BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND TO THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER	))))))))	RESOLUTION NO. 05-3588A Introduced by Councilor Burkholder

WHEREAS, in 2000, after completion of HOV operational analysis and policy discussion, the Bi-State Transportation Committee recommended: 1) an HOV pilot project on Interstate 5 in Southwest Washington from 99th Street south to the vicinity of the Interstate Bridge across the Columbia River, 2) that because of safety and operational concerns, an HOV lane should not be pursued across the existing Interstate Bridge at that time, and that 3) a southbound HOV land in Oregon south of the Interstate Bridge to the vicinity of Lombard should be pursued as a part of the design for the Delta Park project; and

WHEREAS, an Environmental Assessment of the widening of the Interstate 5 Delta Park to Lombard segment, assessing expansion from the current two lanes to three lanes, including a possible HOV lane is now underway; and,

WHEREAS, an HOV lane built in the Delta Park to Lombard segment of Interstate 5, the HOV lane would meet the minimum threshold of 500-600 eligible HOV vehicles per hour, however, the significant benefit to HOV lane users also results in significant impacts to freight mobility and other non HOV lane users; and,

WHEREAS, a managed lane, which could include some additional vehicles, including, for example, some smaller freight delivery vehicles, could more fully utilize the lane, meet needs and improve operational characteristics in the Delta Park to Lombard segment of Intestate 5; and

WHEREAS, at its March 31, 2005 meeting the Bi-State Coordination Committee, a committee comprised of elected representatives from Southwest Washington and the Metro area as well as executives of the Ports, transit and metropolitan planning organizations from both sides of the Columbia River, recommended support of operating an HOV lane in Oregon as part of the I-5 Delta Park to Lombard project, with a further recommendation that the prospects and priorities for operating the lane as a managed lane should be collaboratively explored with the State of Washington; and,

WHEREAS, in 2000 the Washington State Transportation Commission approved a pilot HOV lane in Southwest Washington on Interstate 5 between 99th Street and Mill Plain Boulevard; and

WHEREAS, on October 29, 2001, a new High Occupancy Vehicle (HOV) lane opened on Interstate 5 between 99th Street and Mill Plain Boulevard in Southwest Washington with the lane reserved between the hours of 6am and 9am (now operating from 6am to 8am) for vehicles with two or more passengers (carpools, vanpools and buses) as well as motorcycles only; and

WHEREAS, criteria to evaluate the operations of the HOV lane were approved, evaluation reports were required to be completed and six reports have been finished since the HOV lane's inception; and,

WHEREAS, the latest evaluation report, the Vancouver HOV Lane Pilot Project Evaluation Report #6, concluded that six of the eight criteria for HOV lane operation had been met; and,

WHEREAS, at its March 31, 2005 meeting, the Bi-State Coordination Committee recommended to the Washington State Department of Transportation to continue the pilot project for Washington's HOV lane with direction to staff to work collaboratively with Oregon to examine prospects and priorities for operating the lane in the future as a managed lane; now therefore;

BE IT RESOLVED,

1. The Metro Council and Joint Policy Advisory Committee on Transportation recommend to the Oregon Department of Transportation and the Oregon Transportation Commission that as part of the ongoing Environmental Assessment process for this project, an HOV lane in Oregon continue to be included as an alternative for further analysis of the Interstate 5/Delta Park to Lombard project and that the prospects and priorities for operating the lane as a managed lane be collaboratively examined with the State of Washington,

2. The Metro Council and Joint Policy Advisory Committee on Transportation request that the Washington State Department of Transportation continue to work collaboratively with the State of Oregon on the functioning of the entire I-5 corridor, from 134th Street in Vancouver Washington to the Fremont Bridge in Oregon, including the potential of a managed lane, especially in light of upcoming decisions related to the Columbia River Crossing.

ADOPTED by the Metro Council this 9th day of June 2005.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

GODKÄND APPROVED METRO COUNCIL METRO COUNCIL HUVUDSTADS RÅD

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 05-3588, FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND THE WASHINGTON STATE TRANSPORTATION COMMISSION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER

Date: May 16, 2005 Prepared by: Mark Turpel

BACKGROUND

Interstate 5 is a vital surface transportation link between and through the Metro region and southwest Washington. These areas function as one economy and share a common airshed, and have other shared interests. Accordingly, policies concerning the design and operation of Interstate 5 are critical to the transportation and land use conditions in Northwest Oregon and Southwest Washington.

The Oregon Department of Transportation (ODOT) is currently completing an Environmental Assessment of a project that proposes to add a third lane along the southbound portion of the Delta Park to Lombard segment of Interstate 5, including the option that this lane could be an high occupancy vehicle (HOV) lane during peak hour usage.

In Southwest Washington, an HOV lane has been in operation as a pilot project since 2001 for the segment from 99th Street to Mill Plain Boulevard in the southbound portion of Interstate 5. Six HOV evaluation reports have been completed and the latest report has found that six of the eight criteria have been met. Currently, the Interstate 5 bridge has no HOV lane, as an HOV lane on the bridge has been considered an operational and safety concern.

General purpose lanes allow and encourage single occupant vehicle use and accommodate freight movement via trucks. Neighborhoods adjacent to Interstate 5 have expressed concern with the impacts of traffic along Interstate 5, citing noise, air pollution, loss of homes and businesses and dislocation as concerns, both with the existing Interstate 5 design as well as potential future designs.

