South King County

Summary Recommendations

The current construction project on I-5 in the Tukwila area, when it's completed in 1998, will fill a critical gap in the HOV lane system on I-5, finally creating a continuous HOV lane between South King County and Seattle. All that will remain will be to make it easier for buses and carpools to get into those lanes at either end of their trip. Below are the direct access proposals recommended.

In the South King County area, freeway-to-freeway HOV connections were evaluated for each quadrant of the interchanges between I-5, I-405 and SR 518, and at I-405 and SR 167. The options on page 13, have either been "recommended" or "possibly recommended," depending on how much funding is available in total for freeway-to-freeway connections.

Direct Access Recommendations

1 SR 900 (Park Ave.)

Direct Access, NB & SB

Cost: $32.42 M

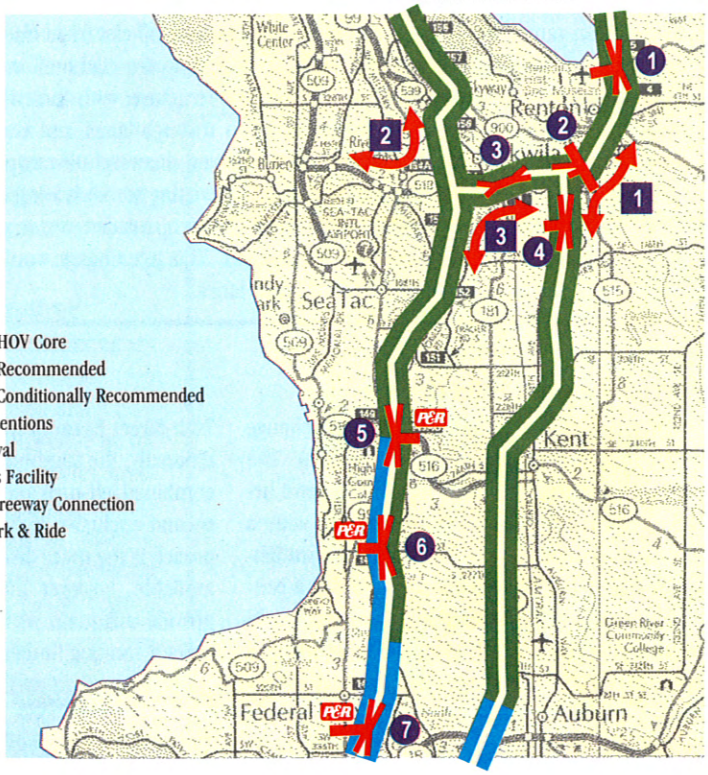
All transit service in the I-405 corridor leaves the freeway to serve Renton. This ramp makes that connection and allows carpool access to both the north and south.

2 Talbot Road S/SW Grady Way

Direct Access to/from South

Cost: $30.89 M

These ramps would connect the south end of downtown Renton with I-405 to and from the west. If transit service was established to connect Bellevue and Renton to the Sea-Tac airport, or other areas to the west, this ramp would work together with the ramps at Park Avenue to let buses run through Renton with minimal delay.



Legend

- Completed or Funded HOV Core
- Unfunded HOV Core - Recommended
- Unfunded HOV Core - Conditionally Recommended
- Potential HOV Core Extentions
- Subject to Voter Approval
- Proposed Direct Access Facility
- Proposed Freeway-to-Freeway Connection
- P&R Planned or Existing Park & Ride

3 I-5 & SR 181 (Southcenter)

In Line Transit Stop

Cost: $18.17 M

This transit stop would allow buses to make stops in Tukwila, but exactly where the station is located would depend on what evolves from the Regional Transit Authority proposal. A stop near Southcenter would allow bus passengers to reach the north parking lot of the shopping center or Tukwila City Hall. Or, a stop near SR 181, a little to the east, might be the location of a commuter rail station and would allow transfers between commuter rail and I-405 bus services.

