BEFORE THE METRO COUNCIL

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)	)))))	RESOLUTION NO. 98-2625 Introduced by Councilor Washington, Chair JPACT

WHEREAS, Emergency modifications made during the Interstate Bridge Trunnion repair to the two-lane segment of northbound I-5 between the Lombard and Delta Park Interchanges provide opportunity to permanently increase this segment of freeway to three lanes; and

WHEREAS, Increasing this segment to three lanes would match the existing configuration of I-5 at either end of the segment; and

WHEREAS, Observation and modeling indicate that moderate improvement of operations on the entire freeway segment could be realized if the intermediate bottleneck created by lane reduction at Lombard were eliminated; and

WHEREAS, Chapter 1 of the *Regional Transportation Plan* (RTP) endorses lower cost, operational improvements that maximize existing capacity of the regional transportation system; and

WHEREAS, Moderate travel time benefits could be provided to the 10 percent of HOV vehicles now using this segment of I-5 during the p.m. peak period if such a lane were reserved for their use; and

WHEREAS, Regional policies contained in the 1995 RTP support actions which encourage non-SOV travel; and

WHEREAS, Chapter 1 of the *Regional Transportation Plan* currently states that the region should investigate feasibility of HOV operation on the regional freeway system; and

WHEREAS, No current data exist with which to predict probable

success of an HOV facility in the Portland region or effects of an HOV system on regional travel demand and behavior; and

WHEREAS, ODOT has proposed to allocate $2 million of state funds to make the Trunnion emergency enhancements permanent; and

WHEREAS, ODOT proposes to operate a six-month High Occupancy Vehicle (HOV) demonstration project on I-5 between Going and Delta Park interchanges during the p.m. peak period; and

WHEREAS, The Regional Conformity Subcommittee has determined that this six-month pilot project would not be regionally significant; and

WHEREAS, ODOT proposes to further consult with its regional partners prior to continuing the HOV project beyond six months, or converting the added three-lane segment to permanent general purpose operation; and

WHEREAS, Permanent modification of the corridor would first be subject to a new quantitative Conformity Determination; now, therefore,

BE IT RESOLVED:

1. That the MTIP is amended to allocate $2 million of state transportation funds to a six-month HOV demonstration project on I-5 northbound lanes between the Going and Delta Park interchanges during the p.m. peak period.

2. That ODOT shall report to JPACT at the conclusion of the demonstration regarding plans to extend HOV operations permanently to the corridor or to retain the added segment for general transportation purposes.

3. That final plans for the new segment shall be included in the regional model and be subjected to quantitative analysis

pursuant to the region's air quality conformity determination process, with review by the Regional Conformity Subcommittee.

4. That Metro staff are directed to request appropriate amendment of the State Transportation Improvement Program (STIP) and are authorized to execute administrative adjustments needed to implement the project.

ADOPTED by the Metro Council this 23RD day of April, 1998.

Jon Kvistad, Presiding Officer

Approved as to Form:

Daniel B. Cooper, General Counsel

98-2625.RES
TW:lmk
3-27-98

TRANSPORTATION PLANNING COMMITTEE REPORT

CONSIDERATION OF RESOLUTION NO. 98-2625, FOR THE PURPOSE OF AMENDING THE METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM TO APPROVE A SIX MONTH HIGH OCCUPANCY VEHICLE (HOV) LANE DEMONSTRATION ON 1-5 NORTHBOUND, AND ASSOCIATED FINANCING.

Date: April 23, 1998 Presented by: Councilor Washington

Committee Action: At its April 21, 1998 meeting, the Transportation Planning Committee unanimously recommended Council adoption of Resolution No. 98-2625. Voting in favor: Councilors Kvistad, McLain and Washington.

Council Issues/Discussion: Staff presentation was made by Terry Whistler, senior transportation planner. This resolution, approves expenditure of about $2,000,000 in state-managed funds to implement a six month pilot of a high occupancy vehicle (HOV) lane on the northbound segment of I-5, between the N. Going and Delta Park interchanges. Federal funds managed by the Oregon Department of Transportation (ODOT), will be used to finance this project.

The HOV lane will be in effect during the evening peak commuting period, to test the feasibility of maintaining permanent HOV operations in this part of the corridor. The benefit to HOV travelers is expected to be about 1 minute, and smoother operation of this stretch of highway is also expected.

ODOT will convene a technical committee for oversight and evaluation of this project. The committee will make recommendations to Metro and others concerning the possible continuance of the project.

In response to a question from the committee, Mr. Whisler stated that all funds necessary for the project are not fully committed at this time. Funds necessary for striping and enforcement are still being sought.

STAFF REPORT

CONSIDERATION OF RESOLUTION NO. 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

Date: March 19, 1998 Presented by: Andy Cotugno

PROPOSED ACTION

Approval of this resolution would amend the MTIP to program $2 million of state gas tax funds for minor improvement of I-5 needed to implement a six-month demonstration of HOV feasibility. ODOT desires to operate the demonstration on a three-mile northbound segment of I-5 between the Going and Delta Park interchanges. HOV operation would occur during the peak p.m. period. The lane would be available for general purpose travel during other times of the day. After results of the demonstration project are compiled, it would be determined whether to continue peak period HOV operations, convert the lane permanently to general purpose travel at all times of the day, or return the segment to its original condition. This decision would require additional regional consultation and approval.

TPAC has reviewed this MTIP amendment and recommends approval of Resolution No. 98-2625.