HOV lanes are intended to provide a tool to address peak hour demand for road capacity, providing an incentive for more efficient use of a scarce resource by allowing carpools and transit vehicles exclusive use of the lane during greatest demand times. HOV lanes commonly do not allow trucks and the existing HOV lane on Interstate 5 in southwest Washington does not allow trucks and ODOT has modeled the HOV lane option for the Delta Park to Lombard segment as a lane that does not allow trucks. HOV lanes can accommodate more people than a general purpose lane if the seating capacity of the autos and transit vehicles is utilized and enough carpools and transit vehicles use the lane. Carpools and transit use can reduce transportation operating costs per person and improve air quality (as would allowing cleaner air emission vehicles). Generally speaking, transit is utilized more when it can serve a more compact urban form, while single occupant vehicle use is consistent with more expansive land use patterns.

The concept of managed lanes is to adjust the number of vehicles in the lane so that flow remains free. Several methods exist to manage lanes. For example, a managed lane could allow some additional vehicles beyond carpools and transit vehicles. Observed demand along the HOV lane in Southwest

Washington and forecast demand for an HOV on Interstate 5 in Oregon suggests that in addition to carpools and transit usage, allowing some additional vehicles could improve the HOV lane operation while still providing higher speeds. Possible additional vehicles could include smaller delivery trucks to address some of the freight movement concerns and/or hybrid or other cleaner air emission vehicles could be allowed to address, in part, air pollution concerns of adjacent neighborhoods. Another managed lane technique could be the use of tolls during peak hour usage, where the use of the lane would be priced according to demand. Whatever the method, managed lanes would strive to maximize the number of people using the lane during peak hours while maintaining traffic flow and speed - to get the highest achievable efficiency.

Approval of Resolution 05-3588, FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND THE WASHINGTON STATE TRANSPORTATION COMMISSION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER, would recommend to the Oregon Department of Transportation (ODOT) and the Oregon Transportation Commission that the I-5 Delta Park to Lombard Project include an HOV lane and that ODOT collaboratively work with the Washington State Department of Transportation (WSDOT) on examining whether a managed lane might be superior to even an HOV lane. Additionally, approval of the resolution would recommend to the Washington State Transportation Commission that the pilot HOV lane from 99th Street to Mill Plain Boulevard be continued and encourage that ODOT work collaboratively with Washington State Transportation Department on the examination of a managed lane for the current HOV lane.

ANALYSIS/INFORMATION

1. **Known Opposition**

The Southwest Washington Regional Transportation Council (RTC), by a vote of six to five, recommended against continuing the HOV lane pilot project on Interstate 5 between 99th Street and Mill Plain in southwest Washington. The RTC did not make a recommendation concerning the HOV lane along the Delta Park to Lombard segment of Interstate 5.

2. Legal Antecedents

Resolution 98-2625, FOR THE PURPOSE OF AMENDING THE METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM TO APPROVE A SIX-MONTH HIGH OCCUPANCY VEHICLE (HOV) LANE DEMONSTRATION ON I-5 NORTHBOUND AND ASSOCIATED FINANCING. (This HOV lane was approved on a temporary basis to address emergency repairs to the Interstate Bridge trunnion)

3. Anticipated Effects

In Washington, the resolution would further provide another perspective about the HOV pilot project between 99th Street and Mill Plain along Interstate 5. In Oregon, the resolution would provide support for further investigation of an HOV in the Delta Park to Lombard segment of Interstate 5.

4. **Budget Impacts**

None

RECOMMENDED ACTION

Approval of Resolution No. 3588, FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND THE WASHINGTON STATE TRANSPORTATION COMMISSION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER.

Bi-State Coordination Committee

The Bi-State Coordination Committee is chartered by member agencies to review, discuss, and make recommendations about transportation, land use, and related issues of bi-state significance.

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MEMORANDUM

TO: Bi-State Coordination Committee

FROM: Dean Lookingbill, RTC
Mark Turpel, Metro

DATE: March 24, 2005

SUBJECT: **HOV Lanes in the I-5 Corridor**

BACKGROUND

The purpose of this memorandum is first to brief the Bi-State Coordination Committee in regard to the latest data available on the performance of the Vancouver I-5 HOV Pilot Project and second to discuss and to present a staff recommended action on extending the HOV lane into Oregon based on the traffic evaluations of the Delta Park/Lombard Environmental Assessment.

The bi-state coordination on the I-5 HOV Pilot Project and its extension into Oregon dates back to an April 2000 resolution by the Bi-State Transportation Committee. The key policy recommendations in the resolution stated that: 1) a southbound HOV lane should be pursued by adding HOV capacity in Washington from 99th Street to the vicinity of the north end of the Interstate Bridge, 2) because of safety and operational concerns, an HOV lane should not be pursued across the existing Interstate Bridge at this time, and 3) a southbound HOV lane in Oregon south of the Interstate Bridge to the vicinity of Lombard should be pursued as a part of the design for the Delta Park project.

The Vancouver I-5 HOV pilot lane was opened in October of 2001. Prior to the opening of the HOV lane, RTC conducted a series of analysis and HOV policy decisions. These are outlined as follows:

- A Clark County Regional HOV System Study was completed in December 1998. The Study contained recommendations for regional HOV goals and policies and included the recommendation that the I-5 corridor should be the first facility considered for HOV implementation because of its high traffic congestion level, high transit and carpool usage, and that it would have the best travel time savings for the users of an HOV facility.
- An I-5 HOV Operational Study was completed in April of 2000. The purpose of the study was to analyze a range of options and to develop an HOV alternative that could be implemented in the I-5 corridor without replacing the Interstate Bridge and resulted in a

recommendation to implement the first phase of a bi-state HOV facility that would operate southbound on I-5 in Vancouver during the morning commute period. It was also recommended that the second phase of the southbound HOV lane, the segment in Oregon, would be implemented with the planned widening of Delta Park.