Today there is no bus service on this stretch of I-405 — service from the Kent/Auburn valley uses east-west streets to reach I-5 instead, and I-405 bus service from Bellevue to the Sea-Tac Airport makes local stops between Renton and Tukwila. This station is only recommended if transit service is established that would use it, such as a regional route from Bellevue and Renton to Sea-Tac that would use the freeway instead of local streets.

4 SR 167 at SW 27th

Direct Access, NB & SB

Cost: $26.11 M

The City of Renton's Comprehensive Plan calls for a new HOV-only access off of SR 167, primarily to allow access to the Longacres Boeing site. In the long run, it may be possible to extend SW 27th St. into Tukwila as well. This "T-ramp" will allow access from SW 27th St. To and from both north and south, but if a freeway-to-freeway connection is

HOV Lanes -- South King County

Most of the HOV lanes in the South King County area are completed, or they are under construction or soon to go to construction. Some are "interim" lanes, and will need to be upgraded at some point to provide full-width lanes and shoulders. All of the remaining projects shown here continue to be highly recommended.

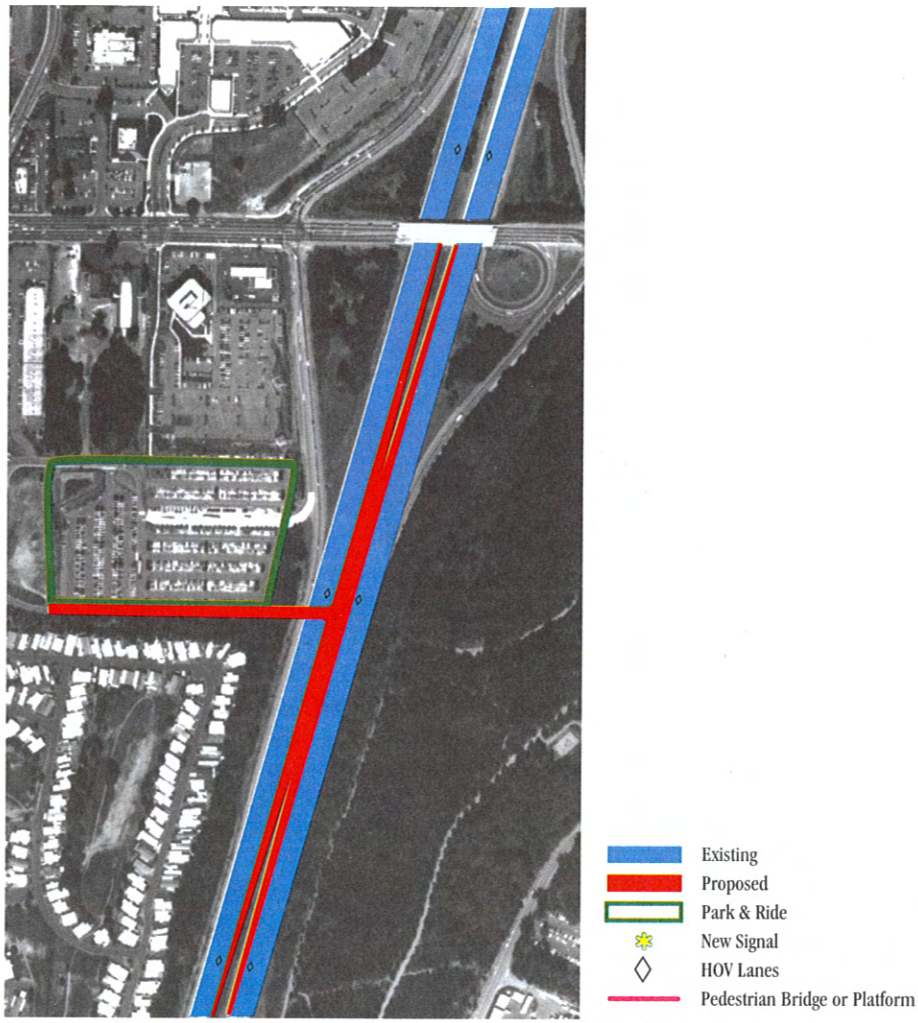
built between I-405 and SR 167, only I-405 traffic could enter and exit to and from the north because of the short distance between these interchanges. Growth in employment at the old Longacres site will affect the priority for building this direct access ramp.

