

Generated Traffic: Implications for Transport Planning  
Victoria Transport Policy Institute

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Technical notes on 520 4-lane

Capacity Constraints on the Existing SR 520 Bridge

A Technical Memorandum

March 2010

Maurice B. Cooper, P.E.

There are many non-structural capacity-limiting constraints on freeway traffic throughput; these include (i) visibility limits due to precipitation, darkness and driving into direct sunlight (a particular problem on SR-520 because of its east-west alignment, which means that, at rush hour, half the traffic is usually driving directly into the sun), (ii) traffic mix, particularly the auto to truck ratio, and (iii) culturally conditioned driver behavior - for example, drivers in the U.S. are more inclined than those in Europe to be doing other things whilst driving.

There are also certain structural factors which limit traffic capacity, such as the physical condition of the pavement surface.

This memorandum is, however, limited to specific and unique features of the existing SR-520 bridge which cause it to operate at below its possible maximum. These are basically of three types:

1) On and off-ramp design:

Both east and west end approaches to the bridge are severe bottlenecks.

On the east side of the lake, the problems start at the Bellevue Way on-ramp, where drivers have particular trouble with the weave across the HOV lanes to access the mainline, at a location where the roadway is curving and traffic slowing erratically because of the backup from the next on-ramp.

The next on-ramp is the access westbound from Medina at 84th Avenue Northeast. This on-ramp design is the worst in the 3-mile SR-520 bridge segment. In addition to the cross-HOV weave, there is an immediate and severe width constraint because of a solid bridge abutment, coupled with the visibility limitation imposed by the bridge abutment itself. The on-ramp leads to a freeway segment which, at this point, suffers from both unusually severe changes in vertical and horizontal alignment.

## APPENDIX J Cooper on 520 capacity

On the west end of the bridge the first problem is caused by the proximity of the merge between SOV and HOV traffic from Montlake Boulevard to the merge between this traffic and the freeway mainline.

The second problem is caused by the abruptness of the end of the on-ramp coming from Lake Washington Boulevard, where the at-grade, on-land portion of the roadway transitions instantaneously to the low-level, structural concrete viaduct portion of the bridge.

Off-ramp design for the SR-520 bridge was handled considerably better than on-ramp design. Neither off-ramps on the eastside, namely at 84th Avenue Northeast nor at Bellevue Way Northeast have significant impact on traffic flow. On the Westside, there is driver confusion because of the proximity of the Lake Washington Boulevard and the Montlake Boulevard exits, but a greater limitation is the frequent backup of traffic down from Montlake Boulevard caused by the equally frequent bascule bridge openings on Montlake Boulevard itself.

### 2) Lane and Shoulder Width:

Lane width is frequently cited as a traffic-capacity limitation in the literature. On the SR-520 bridge, lane width is adequate throughout. Shoulder width is, however, totally inadequate. This causes driver distraction because of fear of either touching the outside curb with a tire - curbs are not generally included in freeway design because of this issue, and certainly not adjacent to traffic lanes as they are on SR-520 or, in the worst case, scraping the side of the car on the inside concrete Jersey barrier.

### 3) Horizontal and Vertical Curvature

For the majority of the length of the SR-520 bridge, the roadway is totally straight. However the bridge curves both horizontally and vertically on the approach and departure to/from the western high-rise structure over the ship channel off the east shore of Madison Park. These curves are significantly sharper than modern freeway design standards. The fact that the curves are effectively superimposed yields a distinct roadway capacity limitation.

Typical freeway design does not have any of the above limitations.

Freeway capacity is rated by traffic flow in terms of the number of vehicles per lane per hour. Under normal driving conditions, and without any of the above three constraints, capacities can be expected to be in the range of 2,100 to 2,200 vehicles per lane per hour. The three

## APPENDIX J Cooper on 520 capacity

conditions cited above are each approximately responsible for a reduction in capacity of 200 vehicles per lane per hour, with the bridge as constructed currently and normally operating at about 1,500 to 1,600 vehicles per lane per hour. Hence if any or all of the design constraints are removed the lane capacity may reasonably be expected to rise accordingly.

### Bridge Re-Design Recommendations and Associated Traffic Capacity Gains:

The cost of re-building the bridge to remove the traffic-limiting constraints could be seen to be a constraint in itself. Hence the question becomes, in an engineering sense, what modifications are appropriate and sensible.

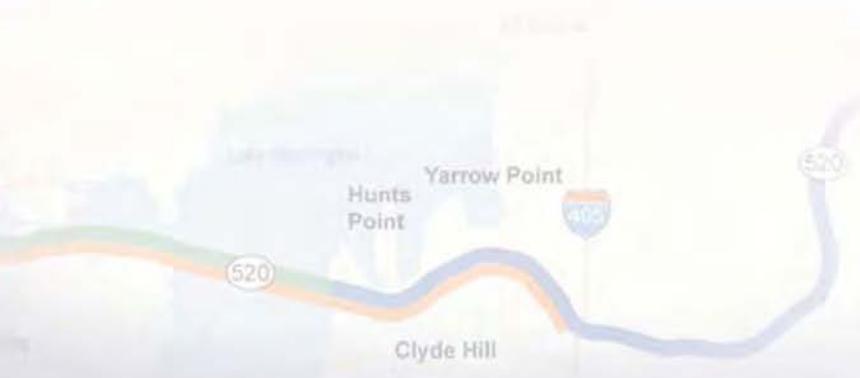
The horizontal and vertical curvature constraints are absolutely inherent in the bridge design and would require a major cost commitment to remove and hence, from an efficiency perspective, should probably be left alone.

The bridge approaches and on and off-ramp configurations are relatively simple to modify and should therefore be modified, in order to capture the available additional 200 vehicles per lane per hour capacity.

The shoulder width issue is more complex because of the design of the existing bridge pontoons. However a pragmatic re-design is possible, by removing the existing pedestrian walkway and lowering that section to roadway grade, and by removing the outermost roadway walls and attaching a new structural barrier to the outside walls of the pontoon box structure itself. This proposed modification would not yield the full gain in capacity which could be realized through full-width shoulders, but is likely to yield half of that capacity increase, i.e. approximately 100 vehicles per lane per hour.

In conclusion, it is readily possible, at modest expense, to increase the capacity of the existing SR-520 bridge by about 300 vehicles per lane per hour, or by some 20 per cent.

For comparison purposes, a totally new, 4-lane bridge, in a straight alignment, with full shoulders, and re-designed on and off-ramps, can be expected to have an increased capacity of 40 percent.



# Recommendations Report

Submitted to  
**Governor Chris Gregoire**  
and  
**Washington State Legislature**

**December 2009**

**SR 520 Legislative Workgroup**

# SR 520 Legislative Workgroup

## Westside members

Representative Scott White  
46th District  
Co-chair – SR 520  
Legislative Workgroup

Representative Frank Chopp  
43rd District  
Speaker of the House

Senator Ken Jacobsen  
46th District

Senator Ed Murray  
43rd District

Representative Jamie Pedersen  
43rd District

## Eastside members

Senator Rodney Tom  
48th District  
Co-chair – SR 520  
Legislative Workgroup

Senator Eric Oemig  
45th District Representative

Representative Ross Hunter  
48th District

Representative Deborah Eddy  
48th District

Representative Larry Springer  
45th District

## Other members

Senator Mary Margaret Haugen  
10th District  
Chair – Senate Transportation Committee

Representative Judy Clibborn  
41st District  
Chair – House Transportation Committee

Senator Dan Swecker  
20th District  
Joint Transportation Committee

Representative Dan Roach  
31st District  
Joint Transportation Committee

Commissioner Richard Ford  
Transportation Commission,  
King County

Secretary Paula Hammond  
Washington State  
Secretary of Transportation



## Table of Contents

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I. Recommendations.....	1
A. Background .....	1
B. Summary of Engrossed Substitute House Bill 2211 Requirements .....	1
C. SR 520 Legislative Workgroup Recommendations .....	2
D. Minority Statement.....	3
E. Why Now? SR 520 Program Schedule and Construction.....	4
F. Next Steps .....	6
II. Process .....	11
A. What did the Workgroup Hear? .....	11
B. Previous Legislative Direction .....	19
III. Design Recommendations and Costs.....	21
A. Developing Options A+ and M .....	21
B. Independent Cost Expert Review Panel Executive Summary .....	28
IV. Financial Strategy .....	33
A. Current Financial Plan and Remaining Gap .....	33
B. Financing Options Considered .....	33
V. Public Outreach .....	39
A. Public Outreach Opportunities .....	39
B. Draft Recommendations Outreach.....	39
C. Summary of Public Outreach Comments.....	39
D. Jurisdictional and Agency Letters Received .....	42

### Appendix



## SR 520 Legislative Workgroup Recommendations Report

*This document was prepared in response to Engrossed Substitute House Bill (ESHB) 2211. Section 3 of this bill created the SR 520 Legislative Workgroup to develop recommendations related to design options and financing strategy for the SR 520 corridor. Their report was due to the Governor and Legislature by January 1, 2010.*

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Governor's Executive Policy Office

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Parsons Brinckerhoff

With Staff Support from: Julie Meredith, SR 520 Program Director and  
SR 520 Bridge Replacement and HOV Program staff

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# I. Recommendations

## A. Background

Passed in April 2009, Engrossed Substitute House Bill (ESHB) 2211 created the SR 520 Legislative Workgroup. The Workgroup consisted of all the legislators from the 43rd and 48th districts; two legislators from each of the 46th and 45th districts; the chairs of the legislative transportation committee; two legislators outside the SR 520 corridor on the joint transportation committee representing a legislative district outside the SR 520 corridor; the Secretary of the Washington State Department of Transportation; and the member of the transportation commission representing King County.

In July 2009, the SR 520 Legislative Workgroup (Workgroup) was formed with the following membership:

Westside Members	Eastside Members	Other Members
Representative Scott White 46 <sup>th</sup> District <i>Workgroup Co-Chair</i> Westside Subgroup Chair	Senator Rodney Tom, 48 <sup>th</sup> District <i>Workgroup Co-Chair</i>	Senator Mary Margaret Haugen, Chair, Senate Transportation Committee
Senator Ed Murray 43 <sup>rd</sup> District	Senator Eric Oemig 45 <sup>th</sup> District	Representative Judy Clibborn, Chair, House Transportation Committee
Senator Ken Jacobsen 46 <sup>th</sup> District	Representative Ross Hunter 48 <sup>th</sup> District	*Senator Dan Swecker Joint Transportation Committee
Representative Frank Chopp Speaker of the House 43 <sup>rd</sup> District	Representative Deborah Eddy 48 <sup>th</sup> District	Representative Dan Roach Joint Transportation Committee
Representative Jamie Pedersen, 43 <sup>rd</sup> District	*Representative Larry Springer 45 <sup>th</sup> District	Commissioner Richard Ford State Transportation Commission
		Secretary Paula Hammond Washington State Secretary of Transportation

\*Also served on the Westside Subgroup.

## B. Summary of Engrossed Substitute House Bill 2211 Requirements

ESHB 2211 directed the Workgroup to meet the following objectives:

- ∑ Review and recommend a financing strategy, in conjunction with the Washington State Department of Transportation, to fund projects in the SR 520 corridor that reflects the design options recommended by the Workgroup. Base the financing strategy on a total cost of all the intended projects in the SR 520 corridor, not to exceed \$4.65 billion,
- ∑ Recommend design options that provide for a full SR 520 corridor project that meets the needs of the region's transportation system while providing appropriate mitigation for the neighborhood and communities in the area directly impacted by the project;
- ∑ Form a Westside subgroup to conduct a detailed review and make recommendations on design options on the west side of the corridor, which extends from the west end of the floating bridge to I-5. The subgroup shall consult with neighborhood and community groups impacted by the potential design options;



- Σ Consider forming an eastside subgroup to review current design options on the east side of the corridor, which extends from the east side of the floating bridge to SR 202;
- Σ Consult with the governor and legislators representing the primary users of SR 520; and
- Σ Present a final report with recommendations on financing and design options to the legislature and the governor by January 1, 2010. The recommendations will include the Supplemental Draft Environmental Impact Statement (SDEIS) process for the SR 520 corridor.

C. SR 520 Legislative Workgroup Recommendations

Draft Westside Design Recommendation

Sponsor: Senator Ken Jacobsen, State Senator, 46 <sup>th</sup> District Seconded: Representative Deborah Eddy, State Representative, 48 <sup>th</sup> District
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A motion of the SR 520 Legislative Workgroup recommending a Westside Design solution to inform the selection of a preferred alternative in the Supplemental Draft Environmental Impact Statement for SR 520 Bridge Replacement and HOV Program.

*Background*

The SR 520 Legislative Workgroup was established in 2009 under ESHB 2211. The legislation directs the Workgroup to recommend design options that provide for a full SR 520 corridor project that meets the needs of the region's transportation system while providing appropriate mitigation for the neighborhood and communities in the area directly impacted by the project.

Further, it recommended that a west side subgroup be formed to conduct a detailed review and make recommendations on design options on the west side of the corridor, which extends from the west end of the floating bridge to I-5. It directed the subgroup to consult with neighborhood and community groups impacted by the potential design options.

*Motion*

The Legislative Workgroup recommends adoption of the A+ Option (see Section III, Design Recommendations), developed during the consultation with the communities during the Westside Subgroup process as the preferred alternative for the Westside design. This option is preferred for the following reasons:

- Σ It meets the purpose and need of the project and complies with statutory requirements to implement a six lane (four general purpose and two HOV lanes) bridge replacement project, and
- Σ It meets the transportation needs of the corridor with the least impact to the surrounding environment, and
- Σ It can be constructed within the \$4.65 billion financial threshold, and
- Σ The impacts are covered within the current Supplemental Draft Environmental Impact Statement, and
- Σ It meets the needs of transit providers within the SR 520 corridor and on local surface streets, and



Σ It has broad based support from local communities including the University District Community Council, Ravenna Bryant, and Friends of Seattle's Olmsted Park and regional organizations including the University of Washington, Seattle Chamber, King County Metro, and the Eastside Transportation Partnership.

Motion Passed: 11-2  
Opposed: Representative Frank Chopp; Representative Jamie Pedersen  
Absent: Senator Ed Murray; Representative Dan Roach  
Non Voting member: WSDOT Secretary Paula Hammond

Draft Financing Strategy

Sponsor: Representative Ross Hunter, State Representative, 48th District  
Seconded: Representative Larry Springer, State Representative, 45th District

A motion of the SR 520 Legislative Workgroup recommending a financial strategy for funding the \$4.65 Billion SR 520 Bridge Replacement and HOV Program.

*Background*

The Legislature established the SR 520 Legislative Workgroup in 2009 under ESHB 2211. The workgroup must review and recommend a financing strategy, in conjunction with the department, to fund the projects in the SR 520 corridor that reflect the design options recommended by the workgroup. The financing strategy must be based on a total cost of all the intended projects in the SR 520 corridor of no more than \$4.65 billion.

*Motion*

The Legislative Workgroup recommends to the governor and legislature a financing strategy that includes:

- Σ Use of the base funding previously identified, including early tolling of SR520 per Scenario 7, and
- Σ The creation of, and early tolling of HOT lanes on I-90 as soon as is practicable, and
- Σ The remaining gap to be filled by new FEDERAL or STATE revenue, to be identified in the next year or two, and
- Σ IF THAT DOESN'T HAPPEN, THEN general tolling of I-90 to fill the gap starting no sooner than 2014.