- Following the Bi-State Transportation Committee's recommendations on the I-5 HOV Operational Study recommendations, both the RTC Board and the Joint Policy Advisory Committee on Transportation (JPACT) adopted resolutions to support and implement the Vancouver segment of the I-5 HOV facility. In September of 2000, the Washington Transportation Commission also adopted a resolution in support of the Vancouver HOV lane. In October 2001, the southbound HOV lane opened in conjunction with the completion of the I-5 widening project.
- The policy objectives of the HOV project were to: 1) help manage traffic congestion, 2) make more efficient use of existing facilities by carrying more people in the HOV lane than the general purpose lanes, 3) encourage more carpools, vanpools, and transit ridership, and 4) provide travel time savings and better travel time reliability for HOV users.

A total of six evaluation reports have been conducted on the I-5 Pilot HOV lane since it's opening in 2001. The Washington State Department of Transportation (WSDOT) has led the development of these reports. Eight performance goals were set prior to the opening of the HOV lane. These goals include the following:

1. Move more people in the HOV lane than in either of the adjacent general-purpose lanes.
2. Reduce peak period travel time for HOV lane users and for all users.
3. Minimize impacts to other traffic on other facilities.
4. Increase the use of carpools, vanpools, and transit.
5. Maintain safety by not increasing the accident and incident rate in the corridor during HOV lane operating periods.
6. Maintain the HOV lane's effectiveness with appropriate enforcement.
7. Maintain or improve travel time reliability for carpools, vanpools, and transit.
8. Maintain or improve public opinion.

VANCOUVER I-5 HOV LANE PILOT PROJECT: DATA REPORT #6

The complete data report is on RTC's web site at: www.rtc.wa.gov/hov/evaluation.htm. The key findings of the report are listed below.

Of the eight HOV goals established for this specific project, the Vancouver HOV pilot project is meeting six goals. The pilot project is meeting Goals 1, 3, 4, 5, 6, and 7. This is the first time the pilot project has met Goal 1 (note that the HOV lane meets the 2-hour goal, but is still carrying fewer people than either adjacent general purpose lane during the peak hour). Goal 2 contains two components. The pilot project is meeting one of the two components. No recent data has been collected to determine whether Goal 8 is being met.

- Goal #1: Move more people per lane in the HOV lane during the AM 2-hour period than in either of the adjacent general-purpose lanes.
    - For the first time, the Vancouver HOV lane is carrying more people per lane than either of the adjacent lanes for the 2-hour peak period. During the one-hour peak, the HOV lane carries 86% of the GP lane average.
    - The ability of the HOV lane to carry more people is constrained by the level of bus service and park-and-ride spaces provided along the corridor. This artificial cap may not be remedied for another year until the 99th Street Park-and-Ride facility is open.
    - The Vancouver HOV lane has contributed to I-5 carrying more people in fewer vehicles compared to the Baseline and is steadily increasing in demand.
- Goal #2: Reduce peak period travel time for HOV lane users and reduce the average per-person travel time for all users.
    - Goal 2 contains two components. First, peak hour travel times for HOV lanes users remains below the baseline, HOV travel times for the 2-hour, however, have increased compared to the baseline. Second, average per-person travel times for all users have increased during the peak period and peak hour travel periods compared to the Baseline reporting period.
- Goal #3 Minimize impacts to other traffic in the corridor and on parallel facilities.
    - Compared to the Baseline, the share of traffic on I-205 increased slightly. The share of traffic on Highway 99, Hazel Dell Avenue, and Lakeshore Drive decreased slightly. For all

evaluations, the share of traffic on Main Street increased compared to the Baseline, but much of the increase is likely attributable to the completion of construction at the Main Street interchange in October 2001, after the Baseline data was collected.

- Goal #4: Increase the use of carpools, vanpools, and transit.
    - The number of carpools and transit ridership has increased since the Baseline reporting period.
- Goal #5: Maintain safety by not increasing the accident and incident rate in the corridor during HOV lane operating periods.
    - The number of on-roadway and off-roadway incidents has fluctuated during each reporting period. Based on this data, it could be implied that the HOV lane has not negatively impacted corridor safety.
- Goal #6: Maintain the HOV lane's effectiveness with appropriate enforcement.
    - The 2-hour period violation rate was 12 percent during the October 2004 reporting period, a violation rate higher than prior reporting periods, while during the peak hour, the violation rate was 9 percent, virtually unchanged from the April 2004 reporting period. There is a general trend toward a higher violation rate during the 2-hour peak.
    - The national violation rate average is in the 10-15% range. The Portland HOV lane has a violation rate of 10%, which is also within the national guidelines. The Vancouver lane has a violation rate of 12%, which is well within acceptable guidelines.
    - Washington State Patrol (WSP) reduced lane enforcement after the October 2002 reporting period and has only sporadically provided an enforcement presence. In other regions, a correlation exists between the level of enforcement and the violation rate. The lack of regular enforcement is likely contributing to the increased violation rate.
- Goal #7: Maintain or improve travel time reliability for carpools, vanpools, and transit.
    - Travel times during the two-hour period for C-TRAN Route 134 (from the 134th St. Park and Ride to downtown Portland) have remained relatively constant since July 2002. The presence of the HOV lane has resulted in predictable peak period travel times for C-TRAN.