5 I-5/SR 516
Direct Access North and Southbound
Cost: $24.39 M

This project would add ramps that drop down from the freeway to cross under SR 516, allowing access to the Kent-Des Moines park and ride lot. Buses will also be able to make a quick stop at the park and ride and then get back onto the freeway. Space is also created to expand the existing part and ride lot.

6 I-5/S 272nd Street
Direct Access North and Southbound
Cost: $26.98 M

This "T-ramp" would allow buses and carpools to enter the HOV lanes, both north and southbound, from the Star Lake Park and Ride lot. Buses would also be able to make passenger stops. If bus service from the Federal Way Park and Ride lot were to serve this lot as well, then service would be more frequent to both lots. This ramp rates high, but is not needed to operate regional bus service, so it is not recommended for early implementation. If the Star Lake Park and Ride lot is expanded, then building this ramp should be considered. If service to this lot is not paired with service to the Federal Way lot, and if regional routes do not stop here, then access will only be needed to and from the north.



7 I-5/S 320th Street, Direct Access North and Southbound
Cost: $23.71 M

The Federal Way Park and Ride lot is a major transit transfer location for southwest King County. The "T-ramp" shown here would allow buses and carpools to get directly into the HOV lanes from a new roadway running along the south side of the park and ride lot, connecting to S. 324th St.

Freeway to Freeway Recommendations

1 I-405/SR 167 Interchange
SW Quadrant (SE Quadrant)
Cost: $74.13 M ($68.51 M)

These ramps would connect from the center lanes of SR 167 to the center lanes of I-405, allowing HOV traffic traveling northbound on SR 167 to continue northbound on I-405, and visa-versa. This quadrant was "possibly recommended," depending on funding. The other quadrant of this interchange was not recommended because the delay to go from SR 167 towards I-5 using the regular ramps is not as great. If a freeway-to-freeway connection is selected to build at this interchange, then the design should examine how to improve general purpose connections between these two freeways, in addition to making the HOV connection.

2 I-5/I-405/SR 518
NW Quadrant
Cost: $45.14 M

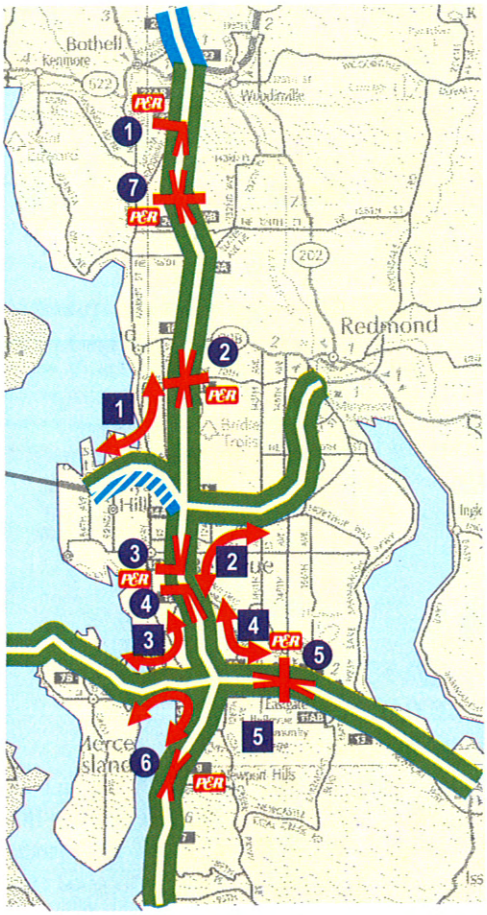
Coming from the airport on SR 518 and heading north on I-5 is not a problem for HOV traffic, since the on-ramp to I-5 is on the left side. But to get from the HOV lane on I-5 southbound to SR 518 towards the airport, you have to cross six lanes of traffic. This ramp would allow south to west movement from the I-5 HOV lane. This ramp is recommended, in part, because existing all-day transit service to and from the airport makes use of it, as do airport shuttle services. If transit service to and from the airport is shifted to SR 509, this ramp would still be recommended due to the benefits to carpools, taxicabs and shuttle services heading towards the Sea-Tac International Airport.