The group also recommends the pursuit of cost savings by further refinement of cost estimates and design.

Motion Passed: 12-0  
Absent: Senator Ed Murray; Representative Frank Chopp; Representative Dan Roach  
Non Voting member: WSDOT Secretary Paula Hammond

D. Minority Statement

Sponsor: Speaker Frank Chopp, State Representative 43rd District  
Sponsor: Jaime Pedersen, State Representative, 43rd District

We do not support the recommendations on the design nor the financing strategy for SR 520. We feel it is necessary to issue this statement because the recommendations do not accomplish the goal of maximizing the region's transportation and transit systems in a manner that adequately addresses the



concerns of the communities most directly impacted by the project. Further, the deadlines set for the completion of the supplemental draft environmental impact statement and the 2014 bridge opening are artificial and do not encourage resolution of the issue. Absent a commitment to engage in genuine discussion for a more viable option, we recommend that the Washington State Department of Transportation (WSDOT) address the immediate safety concerns on the existing bridge and work with the affected neighborhood communities and the City of Seattle to find a long term solution that better serves the region.

Since 2007 we have been negotiating in good faith to make significant investments for a bridge project that—in addition to addressing safety concerns and increasing capacity—would create effective connections for bus rapid transit to the light rail station at the University of Washington. The design option recommended by the Workgroup does not accomplish this goal. Option A+ depends on a second bascule drawbridge crossing the Montlake Cut to provide transit connection to Montlake Boulevard from the SR 520 corridor. Dependence on a drawbridge that is subject to unpredictable openings for up to 18 hours a day interrupts the flow of traffic and can hardly be considered an "effective connection" as required by RCW 47.01.408. To be effective, a transit solution must minimize delays and maximize connectivity. Option A+ does neither. Rather it compounds the problem by causing additional damage to the neighborhoods of our district.

In addition to our concerns about transit, we will point out that none of the options reviewed by the Workgroup can be completely funded under the Workgroup's recommended financing strategy. This strategy is based on the hope that state and federal funds will materialize and also assumes that the Legislature will vote to authorize high tolls on both SR 520 and Interstate 90. Even with high tolling, financing for option A+ falls short, when the total cost of the project (construction and interest cost on bonds) are taken into account. A complete and realistic financing plan will take time. Therefore, there is no need to rush and move forward on a flawed design option based on artificial deadlines set by WSDOT.

Finally, we are disappointed that the Workgroup missed the opportunity to reach a solution for SR 520 that is right for the region and respectful of those directly impacted by the project. The residents of the communities we represent see the traffic jams every day. They are the ones who will live with years of construction. Option A+ will not alleviate these concerns; rather it will bring adverse traffic, noise, and environmental issues to the area. We can and should do better.

On behalf of the communities in our district we state our strong opposition to Option A+ and recommend that the immediate focus be placed on addressing the safety concerns via retrofit or rebuild of the existing four-lane bridge from Madison Park to I-5. This can be done for less cost and similar timing as the group's recommended option. We will continue to work with the State, the City of Seattle and the Governor to move forward on a final design that best ensures safety, neighborhood protections, and transit integration.

We will provide additional information and materials to support our position.

## E. Why Now? SR 520 Program Schedule and Construction

### Background

Since WSDOT published the Draft EIS for the SR 520 Bridge Replacement and HOV Project in August 2006, a number of circumstances have changed. One key change is the 2007 legislation that established the Westside mediation process (ESSB 6099) and the mediation group's development of three new 6-lane design options for the Seattle portion of SR 520.



WSDOT decided to prepare an SDEIS to allow the mediation designs, which are substantially different from those studied in the Draft EIS, to be evaluated fully before a decision is made on a preferred alternative. The project limits of the SDEIS are set at I-5 on the west and Evergreen Point Road on the east. The Evergreen Point Floating Bridge is included within these project limits.

In addition to the designs that resulted from mediation, the SDEIS contains additional detail and analysis—including information on construction impacts, mitigation measures, and transit operations—that was requested in public and agency comments on the Draft EIS. Including this information in the SDEIS allows agencies, tribes, and the public to review and comment on it prior to a final decision.

### Legislative Workgroup

The Workgroup was established to develop recommendations to the legislature and governor on the Westside design options and to develop a program financing strategy. The design option recommendations will be considered as input into the SDEIS process.

The Workgroup has received extensive input from mediation participants, permitting agencies, transit agencies, local jurisdictions and other local stakeholders about ideas for modifying the mediation design options. These ideas were intended to reduce costs and/or to better achieve local interests, goals and other project objectives. WSDOT has assisted with layout of the new concepts, but has done only minimal engineering design on them. These revisions are more fully described in Chapter III, Design Recommendations. These revisions generally included:

- ∑ Modifying Option A to increase mobility by adding an eastbound HOV direct-access on-ramp from Montlake Boulevard, adding a Lake Washington Boulevard eastbound on-ramp and westbound off-ramp, and using the Option L roadway profile for improved stormwater management.
- ∑ Revising Option K to develop a new Option M, which would keep a modified single-point urban interchange (SPUI), add ramps, and replace the sequential excavation method tunnel with an immersed tube tunnel that would be built by excavating across the Montlake Cut rather than tunneling below it.

Another key change that has taken place since publication of the Draft EIS is the development of a new project that would build pontoons to be ready to more quickly replace the Evergreen Point Bridge should catastrophic failure occur. The SR 520 Pontoon Construction Project would construct new pontoons that would be used to restore the existing traffic capacity of the Evergreen Point Bridge in the event of a catastrophic failure. WSDOT is preparing an EIS to evaluate the effects of building these pontoons and storing them until they are needed. These pontoons cannot be transported and assembled on the lake until either 1) a catastrophic failure occurs or 2) a decision is reached as part of the I-5 to Medina: Bridge Replacement and HOV Project. Having pontoons ready for such a catastrophic failure would allow the bridge to be restored several years faster than if the pontoons were constructed in response to a disaster. This would, in turn, reduce adverse effects on traffic and the regional economy. Two possible pontoon construction sites in Grays Harbor are being analyzed in the EIS.

Maintaining the schedule of the SDEIS is critical to maintaining the schedule to replace the floating bridge portion of the corridor. In January 2008, Governor Gregoire directed WSDOT staff to develop an accelerated plan and schedule to replace the vulnerable SR 520 structures. That resulted in a letter to the legislature from the governor in March 2008 indicating the need to move forward more quickly and outlining how that would be achieved by opening the new bridge to drivers in 2014. That letter supported legislative action that occurred in 2008 to move the project forward. Move forward with



construction of the bridge replacement is tied to the completion of the SDEIS process on the I-5 to Medina segment of the corridor. As a result, in order to meet the 2014 schedule a preferred alternative must be selected by spring 2010 to complete the environmental process and begin construction by 2012.

The graphic on page 11 outlines the schedule for the various projects that make up the SR 520 Bridge Replacement and HOV Program. The critical path for work continuing across Lake Washington is the I-5 to Medina: Bridge Replacement and HOV Project.

## F. Next Steps

The National Environmental Policy Act (NEPA) allows lead agencies to identify a preferred alternative at the Draft EIS stage or to wait until the Final EIS is published. WSDOT has designated the 6-Lane Alternative as the agency's preferred alternative. However, a preferred design option for the Westside interchange has not yet been identified. The preferred option will not be identified until the Final EIS, after agencies and the public have had an opportunity to comment on the choices and the legislative work group has released its findings.

After publication of the SDEIS, a Final EIS and Record of Decision (ROD) will be prepared to:

- Σ Respond to comments received on both the Draft EIS and SDEIS
- Σ Identify a preferred alternative
- Σ Provide additional detail on mitigation measures and commitments that would be incorporated into project construction and operation

### Preferred Alternative

Based on the current schedule, the co-lead agencies expect to identify a preferred design option for the SR 520 project in early 2010.

The preferred design option may be one of those evaluated in the SDEIS, or it may be a minor variation on, or combination of, the existing options. Should any new design variations with significantly greater environmental effects be proposed, they would likely need to be evaluated in another supplemental environmental document. This would change and extend the project schedule.

When the Workgroup's deliberations began, WSDOT was already well underway in its NEPA evaluation of Options A, K, and L. Since designs for the modified options have not been fully developed, it is difficult to say exactly how their environmental effects would compare with those of the original design options. If a new or "hybrid" design option were chosen as an outcome of the Workgroup process, WSDOT would reevaluate the SDEIS environmental analysis after publication to determine whether its impacts are within the range already identified. If the changes are within the range of the impacts already disclosed they would simply be described in the Final EIS. However, if the changes resulted in new, substantive impacts that had not been previously evaluated, additional supplemental analysis would be required.

Preliminary analysis of Option M suggests more time would be necessary to address the environmental impacts of this option. The Independent Cost Expert Review Panel's report states that, "Nonetheless, because the Montlake Cut is an environmentally sensitive area, we believe the permitting of Option M's wetlands impacts will be very risky and very costly to mitigate. We also note that Option M's construction impacts do not seem to have been studied in any of the existing SEPA or NEPA documents, so adopting Option M would require an immediate six-month delay to revise the



environmental documents. And we believe there would be a high likelihood of a much longer delay (12 to 24 months) in order to negotiate the permitting issue with the US Army Corps of Engineers.”

#### Final EIS and ROD

When the Final EIS has been issued, FHWA will prepare a Record of Decision, which documents the course of action it has decided upon as the federal lead agency. It will identify the selected alternative, explain the alternatives considered, and specify an “environmentally preferable alternative.” It will also explain how the lead agencies plan to implement mitigation measures and conservation actions in compliance with NEPA and other laws.

The ROD is the conclusion of the NEPA process and signals the beginning of project implementation. WSDOT will further develop the engineering design for the project, including additional detail on project phasing, construction staging, and construction techniques. Having a preferred design option will allow WSDOT to develop more specific designs for mitigation measures, which will be documented in project permit applications. These designs will be prepared by WSDOT and FHWA, in cooperation with the affected jurisdictions and resource agencies.

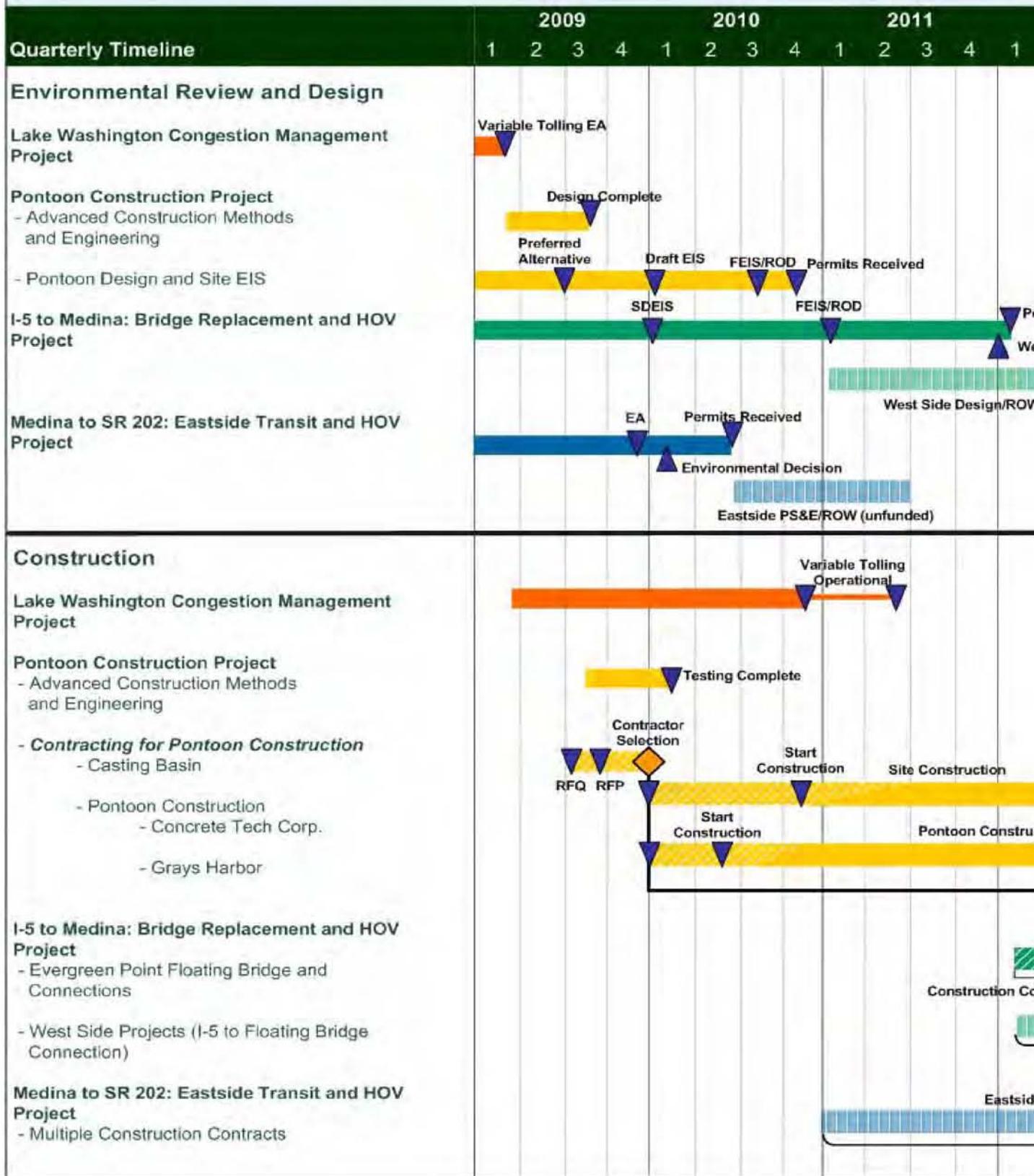
#### Financing

With the completion of the environmental documents the project will be ready to move ahead. Some funding is currently available to begin that work. However, in order to continue progress towards construction on the current timeline, additional funding will be necessary. As the schedule on page 9 notes, the ROD is expected in early 2011 on the I-5 to Medina segment. Full funding of this section is needed at that time to move forward with the floating bridge replacement and final design and phased construction of the 6 lane corridor.





## SR 520 Bridge Replacement and HOV Program Schedule





## II. Process

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The Workgroup held nine meetings – six meetings with the full Workgroup, including two working sessions; and three meetings with the Westside Subgroup. In addition, two public meetings were held. A community forum was held in Bellevue, sponsored by Representative Eddy, at the mid-point in the process, and a Town Hall public meeting held in the University District to solicit public comments on the draft recommendations. The Workgroup held their initial meeting in July 2009 to elect co-chairs for the Workgroup, review a work plan, and set operating rules.

A copy of the approved Rules and Operating Procedures is included in the Appendix. The graphic on page 17 summarizes Workgroup's work plan and the public outreach that was conducted as part of the process.

### A. What did the Workgroup Hear?

The co-chairs recognized that there were multiple stakeholder perspectives and interests held by interest groups and the neighborhoods related to improving the SR 520 corridor. They believed it was critical to have a balanced and open process to allow all comments and opinions to be heard and that it was time to make the decisions necessary to move the project forward. "Doing nothing is not an option," and a commitment to meeting the goals of the legislation was paramount.

As a result, the work plan was designed to bring forward the different perspectives and interests throughout the corridor. Below is a summary of the groups that provided input to the Workgroup.