- Travel times during the peak hour for C-TRAN Route 134 have decreased compared to all prior reporting periods.
- The Vancouver HOV lane is maintaining at least 45 mph along its entire length both during peak hours and overall during the two-hour period.

- Goal #8: Maintain or improve public opinion as to the effectiveness of HOV lanes.
  - Public opinion polling was not conducted for this evaluation report. As a result, it cannot be determined whether Goal 8 is being met. Three public opinion surveys were conducted concurrent with prior evaluation reports.
  - WSDOT received less than 15 comments during the past 18 months (January 2003 to October 2004). The comments were received via e-mail and phone calls. All comments received were negative. Comments received were generally from GP lane users concerned about the perceived lack of HOV lane usage and the HOV lane violation rate as well as the impact on General Purpose lane users.

DELTA PARK/LOMBARD HOV LANE

The Oregon Department of Transportation (ODOT) is in the process of preparing an Environmental Assessment (EA) associated with widening the existing two-lane section of southbound I-5 through Delta Park in Portland to add a third travel lane. ODOT is developing this project to be consistent with state and regional policies supporting: reducing congestion, providing for a safe and balanced transportation system, maintaining freight access, mobility, and competitiveness, and improving the reliability of the transportation network. As a part of the Environmental Assessment, an HOV analysis was undertaken to examine the potential impacts and benefits of operating the third southbound lane as an AM peak-period HOV lane.

The evaluation measures and performance goals for the I-5 Delta Park HOV analysis are consistent with those used in previous studies and evaluations of HOV in the I-5 corridor.

Findings From the I-5 Delta Park HOV Analysis

- If an HOV lane were to be built today in the Delta Park/Lombard section of I-5 and the current mode splits remained static, the potential exists that an HOV lane would meet the minimum threshold of 500-600 eligible HOV vehicles per hour in the HOV lane. However, the HOV lane in this case would not be carrying as many persons per hour as either of the general-purpose lanes.

From this we have concluded that if a lane were in place today, we would be getting similar performance results to the existing I-5 southbound HOV lane in Washington.

- HOV modeling for 2025 indicates that the presence of an HOV lane in Oregon, in combination with the existing Washington HOV lane, would result in measurable shift from drive-alone to carpooling, vanpooling, and transit. All performance goals for the lane would be met.
- In 2025, HOV users are estimated to travel between SR 500 and I-84 approximately 12 minutes faster than the users of the adjacent general-purpose lanes. Average vehicle occupancy is estimated to be approximately 1.41 persons per vehicle, compared to 1.25 persons per vehicle without an HOV lane. The presence of an HOV lane in both Oregon and Washington also results in the highest overall persons per lane per hour; approximately 100 persons more per hour than without HOV. HOV users save approximately 6 minutes in their trip between SR 500 and I-84 compared to no HOV in the I-5 corridor.
- While the HOV lane would provide significant benefits for users of the lane, the trade-off is substantially increased travel times and traffic back-ups for SOV and freight.
- HOV modeling indicates that in 2025, vehicles in the general purpose lanes will experience travel times that are approximately 12 minutes longer than the HOV lane and approximately 6 minutes longer than if no HOV were provided in the corridor (travel times are between SR 500 and I-84). Approximately 1000 fewer vehicles will move through the corridor in the AM peak hour. Traffic analysis indicates that there will be significant queuing in Vancouver on I-5, SR 500, and SR 14 with an HOV lane in the I-5 corridor compared to no HOV lane in the corridor. As a result of the queuing and congestion, the morning peak period is expected to last longer than it would without an HOV lane, further impacting the freight users of the corridor.
- In a policy context, providing an HOV lane in the corridor rather than a general-purpose lane is consistent with regional, statewide, and federal goals and policies. However, the increase in overall travel time adversely affects freight mobility and serves to increase congestion overall, which is not consistent with regional, state, and federal policies.

DISCUSSION - CONCLUSIONS

As was mentioned earlier, Washington and Oregon have a variety of state and regional transportation policies that guide the management and operation of I-5. These policies generally support a safe, efficient, and balanced transportation system for all users including freight movement and alternative mode movement. As Washington and Oregon move forward over the next few months, recommendations/feedback from the Bi-State Committee on the future of the HOV lane in the I-5 corridor is desired. Bi-state staff, with the input from a national expert on HOV lanes, has examined evaluation findings for the current Washington HOV lane and the proposed Oregon HOV lane. To be consistent with the state and regional policies, it is proposed that the region consider operating the third southbound lane on I-5 as a managed lane with HOV use as its first priority. Staff are making this recommendation given the excess capacity that ODOT expects in the HOV lane in its early years of operation, the excess capacity that currently exists in the Washington HOV lane, and the significant difference in benefits to HOV users and impacts to general purpose users that are forecast to occur as the region grows.

Key Discussion Points

- A managed lane is a lane that is operated to maximize the effectiveness of the freeway corridor consistent with the policy objectives of the state and region.
- Managing a lane in the I-5 corridor would involve allowing HOV and other user groups to travel in a lane that would have a reasonable time advantage compared to the general purpose lanes. A managed lane would also reduce the impact on the general-purpose lanes and provide for improved person and vehicle throughput compared to HOV-only use.
- Moving to a managed lane would have a particular benefit to freight movement, as the lane and the corridor as a whole would be managed to ensure that disproportionate impacts do not occur for this class of user.
- Moving towards a managed lane would require proactively evaluating the use of the lane over time and changing policies for the use of the lane as needed to achieve lane and corridor performance goals.

