# Memorandum

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Aaron Hoard, Deputy Director, Office of Regional Affairs, University of Washington
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**From:** Tom Noguchi, Mirai Transportation Planning and Engineering
**Subject**: Comments on SR 520 Bridge Replacement and HOV Project DEIS
**Date:** October 13, 2006

The purpose of this memo is to transmit comments on the SR 520 Bridge Replacement and HOV Project Draft Environmental Impact Statement (DEIS), which was issued by Washington State Department of Transportation (WSDOT), Federal Highway Administration and Sound Transit, dated August 18, 2006.

## 1. Goals of 6-Lane Alternative Options

The DEIS explains the 6-Lane Alternative options and how they came about on **pages 3-20 and 21**. It states that WSDOT working with the adjacent communities, identified the following goals:

- Narrow the width of the 6-lane alternative
- Improve transit connections
- Improve HOV access
- Design the project to enhance local communities
- Design a facility that is structurally feasible and cost-effective
- Preserve options for future connection to the proposed Sound Transit University Link light rail station at Husky Stadium

The Pacific Street Interchange option described in **pages 3-24 through 3- 28** was identified as one that would support these goals. Most of these goals are positive goals to be achieved with the SR 520 Project. However, WSDOT and Sound Transit need to explain what the goals of "improving transit connections" and "preserving options for future connection to the Husky Stadium station" mean; why those goals are important; and how the Pacific Street Interchange option specifically addresses these goals.

The Pacific Street Interchange option would do little to improve transit connections; would need several costly design changes to the currently proposed design to improve HOV access; would not enhance the University of Washington as a community; and would not be a cost-effective design solution.

## 2. Transit Connections to Sound Transit Husky Stadium Station

The DEIS on **page 3-28** states the Pacific Street Interchange option "would provide a more reliable transit connection to the Sound Transit University Link light rail station at Husky Stadium than the 6-Lane Alternative because buses coming from SR 520 to the Pacific Street bus stops would not be affected by congestion on Montlake Boulevard."

The Pacific Street Interchange option would not improve the transit connection between the North Link Husky Stadium station and SR 520 because:

- No bus-to-rail transfer facility (bus stop or transit center) for bus riders traveling on SR 520 is proposed at the North Link Husky Stadium station entrance. Constructing such a facility associated with the new Pacific Street connection to the new interchange would be difficult. Such a facility would need about an additional 30 to 50 feet of right-of-way on the east leg of the Montlake Boulevard and Pacific Street intersection. With the proposed design, bus riders transferring to rail transit would have to use the current bus stop on Pacific Street, and walk about 1,500 feet to the station platform, which is not convenient.

- When East Link light rail is completed between Eastside communities and downtown Seattle, the transit riders who would have access to the East Link would travel to and from downtown Seattle on East Link light rail. Those who ride regional buses to and from downtown Seattle to Eastside should ride direct express busses via SR 520 without making transfers at the Husky Stadium station. The DEIS should explain why the transit connection to and from the Eastside at the North Link Husky Stadium station is needed.

## 3. Traffic Impacts of Tolls

The DEIS indicates that single occupant drivers who want to cross Lake Washington on SR 520 under both the 4-Lane and 6-Lane Alternatives would have to pay tolls (**pages 3-46 and 47**). It assumed that the toll amount for single occupant drivers during peak periods would be **$3.35** one way in 2006 dollars. Commuters would have to pay **$6.70** per day to cross Lake Washington twice, which would act as a strong

disincentive to drive alone. Due to the tolls, some drivers would either not use SR 520 or not take any trips at all.

In order to understand the traffic impacts due to the tolls, WSDOT should analyze the forecast traffic volumes and publish the results under each alternative with and without the tolls. In addition, the DEIS should include information about the amount of traffic shifts to I-90 and SR 522 from SR 520 due to the tolls.

## 4. Daily Traffic Volumes

The DEIS compares 2030 forecast traffic volumes for the alternatives (**page 4-4**). The traffic volume comparisons are shown based on the average of peak periods. The EIS should also show daily traffic volumes among the alternatives.

## 5. Intersection Levels of Service Analysis

**Pages 4-8 and 9** show intersection levels of service on key arterials in the University District and surrounding communities. WSDOT calculated intersection levels of service based on the method in the Highway Capacity Manual 2000. It shows many intersections would operate at LOS D or better on Montlake Boulevard and Pacific Street. Those LOS results, particularly in the afternoon peak hour are contrary to experience of many drivers. It is not clear how the levels of service in congested areas were calculated.

The **Highway Capacity Manual** provides cautions and states the following:

> *Limitation to the Intersection Level of Service Methodology: "the methodology does not take into account the potential impact of downstream congestion on intersection operation. Nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation." (page 16-1, HCM 2000)*

The DEIS should indicate which intersections would be affected by vehicle queues extending from the downstream congestion and what adjustments were made to calculate the delay at the intersections in the contested areas. If adjustments were not adequately made to reflect the impacts of vehicle queues from the downstream intersections or traffic merge points, 2030 arterial intersection levels of service shown in the DEIS are seriously understated.

## 6. Travel Time Analysis

The DEIS includes changes to travel time during the peak hours on Montlake Boulevard from 25th Avenue NE to the Montlake interchange on **page 4-10**. However, it fails to show the travel time benefit for the user of SR 520. The DEIS should show how the travel time would be affected by choosing travel times between several locations in the University area and the ramp merge points on SR 520, with or without the Pacific Street interchange option.