3 I-5/I-405/SR 518
SE Quadrant
Cost: $45.93 M

This connection would link the HOV lane on I-5 to the HOV lanes on I-405 at Tukwila, allowing HOV through-traffic to and from I-405 — that is, traffic northbound on I-5 continuing northbound on I-405, and visa versa — to get from one freeway to the other without crossing general traffic. These ramps are "possibly recommended," depending upon funding.

EAST KING COUNTY

SUMMARY RECOMMENDATIONS



Legend

- Completed or Funded HOV Core
- Unfunded HOV Core - Recommended
- Unfunded HOV Core - Conditionally Recommended
- Potential HOV Core Extentions
- Subject to Voter Approval
- Proposed Direct Access Facility
- Proposed Freeway-to-Freeway Connection
- PER Planned or Existing Park & Ride

I-405 provides a unique set of challenges to make HOV lanes work well. In the long run, WSDOT plans to move HOV lanes to the left side of the highway throughout the corridor, but ideally that change should not compromise transit service on I-405. Direct ramps to the left-side HOV lanes provide a solution that will work for both transit and carpools. (See "Making Ends Meet on I-405," next page)

A proposed direct access connection on I-405 and SR 527 (Canyon Park) would improve the spacing of access points, but is not recommended due to high cost and low projected usage. Direct access may be desirable at the proposed Bothell campus, where a University of Washington campus is planned. However, plans for the campus were not complete in time for a recommendation to be considered.

DIRECT ACCESS RECOMMENDATIONS

1 NE 160th
Direct Access, to/from South
Cost: $26.72 M

This ramp would allow buses serving the Brickyard Park and Ride lot to get to the HOV lanes to and from the south. While this ramp received a high evaluation, it is not recommended for early implementation Metro's 6 year plan routes these buses to use NE 132nd, serving both park and ride lots, and that approach may prove adequate in the short run.

2 NE 70th
Direct Access and passenger station, NB & SB
Cost: $33.91 M

This proposal would allow carpool and transit access to both the south and the north and would allow transit buses to make stops to serve the Houghton Park and Ride lot, and to connect with east-west bus routes serving Kirkland and Redmond. For this access to work well, the northwest quadrant freeway-to-freeway connections at SR 520 should also be completed.

3 Bellevue CBD North Access
Direct Access, to/from North
Cost: $65.95 M

This ramp would connect the north end of downtown Bellevue to HOV lanes to and from the north. While a less expensive alternative might be developed to serve transit only, the recommendation is for full HOV access into Bellevue because it is a major regional activity center. Two different design alternatives have been developed conceptually, both costing roughly the same amount. When this proposal is designed, several alternatives should be considered to reduce the cost and to integrate the HOV improvement with other improvements that the City of Bellevue is considering.