#### Neighborhoods

The Workgroup engaged the community and neighborhood advocates involved in the development of solutions for the Westside design. This included neighborhoods immediately adjacent to the SR 520 corridor as well as communities to the north and south that rely on access to and from SR 520. The advocates were afforded opportunities to present their priorities and goals to the Westside Subgroup and the full Workgroup. All the advocates emphasized the importance of meeting the local and regional transportation needs of the area by providing transit accessibility and reliability. Each Westside design option contained different elements to meet the various constituent and community concerns, but all recognized the need for increased mobility in the corridor and surrounding areas. These conversations led the Workgroup to direct WSDOT staff to work with the proponent groups to refine their options to address the goals of the Workgroup in identifying a design that fit within the \$4.65 billion cap.

WSDOT met with the Option K proponents five times and these discussions resulted in Option M and met with the A and L proponents twice to refine Option A and L to the Option A+. These options are more fully described in Chapter III, Design Recommendations.

#### Resource and Permitting Agencies

On September 22, 2009, the full Workgroup heard from nine agencies with jurisdiction in the SR 520 corridor. These included:

- Σ Federal Highway Administration
- Σ US Environmental Protection Agency
- Σ US Army Corps of Engineers
- Σ National Marine Fisheries Service
- Σ US Fish and Wildlife Service



- Σ Washington Department of Ecology
- Σ Washington State Recreation and Conservation Office
- Σ Washington Department of Fish and Wildlife
- Σ Washington Department of Archaeology and Historic Preservation

Each agency director or manager provided an overview of their agency's responsibility for the resources the project would affect. The area surrounding the SR 520 corridor is rich in natural resources, many of which are protected through federal and state law. The laws and policies of all the resource agencies require a project design to first avoid, then to minimize, and lastly to mitigate impacts on environmental resources. Of particular note are the numbers of regulations over the aquatic environment involving fish, fish habitat, and wetlands. The agencies with built environment responsibilities described their historic, cultural, and park regulations.

Many of the agencies stated that, based on their current understanding of the design options, Option A appeared to have the least impact on the resources within their jurisdiction. The US Corps of Engineers highlighted that the in-water filling of aquatic resources associated with Option K would render that option highly unlikely to be permitted, given that other available options would avoid impacts.

Representatives from the federal agencies (US EPA, US Corps of Engineers, and the Services) explained the connection between their permit processes and Tribal Government input. Tribal interests in the project area include treaty rights to harvest fish in usual and accustomed fishing areas; in addition, portions of the project have cultural significance, particularly Foster Island.

#### Transit

Many references are built into the legislation regarding transit accommodation throughout the corridor. There is an interest to build an effective connection with the new Sound Transit light rail station at the University of Washington and in the future to not preclude the addition of high capacity transit or light rail in the corridor. These elements have been covered in the following legislation and documentation.

#### *RCW 47.01.408*

"(1) The state route number 520 bridge replacement and HOV project shall be designed to provide six total lanes, with two lanes that are for transit and high-occupancy vehicle travel, and four general purpose lanes. (2) The state route number 520 bridge replacement and HOV project shall be designed to accommodate effective connections for transit, including high capacity transit, to the light rail station at the University of Washington."

#### *RCW 47.01.405*

". . . The state must take the necessary steps to move forward with a state route number 520 bridge replacement project design that provides six total lanes, with four general purpose lanes and two lanes that are for high occupancy vehicle travel that could also accommodate high capacity transportation, and the bridge shall also be designed to accommodate light rail in the future. High occupancy vehicle lanes in the state route 520 corridor must also be able to support a bus rapid transit system."

#### *RCW 47.01.410*

"As part of the state route number 520 bridge replacement and HOV project, the governor's office shall work with the department, sound transit, King county metro, and the University of Washington, to plan for high capacity transportation in the state route number 520 corridor. The



parties shall jointly develop a multimodal transportation plan that ensures the effective and efficient coordination of bus services and light rail services throughout the state route number 520 corridor. The plan shall include alternatives for a multimodal transit station that serves the state route number 520-Montlake interchange vicinity, and mitigation of impacts on affected parties. The high capacity transportation planning work must be closely coordinated with the state route number 520 bridge replacement and HOV project's environmental planning process, and must be completed within the current funding for the project. A draft plan must be submitted to the governor and the joint transportation committee by October 1, 2007. A final plan must be submitted to the governor and the joint transportation committee by December 2008."

In a letter from Secretary Paula Hammond to Governor Chris Gregoire in February 2008, WSDOT confirmed that the design of lids and tunnels east of Montlake Boulevard will accommodate efficient and effective bus rapid transit in the SR 520 corridor and will not preclude opportunities for transit in the future.

Sound Transit and King County Metro Transit presented several times to voice their needs and concerns. It was noted that approximately 60% of the transit riders in the area use local service provided by King County on surface streets. This means that congestion on Montlake Boulevard is a concern for providing effective transit service. In addition, funding for on-going operations will also be needed to address the added service required from the removal of the Montlake Flyer stop.

#### Other Stakeholders

The Workgroup also heard from other stakeholders in the area including:

- Σ Mayor of Bellevue, Grant Degginger
- Σ Seattle City Council President, Richard Conlin
- Σ US Coast Guard – regarding bridge opening restrictions
- Σ University of Washington School of Forest Resources and Seattle Parks Department – regarding management of the Arboretum collection
- Σ University of Washington

#### Finance

The Workgroup identified and researched various funding options for the program. They also reviewed the current state revenues and tolling funding already authorized and how it was being used, including looking at the timing of when funding would be necessary to continue moving the project forward. Starting on October 20, 2009, the Workgroup heard about:

- Σ Federal reauthorization including TIGER Grant requests
- Σ State Legislature's Joint Transportation Committee funding study
- Σ Tolling options
- Σ Local and regional funding options including Transportation Benefit District and Regional Transportation Improvement District options

#### Independent Cost Expert Review Panel

The Workgroup heard from an independent cost expert review panel (Cost ERP) led by Don Forbes, former Secretary of the Oregon State Department of Transportation, and made up of geotechnical, environmental mitigation, cost estimating, tunnel construction and mega project management



experts. The Workgroup directed the panel to review the methodology used to produce the cost estimates released by WSDOT in November 2008.

A summary of the review is included in Chapter 3, Design Recommendations. The panel stated that the WSDOT cost estimation process is “well managed, with a good rationale” for the development of costs. They identified areas for further investigation to reduce costs in all alternatives and noted there were areas where costs may need to be increased.

In the Phase I review there were several risks identified with Options K and L. As a result the proponent groups identified suggested changes that led to the creation of Options A+ and M. The Workgroup requested that the panel review the preliminary cost estimate for these options as well. A summary of the Cost ERP findings is contained in Chapter III, Design Recommendations.

#### WSDOT Support

WSDOT staff supported the Workgroup throughout the process in the following ways:

- ∑ Met with and provided technical assistance to the proponent groups.
- ∑ Provided data for and supported the independent cost expert review panel.
- ∑ Presented the Workgroup with information and answered questions regarding the program schedule, environmental and operations analysis, and design elements of the Options A, K, L, A+ and M, tolling and funding.
- ∑ Participated in the mid-process Eastside Town Hall meeting, Seattle City Council Committee of the Whole briefing and Workgroup Town Hall meeting.
- ∑ Responded to questions and data requests submitted to the Workgroup e-mail.

The technical information related to the design and the impacts for each option is summarized in the Comparison of SR 520 Westside Options tables on pages 18–21. These were provided to the Workgroup in order to compare information between options more easily.



## COMPARISON OF SR 520 WESTSIDE OPTIONS: Cost and Design

	OPTION A	OPTION K	OPTION O
<b>Total Program cost</b>	<b>\$4.526B - \$4.802B</b>	<b>\$6.574B - \$6.672B</b>	<b>\$5.000B - \$5.000B</b>
<b>West side</b>	<b>\$2.022B - \$2.298B</b>	<b>\$4.070B - \$4.168B</b>	<b>\$2.500B - \$2.500B</b>
I-5	\$322M	\$322M	
Portage Bay Bridge	\$482M	\$414M	
Montlake	\$442M	\$2.346B	
West approach	\$776M	\$988M	
<b>DESIGN</b>			
<b>Common to all Options</b>	<ul style="list-style-type: none"> <li>Lids at I-5 and 10th Avenue and Delmar Drive.</li> <li>A direct access HOV ramp to and from I-5.</li> <li>The SR 520 and I-5 interchange ramps would be reconstructed with generally the same ramp configuration.</li> <li>Removal of the Montlake Freeway Transit Station and relocated function.</li> <li>Six-lane corridor with a 4+2 configuration (one HOV and two general-purpose lanes in each direction).</li> <li>Lid in the Montlake area.</li> </ul>		
<b>Portage Bay Bridge</b>	<ul style="list-style-type: none"> <li>Replace with a seven-lane bridge (110 feet wide).</li> </ul>	<ul style="list-style-type: none"> <li>Replace with a six-lane bridge (100 feet wide).</li> </ul>	<ul style="list-style-type: none"> <li>Replace with a six-lane bridge (100 feet wide).</li> </ul>
<b>Montlake Interchange</b>	<ul style="list-style-type: none"> <li>The interchange would remain in the same location as today.</li> <li>A new bascule bridge would be constructed over the Montlake Cut.</li> <li>Westbound transit off-ramp to Montlake Boulevard.</li> </ul>	<ul style="list-style-type: none"> <li>A new depressed interchange would be constructed to the east of Montlake Boulevard.</li> <li>Ramps would be constructed to the north through a sequential excavation method tunnel under the Montlake Cut and to the south near the Arboretum.</li> <li>Direct HOV access ramps to and from the east on SR 520.</li> </ul>	<ul style="list-style-type: none"> <li>A new elevated interchange would be constructed to the east of Montlake Boulevard.</li> <li>Ramps would be constructed to the north and south of the bridge over the Montlake Cut.</li> <li>Direct HOV access ramps to and from the east on SR 520.</li> </ul>
<b>West Approach</b>	<ul style="list-style-type: none"> <li>The bridge structure would be wider and higher over Foster Island than today.</li> <li>Between Foster Island and the floating bridge, the roadway is low and flat resulting in less than desirable stormwater treatment.</li> </ul>	<ul style="list-style-type: none"> <li>The bridge structure would be wider and the highway would be under a lid at Foster Island.</li> <li>The tunnel approach ramps would require fill into Union Bay (boat section).</li> </ul>	<ul style="list-style-type: none"> <li>The bridge structure would be wider and higher over Foster Island than today.</li> <li>The slope of the approach ramps would have a gradual slope to allow for access to land.</li> </ul>

**NOT**



## COMPARISON OF SR 520 WESTSIDE OPTIONS: Traffic Operat

	OPTION A	OPTION K	TRAFFIC O
<b>Common to all options</b>	<ul style="list-style-type: none"> <li>• Six-lane alternative provides a travel time benefit for transit and HOV.</li> <li>• Added shoulder width improves corridor safety and reliability.</li> <li>• Removal of the Montlake Freeway Transit Station and relocated function.</li> </ul>		
<b>Local</b>	<ul style="list-style-type: none"> <li>• Improves overall local traffic operations compared to No Build.</li> <li>• Lowest volumes in the Arboretum.</li> <li>• Highest diversion to other neighborhoods.</li> </ul>	<ul style="list-style-type: none"> <li>• Improves overall local traffic operations compared to No Build.</li> <li>• Traffic volumes increase through the Arboretum compared to No Build.</li> <li>• Provides full access to SR 520 from the north and south of Montlake Cut.</li> </ul>	<ul style="list-style-type: none"> <li>• Improv operat</li> </ul>
<b>Transit</b>	<ul style="list-style-type: none"> <li>• Drawbridge openings affect SR 520 buses and the local transit service during off-peak hours.</li> <li>• Improved local transit times over No Build.</li> </ul>	<ul style="list-style-type: none"> <li>• SR 520 buses bypass the drawbridge openings during the off-peak hours.</li> <li>• Local bus service adversely affected by increased local congestion.</li> </ul>	<ul style="list-style-type: none"> <li>• SR 520 thus sl during</li> <li>• Local by incr</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>• Requires capacity improvements on Montlake Boulevard to the south.</li> <li>• Lowest number of construction truck trips.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires capacity improvements on Montlake Boulevard to the south.</li> <li>• Highest number of truck trips compared to all options.</li> <li>• Closes NE Pacific Street during construction.</li> <li>• Redirects traffic to Pacific Place.</li> <li>• High level of construction delay.</li> <li>• Removes bus layover space during construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Requir Montla</li> <li>• Highes compa</li> <li>• Closes during</li> <li>• Redire</li> <li>• High le</li> <li>• Remov constr</li> </ul>

NO			



## COMPARISON OF SR 520 WESTSIDE OPTIONS: Environmental

	OPTION A	OPTION K	ENVIRON
Impacts covered in SDEIS?	Yes	Yes	
Construction Impacts	<ul style="list-style-type: none"> <li>In-water construction and work bridges would affect aquatic resources and wetlands.</li> <li>Access disruptions to parks and trails.</li> <li>Noise impacts on neighborhoods adjacent to the alignment (including pile driving).</li> <li>Increased traffic congestion from haul and detour routes.</li> </ul>	<ul style="list-style-type: none"> <li>In-water construction and work bridges would affect aquatic resources and wetlands.</li> <li>Access disruptions to parks and trails.</li> <li>Noise impacts on neighborhoods adjacent to the alignment (including pile driving).</li> <li>Increased traffic congestion from haul and detour routes.</li> <li>Additional disruption and noise in East Montlake/McCurdy Parks and along west shore of Union Bay due to construction of boat section and depressed interchange.</li> </ul>	<ul style="list-style-type: none"> <li>In</li> <li>w</li> <li>w</li> <li>A</li> <li>N</li> <li>a</li> <li>d</li> <li>In</li> <li>a</li> <li>W</li> <li>d</li> </ul>
Permanent Impacts	<ul style="list-style-type: none"> <li>Would displace three residences and the Museum of History and Industry in Seattle.</li> <li>Would displace part of National Oceanic and Atmospheric Administration facilities.</li> <li>Fill 0.1 acres of wetlands.</li> <li>Shade 3.2 acres of wetlands.</li> <li>Fill 0.5 acres of open water.</li> <li>5.6 acres of park land converted to right-of-way.</li> </ul>	<ul style="list-style-type: none"> <li>Would displace one residence and the Museum of History and Industry.</li> <li>Fill 1.8 acres of wetlands.</li> <li>Shade 2.8 acres of wetlands.</li> <li>Fill 2.7 acres of open water.</li> <li>7.6 acres of park land converted to right-of-way.</li> </ul>	<ul style="list-style-type: none"> <li>W</li> <li>M</li> <li>S</li> <li>Fi</li> <li>S</li> <li>Fi</li> <li>7</li> <li>ri</li> <li>E</li> <li>st</li> </ul>