ANALYSIS

In preparation for repair of the Interstate Bridge Trunnion, ODOT restriped the I-5 northbound lanes between the Lombard and Delta Park interchanges. By elimination of the northbound shoulder, ODOT was able to continue the three-lane configuration of I-5 an additional mile beyond the Lombard interchange where it had previously narrowed to two lanes. This added lane was made available for HOV traffic during the Trunnion project. Video surveillance cameras installed prior to the project as part of the Region 1 Intelligent Transportation System (ITS) deployment showed a marked improvement in operation of I-5 during this period over and above what was attributable simply to reduced travel volumes during the Trunnion repair.

The Hayden Island merge at the I-5 bridgehead functions as the fundamental throttle on northbound I-5 operation. The proposed project does not eliminate or modify this constraint: ***absolute capacity of I-5 south of the bridge is not increased by this proposed project***. However, continuation of a third lane past Lombard to the Delta Park interchange eliminates an intermediate bottleneck at the Lombard Interchange. Previously, the reduction to two lanes at Lombard caused abrupt reduction of speeds, which then increased as vehicles approached the Delta Park interchange, only to abruptly slow again, then increase past Delta Park and slow again approaching the Hayden Island interchange. With the third lane extension, this intermediate throttle was eliminated

so that vehicles now gradually reduce speed as they approach the Delta Park interchange, significantly moderating an entire cycle of stop-and-go events.

Providing a three-mile HOV lane is expected to provide an approximate three-minute travel time benefit for transit vehicles and multiple occupant vehicles that presently use this corridor and which comprise just under 10 percent of vehicles. However, smoothing of freeway operation on this segment of I-5 (as opposed to increasing capacity of the freeway system) is another major objective of the proposal. By matching capacity of the middle segment of I-5 north to those now occurring at either end, smoother flow is provided creating safer travel conditions and reduced vehicle emissions associated with stop-and-go travel conditions.

There are two elements of the proposed pilot project. A construction element will reinforce the shoulder just north of the Lombard interchange so that it can operate as a travel lane. Also, the Delta Park onramp presently merges traffic into a free lane. New striping and traffic control will be needed to manage these movements into an occupied third lane once the project begins operation. The second aspect of the project is operational conversion of two miles of an existing general purpose lane between Going and Lombard to peak period HOV use. ODOT's analysis indicates that peak period demand at Going is less than 4,000 vehicles, of which 10 percent is already HOV. In this segment, I-5 operates as a four-lane facility just north of I-405, then reduces to three lanes until it reaches Lombard where it narrows to two lanes. Therefore, a graduated conversion of one lane to HOV use at the Going interchange would not produce significant queuing. Ten percent of vehicles would continue to use the lane. The other 90 percent of vehicles represent a demand less than the available capacity. During all but the p.m. peak period, all travel lanes would continue to be available for general purpose travel.

The project has been presented to the TPAC Air Quality Conformity Consultation Subcommittee. It has been determined by this group that the six-month pilot project is not regionally significant and does not require analysis of conformity with the State Implementation Plan. Extension of HOV beyond the pilot period, or conversion of the third-lane segment to permanent general purpose operation, will require a conformity determination. There are several facts supporting this conclusion.

First, the project would not be initiated until mid-October, after the ozone season. Whatever stimulation of emission might in fact result from the project, they would occur after the peak season during which a violation of air quality standards might occur. Second, the project makes physical modifications to a segment of I-5 that is less than one mile in length and which does not travel through any full interchanges. These are two important parameters that have generally been considered a threshold of project significance. Third, the pilot does not actually increase capacity of the north segments of I-5.

Absolute corridor capacity remains constrained by the Hayden Island/Interstate Bridgehead bottleneck. What the project would accomplish is smoothing of northbound corridor operation during the p.m. peak period. Approximately 10 percent of vehicles using the corridor would experience moderate improvement of travel conditions for a three-mile stretch. For 90 percent of vehicles, a marginal improvement of the operating conditions would result. ODOT micro-scale analysis indicates that system speeds would be sustained at a 50 mile per hour threshold for slightly longer periods with the project than without. Emission of NOx increase significantly as speeds approach 50 miles per hour. However, emissions also increase significantly with hard acceleration typified by the kind of frustrated stop-and-go driving that now occurs north of the Lombard bottleneck. It is this travel characteristic that will be moderated by the project.

There is some concern that marginal improvement of freeway operation could attract latent demand for travel in the corridor, or could attract demand onto the freeway from parallel surface streets. Regional modeling is generally desirable to quantify these kinds of effects. If latent demand is drawn as either new SOV or HOV travel, regional emissions would be increased above current levels in a manner not previously considered in the Conformity modeling. Should existing travel demand be drawn to the freeway from surface streets, the presumed increase of system speed would also most likely emit greater amounts of criteria pollutants than previously modeled.

As to the first concern about latent demand, the project improvements are not expected to be significant enough to stimulate new long-term changes to travel demand in the corridor. Only an intermediate bottleneck is eliminated and only for HOV travelers and no improvement of southbound a.m. travel conditions is provided to match the p.m. improvements. Moreover, until the pilot is concluded and the data analyzed, modeling of long-term project effects would not be reliable so regional model analysis of the project is premature. As to effects on existing travel behavior, ODOT has deployed ramp meters on the I-5 ramps affected by the projects as part of its ITS program. Should significant numbers of vehicles be drawn to the corridor, away from either Interstate Avenue or 99E, ramp meter rates can be decreased to impose a compensatory time penalty. In this way, system balance can be maintained. Indirectly, system speeds would maintain roughly the current average modeled in the present Conformity Determination.