- Ideas for other user groups that the region may want to consider allowing into the managed lane include: hybrid vehicles, small delivery trucks, and toll-paying SOVs.
- Regardless of how the lane is managed, for HOVs only or with the addition of other user groups, enforcement of the lane is a significant issue. A commitment to enforcing the lane will be needed to ensure the long-term success of the managed lane.

Recommended Action

Possible recommended action by the Bi-State Coordinating Committee on the existing Washington and proposed Oregon HOV lanes could be as follows:

- Existing Washington HOV Lane: Recommend to the RTC and WSDOT to continue the pilot project for Washington's HOV lane with direction to staff to work collaboratively with Oregon to examine prospects and priorities for operating the lane in the future as a managed lane.
- Proposed Oregon HOV Lane: Recommend to JPACT and ODOT support of operating an HOV lane in Oregon as a part of the I-5 Delta Park project with direction to staff to work collaboratively with Washington to examine prospects and priorities for operating the lane as a managed lane. (Note: Final decisions about HOV will be made as a part of the Environmental Assessment process.)

BEFORE THE METRO COUNCIL

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WHEREAS, in 2000, after completion of HOV operational analysis and policy discussion, the Bi-State Transportation Committee recommended: 1) an HOV pilot project on Interstate 5 in Southwest Washington from 99th Street south to the vicinity of the Interstate Bridge across the Columbia River, 2) that because of safety and operational concerns, an HOV lane should not be pursued across the existing Interstate Bridge at that time, and that 3) a southbound HOV land in Oregon south of the Interstate Bridge to the vicinity of Lombard should be pursued as a part of the design for the Delta Park project; and

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WHEREAS, at its March 31, 2005 meeting the Bi-State Coordination Committee, a committee comprised of elected representatives from Southwest Washington and the Metro area as well as executives of the Ports, transit and metropolitan planning organizations from both sides of the Columbia River, recommended support of operating an HOV lane in Oregon as part of the I-5 Delta Park to Lombard project, with a further recommendation that the prospects and priorities for operating the lane as a managed lane should be collaboratively explored with the State of Washington; and,

WHEREAS, in 2000 the Washington State Transportation Commission approved a pilot HOV lane in Southwest Washington on Interstate 5 between 99th Street and Mill Plain Boulevard; and

WHEREAS, on October 29, 2001, a new High Occupancy Vehicle (HOV) lane opened on Interstate 5 between 99th Street and Mill Plain Boulevard in Southwest Washington with the lane reserved between the hours of 6am and 9am (now operating from 6am to 8am) for vehicles with two or more passengers (carpools, vanpools and buses) as well as motorcycles only; and

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BE IT RESOLVED,

1. The Metro Council and Joint Policy Advisory Committee on Transportation recommend to the Oregon Department of Transportation and the Oregon Transportation Commission that as part of the ongoing Environmental Assessment process for this project, an HOV lane in Oregon continue to be included as an alternative for further analysis of the Interstate 5/Delta Park to Lombard project and that the prospects and priorities for operating the lane as a managed lane be collaboratively examined with the State of Washington,

2. The Metro Council and Joint Policy Advisory Committee on Transportation recommend that the Washington State Department of Transportation continue to work collaboratively with the State of Oregon on the functioning of the entire I-5 corridor, from 99th Street in Vancouver Washington to the Fremont Bridge in Oregon, including the potential of a managed lane, especially in light of upcoming decisions related to the Columbia River Crossing.

ADOPTED by the Metro Council this ____ day of June 2005.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 05-3588, FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND THE WASHINGTON STATE TRANSPORTATION COMMISSION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER

Date: May 16, 2005 Prepared by: Mark Turpel

BACKGROUND

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The Oregon Department of Transportation (ODOT) is currently completing an Environmental Assessment of a project that proposes to add a third lane along the southbound portion of the Delta Park to Lombard segment of Interstate 5, including the option that this lane could be an high occupancy vehicle (HOV) lane during peak hour usage.

In Southwest Washington, an HOV lane has been in operation as a pilot project since 2001 for the segment from 99th Street to Mill Plain Boulevard in the southbound portion of Interstate 5. Six HOV evaluation reports have been completed and the latest report has found that six of the eight criteria have been met. Currently, the Interstate 5 bridge has no HOV lane, as an HOV lane on the bridge has been considered an operational and safety concern.

General purpose lanes allow and encourage single occupant vehicle use and accommodate freight movement via trucks. Neighborhoods adjacent to Interstate 5 have expressed concern with the impacts of traffic along Interstate 5, citing noise, air pollution, loss of homes and businesses and dislocation as concerns, both with the existing Interstate 5 design as well as potential future designs.

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The concept of managed lanes is to adjust the number of vehicles in the lane so that flow remains free. Several methods exist to manage lanes. For example, a managed lane could allow some additional vehicles beyond carpools and transit vehicles. Observed demand along the HOV lane in Southwest

Washington and forecast demand for an HOV on Interstate 5 in Oregon suggests that in addition to carpools and transit usage, allowing some additional vehicles could improve the HOV lane operation while still providing higher speeds. Possible additional vehicles could include smaller delivery trucks to address some of the freight movement concerns and/or hybrid or other cleaner air emission vehicles could be allowed to address, in part, air pollution concerns of adjacent neighborhoods. Another managed lane technique could be the use of tolls during peak hour usage, where the use of the lane would be priced according to demand. Whatever the method, managed lanes would strive to maximize the number of people using the lane during peak hours while maintaining traffic flow and speed - to get the highest achievable efficiency.