NOT			





# SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project

## COMPARISON OF SR 520 WESTSIDE OPTIONS: Data S

	No Build	Option A	
		base <sup>1</sup>	subopti
<b>Cost</b>			
Year of Expenditure (billions)		2.022	2.298
<b>Traffic Operations (Year 2030)</b>			
Local Traffic (AM/PM Peak, bi-directional)			
Crossing the Montlake Cut (vehicles per hour)	4500/6200	4300/6000	4300/6200
In the Arboretum (vehicles per hour)	1800/1800	900/1200	1900/1800
Average local travel time (minutes)	25	10	8
Freeway Traffic (AM/PM Peak, bi-directional)			
Floating Bridge (vehicles per hour)	8700/8700	8700/8700	9100/8900
Portage Bay Bridge (vehicles per hour)	7500/7600	8000/7900	7600/7400
Transit (minutes)			
Local peak travel times (Madison-Mntk Tri/Mntk Tri-McGraw)	45/9	18/5	10/5
Peak travel time to/from SR 520/Montlake Triangle	5/10	5/6	4/4
Non-vehicular			Region
<b>Environmental Resources-Construction Effects<sup>2</sup></b>			
Park Effect (Acres)		5.10	5.4
Section 6(f) Resource Effect (Acres)		2.99	2.99
Wetland Fill Effect (Acres) <sup>5</sup>		0.6	0.5
Wetland Shade Effect (Acres)		6.4	6.93
Wetland Buffer Fill Effect (Acres) <sup>6</sup>		2.80	3.00
Wetland Buffer Shade Effect (Acres)		0.20	0.30
Open Water Fill Effect (Acres) <sup>7</sup>		0.20	0.20
Open Water Shade Effect (Acres) <sup>7</sup>		13.40	13.40
<b>Environmental Resources-Permanent Effects<sup>3</sup></b>			
Park Effect (Acres)		5.6	5.6
Section 6(f) Resource Effect (Acres)		3.04	3.04
Section 6(f) Resource- Subterranean Easement (Acres) <sup>8</sup>		0.02	0.02
Wetland Fill Effect (Acres)		0.1	0.6
Wetland Shade Effect (Acres)		3.2	3.4
Wetland Buffer Fill Effect (Acres)		0.7	2.98
Wetland Buffer Shade Effect (Acres)		4.3	3.7
Open Water Fill Effect (Acres) <sup>9</sup>		0.5	0.6
Open Water Shade Effect (Acres) <sup>9</sup>		14.5	16.1
Full Property Acquisitions (number of parcels) <sup>10</sup>		7	7
<b>Design</b>			
Number of lanes on Portage Bay Bridge		7	7
Number of lanes at Marsh Island		9	10
Method to cross the Montlake Cut		Bascule Bridge	Bascule Br



## B. Previous Legislative Direction

The Washington State Legislature has passed several pieces of legislation pertaining to the SR 520 Bridge Replacement and HOV Program. The Appendix contains a summary of all legislation related to the SR 520 Bridge Replacement and HOV Program. The Workgroup discussed the specific references to the six lane configuration, transit connections, and tolling. Below is a summary of the references that were discussed with the Workgroup.

### Requirements Regarding Six Lanes and Transit Connections

#### *ESHB 2211—Section 3(3)*

"All design options considered or recommended by the state route number 520 work group must adhere to RCW 47.01.408."

#### *RCW 47.01.408*

"(1) The state route number 520 bridge replacement and HOV project shall be designed to provide six total lanes, with two lanes that are for transit and high-occupancy vehicle travel, and four general purpose lanes. (2) The state route number 520 bridge replacement and HOV project shall be designed to accommodate effective connections for transit, including high capacity transit, to the light rail station at the University of Washington."

### Other Requirements Regarding Six Lanes

#### *RCW 47.01.405*

"The legislature finds that the replacement of the vulnerable state route number 520 corridor is a matter of urgency for the safety of Washington's traveling public and the needs of the transportation system in central Puget Sound. The state route number 520 floating bridge is susceptible to damage, closure, or even catastrophic failure from earthquakes, windstorms, and waves. Additionally, the bridge serves as a vital route for vehicles to cross Lake Washington, carrying over three times its design capacity in traffic, resulting in more than seven hours of congestion per day. Therefore, it is the conclusion of the legislature that time is of the essence, and that Washington state cannot wait for a disaster to make it fully appreciate the urgency of the need to replace this vulnerable structure. The state must take the necessary steps to move forward with a state route number 520 bridge replacement project design that provides six total lanes, with four general purpose lanes and two lanes that are for high occupancy vehicle travel that could also accommodate high capacity transportation, and the bridge shall also be designed to accommodate light rail in the future. High occupancy vehicle lanes in the state route 520 corridor must also be able to support a bus rapid transit system."

### Other Requirements Regarding Transit Connections

#### *RCW 47.01.410*

"As part of the state route number 520 bridge replacement and HOV project, the governor's office shall work with the department, sound transit, King county metro, and the University of Washington, to plan for high capacity transportation in the state route number 520 corridor. The parties shall jointly develop a multimodal transportation plan that ensures the effective and efficient coordination of bus services and light rail services throughout the state route number 520 corridor. The plan shall include alternatives for a multimodal transit station that serves the state route number 520–Montlake interchange vicinity, and mitigation of impacts on affected parties. The high capacity transportation planning work must be closely coordinated with the state route number 520 bridge replacement and HOV project's environmental planning process, and must be completed within the current funding for the project. A draft plan must be submitted to the governor and the joint transportation committee by October 1, 2007. A final plan must be submitted to the governor and the joint transportation committee by December 2008."



## Requirements for New Tolling Authority

### *RCW 47.56.820*

“(1) Unless otherwise delegated, only the legislature may authorize the imposition of tolls on eligible toll facilities. (2) All revenue from an eligible toll facility must be used only to construct, improve, preserve, maintain, manage, or operate the eligible toll facility on or in which the revenue is collected. Expenditures of toll revenues are subject to appropriation and must be made only: (a) To cover the operating costs of the eligible toll facility, including necessary maintenance, preservation, administration, and toll enforcement by public law enforcement within the boundaries of the facility; (b) To meet obligations for the repayment of debt and interest on the eligible toll facilities, and any other associated financing costs including, but not limited to, required reserves and insurance; (c) To meet any other obligations to provide funding contributions for any projects or operations on the eligible toll facilities; (d) To provide for the operations of conveyances of people or goods; or (e) For any other improvements to the eligible toll facilities.”

## Requirements for Use of Bonds

### *ESHB 2211 – Section 2 (3) (i)*

“(i) The issuance of general obligation bonds first payable from toll revenue and then excise taxes on motor vehicle and special fuels pledged for the payment of those bonds in the amount necessary to fund the replacement state route number 520 floating bridge and necessary landings , subject to subsection (4) of this section.”



### III. Design Recommendations and Costs

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#### A. Developing Options A+ and M

In 2008, under the direction of ESSB 6099, WSDOT supported a mediation process to determine interchange options for the Montlake area. Through this process, community representatives developed three west side interchange options known as Options A, K, and L. All of these options, each with sub-options, are currently under analysis in the I-5 to Medina Bridge Replacement and HOV project's SDEIS.

The Workgroup and WSDOT staff worked with the proponents of Options A, K, and L from July through November 2009 to develop the interchange option that best met the goals of the communities and the goals set forth by ESHB 2211. Proponents of Options A and L combined the various design elements to develop Option A+. The proponents of Option K refined design elements that resulted in the development of Option M. Below is a summary of how the Workgroup and WSDOT worked with the proponent groups to develop and refine these options.

#### Option A+

The Option A and L proponents developed Option A+ to meet the goals set forth by ESHB 2211. At the September 22, 2009 meeting, the Workgroup invited the environmental resource and permitting agencies to present feedback on the SDEIS Options A, K, and L. The proponents incorporated the agency feedback that stated a constant rise profile is more desirable and more likely to receive permits than the other profiles under consideration. The US Army Corps of Engineers noted that of the three options analyzed in the SDEIS, Option A would most likely be the least environmentally damaging practicable alternative.

The estimated cost of Option A, released in November 2008, ranged from \$4.526 billion to \$4.802 billion. To meet the \$4.65 billion cost cap set by the legislature in 2009, proponents reduced costs by refining the design of the Portage Bay Bridge, the Lake Washington Boulevard ramp configuration, and the west approach bridge and Foster Island connections to the Arboretum. The cost estimate was not derived using the full cost estimation validation process (CEVP).

Option A+ differs from Option A in the following ways:

- Σ The specific false arch bridge type is removed and shorter span lengths are proposed for the Portage Bay Bridge while maintaining aesthetic treatments to be defined in a design competition.
- Σ Addition of a pedestrian connection under SR 520 at Foster Island.
- Σ Inclusion of ramp connections to Lake Washington Boulevard to and from the Eastside only (this was a sub-option in Option A)
- Σ Includes enhanced transit connectivity by providing an eastbound HOV direct-access ramp from the Montlake Boulevard interchange and removes the flyover ramp in the Arboretum vicinity.
- Σ Provides for gravity flow stormwater treatment by using a constant slope profile to the west high rise from the Montlake shoreline, which is the same profile as the SDEIS Option L.

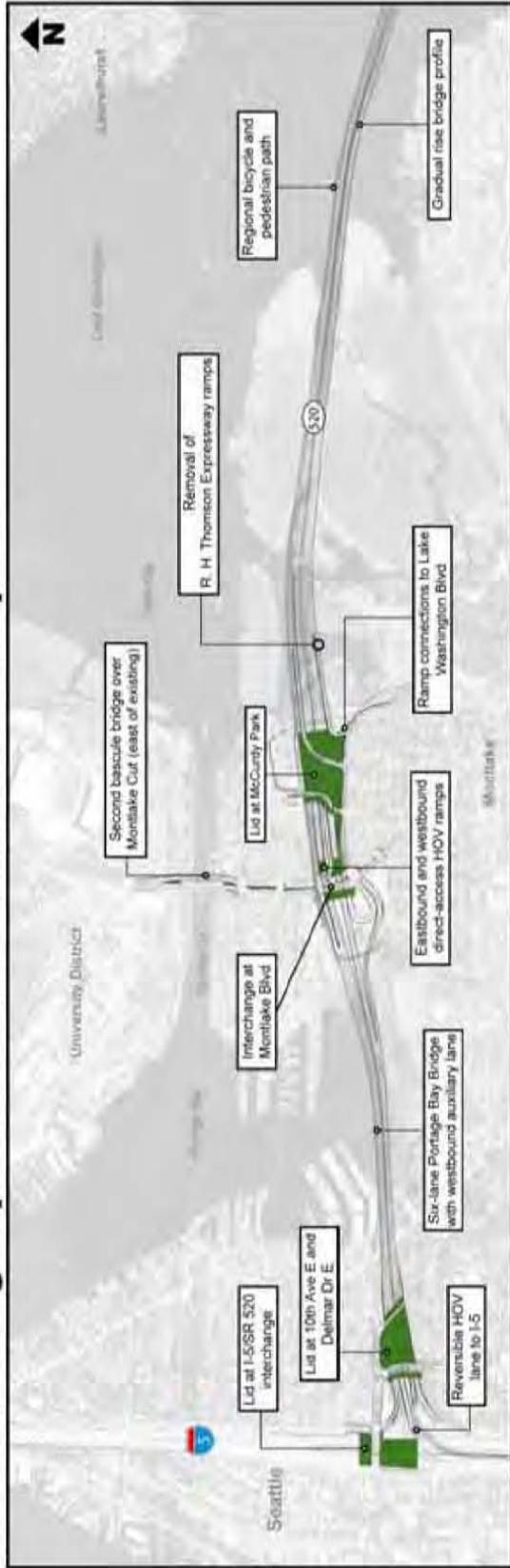


Summary of Meetings with Option A+ Coalition			
Date	Meeting	Location	Discussion
September 15, 2009	Westside Subgroup	Seattle	Proponents of Option A presented Option A to the Westside Subgroup highlighting it as a transit friendly, environmentally sensitive, and affordable option.
September 22, 2009	Workgroup	Seattle	Proponents of Option A presented Option A to the Workgroup highlighting it as a transit friendly, environmentally sensitive, and affordable option.
September 30, 2009	Technical Coordination with WSDOT staff #1	Seattle	Proponents of Option A and L met with WSDOT staff to discuss design and cost modifications to Option A.
October 8, 2009	Westside Subgroup	Seattle	Proponents of Option A and Option L jointly presented Option A+ to the Westside Subgroup.
November 5, 2009	Working Session	Seattle	WSDOT presented a preliminary cost analysis provided by the independent cost review panel. Chair of independent Cost ERP reviewed cost analysis of the A+ and M options.
November 10, 2009	Westside Subgroup	Seattle	Subgroup members provided preliminary observations of Option A+.
November 12, 2009	Technical Coordination with WSDOT staff #2	Seattle	Proponents of Option A+ met with WSDOT staff, King County Metro, and Sound Transit representatives to discuss transit operations and cost reductions. Outstanding design issues included the removal of the Lake Washington Boulevard ramps.
November 17, 2009	Workgroup	Seattle	The Workgroup recommended Option A+ as a draft recommendation for public comment.
December 8, 2009	Workgroup	Seattle	The Workgroup recommends Option A+ as a final recommendation to be submitted to Gov. Gregoire and Washington State Legislature.





## Westside design option draft recommendation: Option A+



### Total project cost, I-5 to floating bridge: \$2.027B to \$2.127B. Total program cost: \$4.531B to \$4.631B.

The upcoming SR 520, I-5 to Medina: Bridge Replacement and HOV Project Supplemental Draft Environmental Impact Statement (SDEIS) analyzes three westside design options, A, K and L, each with sub-options. The Option A+ recommendation is comprised of Option A with specific sub-options and is covered in the SDEIS.

Design features include:  
(from west to east)

- A six-lane corridor in a 4 + 2 configuration with two general-purpose lanes and one HOV lane in each direction.
- A reversible HOV and transit lane at the I-5 and SR 520 interchange.
- Lids over I-5 at E. Roanoke Street, over SR 520 between 10th Avenue E. and Delmar Drive E. and over SR 520 at McCurdy Park.
- A six-lane Portage Bay Bridge and westbound auxiliary lane connecting Montlake Boulevard E. with northbound I-5.

- An interchange at Montlake Boulevard E. similar to today's configuration that includes.
  - HOV and transit direct-access ramp at Montlake Boulevard E. to and from the Eastside.
- Removal of the existing Montlake Freeway Station.
- A new second bascule bridge over the Montlake Cut east of the existing bascule bridge.
  - Provides for three northbound and three southbound lanes on Montlake Boulevard between SR 520 and NE Pacific Street.
- Ramp connections to Lake Washington Boulevard to the northwest of the existing ramps that replace the function of today's Lake Washington Boulevard ramps.
- Removal of the R.H. Thomson expressway ramps near the Arboretum.
- A gradual rise bridge profile from the Montlake shoreline to the west highrise of the floating bridge.
- A navigation passage at the west highrise of 40 feet.
- Regional bicycle and pedestrian path.

Note: Above are preliminary cost estimates. This option has not been reviewed through a CEVP process.

November 19, 2009



## Option M

Option K supporters developed Option M to better meet the requirements of the resource and permitting agencies and to reduce costs. At the September 22, 2009 meeting, the US Army Corps of Engineers stated that permitting Option K was unlikely. This is due to the large amount of in-water fill required for the permanent interchange configuration when there is a reasonable and feasible alternative with significantly less in-water fill.

In addition to the permitting concerns, cost estimates released in November 2008 estimated the cost for Option K from \$6.574 billion to \$6.672 billion nearly \$2 billion over the \$4.65 billion cost cap set by the legislature. In an effort to reduce costs, proponents focused on the tunnel construction method, the width of the freeway interchange as it extended into the Arboretum, and the Foster Island land bridge/pedestrian connection.

Option M provides a savings of approximately \$700 million based on a conceptual layout of the option compared with Option K. This includes the new tunnel construction method (\$350 million in savings) and reconfiguration of the interchange ramps and Foster Island pedestrian connection (\$350 million in savings). This estimate does not capture the potential mitigation required for the alternate tunnel method. This estimate also was not derived using the full cost estimation validation process (CEVP).