## 7. Traffic Impact and HOV Lanes on Pacific Street

The DEIS shows that the Pacific Street interchange option would significantly increase traffic volumes on Pacific Street west of Montlake Boulevard. The increase in volumes from the No Build would be over **1,000 vehicles** during the PM peak hour, which is an increase of **36 percent** (**page 5-11**). To accommodate this demand, the DEIS assumed that the existing eastbound HOV lane would be converted to general purpose traffic use (Addendum, 2-13-2006, **Exhibit 3-20**).

The conversion of the HOV lane to a general purpose lane on Pacific Street should not be supported. To provide HOVs and transit a travel time advantage, an eastbound HOV lane should be retained on Pacific Street.

The DEIS fails to show intersection levels of service at several intersections on Pacific Street. The increased traffic volumes on Pacific Street might require improvements to bring the levels of service to an acceptable level.

## 8. Traffic Impact on Montlake Boulevard

**Exhibit 5-5 on page 5-11** of the DEIS also shows a significant traffic volume increase with the Pacific Street Interchange option compared with the No Build Alternative on Montlake Boulevard north of Pacific Street. The increased volume on this street during the afternoon peak hour would be **1,090 vehicles** per hour, which is an increase of **22 percent**. The increased vehicle volumes would impact intersection levels of service on Montlake Boulevard and NE 45th Street. The DEIS failed to show the impacts of the increased traffic on Montlake Boulevard.

## 9. Traffic Impact on Lake Washington Boulevard through Arboretum

The same Exhibit shows that the traffic volume with the Pacific Street Interchange option would not increase traffic on Lake Washington Boulevard south of SR 520. Contrary to the DEIS, it is highly likely that the traffic volumes on Lake Washington Boulevard south of SR 520 through Arboretum would increase. The DEIS does not

adequately explain why WSDOT forecast no traffic volume increase on Lake Washington Boulevard through Arboretum with the Pacific Street Interchange option.

The reasons for the substantially increased traffic volumes on Lake Washington Boulevard are as follows:

- The SR 520 access from the areas south of SR 520 would be provided only at Lake Washington Boulevard.

- The Pacific Street extension with the connection to Lake Washington Boulevard would provide an attractive driving route for the movements between Capital Hill/ Madison Park/Madrona Park areas and Laurelhurst/Sand Point/View Ridge areas.

## 10. Ramp Meters and Vehicle Queues on SR 520 On-Ramps Impacting Transit and Carpool Vehicle Travel

The operation of ramp metering would affect the vehicle queues on the on-ramps during the AM and PM peak periods. Particularly, it is important to evaluate the adequacy of vehicle storage capacity on the on-ramps in the new Pacific Street interchange. The DEIS should discuss WSDOT's ramp meter policies and explain the assumptions used to analyze traffic conditions for the Pacific Street Interchange option.

The DEIS forecasts that the new eastbound on-ramp with the Pacific Street interchange option would carry **1,820 vehicles per hour** in the AM peak hour and **1,540 vehicle per hour** in the PM peak hour. These volumes would exceed the capacity provided with the ramp metering. Therefore, there would be long vehicle queues on the eastbound on-ramp. While the length of the queues would be affected by the operational ramp meter policy of WSDOT, it is highly likely that the eastbound vehicle queues from the point of the ramp meter would exceed the length of the on-ramp and extend through the overpass and to the new Pacific Street extension. While the new Pacific Street extension would provide single occupant vehicle storage capacity, it would not provide high levels of access for eastbound HOVs and transit to the HOV ramps. The eastbound HOV lane proposed on the overpass between the HOV ramp and the intersection with the westbound ramps would not be adequate.

## 11. Lack of Transit and Carpool Facilities in the Pacific Street Interchange Concept

The Addendum to Transportation Discipline Report dated February 13, 2006 provides traffic analysis of the Pacific Street Interchange. The proposed interchange concept is shown in **Exhibit 3-19** of the Addendum. The interchange can be characterized as a tight diamond interchange with the HOV ramps between the eastbound and westbound ramps. The separations of the HOV ramps and the SOV ramps are approximately **150 feet**. Only **100 feet** of vehicle queuing spaces are provided between the ramps. Because of the lack of the vehicle storage spaces between these ramps, it is highly likely that this interchange would not function adequately with the traffic volumes shown in **Exhibits 3-24 and 3-27** and excessive delays would occur during the AM and PM peak periods. Since carpools, vanpools and transit would operate in a mixed condition on the arterials until they get to the HOV ramps, they would encounter excessive delays unless additional faculties to separate them from general purpose traffic were provided. Because of the interchange design and the lack of HOV facilities, the proposed Pacific Street Interchange design concept would **not** support three of the following goals listed on **page 3-21** of the DEIS:

- Improve transit connections
- Improve HOV access
- Provide more reliable transit connection to the proposed Sound Transit University Link light rail station at Husky Stadium

## 12. Pacific Street Interchange Design Option

Pacific Street Interchange Option – Screening and Location Analysis, dated July 24, 2006 (Appendix X) explains that WSDOT identified and screened three interchange configuration options: full diamond interchange, 3-level interchange and half-diamond interchange. No concept drawings, except for full diamond interchange location in **Exhibit 1**, are included. It appears that a **Single Point Urban Interchange** concept was not evaluated. WSDOT should evaluate a design concept of a Single Point Urban Interchange with **flyover HOV ramps** concept as one of the viable design options and evaluate impacts, feasibility and cost-effectiveness.