Approval of Resolution 05-3588, FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND THE WASHINGTON STATE TRANSPORTATION COMMISSION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER, would recommend to the Oregon Department of Transportation (ODOT) and the Oregon Transportation Commission that the I-5 Delta Park to Lombard Project include an HOV lane and that ODOT collaboratively work with the Washington State Department of Transportation (WSDOT) on examining whether a managed lane might be superior to even an HOV lane. Additionally, approval of the resolution would recommend to the Washington State Transportation Commission that the pilot HOV lane from 99th Street to Mill Plain Boulevard be continued and encourage that ODOT work collaboratively with Washington State Transportation Department on the examination of a managed lane for the current HOV lane.

ANALYSIS/INFORMATION

1. **Known Opposition**

The Southwest Washington Regional Transportation Council (RTC), by a vote of six to five, recommended against continuing the HOV lane pilot project on Interstate 5 between 99th Street and Mill Plain in southwest Washington. The RTC did not make a recommendation concerning the HOV lane along the Delta Park to Lombard segment of Interstate 5.

2. Legal Antecedents

Resolution 98-2625, FOR THE PURPOSE OF AMENDING THE METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM TO APPROVE A SIX-MONTH HIGH OCCUPANCY VEHICLE (HOV) LANE DEMONSTRATION ON I-5 NORTHBOUND AND ASSOCIATED FINANCING. (This HOV lane was approved on a temporary basis to address emergency repairs to the Interstate Bridge trunnion)

3. Anticipated Effects

In Washington, the resolution would further provide another perspective about the HOV pilot project between 99th Street and Mill Plain along Interstate 5. In Oregon, the resolution would provide support for further investigation of an HOV in the Delta Park to Lombard segment of Interstate 5.

4. **Budget Impacts**

None

RECOMMENDED ACTION

Approval of Resolution No. 3588, FOR THE PURPOSE OF MAKING RECOMMENDATIONS TO THE OREGON TRANSPORTATION COMMISSION AND THE WASHINGTON STATE TRANSPORTATION COMMISSION CONCERNING HIGH OCCUPANCY VEHICLE LANES ON INTERSTATE 5 IN THE VICINITY OF THE COLUMBIA RIVER.

Bi-State Coordination Committee

The Bi-State Coordination Committee is chartered by member agencies to review, discuss, and make recommendations about transportation, land use, and related issues of bi-state significance.

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MEMORANDUM

TO: Bi-State Coordination Committee

FROM: Dean Lookingbill, RTC
Mark Turpel, Metro

DATE: March 24, 2005

SUBJECT: **HOV Lanes in the I-5 Corridor**

BACKGROUND

The purpose of this memorandum is first to brief the Bi-State Coordination Committee in regard to the latest data available on the performance of the Vancouver I-5 HOV Pilot Project and second to discuss and to present a staff recommended action on extending the HOV lane into Oregon based on the traffic evaluations of the Delta Park/Lombard Environmental Assessment.

The bi-state coordination on the I-5 HOV Pilot Project and its extension into Oregon dates back to an April 2000 resolution by the Bi-State Transportation Committee. The key policy recommendations in the resolution stated that: 1) a southbound HOV lane should be pursued by adding HOV capacity in Washington from 99th Street to the vicinity of the north end of the Interstate Bridge, 2) because of safety and operational concerns, an HOV lane should not be pursued across the existing Interstate Bridge at this time, and 3) a southbound HOV lane in Oregon south of the Interstate Bridge to the vicinity of Lombard should be pursued as a part of the design for the Delta Park project.

The Vancouver I-5 HOV pilot lane was opened in October of 2001. Prior to the opening of the HOV lane, RTC conducted a series of analysis and HOV policy decisions. These are outlined as follows:

- A Clark County Regional HOV System Study was completed in December 1998. The Study contained recommendations for regional HOV goals and policies and included the recommendation that the I-5 corridor should be the first facility considered for HOV implementation because of its high traffic congestion level, high transit and carpool usage, and that it would have the best travel time savings for the users of an HOV facility.
- An I-5 HOV Operational Study was completed in April of 2000. The purpose of the study was to analyze a range of options and to develop an HOV alternative that could be implemented in the I-5 corridor without replacing the Interstate Bridge and resulted in a

recommendation to implement the first phase of a bi-state HOV facility that would operate southbound on I-5 in Vancouver during the morning commute period. It was also recommended that the second phase of the southbound HOV lane, the segment in Oregon, would be implemented with the planned widening of Delta Park.

- Following the Bi-State Transportation Committee's recommendations on the I-5 HOV Operational Study recommendations, both the RTC Board and the Joint Policy Advisory Committee on Transportation (JPACT) adopted resolutions to support and implement the Vancouver segment of the I-5 HOV facility. In September of 2000, the Washington Transportation Commission also adopted a resolution in support of the Vancouver HOV lane. In October 2001, the southbound HOV lane opened in conjunction with the completion of the I-5 widening project.
- The policy objectives of the HOV project were to: 1) help manage traffic congestion, 2) make more efficient use of existing facilities by carrying more people in the HOV lane than the general purpose lanes, 3) encourage more carpools, vanpools, and transit ridership, and 4) provide travel time savings and better travel time reliability for HOV users.