Option M differs from Option K in the following ways:

### *Tunnel construction method*

- ∑ Option K included a sequential excavation tunnel as a method to excavate the ground without disturbing the Montlake Cut. Due to geotechnical investigation, the ground would need to be frozen for this method of tunneling.
- ∑ In Option M, the proponents proposed an immersed tube tunnel in order to save costs. The immersed tube tunnel would involve cut and cover dredging across the Montlake Cut in order to create a trench in which to place the tube.

### *Reconfigures interchange ramps*

- ∑ Option M removes the keyhole connection to the Arboretum and replaces it with ramp connections to Lake Washington Boulevard to allow access to and from the Eastside only, in a similar location to Option A+.
- ∑ Replaces the 24<sup>th</sup> Avenue East connection from Lake Washington Boulevard to the Museum of History and Industry area with a westbound off-ramp to Lake Washington Boulevard.
- ∑ The ramp connection to westbound SR 520 from the Arboretum is removed since this movement is not provided for today.
- ∑ To reduce cost and the overall environmental impacts, there are no direct-access HOV and transit ramps.
- ∑ Raises the SR 520 mainline profile to the same elevation as Lake Washington Boulevard at the new interchange in order to reduce wetland impacts.



Summary of Meetings with Option M Coalition			
Date	Meeting	Location	Discussion
September 15, 2009	Westside Subgroup	Seattle	Coalition for Option K presented a "Hybrid Plan" to the Westside Subgroup in order to reduce costs and environmental impacts, improve mobility to the south, and reduce impacts to the Arboretum.
September 22, 2009	Workgroup	Seattle	Coalition for Alternative K presented a "Hybrid Plan" to the Workgroup with specific cost saving measures identified.
September 25, 2009	Technical Coordination with WSDOT staff #1	Seattle	Coalition for Alternative K met with WSDOT staff to discuss ways to reduce costs, environmental impacts, construction impacts, improve north/south mobility, maintain transit/HOV access, and maintain six-lane Portage Bay Bridge.
October 1, 2009	Technical Coordination with WSDOT staff #2	Seattle	Coalition for Alternative K coordinated with WSDOT staff on plan to be presented at Oct. 8 Westside Subgroup meeting. The Hybrid Plan includes the removal of the boat section, modifications to the single point urban interchange, a ramp connection to Lake Washington Boulevard, no left turn from Lake Washington Boulevard ramps, an eastbound off-ramp to northbound Montlake movement will be routed into the tunnel and not on Montlake Boulevard, shifting a local access road, and a higher mainline profile at Foster Island.
October 8, 2009	Westside Subgroup	Seattle	Coalition for Alternative K presented an updated Hybrid Plan with associated design modifications and cost reductions to the Westside Subgroup.
October 15, 2009	Technical Coordination with WSDOT staff #3	Seattle	Coalition for Alternative K met with WSDOT staff to discuss further design modifications and cost reductions to the Hybrid Plan.
October 22, 2009	Technical Coordination with WSDOT staff #4	Seattle	Coalition for Alternative K met with WSDOT staff, requested to be called Coalition for Option M. Coalition discussed including Option M in the SDEIS, preliminary traffic operations, west navigation passage, west approach profile, and stormwater issues.
October 29, 2009	Technical Coordination with WSDOT staff #5	Seattle	Coalition for Option M met with WSDOT staff to discuss preliminary traffic operations, west navigation passage, west approach profile, and stormwater issues. Outstanding design issues include the number of lanes in the tunnel, the number of lanes on all the SR 520 ramps, the height of the west navigation passage, the height of the west approach bridge, the improvements necessary at the Montlake and Pacific intersection and north of the intersection, and the desired traffic operation goals.

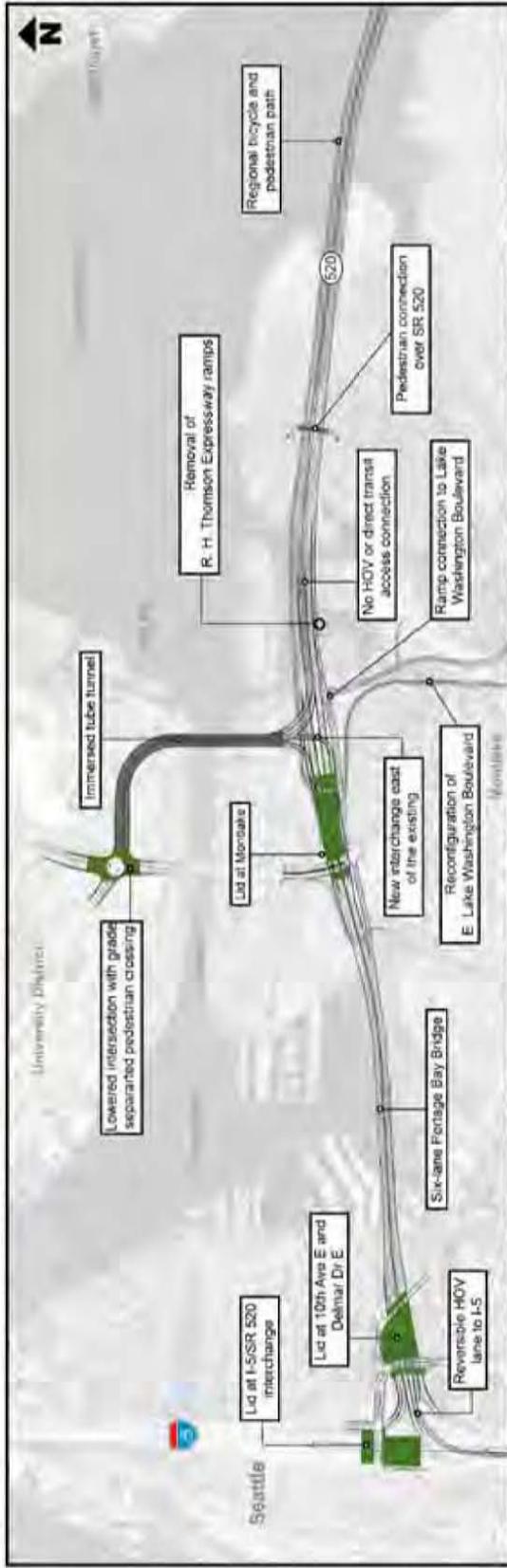


Summary of Meetings with Option M Coalition			
Date	Meeting	Location	Discussion
November 5, 2009	Working Session	Seattle	Per request of Coalition for Option M, WSDOT presented a preliminary cost analysis provided by the independent cost review panel. The chair of independent Cost ERP provided a review of the cost analysis of the A+ and M options.
November 10, 2009	Westside Subgroup	Seattle	The Westside Subgroup provided preliminary observations of Option M.
November 17, 2009	Workgroup	Seattle	The Workgroup discussed Option M in consideration of the draft recommendations report.





## Option M - Preliminary Concept



**Total project cost, I-5 to floating bridge: \$3.358B**  
**Total program cost: \$5.862B.**

Features include:

- A six-lane corridor in a 4 + 2 configuration with two general-purpose lanes and one HOV lane in each direction except for the areas between the new Seattle interchange and the floating bridge where the corridor would be six general-purpose lanes (three in each direction) and no HOV lanes.
- A reversible HOV and transit lane at the I-5 and SR 520 interchange.
- Lids over I-5 at E. Roanoke Street, over SR 520 between 10th Avenue E. and Delmar Drive E. and at Montlake Boulevard.
- A six-lane Portage Bay Bridge.
- A modified single point urban interchange east of the existing to and from the new tunnel. Number of lanes on the ramps to be determined.
- Does not provide for an HOV or transit direct-access connection.
- Removal of the existing Montlake Freeway Station.

- SR 520 mainline profile raised to the level of Lake Washington Boulevard at the interchange area.
- Ramp connection to Lake Washington Boulevard over SR 520.
- Lowered intersection at the Montlake Boulevard NE and NE Pacific Street intersection with grade-separated pedestrian crossings.
- Four or five lane immersed tube tunnel crossing under the Montlake Cut.
- Removal of the R.H. Thomson expressway ramps near the Arboretum.
- Pedestrian connection over SR 520 at Foster Island.
- A navigation passage at the west high rise. Actual height to be determined.
- Modifications to the configuration of E. Lake Washington Boulevard.
- Profile is low and actual heights are to be determined.
- Regional bicycle and pedestrian path.

Note: Above are preliminary cost estimates. This option has not been reviewed through a CEVP process.

November 19, 2009



## B. Independent Cost Expert Review Panel Executive Summary

### Responsibility/ Purpose of the Cost Review Panel

The responsibility of the Cost Review Panel was to conduct a comprehensive evaluation of the SR 520 project cost estimate process, including review of the procedures used, level of accuracy, application of the CEVP process, risks that were considered, and the level of development of the design options. The Panel conducted its review in two phases. Phase I review included the mediated Options A, K, and L. The Phase II review focused on two modified options A+ and M (formerly K). The summary of findings from both phases follows below.

### Phase I Review: SDEIS Options A, K and L from Mediation

#### *Findings*

1. The SR 520 team manages a strong, well-managed process with good rationale and easy retrieval of support material
2. While there are opportunities to adjust the estimate of some individual items to reduce their expected costs, these adjustments would not cause major changes in the total for any of the options. (See also item 6 below.)
3. Options A, K, and L are all at a level of development to appropriately apply the CEVP process. That is, the designs are sufficiently developed to evaluate and fairly compare the options.
4. The CEVP process has been fairly applied across options. Although CEVP is a valid way to compare costs and schedules for options, it is not necessarily the only basis for selecting a project alternative.
5. The Westside Cost Review Panel suggested the redistribution of some costs that had been assigned to the (SEM) tunnel. Those redistributed costs resulted in an improved ability to compare tunnel costs to similar tunnel costs elsewhere and also resulted in a modest overall cost reduction of the K option
6. The CCI (Construction Cost Index) may be too optimistic (too low): While WSDOT policy consistently uses the CCI projection of future inflation rates, the Westside Cost Review Panel is concerned that the CCI projection of a nearly level 1.7% to 1.9 % per year construction inflation rate for the next ten years may lower than what the actual inflation will be over the construction period.
7. Impact of modeled (probability & impact) risks is comparable across options but the Panel is concerned about un-modeled risks (which are still real!) e.g.
  - ∑ Impact of locally preferred alternative [selection] by Spring 2009—which did not occur
  - ∑ Availability of funding that matches the cash flow requirements of the project
  - ∑ Permitting
  - ∑ 'Boat section'-construction, permitting, and mitigation
8. Decisions by the state and national resource agencies will have a substantial impact on the schedules and costs as well as viability of the Options
  - ∑ Permitting of Wetland fill and impacts: The Westside Cost Review Panel heard the US Army Corps of Engineers expressed serious concerns about the viability of Option K because it has more impacts on wetlands than Options A or L. The legal basis for the Corps concerns could render Option K unpermittable.



- ∑ Permitting of the low road profile: Several agencies — the Corps, the National Marine Fisheries Service, and the Washington State Department of Ecology — expressed concerns about the shading impacts created by lowering the road profile to place it close to the lake surface.
- ∑ Stormwater permitting: The Department of Ecology expressed concerns that stormwater collection and treatment will be difficult and perhaps unreliable if the road profile is flat. They would prefer a road profile that slopes from the water back toward the land, allowing stormwater to flow by gravity to a land-based pollution control system.

#### Phase II Review: Options A+ and M

##### *Introduction*

Additional concept refinements by Option A and Option K support groups have changed overall costs and risk profiles for both options.

Option A+ is essentially Option A with the addition of three Option A sub-options as established in the mediation process: an eastbound Lake Washington Boulevard on-ramp; a westbound Lake Washington Boulevard off-ramp; and an eastbound HOV direct access ramp at Montlake Boulevard.

Option K has been significantly modified and has become Option M. The major modifications include: replacing the SEM (Sequential Excavation Method) tunnel with an ITT (Immersed Tube Tunnel), elevating the grades through the tunnel section and the depressed SR 520 interchange sufficiently to eliminate the “boat section”, and creating left hand on/off ramps from SR 520 mainline to the Montlake Cut section. Option M still requires substantial lengths of cut-and-cover tunnel each side of the water crossing. Because of the introduction of the new tunnel concept, the ITT, the Cost Review Panel specifically evaluated the constructability, risk, and costs associated with this concept.

##### *Findings*

- ∑ By changing tunnel concepts and raising roadway grades to eliminate the “boat section”, Option M trimmed nearly \$700 million from Option K expected costs, but the cost differential between Option A+ and M is still significant (approximately \$1.2 billion).
- ∑ Option A+ still fits within the cost range for Option A (base costs plus sub-options).
- ∑ Options A+ and M have comparable expected costs except for the Montlake Interchange segment. The primary cost difference between A+ and M results from differences in complexity of construction as well as the volume of materials consumed or excavated in the construction of the options. See the enclosed table for highlights of the cost differences.
- ∑ By eliminating the “boat section”, Option M has significantly reduced one element of risk related to permitting, but there remain significant risks related to construction permits for the ITT in the Montlake Cut.
- ∑ Costs for Option M in the Montlake section divide into approximate thirds. One-third of the expected cost is for tunnels, one-third is for the depressed interchange, and one-third includes a variety of cost items such as right-of-way purchase, the construction of miscellaneous components like the Pacific/Montlake Lid, and engineering development costs.
- ∑ Although the A+ and M options have only been developed to approximately 10% of final engineering and unknowns remain, the Westside Cost Review Panel is confident that major costs have been appropriately accounted for. Given that Option M represents considerably more



construction volume and complexity than Option A+, we do not see a way to materially reduce the \$1.2 billion cost differential between the two options.

- Σ While there are operational differences between Options A+ and M, the overall traffic performance of both options on the mainline is similar.
- Σ Were Option M to be included in the environmental process, it would likely delay the Supplemental Draft EIS (SDEIS) by 6 months. The final Record of Decision (ROD) would likely be delayed by 12–24 months.