4 SE 8th - Bellevue CBD-South Access
Direct Access, to/from South
Cost: $41.86 M

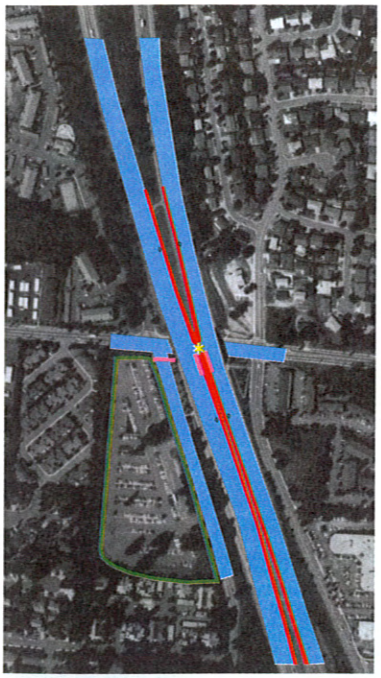
This ramp would connect the south end of downtown Bellevue to HOV lanes to and from the south. It would leave the HOV lanes south of SE 8th St. and fly over the interchange, landing on 114th St., which is an uncongested frontage road allowing a fast trip to NE 6th St. and the Bellevue Transit Center. If the Wilburton Park and Ride lot at SE 8th St. is ever expanded, a transit stop could be provided there as well.

5 I-90/Eastgate Park and Ride
Direct Access EB/WB
Cost: $28.9 M

This direct access ramp would allow buses and carpools to reach the I-90 HOV lanes from the Eastgate Park and Ride lot and Bellevue Community College. Buses from Issaquah would be able to make a stop at the park and ride lot and get quickly back into the HOV lanes. Two design options are possible: either a T-ramp can be constructed to meet 141st St., at the west end of the park and ride lot, or drop ramps can be constructed from the existing 142nd St. overpass, which is high above the east end of the park and ride lot.

6 112th SE
In Line Transit Station
Cost: $25.38 M

This proposal is for a transit stop only, serving a park and ride lot. Currently, the only bus service to this park and ride lot stops on the off-ramp to pick up and drop off passengers. The evaluation gave this stop a very low rating, given its cost and the small number of people who would use it. However, it is recommended because it is the only way to offer transit service to the park and ride lot, and to the surrounding area where there are no arterial streets to accommodate buses. This station is considered important for moving the HOV lane to the left side, but if Metro chooses to provide direct bus service to this lot in the future, then this station may not be needed.



Existing
Proposed
Park & Ride
New Signal
HOV Lanes
Pedestrian Bridge or Platform

7 NE 132nd (at left)
Direct Access and passenger station, NB & SB
Cost: $24.01 M

These ramps would allow carpool and transit access to the north and the south, and buses would be able to make stops to serve the Kingsgate Park and Ride lot and the Totem Lake area. In the illustration shown here, transit stops are located on the ramps (shown in pink)

HOV Lanes -- East King County

Most of the HOV lanes in King County have been completed or will soon be under construction. The evaluation of HOV lane segments continues to show HOV lane segments on I-405 as a high priority.

An HOV lane heading east from the Evergreen Point Bridge on SR 520 is conditionally recommended. Until HOV lanes cross the Evergreen Point floating bridge, the traffic flow on this segment is constrained to the amount of traffic that can cross the bridge. Congestion is unlikely to develop eastbound before reaching I-405 until the bridge capacity is increased. If an HOV lane is eventually built across the bridge, then this HOV lane segment would be highly recommended.

Making Ends Meet on the I-405 HOV Lanes

More than on other routes, buses and carpools have different needs in the I-405 corridor. HOV lanes on the left-side ("inside") lane are better for carpools and vanpools, which tend to make longer trips. But because there are no streets parallel to I-405, local bus service needs to make stops on the ramps at almost every interchange, so right-side ("outside") HOV lanes are better for buses — otherwise they would have to weave across traffic at each interchange to use the HOV lane.

When HOV lanes extended only from North Renton to I-90, outside HOV lanes worked well for over ten years. But as the HOV lanes have been extended, the outside configuration has become an increasing problem. Now HOV lanes are on the inside south of Renton, and on the outside north of Renton. This gives the impression that the HOV system is made up of ends that don't meet. Through Bellevue, the outside HOV lane is interrupted by high-volume on- and off-ramps, making the HOV lane the slowest way to go and defeating their purpose.