A total of six evaluation reports have been conducted on the I-5 Pilot HOV lane since it's opening in 2001. The Washington State Department of Transportation (WSDOT) has led the development of these reports. Eight performance goals were set prior to the opening of the HOV lane. These goals include the following:

1. Move more people in the HOV lane than in either of the adjacent general-purpose lanes.
2. Reduce peak period travel time for HOV lane users and for all users.
3. Minimize impacts to other traffic on other facilities.
4. Increase the use of carpools, vanpools, and transit.
5. Maintain safety by not increasing the accident and incident rate in the corridor during HOV lane operating periods.
6. Maintain the HOV lane's effectiveness with appropriate enforcement.
7. Maintain or improve travel time reliability for carpools, vanpools, and transit.
8. Maintain or improve public opinion.

VANCOUVER I-5 HOV LANE PILOT PROJECT: DATA REPORT #6

The complete data report is on RTC's web site at: www.rtc.wa.gov/hov/evaluation.htm. The key findings of the report are listed below.

Of the eight HOV goals established for this specific project, the Vancouver HOV pilot project is meeting six goals. The pilot project is meeting Goals 1, 3, 4, 5, 6, and 7. This is the first time the pilot project has met Goal 1 (note that the HOV lane meets the 2-hour goal, but is still carrying fewer people than either adjacent general purpose lane during the peak hour). Goal 2 contains two components. The pilot project is meeting one of the two components. No recent data has been collected to determine whether Goal 8 is being met.

- Goal #1: Move more people per lane in the HOV lane during the AM 2-hour period than in either of the adjacent general-purpose lanes.
    - For the first time, the Vancouver HOV lane is carrying more people per lane than either of the adjacent lanes for the 2-hour peak period. During the one-hour peak, the HOV lane carries 86% of the GP lane average.
    - The ability of the HOV lane to carry more people is constrained by the level of bus service and park-and-ride spaces provided along the corridor. This artificial cap may not be remedied for another year until the 99th Street Park-and-Ride facility is open.
    - The Vancouver HOV lane has contributed to I-5 carrying more people in fewer vehicles compared to the Baseline and is steadily increasing in demand.
- Goal #2: Reduce peak period travel time for HOV lane users and reduce the average per-person travel time for all users.
    - Goal 2 contains two components. First, peak hour travel times for HOV lanes users remains below the baseline, HOV travel times for the 2-hour, however, have increased compared to the baseline. Second, average per-person travel times for all users have increased during the peak period and peak hour travel periods compared to the Baseline reporting period.
- Goal #3 Minimize impacts to other traffic in the corridor and on parallel facilities.
    - Compared to the Baseline, the share of traffic on I-205 increased slightly. The share of traffic on Highway 99, Hazel Dell Avenue, and Lakeshore Drive decreased slightly. For all

evaluations, the share of traffic on Main Street increased compared to the Baseline, but much of the increase is likely attributable to the completion of construction at the Main Street interchange in October 2001, after the Baseline data was collected.

- Goal #4: Increase the use of carpools, vanpools, and transit.
    - The number of carpools and transit ridership has increased since the Baseline reporting period.
- Goal #5: Maintain safety by not increasing the accident and incident rate in the corridor during HOV lane operating periods.
    - The number of on-roadway and off-roadway incidents has fluctuated during each reporting period. Based on this data, it could be implied that the HOV lane has not negatively impacted corridor safety.
- Goal #6: Maintain the HOV lane's effectiveness with appropriate enforcement.
    - The 2-hour period violation rate was 12 percent during the October 2004 reporting period, a violation rate higher than prior reporting periods, while during the peak hour, the violation rate was 9 percent, virtually unchanged from the April 2004 reporting period. There is a general trend toward a higher violation rate during the 2-hour peak.
    - The national violation rate average is in the 10-15% range. The Portland HOV lane has a violation rate of 10%, which is also within the national guidelines. The Vancouver lane has a violation rate of 12%, which is well within acceptable guidelines.
    - Washington State Patrol (WSP) reduced lane enforcement after the October 2002 reporting period and has only sporadically provided an enforcement presence. In other regions, a correlation exists between the level of enforcement and the violation rate. The lack of regular enforcement is likely contributing to the increased violation rate.
- Goal #7: Maintain or improve travel time reliability for carpools, vanpools, and transit.
    - Travel times during the two-hour period for C-TRAN Route 134 (from the 134th St. Park and Ride to downtown Portland) have remained relatively constant since July 2002. The presence of the HOV lane has resulted in predictable peak period travel times for C-TRAN.

- Travel times during the peak hour for C-TRAN Route 134 have decreased compared to all prior reporting periods.
- The Vancouver HOV lane is maintaining at least 45 mph along its entire length both during peak hours and overall during the two-hour period.

- Goal #8: Maintain or improve public opinion as to the effectiveness of HOV lanes.
  - Public opinion polling was not conducted for this evaluation report. As a result, it cannot be determined whether Goal 8 is being met. Three public opinion surveys were conducted concurrent with prior evaluation reports.
  - WSDOT received less than 15 comments during the past 18 months (January 2003 to October 2004). The comments were received via e-mail and phone calls. All comments received were negative. Comments received were generally from GP lane users concerned about the perceived lack of HOV lane usage and the HOV lane violation rate as well as the impact on General Purpose lane users.