Highlights of Cost Differential between Options A+ and M at Montlake

<i>Option Comparisons in the Montlake Cut Segment</i>		
<b>Cost Components</b>	<b>Option A+ Costs (\$M)</b>	<b>Option M Costs (\$M)</b>
<b>Construction Cost Components</b>		
<i>Interchange</i>		
Structures (lids, walls, bridges, etc.)	\$104	\$442
Miscellaneous Highway Construction	\$110	\$154
<b>Subtotal for Interchange Construction</b>	<b>\$214</b>	<b>\$596</b>
<i>Montlake Cut Crossing</i>		
Bascule Bridge (244 ft)	\$81	
Cut-and-Cover Tunnels (1575 ft)		\$452
Immersed Tube Tunnel (350 ft)		\$102
<b>Subtotal for Tunnel Construction</b>		<b>\$554</b>
<i>Other Highway Construction</i>		
Structures (lids, walls, etc.)		\$39
UW Parking Allowance		\$126
Misc Highway/Roadway Components	\$28	\$89
<b>Subtotal for Other Highway Construction</b>	<b>\$28</b>	<b>\$254</b>
<b>Subtotal Construction for Montlake Crossing</b>	<b>\$109</b>	<b>\$808</b>
<b>Total Estimated Construction Cost</b>	<b>\$323</b>	<b>\$1404</b>
<b>Right-of-Way, Mitigation, and Engineering</b>	<b>\$125</b>	<b>\$396</b>
<b>Total Estimated Segment Cost</b>	<b>\$448</b>	<b>\$1800</b>

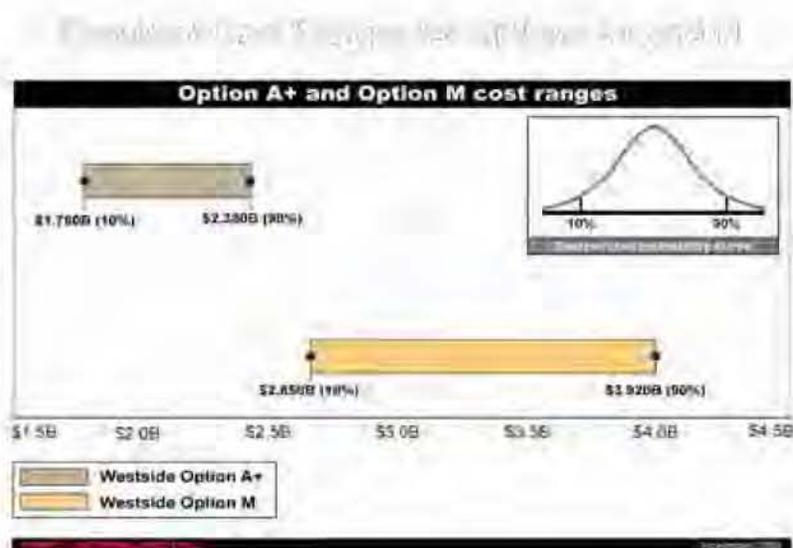
Key observations from the table include:

- Σ The tunnel across the Montlake Cut is composed of two tunnel types, an ITT with “Cut-and-Cover” tunnels at each end. The combined tunnel cost (including inflation and risk) accounts for slightly less than 1/3 (\$554 million) of the \$1.8 billion cost of the Montlake segment for Option M.
- Σ The cut-and-cover tunnel sections account for approximately 80% of the total tunnel costs through the Montlake Cut. While, whereas the ITT only accounts for 20%.
- Σ The Montlake Interchange accounts for approximately 1/3 of the \$1.8 billion segment cost for Option M (\$596 million).
- Σ Of the remaining \$650 million of \$1.8 billion cost for Option M, \$396 million includes right-of-way purchase and engineering development costs. Approximately \$254 million includes roadway work (not already accounted for), a lid at Pacific and Montlake, and work at the University of Washington.



- Σ The Cost Review Panel conducted an independent evaluation of ITT construction costs. Our evaluation yielded base costs (before inflation and composite risk factor) that differed by less than 1% from the base costs prepared by the SR 520 project team. The expected cost of the ITT is comparable with similar installations in the US.
- Σ The Panel also compared expected costs for the cut-and-cover tunnel section of three project segments: Option M, Option K, and the Alaskan Way Viaduct. All three sections were of comparable length and carry comparable expected costs. On that basis, we believe that the cut-and-cover costs are fairly represented.

As noted earlier, the Cost Review Panel does not see a way to further reduce the cost of Option M by a substantial amount. Further, the Panel is concerned that given the range of probable costs for Option M, it is unlikely to fit within the legislatively established budget for the project. As shown in the figure below, the most likely cost projection for Option M carries a price tag of \$2.65 billion which exceeds the west side budget (\$2.15 billion) by \$500 million. This optimistic number only has a 10% probability of occurrence. In other words, it has a 90% probability of being exceeded.





## IV. Financial Strategy

The Workgroup spent several meetings discussing the financing options available to meet the \$4.65 billion funding target. They first discussed the current financial commitments for the program and the remaining funding gap. The commitments are summarized below:

### A. Current Financial Plan and Remaining Gap

#### SR 520 Bridge Replacement and HOV Program — Program Costs and Existing Funding

	FISCAL YEARS	AMOUNT
<b>PROGRAM NEED</b>		
Overall Program Cost	Thru FY 2031	\$4.65 B
Less: Deferred Payment of Sales Tax <sup>1</sup>		(\$0.30 B)
Program Cost during Construction Period	Thru FY 2017	\$4.35 B
<b>CURRENTLY FUNDED: FLOATING BRIDGE &amp; LANDINGS</b>		
Floating Bridge & Landings	Thru FY 2017	\$2.11 B
Paid from Toll Bond Proceeds (SR 520 Account)		\$0.33 B
Paid from Federal Bond Proceeds (SR 520 Account)		\$0.66 B
Paid from All Other Funding Sources		\$1.23 B
Less: Deferred Payment of Sales Tax <sup>1</sup>		(\$0.11 B)
Program Cost during Construction Period		\$1.99 B
<b>PROGRAM FUNDING GAP</b>		<b>\$2.36 B</b>

<sup>1</sup> Paid from toll revenues over fiscal years 2022-2031

### B. Financing Options Considered

Tables 1A and 1B were provided to the Workgroup to identify the sources and possible revenue generation that could be achieved using each source. These tables outline the feasible sources that were identified. The Workgroup also reviewed the tolling scenarios considered by the Legislature's Joint Transportation Committee and the ability of each scenario to fill the \$2.36 billion gap. Some tolling options could fill the entire gap without additional revenue. However, the Workgroup recommended that tolling beyond early SR 520 tolling and I-90 high occupancy lane tolling only be considered after other revenue sources were pursued.



**TABLE 1A: SR 520 Bridge Replacement and HOV Program — Committed Funding Sources — FB&L**

Funding Sources	Authorizing Entity	Actions Necessary to Implement	Assumptions & Comments	Funding Committed (\$ Millions)
State: Motor Vehicle Account	State	Funds already expended	Previously established contribution.	\$3 M
State: Nickel & TPA Packages	State	Nickel funding already expended. TPA funding partially expended; no action required for remaining commitment.	Amounts established in 2003 and 2005, remaining funding provided as given in the 2009/11 Transportation Budget.	\$551 M
Federal: Bridge & STP Program Funding Bond Proceeds (SR 520 Account)	State & Federal	None required for current commitment.	<ul style="list-style-type: none"> <li>Bond proceeds portion of the "Risk Pool" Federal funding</li> <li>Financing Assumptions:                             <ul style="list-style-type: none"> <li>- Triple pledge "GO" bonds; Coverage = 1.0x</li> <li>- 6.0% interest rate</li> <li>- Bond proceeds in FY 2013-16; interest paid thru FY 2023</li> </ul> </li> </ul>	\$658 M
Federal: Bridge Program & Risk Pool Remainder	Federal	None required for current commitment.	<ul style="list-style-type: none"> <li>Includes \$108 M in Federal Bridge Program funding provided by the Legislature in 2007.</li> <li>Includes \$118 M from the "Risk Pool" funding not pledged to bond repayment.</li> </ul>	\$226 M
Federal: Other Future Funding	Federal	Funds already expended	Previously established contribution.	\$10 M
<b>Tolling</b>	State	Established with ESHB 2211; none required for current commitment used for Floating Bridge and Landings	<ul style="list-style-type: none"> <li>Combination of toll revenues (pay-as-you-go) and toll bond proceeds</li> <li>Variable Toll Schedule, Single Point Tolling, HOV 3+T/Transit Exempt</li> <li>Pre-completion tolling FY 2011-16; post-completion FY 2017 forward</li> <li>PM Peak Period Tolls (2007 \$s):                             <ul style="list-style-type: none"> <li>- Pre-completion = \$3.25; Post-completion = \$3.80</li> </ul> </li> <li>Financing Assumptions:                             <ul style="list-style-type: none"> <li>- 30 year triple pledge "GO" bonds; Coverage = 1.25x</li> <li>- 6.0% interest rate (6.5% on zero coupon bonds)</li> <li>- Bond proceeds in FY 2011-13; interest paid thru FY 2042</li> </ul> </li> </ul>	\$551 M
<b>Regional &amp; Local</b>	N/A	N/A	N/A	N/A
<b>Total</b>				<b>\$1,999 M</b>

NOTE: COMMITTED FUNDS ROUNDED TO THE NEAREST MILLION



**TABLE 1B: SR 520 Bridge Replacement and HOV Program — Potential Funding Sources**

Funding Sources	Authorizing Entity	Actions Necessary to Implement	Assumptions & Comments	Funding Range (\$ Millions) Low — High
State: NEW	State	New legislation	JTC study looking at options, report due December 2009	N/A
Federal: TIGER Grant	Federal	USDOT selection for funding	Grant proposal for \$300 million submitted in September 2009. Matching funds required. SR 520 Legislative WG recommends range of \$30-50 M.	\$30 M to \$50 M
Federal: NEW	Federal	New federal authorization bill and potentially annual appropriation(s) legislation	Viaduct rec'd earmarks totaling \$220 million. Average earmark in last authorization was \$3.7million. Reauthorization like in 2010 or 2011. Assume high is similar earmark goal as Viaduct	\$5 M to \$220 M
Scenario 7 Tolls: Uncommitted Toll Funding Potential INCREMENT	State	Amend ESHB 2211, section 2, to allow funds for use the Eastside and West Side projects	Unused toll funding from Scenario 7 beyond what has been allocated in the SR 520 Account, same tolling and financing assumption apply as committed Scenario 7 toll funding.	\$400 M to \$500 M
Higher SR 520 Tolls INCREMENT	State	Commission to set toll rates; Legislature to appropriate expenditure authority	<ul style="list-style-type: none"> <li>Pre-completion tolling FY 2011-16; post-completion FY 2017 forward.</li> <li>PM Peak Period Tolls (2007 \$s):                             <ul style="list-style-type: none"> <li>Pre-completion = \$9.80; Post-completion = \$5.35</li> <li>Variable toll schedule; single point tolling at bridge mid-span</li> <li>HOV 3+ / transit exemption maintained</li> </ul> </li> </ul>	\$0 M to \$220 M
SR 520 Segment Tolling INCREMENT	State	Commission to set toll rates; Legislature to appropriate expenditure authority	<ul style="list-style-type: none"> <li>SR 520 tolling begins in FY 2011.</li> <li>Short trips on either side of bridge tolled beginning in FY 2017.</li> <li>PM Peak Segment Toll (2007 \$s) = \$0.80</li> </ul>	\$0 M to \$75 M
I-90 Express Toll Lanes INCREMENT	State / Federal	New legislation and federal approval	<ul style="list-style-type: none"> <li>HOT lanes on I-90 open in FY 2017.</li> <li>2 HOT/Express Toll Lanes with dynamic pricing &amp; 2 GP lanes each way</li> <li>1 HOT between I-405 &amp; Issaquah</li> <li>Max I-90 toll (2007 \$) = \$0.95 per mile</li> <li>Some toll funding needed for I-90 lane improvements &amp; toll equipment</li> </ul>	\$0 M to \$250 M
I-90 Bridge Tolling INCREMENT	State / Federal	New legislation and federal approval	<ul style="list-style-type: none"> <li>I-90 tolling begins FY 2017.</li> <li>Post-completion tolling only on I-90</li> <li>I-90 PM Peak Period Toll (2007 \$s):                             <ul style="list-style-type: none"> <li>Post-completion (FY 2017-46): \$3.25</li> <li>Variable Toll Schedule: HOV/Transit Exempt; tolling west of Mercer Island</li> </ul> </li> </ul>	\$0 M to \$1,570 M
TBD Vehicles License Fee: NEW	Cities / King County	Up to \$20 annual fee jurisdiction-wide does NOT require voter approval; \$21-\$100 fee requires voter approval (jurisdiction-wide or subset)	<ul style="list-style-type: none"> <li>Cities: Seattle, Bellevue, Redmond, Kirkland, Medina, Clyde Hill, Hunts Point and Yarrow Point</li> <li>\$20 VLF = \$12.6 M per year; \$100 VLF = \$63.2 per year</li> <li>1:12 Bonding Ratio</li> <li>Funding available as early as FY 2012</li> </ul>	\$150 M to \$750 M
TBD Sales & Use Tax: NEW	Cities / King County	Up to 0.2% sales and use tax (currently limited to 10 years); requires voter approval	<ul style="list-style-type: none"> <li>Cities: Seattle, Bellevue, Redmond, Kirkland, Medina, Clyde Hill, Hunts Point and Yarrow Point</li> <li>Sound Transit's sales tax revenue forecast thru 2040 is down 5.3% for 2009</li> <li>The recession &amp; projections for recovery = uncertain forecasts</li> </ul>	N/A
TBD Property Tax: NEW	Cities / King County	Property tax as excess levy for capital, or a 1 year excess levy; requires voter approval	<ul style="list-style-type: none"> <li>Cities: Seattle, Bellevue, Redmond, Kirkland, Medina, Clyde Hill, Hunts Point and Yarrow Point</li> <li>\$0.05 / \$1000 = \$8.1M; \$0.13 / \$1000 = \$22.7 M</li> <li>1:12 Bonding Ratio</li> <li>Funding available as early as FY 2012</li> </ul>	\$100 M to \$270 M
TBD Comm & Industrial Impact Fee: NEW	Cities / King County	Impact fee jurisdiction-wide; voter approval NOT required	This revenue source has not yet been used for a TBD. Calculation would be based on future development; not a very predictable revenue source.	N/A
Motor Vehicle Excise Tax (MVET): NEW	King County	Voter approval to form a King County Regional Transportation Investment District (RTID)	<ul style="list-style-type: none"> <li>0.1% annual tax based value of registered vehicles in King County</li> <li>Assumed to start in FY 2012</li> <li>1:12 Bonding Ratio</li> </ul>	\$155 M to \$185 M

NOTE: SOURCES OF FUNDS ARE NOT NECESSARILY ADDITIVE; FUNDING RANGES BASED ON REVENUE POTENTIAL, NOT FINANCING ASSUMPTIONS





## SR 520 Bridge Replacement & HOV

Scenario	Strategy / Description	Tolling Phase/Dates	Variance SR
<b>SR 520 General Purpose Lane Tolling Only</b>			
7	Toll only SR 520 during pre-completion at lower toll rates and during post-completion at medium toll rates.	Pre-Completion: FY 2011-16	\$0.7 \$3
		Post-Completion: FY 2017 forward	\$0.7 \$3
6*	Toll only SR 520 during pre-completion at medium toll rates and during post-completion at highest toll rates tested.	Pre-Completion: FY 2011-16	\$1.9 \$3
		Post-Completion: FY 2017 forward	\$0.9 \$5
6.1*	Toll only SR 520 during pre-completion at medium toll rates and during post-completion at highest toll rates tested.	Pre-Completion: FY 2011-16	\$1.9 \$3
		Post-Completion: FY 2017 forward	\$0.9 \$5
1	Toll only SR 520 during post-completion phase at medium toll rates.	Pre-Completion: FY 2011-16	
		Post-Completion: FY 2017 forward	\$0.7 \$3
2	Toll only SR 520 during pre- and post-completion phases at lowest toll rates tested.	Pre-Completion: FY 2011-16	\$1.9 \$3
		Post-Completion: FY 2017 forward	\$1.9 \$2
5	Toll only SR 520 during post-completion at a fixed/fat toll rate.	Pre-Completion: FY 2011-16	
		Post-Completion: FY 2017 forward	Fixed/ = \$
<b>SR 520 General Purpose Lane Tolling + Dual I-90 Express Toll Lanes (FY 2017 forward)</b>			
10*	Toll SR 520 during pre-completion at medium toll rates, post-completion at highest toll rates tested; add post-completion HOT lanes on I-90.	Pre-Completion SR 520 only: FY 2011-16	\$1.9 \$3
		Post-Completion on Both Bridges: FY 2017 forward	\$0.9 \$5
15 <sup>non</sup>	Toll SR 520 during pre-completion at lower toll rates, post-completion at medium toll rates; add post-completion HOT lanes on I-90.	Pre-Completion SR 520 only: FY 2011-16	\$0.7 \$3
		Post-Completion on Both Bridges: FY 2017 forward	\$0.7 \$3

**NOTES:**

- 1 Assumes variable-rate tolling, where tolls vary by time of day according to a fixed schedule, except as noted.
- 2 On SR 520, segment tolls apply to short trips on corridors east and west of the main bridgespan; on I-90, segment tolls apply to all trips.
- 3 Transit vehicles are assumed to be exempt except in Scenario 6\*.
- 4 Ability to meet the \$4.65 B SR 520 program cost based on existing non-toll funding; note that scenarios 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 are more than \$1.5 B short; ○ = \$1.0 to 1.5 B short; ◐ = \$0.5 to 1.0 B short; ◑ = less than \$0.5 B short.
- \* Modified to reflect current assumptions regarding start dates, toll collection points and/or exemptions.