Direct access ramps will allow HOV lanes to be moved to the "inside," throughout the corridor while meeting both the needs of carpools and transit. Transit buses will be able to exit quickly to make stops without crossing general traffic, and without slowing carpools who stay in the HOV lane.

Freeway-to-Freeway Recommendations

I-405/SR 520 Interchange

1 NW Quadrant
Cost: $66.26 M
2 SE Quadrant
Cost: $90.79 M

The technical evaluation of freeway-to-freeway connections between I-405 and SR 520 rates these ramps as a high priority. The NW quadrant, particularly, has very high volumes of bus passengers, and the amount of delay that would be reduced is substantial. But HOV lanes on SR 520 continue to be on the outside lane and are likely to remain so until HOV lanes can be constructed across the Evergreen Point floating bridge. Otherwise, HOVs on SR 520 would have to merge into traffic at the bridge from the left-hand lane, which is not as safe as merging from the right. For that reason, the SE quadrant is "conditionally" recommended, if the HOV lane on SR 520 can be moved to the left side in the future. In the NW quadrant, a freeway-to freeway connection is recommended between the center HOV lane on I-405 and the outside HOV lane on SR 520, provided that it can be designed so as to be able to relocate the ramp to the inside lane of SR 520 in the future with minimal throw-away cost.

I-90/I-405 Interchange

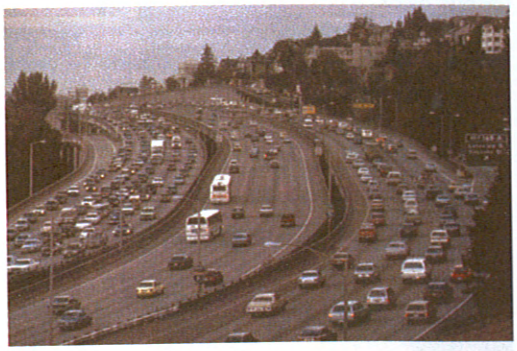
3 NW Quadrant
Cost: $43.07 M
4 NE Quadrant
Cost: $38.25 M
5 SE Quadrant
Cost: $60.70 M

HOV connections between I-405 and I-90 are recommended in three of the four quadrants. Heading west on I-90, traffic backs up entering I-405 in the morning, both north and southbound. Freeway-to-freeway HOV connections would allow buses and carpools to avoid those ramp delays, and some of the traffic using these ramps today would be alleviated. The northwest quadrant already has a freeway-to-freeway connection, including one ramp that was recently completed. This project would make use of this newly constructed ramp, but relocate the ramp connections from the outside lane on I-405 to the inside lane.