DELTA PARK/LOMBARD HOV LANE

The Oregon Department of Transportation (ODOT) is in the process of preparing an Environmental Assessment (EA) associated with widening the existing two-lane section of southbound I-5 through Delta Park in Portland to add a third travel lane. ODOT is developing this project to be consistent with state and regional policies supporting: reducing congestion, providing for a safe and balanced transportation system, maintaining freight access, mobility, and competitiveness, and improving the reliability of the transportation network. As a part of the Environmental Assessment, an HOV analysis was undertaken to examine the potential impacts and benefits of operating the third southbound lane as an AM peak-period HOV lane.

The evaluation measures and performance goals for the I-5 Delta Park HOV analysis are consistent with those used in previous studies and evaluations of HOV in the I-5 corridor.

Findings From the I-5 Delta Park HOV Analysis

- If an HOV lane were to be built today in the Delta Park/Lombard section of I-5 and the current mode splits remained static, the potential exists that an HOV lane would meet the minimum threshold of 500-600 eligible HOV vehicles per hour in the HOV lane. However, the HOV lane in this case would not be carrying as many persons per hour as either of the general-purpose lanes.

From this we have concluded that if a lane were in place today, we would be getting similar performance results to the existing I-5 southbound HOV lane in Washington.

- HOV modeling for 2025 indicates that the presence of an HOV lane in Oregon, in combination with the existing Washington HOV lane, would result in measurable shift from drive-alone to carpooling, vanpooling, and transit. All performance goals for the lane would be met.
- In 2025, HOV users are estimated to travel between SR 500 and I-84 approximately 12 minutes faster than the users of the adjacent general-purpose lanes. Average vehicle occupancy is estimated to be approximately 1.41 persons per vehicle, compared to 1.25 persons per vehicle without an HOV lane. The presence of an HOV lane in both Oregon and Washington also results in the highest overall persons per lane per hour; approximately 100 persons more per hour than without HOV. HOV users save approximately 6 minutes in their trip between SR 500 and I-84 compared to no HOV in the I-5 corridor.
- While the HOV lane would provide significant benefits for users of the lane, the trade-off is substantially increased travel times and traffic back-ups for SOV and freight.
- HOV modeling indicates that in 2025, vehicles in the general purpose lanes will experience travel times that are approximately 12 minutes longer than the HOV lane and approximately 6 minutes longer than if no HOV were provided in the corridor (travel times are between SR 500 and I-84). Approximately 1000 fewer vehicles will move through the corridor in the AM peak hour. Traffic analysis indicates that there will be significant queuing in Vancouver on I-5, SR 500, and SR 14 with an HOV lane in the I-5 corridor compared to no HOV lane in the corridor. As a result of the queuing and congestion, the morning peak period is expected to last longer than it would without an HOV lane, further impacting the freight users of the corridor.
- In a policy context, providing an HOV lane in the corridor rather than a general-purpose lane is consistent with regional, statewide, and federal goals and policies. However, the increase in overall travel time adversely affects freight mobility and serves to increase congestion overall, which is not consistent with regional, state, and federal policies.

DISCUSSION - CONCLUSIONS

As was mentioned earlier, Washington and Oregon have a variety of state and regional transportation policies that guide the management and operation of I-5. These policies generally support a safe, efficient, and balanced transportation system for all users including freight movement and alternative mode movement. As Washington and Oregon move forward over the next few months, recommendations/feedback from the Bi-State Committee on the future of the HOV lane in the I-5 corridor is desired. Bi-state staff, with the input from a national expert on HOV lanes, has examined evaluation findings for the current Washington HOV lane and the proposed Oregon HOV lane. To be consistent with the state and regional policies, it is proposed that the region consider operating the third southbound lane on I-5 as a managed lane with HOV use as its first priority. Staff are making this recommendation given the excess capacity that ODOT expects in the HOV lane in its early years of operation, the excess capacity that currently exists in the Washington HOV lane, and the significant difference in benefits to HOV users and impacts to general purpose users that are forecast to occur as the region grows.

Key Discussion Points

- A managed lane is a lane that is operated to maximize the effectiveness of the freeway corridor consistent with the policy objectives of the state and region.
- Managing a lane in the I-5 corridor would involve allowing HOV and other user groups to travel in a lane that would have a reasonable time advantage compared to the general purpose lanes. A managed lane would also reduce the impact on the general-purpose lanes and provide for improved person and vehicle throughput compared to HOV-only use.
- Moving to a managed lane would have a particular benefit to freight movement, as the lane and the corridor as a whole would be managed to ensure that disproportionate impacts do not occur for this class of user.
- Moving towards a managed lane would require proactively evaluating the use of the lane over time and changing policies for the use of the lane as needed to achieve lane and corridor performance goals.

- Ideas for other user groups that the region may want to consider allowing into the managed lane include: hybrid vehicles, small delivery trucks, and toll-paying SOVs.
- Regardless of how the lane is managed, for HOVs only or with the addition of other user groups, enforcement of the lane is a significant issue. A commitment to enforcing the lane will be needed to ensure the long-term success of the managed lane.

Recommended Action

Possible recommended action by the Bi-State Coordinating Committee on the existing Washington and proposed Oregon HOV lanes could be as follows:

- Existing Washington HOV Lane: Recommend to the RTC and WSDOT to continue the pilot project for Washington's HOV lane with direction to staff to work collaboratively with Oregon to examine prospects and priorities for operating the lane in the future as a managed lane.
- Proposed Oregon HOV Lane: Recommend to JPACT and ODOT support of operating an HOV lane in Oregon as a part of the I-5 Delta Park project with direction to staff to work collaboratively with Washington to examine prospects and priorities for operating the lane as a managed lane. (Note: Final decisions about HOV will be made as a part of the Environmental Assessment process.)