SR 520 Bridge Replacement & HOV Pr

Scenario	Strategy / Description	Tolling Phase/Dates	Variable To
			SR 520
<b>SR 520 + I-90 General Purpose Lane Tolling</b>			
13*	Toll SR 520 and I-90 during pre- and post-completion at lower toll rates; I-90 pre-completion tolling begins FY 2014.	Pre-Completion SR 520: FY 2011-16 & I-90: FY 2014-16*	\$0.75 to \$3.25
		Post-Completion on Both Bridges: FY 2017 forward	\$0.75 to \$3.25
14**	Toll SR 520 and I-90 during pre-completion at lower toll rates and post-completion at medium toll rates; I-90 pre-completion tolling begins FY 2014.	Pre-Completion SR 520: FY 2011-16 & I-90: FY 2014-16	\$0.75 to \$3.25
		Post-Completion on Both Bridges: FY 2017 forward	\$0.75 to \$3.80
11*	Toll SR 520 and I-90 during pre-completion at medium toll rates, and during post-completion at highest toll rates tested.	Pre-Completion on Both Bridges: FY 2011-16	\$1.50 to \$3.80
		Post-Completion on Both Bridges: FY 2017 forward	\$0.95 to \$6.35
12	Toll SR 520 during post-completion at lower toll rates and during post-completion at higher tolls; toll I-90 during post-completion at lower toll rates.	Pre-Completion SR 520 only: FY 2011-16	\$0.75 to \$3.25
		Post-Completion on Both Bridges: FY 2017 forward	\$0.75 to \$4.20
4*	Toll only SR 520 during pre-completion at lower toll rates; add I-90 tolling during post-completion at lower toll rates.	Pre-Completion SR 520 only: FY 2011-16	\$0.75 to \$3.25
		Post-Completion on Both Bridges: FY 2017 forward	\$0.75 to \$3.25
3	Toll SR 520 and I-90 only during post-completion phase at lower toll rates.		
		Post-Completion on Both Bridges: FY 2017 forward	\$0.75 to \$3.25
8	Toll SR 520 and I-90 only during post-completion, with higher tolls on SR 520 and lower tolls on I-90.		
		Post-Completion on Both Bridges: FY 2017 forward	\$0.75 to \$4.20
9	Toll SR 520 and I-90 during pre- and post-completion at lowest toll rates tested.	Pre-Completion on Both Bridges: FY 2011-16	\$1.00 to \$2.95
		Post-Completion on Both Bridges: FY 2017 forward	\$1.00 to \$2.95

NOTES:

- Assumes variable-rate tolling, where tolls vary by time of day according to a fixed schedule, except as noted in
- On SR 520, segment tolls apply to short trips on corridors east and west of the main bridgespan; on I-90, half of
- Transit vehicles are assumed to exempt except in Scenario 6\*.
- Ability to meet the \$4.65 B SR 520 program cost based on existing non-toll funding; note that scenarios with I-90
  - = more than \$1.5 B short; ◐ = \$1.0 to 1.5 B short; ◑ = \$0.5 to 1.0 B short; ◒ = less than \$0.5 B short; ◓
- \* Modified to reflect current assumptions regarding start dates, toll collection points and/or exemptions.



## V. Public Outreach

The public was provided many opportunities to provide comment to the Workgroup throughout the process. Below is a summary of the public opportunities as well as a summary of the feedback the Workgroup received on their draft recommendations.

### A. Public Outreach Opportunities

- Σ All Workgroup, Westside Subgroup and Working Session meetings were open to the public.
- Σ Several meetings were broadcast by TV-W or the Seattle Channel.
- Σ E-mail notifications were sent prior to all meetings using the SR 520 program and Workgroup public e-mail list (3800 e-mail addresses), as well as a list of key jurisdictional, regulatory and legislative individuals.
- Σ Media advisories were sent prior to all meetings.
- Σ Development and maintenance of the Legislative Workgroup Web site, including access to all materials presented during the meetings.
- Σ Set-up and maintenance of a Workgroup phone number and e-mail address to accept comments.
- Σ Open Community Forum was held on the eastside to provide the public with information on the process and information available mid-way through the process.

### B. Draft Recommendations Outreach

The Workgroup hosted a Town Hall meeting on November 24, 2009 that provided the public an opportunity to review information developed during the process and specifically comment on the Draft Recommendations. There were 115 people who attended the meeting and 28 individuals gave verbal comments. In addition to the public meeting the Workgroup also gained input from:

- Σ On-line comment form at the Workgroup Web site.
- Σ Seattle City Council's Committee of the Whole meeting held on November 24, 2009.

### C. Summary of Public Outreach Comments

The comments were reviewed and categorized into a simple database. All of the verbatim information is available in the Appendix. In summary, a total of 479 individuals provide public comment during the draft recommendations comment period from November 20 – December 4<sup>th</sup>.

These included:

- Σ 71 people provided oral comments at the Workgroup Town Hall and the Seattle City Council's Committee of the Whole meetings.
- Σ 377 individuals completed the online comment form.
- Σ 31 people submitted handwritten or e-mailed comments through the Workgroup e-mail.



The comments received were distributed over a wide area with the largest concentration from the Montlake zip code totaling 217 individual responses.

#### Comments on Westside A+ Design Recommendation

A total of 427 comments were received related to the design. They fell into three general categories below. Some excerpts from some of the comments are included to give a sampling of the types of comments that were received.

#### *Opposition to Option A+ (291 comments)*

Neighborhood impacts – noise, proximity of the new bridge to private properties, visual impacts and aesthetics

“Our homes, our livelihood, our neighborhood livability must be of the utmost priority in the selection of your final plan.”

#### Traffic and mobility impacts

“It further splits the Montlake neighborhood, ...Adding a second bridge next to the existing Montlake Bridge will destroy housing and forever change the demeanor of a wonderful family neighborhood.”

“reduces values in the Montlake area due to noise and obstruction”

#### Impacts of a ramp connections to Lake Washington Boulevard

“Please avoid adding ramps to Lake Washington Boulevard and take out the existing ones . . . return this historical park road back to its original intent”

“Traffic should be put on Montlake Blvd. and 23 Avenue, a city street where it belongs”

Some comments mentioned the preference for other Options. Of the 66 who commented, 45 indicated a preference for Option M.

#### Support for Option A+ (88 comments)

##### *Cost*

“Option A+ has best design, and gets the job done within reasonable cost.”

##### *Transit/mobility*

“This option...coordinates well with the City of Seattle's objectives to encourage more people to use transit and HOV as a mode of travel.”

##### *Environmental Impacts*

“It seems to me that all the tunnel options are destructive of the Arboretum.”

#### Support for A+ but prefer no Lake Washington Boulevard Ramps

“Generally, I we agree with the A+ Option and reject categorically the exorbitant environmental and financial costs of the other options listed. Nonetheless we have reservations about the new Arboretum ramps to replace the Ramps to Nowhere.”

#### No Preference Identified (57 comments)

- ∑ Consider eight or more lanes to accommodate future population growth
- ∑ Select an option that will accommodate future light rail
- ∑ Keep the Montlake Freeway Transit Stop in the new design



## Comments on Financing Strategies Recommendation

A total of 257 comments were received related to the Workgroup's financing recommendations. The comments primarily related to tolling with a few other remarks. The majority (143 comments) supported using additional tolling options to finance the new SR 520 corridor. The themes identified that tolling encourages increased transit use and improves mobility; it is a fair method to increase revenues; and it is a realistic and reliable solution. These respondents have different opinions about what to charge and when to enact tolling on additional roads and under what circumstances. However, they agree on the solution of additional tolling to address the funding gap. Those opposed to tolling cite that it is unfair and that taxes should be the primary way to fund transportation improvements.

### *Tolling (188 comments)*

#### Σ Consider additional Tolling

"I think you should go forward with tolling of both routes fully and right away"

"The only way for the cross-lake transportation system to properly work is to toll both 520 and I-90"

"Toll 520 and I-90! Those who use these roads should pay for 100% of the funding gap"

"Tolling on 520 and I-90. Whatever closes the gap fastest so the work can be started"

#### Σ Do not consider Tolling (45 comments)

"Tolling I-90 to pay for 520 is dubious in my mind"

"I would rather see a gas tax added. This would encourage people to use less fuel and move to mass transit"

### *Other remarks*

#### Σ Support for pursuing maximum state and federal funding opportunities

#### Σ The vulnerable section of the bridge should be the only segment replaced until future funds become available to pay for the project.

## Other Comments for Workgroup consideration

A total of 226 comments were received in this section. Nearly half (106 comments) focused on moving the project forward. Respondents noted the time already invested in the SR 520 program and the need to address the safety issues. Many comments were a summary of remarks already made related to the Design and Financing recommendations. However, while respondents want a decision made to improve the safety and traffic conditions of the corridor, there were varying responses as to what that design decision should be.

"Let's get this project going. Seattle has now been declared to have the worst traffic in the nation"

"I urge you to get this project moving along...We need mobility in this region...We need the project to continue moving forward"



"Please consider better options to mitigate traffic around the exit and entrance ramps of 520 into neighborhoods"

"Build only what you can afford to build with the money available"

"Replacement of 520 is predicated on safety first and foremost. Fund that with presently available money and retrofit the existing bridge"

D. Jurisdictional and Agency Letters Received

The following are individual letters that were received related to the Workgroup recommendations.



# City of Seattle



## Seattle City Council

December 4, 2009

Members of the SR 520 Legislative Work Group:

We understand that in accordance with ESHB 2211, you have arrived at a set of recommendations related to the financing and west side design of the SR 520 Bridge Replacement and HOV Project. On November 24, the City Council was briefed by WSDOT staff on your review process and findings. In conjunction with the briefing, the Council listened to public comment from hundreds of individuals later that morning. After many years of deliberating over the future of the SR 520 corridor, we share your interest in arriving at a preferred design alternative and financing model that will move this project forward expeditiously.

In the coming weeks, the City of Seattle will thoroughly review the Work Group's recommendations and compare them to the Council's preferences as stated in previously passed resolutions. It is our intent to provide the Governor and State Legislature with our perspective on your work as well as the progress made in the last several years by WSDOT and the impacted communities in Seattle. The City has on several previous occasions articulated financing and design guidance to the State with regard to the SR 520 project. We will be reviewing your recommendations in the context of these prior policy positions.

As you are aware, the City is currently in a period of transition. With Mayor-elect Mike McGinn and Councilmembers-elect Sally Bagshaw and Mike O'Brien taking office in early January, we believe it is appropriate and necessary to engage these newly elected officials on the SR 520 project before issuing a statement on the Work Group's recommendations. Assessing the ongoing concerns being voiced by community members from neighborhoods adjacent to the SR 520 corridor will also take us beyond your final Work Group meeting on December 8. We intend to provide comments and recommendations early in the 2010 Legislative Session.

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City Hall, 600 Fourth Avenue, Floor 2, PO Box 34025, Seattle, Washington 98124-4025  
(206) 684-8888 Fax: (206) 684-8587 TTY: (206) 233-0025  
<http://www.cityofseattle.gov/council>

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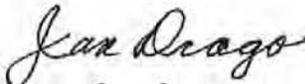
Page 2

Thank you for taking time to review the west side design alternatives for the SR 520 project. This is a critical piece of transportation infrastructure not only for our region but the entire state. We look forward to discussing this project with you and your colleagues in the State Legislature in the weeks and months ahead.

Sincerely,



Council President Richard Conlin



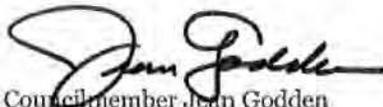
Councilmember Jan Drago  
Chair, Transportation Committee



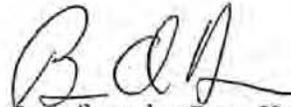
Councilmember Tim Burgess



Councilmember Sally J. Clark



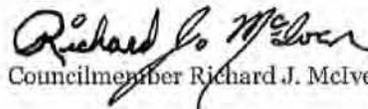
Councilmember Jean Godden



Councilmember Bruce Harrell



Councilmember Nick Licata



Councilmember Richard J. McIver



Councilmember Tom Rasmussen

600 Fourth Avenue, Floor 2, PO Box 34025, Seattle, Washington 98124-4025  
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## City of Yarrow Point



Town of Yarrow Point

November 24, 2009

The Honorable Rodney Tom, Co-Chair  
The Honorable Scott White, Co-Chair  
SR 520 Legislative Work Group  
600 Stewart Street, Suite 520  
Seattle, WA 98101

Attn: Ms. Barb Gilliland, Work Group Administrator

**Re: Support for a west side design option for replacement of the SR 520 Bridge that keeps the project on schedule and within budget, ensures safety, and moves forward on Eastside projects**

Dear Senator Tom and Representative White:

We are writing to you as Mayors of Eastside cities that will be significantly impacted by the decisions made by the SR 520 Legislative Work Group and the State of Washington for replacing the bridge and rebuilding the SR 520 corridor. We believe this project must be viable and affordable, and provide for the safety and mobility of the residents, employees, freight-haulers and transit users that depend on a well-functioning SR 520 corridor.

The following key principles reflect our priorities for the SR 520 Bridge Replacement and Corridor Improvement Project:

- SR 520 is a vital corridor not only for our region but for the State of Washington. It has major safety, seismic and mobility deficiencies. The State cannot afford further delay in replacing the bridge and completing the corridor. Loss of the bridge would be devastating to the State's economy.
- The new bridge must be the six-lane configuration (four general purpose and two HOV) previously agreed to by the Legislature.
- The State needs to ensure completion of the SR 520 Bridge and corridor by 2016 – which means moving forward in 2010 with the bridge and the Eastside transit and HOV projects.



- The State needs to make a decision on the west side design that can be constructed within the financial constraints of the project budget; the Legislature set a cap of \$4.65 billion for the SR 520 project and financing even that amount will be challenging.

In light of these key principles, we believe Option A+ is the only viable and affordable option for the west side design of the project. With this letter, we underscore our strong support for this option and the November 17 recommendation of the SR 520 Legislative Work Group for Option A+.