SEATTLE/ NORTH KING COUNTY

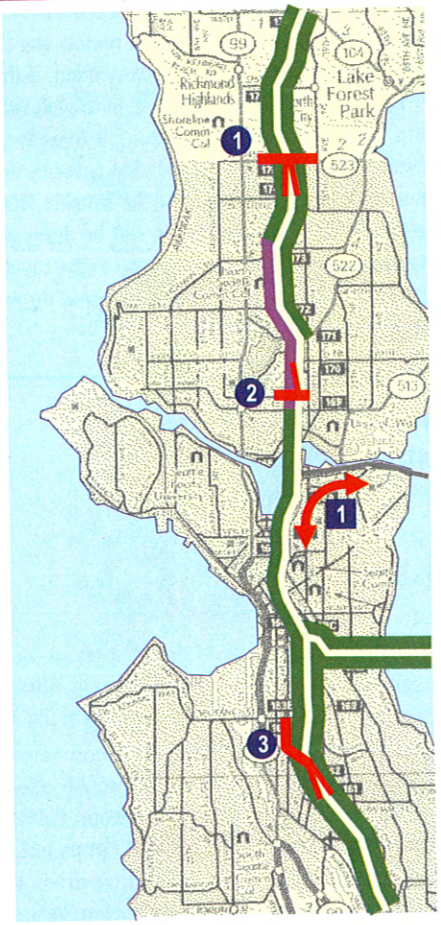
SUMMARY RECOMMENDATIONS

HOV LANES — CENTRAL SEATTLE



In the central I-5 corridor through Seattle, HOV users have good access to downtown Seattle using the express lanes, if they are traveling in the peak direction. HOV-only ramps in downtown Seattle allow buses and carpools to get into the express lanes from places other cars cannot. But there are no continuous HOV lanes on the I-5 mainline (between Northgate and downtown Seattle), except in the express lanes. Southbound in the afternoon and on weekends, traffic is often at a standstill with no way for buses and carpools to get around the congestion.

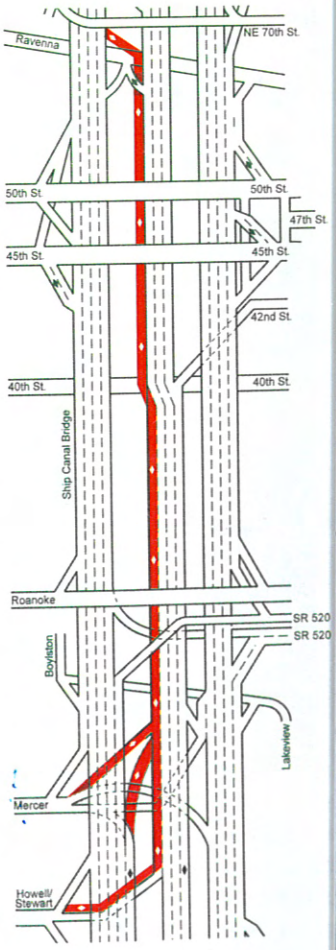
One way to provide a continuous HOV lane in the southbound direction in the afternoon and on weekends would be to use one of the four northbound express lanes. Theoretically, only a little more than three lanes of traffic can flow through the express lanes, simply because there's very limited access with only five on-ramps northbound, and two of those limited to HOV traffic only. Usually, traffic jams only form at the point where the express lane reenters the mainline because only one general purpose lane is available, forming a bottleneck. At other points on the express lanes, more capacity is available than can be used. The photograph above shows there is six lanes of demand in each direction, but eight lanes of capacity in one and four in the other. In that case, traffic flow and capacity are not balanced.



Legend

- Completed or Funded HOV Core
- Unfunded HOV Core - Recommended
- Unfunded HOV Core - Conditionally Recommended
- Potential HOV Core Extentions
- Subject to Voter Approval
- Proposed Direct Access Facility
- Proposed Freeway-to-Freeway Connection
- P&R Planned or Existing Park & Ride

The schematic at right shows how a continuous HOV lane could be added southbound from Northgate to downtown Seattle. At about Ravenna, a new cross-over ramp would take HOV traffic off the southbound mainline into a movable barrier-separated lane on the west side of the express lanes. The barrier would be moved in the morning to let cars reach the exit to Mercer St. In the afternoon, it would continue to Stewart St., allowing HOVs to exit at either Mercer or Stewart Streets. A second cross-over ramp would allow HOVs going through Seattle to go back to the mainline and continue in the HOV lane that begins southbound at Mercer St.



A variation on this approach could be considered if proposals to build rail transit between the University District and Seattle are unsuccessful: under that scenario, the barrier-separated southbound lane could be for transit only, and an on-ramp could be built at NE 42nd St. In this case, the cross-over back to the mainline at Mercer St. would not be needed.

For either approach to be successful, traffic volumes on the northbound express lanes would need to be reduced slightly to avoid congestion that would otherwise occur due to the removal of one northbound lane. Ramp metering at Stewart St. and/or Mercer St. would be one way to do that, and another way would be to make Stewart St. an HOV-only on-ramp. Both of these approaches would also reduce the existing backup to get back into the mainline at Northgate.

This approach to achieving a continuous southbound HOV lane is "conditionally" recommended. Public discussion will be needed before a proposal such as this one can move ahead.