused by high volumes, short ramp spacing, and weaving maneuvers.	Ideas include auxiliary lane from SR-500 WB from 112 th to I-205 NB ramp. One of the core projects is an auxiliary lane on I-205 from Mill Plain Boulevard to SR-500.
Weave lane extensions	Extending merge areas to provide more space for drivers to find acceptable gaps during congested conditions.	WSDOT has identified specific opportunities in the I-205 corridor including extending the merge lane onto I-205 SB from SR-500.
Mainline restriping	Restriping mainline lanes for more efficient use of existing capacity or to balance with high volume on ramps.	Ideas include modifying I-205 left side drop lane north of SR-500 to right side drop lane and carrying only two lanes under SR-500 southbound so that southbound on-ramp from SR-500 can be an add lane.
Ramp Restriping, Reconfiguration, Extensions	Engineering improvements to interchanges that streamline movements between roadways, such as restriping ramps to allow two lanes and/or eliminating merge points	Ideas include restriping SB on-ramp from Mill Plain to two lanes at ramp entrance and extending SB on-ramp from SR-500 to I-205.
<i>Transit/Transportation Demand Management</i>		
Peak shoulder running - transit	Use of existing shoulders to allow transit vehicle use during peak hours with the most significant congestion to improve transit speed and reliability.	Could increase operational reliability for C-TRAN. Needs further investigation to determine threshold transit service frequency and operational impacts.
Rideshare Programs	Support for programs that provide ride-matching programs for commuters in private cars or vanpools, such as Rideshare Online.	Social media outreach to corridor commuters/employers noted as a potential option.