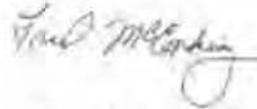
Sincerely,



Grant Degginger  
Mayor of Bellevue



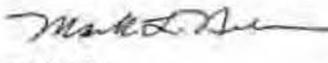
George Martin  
Mayor of Clyde Hill



Fred McConkey  
Mayor of Hunts Point



James Lauinger  
Mayor of Kirkland



Mark Nelson  
Mayor of Medina



John Marchione  
Mayor of Redmond



David Cooper  
Mayor of Yarrow Point



# King County Council Motion



**KING COUNTY**  
**Signature Report**  
**November 23, 2009**

1200 King County Courthouse  
516 Third Avenue  
Seattle, WA 98104

**Motion 13095**

**Proposed No.** 2009-0610.2

**Sponsors** Hague, Gossett and Lambert

1                   A MOTION expressing King County's support for a  
2                   preferred design of the State Route 520 bridge replacement  
3                   and high-occupancy vehicle program.  
4

5                   WHEREAS, the State Route 520 bridge is a vital transportation corridor between  
6                   job centers and growing communities around Lake Washington, carrying about one  
7                   hundred fifty-five thousand people per day, and

8                   WHEREAS, the State Route 520 bridge is heavily congested during morning and  
9                   afternoon commute times, carrying twice as many vehicles as it was originally planned  
10                  to, and

11                  WHEREAS, the State Route 520 bridge was built in the early 1960s, without the  
12                  benefit of modern design and safety standards, and the structure's age and condition make  
13                  it vulnerable to seismic events or windstorms, and

14                  WHEREAS, the state and the region have been studying the potential replacement  
15                  of the State Route 520 bridge for several years and have identified State Route 520 bridge  
16                  replacement and high-occupancy vehicle ("HOV") program options to replace the  
17                  existing floating bridge, enhance safety and provide transit and roadway improvements



**Motion 13095**

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18 throughout the corridor, with a total cost capped at four billion six hundred fifty million  
19 dollars, and

20 WHEREAS, the eastside transit and HOV project design components of the State  
21 Route 520 bridge replacement and HOV program have been agreed upon and are ready to  
22 move forward, and

23 WHEREAS, in 2009 the state Legislature created the State Route 520 Legislative  
24 Workgroup to recommend a preferred westside design option to the Legislature by  
25 December 2009, and

26 WHEREAS, five westside design options are currently under consideration by the  
27 legislative workgroup, and

28 WHEREAS, the impact on transit operations of the westside design options  
29 should be highlighted for the legislative workgroup's consideration, and

30 WHEREAS, King County Metro transit service will play a key role in  
31 accommodating future growth and demand in the State Route 520 corridor, and this  
32 service is crucial to making the new bridge and HOV program work for the communities  
33 on both sides of the lake both now and in the future, and

34 WHEREAS, the state Legislature recently provided King County with the  
35 authority to levy a property tax that would support expanded transit service in the State  
36 Route 520 corridor as envisioned in the federal urban partnership, which will help meet  
37 growing demand for transit service in the corridor. The metropolitan King County  
38 council, as part of its 2010-2011 biennial transit budget deliberations, has levied this  
39 property tax in a tax-neutral manner, and



**Motion 13095**

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40 WHEREAS, all of the westside design options include the removal of the  
41 Montlake freeway bus station, which will adversely affect capacity through the corridor  
42 unless an estimated three to five million dollars annually is provided to offset this loss,  
43 and

44 WHEREAS, the King County department of transportation stated its preference,  
45 at an October 8, 2009, State Route 520 Legislative workgroup meeting, for option A with  
46 specific suboptions as the best means of meeting the transit design needs, and

47 WHEREAS, the cost estimate for westside design option A with suboptions most  
48 closely aligns with the total program cost identified by the state in comparison to all the  
49 other design options, and

50 WHEREAS, it is in the county's best interests if the legislative workgroup  
51 recommends an option that meets the needs of transit now so that the project can move  
52 forward on schedule without further delay and allow for a final decision on westside  
53 design options by the state Legislature in 2010, and

54 WHEREAS, the SR 520 Legislative Workgroup on November 17 recommended  
55 that the A+ Hybrid Option be advanced for review in the supplemental draft  
56 environmental impact statement, and

57 WHEREAS, the Eastside Transportation Partnership has expressed support for  
58 this proposed motion and the A+ Hybrid Option;

59 NOW, THEREFORE, BE IT MOVED by the Council of King County:

60 A. King County supports a State Route 520 bridge replacement and HOV  
61 program design that is most affordable and includes the following transit design  
62 components for the westside:



**Motion 13095**

---

- 63           1. An eastbound and westbound HOV direct access ramp such as included in the  
64 option currently defined as the A+ hybrid;
- 65           2. Bus layover space, passenger facilities and transit priority in the Montlake  
66 triangle and bridge area in the vicinity of Husky Stadium;
- 67           3. Lake Washington Boulevard ramps to the eastbound State Route 520 and  
68 from westbound State Route 520;
- 69           4. An eastside bus station designed to accommodate buses passing each other;  
70 and
- 71           5. Compensation to King County Metro in the form of an ongoing operating  
72 subsidy for the loss of direct service to the University District with the removal of the  
73 Montlake Freeway bus station.
- 74           B. King County supports the A+ Hybrid option because of its compliance with  
75



**Motion 13095**

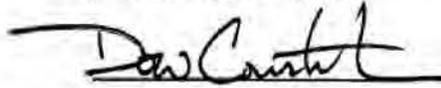
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76 cost and transit connectivity requirements, and ability to improve overall mobility in the  
77 region.  
78

Motion 13095 was introduced on 11/9/2009 and passed as amended by the Metropolitan King County Council on 11/23/2009, by the following vote:

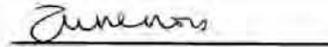
Yes: 9 - Mr. Constantine, Mr. Ferguson, Ms. Hague, Ms. Lambert, Mr. von Reichbauer, Mr. Gossett, Mr. Phillips, Ms. Patterson and Mr. Dunn  
No: 0  
Excused: 0

KING COUNTY COUNCIL  
KING COUNTY, WASHINGTON



Dow Constantine, Chair

ATTEST:

  
Anne Noris, Clerk of the Council

Attachments    None



# City of Kirkland



November 18, 2009

Honorable Senator Rodney Tom, Co-chair  
Honorable Representative Scott White, Co-chair  
SR 520 Legislative Working Group  
600 Stewart Street, Suite 520  
Seattle, WA 98101

Dear Senator Tom and Representative White:

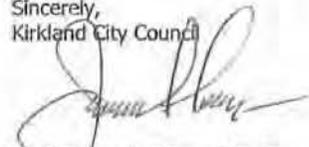
Thank you for the work you are doing to determine a solution for the Westside of the SR 520 Bridge Replacement project.

The City of Kirkland supports Option A as the best choice of the options that are currently under consideration. The one important reason for our endorsement is that it is the only option that appears to be within the overall SR 520 project budget. We are concerned that an overly expensive Westside project would reduce the funds available to complete the improvements that have been agreed to for the Eastside. We note that the King County Council, the King County Executive and the Eastside Transportation Partnership also support Option A.

All the options under consideration would remove the heavily used Montlake flyer stop. Therefore, it is critical that service be in place that would tie transfer points at Pacific Avenue and Montlake Boulevard with the Evergreen Point freeway stop regardless of the option that is selected. This service would mitigate the loss of transfer capability that takes place today at the Montlake flyer stop.

Once again, thank you for your hard work on this difficult issue. The prospect of a completed project is exciting and appears to be closer than ever.

Sincerely,  
Kirkland City Council



By James L. Lauinger, Mayor

173 Fifth Avenue • Kirkland, Washington 98033-6189 • 425/887-2000 • FAX 425/587-8111 • www.cityofkirkland.wa.us



# Seattle King County Public Health



November 30, 2009

The Honorable Members of the SR520 Legislative Work Group:

We are delighted to present you with a summary of the SR 520 Health Impact Assessment report for your consideration and final report. This Health Impact Assessment was required by Engrossed Substitute Senate Bill 6099. The report's goal is to assist the SR 520 Mediation Group, the Washington State Department of Transportation, and the Washington Legislature in making decisions on the SR 520 project design based upon potential health impacts. Important health issues, from chronic disease and mental well-being to climate change, are closely linked to how our cities are built, including our transportation system.

This report recommends elements that will be important in any alternative selected. These elements include increased and improved options for transit use, bicycling and walking; landscaped roadway lids and green spaces; design features that reflect the communities' resources and aesthetics; and, attention to the health-related impacts from the long construction stage. More specifically, the following recommendations have been made in the SR 520 Health Impact Assessment:

### **Transit, Bicycling and Walking**

*More and better transit service, combined with bicycling and walking facilities, will provide multiple health benefits by reducing greenhouse gas emissions and other pollutants and providing opportunities for more physical activity.*

1. Increase and improve transit service to meet increased demand, attract more riders, and reduce air pollution
2. Install connected walking and bicycling facilities throughout the corridor
3. Create a common way finding system

### **Landscaped Lids and Green Spaces**

*Proposed landscaped freeway lids and green spaces will reconnect neighborhoods, reduce noise, and support vegetation that contributes to better air quality.*

1. Include six landscaped freeway lids throughout the full corridor (I-5 to I-405)
2. Use landscaping materials throughout the SR 520 corridor, along adjacent rails and roadways, and at transit stops
3. Improve and preserve the integrity of the Washington Park Arboretum, and the ability of visitors to enjoy it and other green spaces and natural areas
4. Preserve access to the waterfront for water-related activities



**November 30, 2009 Design Features**

*A primary public annoyance with roadways is noise, which can be alleviated with available materials and good design. Art incorporated into transportation corridors can help enhance adjacent neighborhoods' visual character. Storm water management practices are an important strategy to reduce water pollution.*

1. Reduce noise throughout the corridor
2. Add to the adjacent communities' visual character with art and design
3. Utilize innovative storm water management practices

**Construction Period Management**

*The SR 520 replacement is expected to require seven or more years to build. The construction period can produce detrimental health effects due to exhaust emissions, congestion, and longer travel times.*

1. Reduce construction-related pollution
2. Increase traffic management
3. Provide for construction noise control

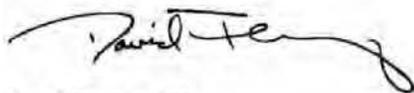
**Health Impact Assessment Project Guiding Principles**

Ensure health elements are integral to the project plan  
Support all recommendations even in difficult budget times for optimal health benefits

We recommend the final design should be selected based on which option can most effectively and efficiently incorporate all of the health elements into its specific design. All of these elements are integral to the project and only through incorporating these measures will the air quality and health benefits be fully realized. More specific recommendations are shown in the full report available at <http://www.kingcounty.gov/healthservices/health/ehs/hia.aspx>. A hard copy of the report is also available.

The Puget Sound region has a unique opportunity to rebuild a SR 520 corridor that helps to create healthy places to live, work and play while moving people throughout the region. We would be happy to answer any questions you have about the report and would welcome an invitation to present this report to you. We hope to be able to work you with on more transportation planning projects in the future.

Sincerely,



David Fleming, MD  
Director & Health Officer  
Public Health – Seattle & King County



Dennis McLerran  
Executive Director  
Puget Sound Clean Air Agency



# Sound Transit



November 13, 2009

Senator Rodney Tom  
Co-chair, SR 520 Legislative Workgroup  
220 John A. Cherberg Building  
PO Box 40448  
Olympia, WA 98504-0448

Representative Scott White  
Co-chair, SR 520 Legislative Workgroup  
321 John L. O'Brien Building  
PO Box 40600  
Olympia, WA 98504-0600

Dear Senator Tom and Representative White:

This is in regard to your concern about how the SR 520 Westside Options serve transit and light rail riders at the Montlake Multimodal Center.

Sound Transit, King County Metro, WSDOT and the University of Washington worked diligently to develop a high capacity transit plan and a Montlake Multimodal Center Plan that were responsive to each of the three alternatives being developed for the Westside Montlake interchange. Our analysis determined that none of the alternatives denied transit accessibility or the ability to make a direct connection to the Montlake Multimodal Center in the Montlake "triangle" area and the new Sound Transit light rail station. We also recognize that there are different transit markets in question: those traveling across SR 520; those utilizing SR 520 to access the University of Washington or other destinations in the vicinity; and those transit users crossing the corridor on Montlake Boulevard, whether or not they are making a transfer to a SR 520 route. All the Westside options provide access to local and regional bus service and light rail at the same location, at the Montlake Multimodal Center.

Each is a distinct market and each is affected differently under the various interchange alternatives. Additionally, transit operations are only one of many considerations in making a decision on a preferred alternative. To date we have seen developing analysis from WSDOT as the alternatives have evolved and we look forward to reviewing the final analysis once the alternatives have been fully defined and studied. While we remain committed to working with our partners and the community on transit issues, needs and concerns, Sound Transit will defer commenting on interchange preferences until the full analysis has been conducted and the draft supplemental environmental impact statement is released for comment. Once a preferred interchange design is adopted we will work with WSDOT and our

Central Puget Sound Regional Transit Authority • Union Station  
401 S. Jackson St. • Seattle, WA 98104-2826 • Reception: (206) 398-5000 • FAX: (206) 398-5499 • [www.soundtransit.org](http://www.soundtransit.org)

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*King County Councilmember*

**CHIEF EXECUTIVE OFFICER**

Joni Earl



partners to make sure it is optimized for transit operations to the fullest extent possible.

I look forward to obtaining more information about Option M and how it works for transit. It appears to combine transit, HOV and general purpose traffic into single lane on-and off-ramps to the tunnel under the Montlake Cut. If this is the case I would expect the WSDOT analysis to show the resulting detrimental impact to transit as operations are slowed, resulting in decreased speed and reliability.

Thank you for the opportunity to provide input on the SR 520 project.

Sincerely,



Gregory A. Walker, AICP  
Planning and Development Director  
Sound Transit



# University of Washington



## UNIVERSITY OF WASHINGTON

OFFICE OF REGIONAL RELATIONS  
*Theresa Doherty, Assistant Vice President*

November 24, 2009

Senator Rodney Tom  
Representative Scott White  
Co-Chairs, SR 520 Legislative Workgroup

**RE: University of Washington prefers Option A+**

Dear Senator Tom and Representative White,

The University of Washington has been an active participant in the ongoing discussions regarding the westside design options currently under review by the SR 520 Legislative Workgroup. As recently as December of 2008 President Emmert wrote the attached letter regarding "A, K and L". This letter, along with letters from each of the other 33 mediation members, was included in a report titled "SR 520 Project Impact Plan" and was submitted to the 2009 Legislature.

**While the University of Washington can and will work with any one of the westside design options chosen by the Governor and the Legislature, the University's preference is option A+.** Option A+ has the least impact on our resources and assets. It is preferred by our transit partner King County Metro because it provides the best transit connectivity on the local roadways and as Metro's largest client; we want an option that works for them. Option A+ causes less environmental damage to the Washington Park Arboretum which is both a City park and a research laboratory for our faculty and students and managed jointly by the University and the City. Lastly, we are very concerned about rebuilding this critical transportation corridor before Mother Nature takes it out in a winter storm. Option A+ is at or under the budget cap for the project and according to the environmental agencies testifying at recent meetings, it is an option that could be permitted and built.

Thank you for taking the time to hear from your constituents on this critical issue.

Sincerely

Theresa Doherty  
Assistant Vice President for Regional Relations

225 Gerberding Hall Box 351243 Seattle, Washington 98195-1243 206/221-2603 FAX: 206/685-1201  
tdoherty@u.washington.edu  
[www.washington.edu/community/](http://www.washington.edu/community/)





UNIVERSITY OF WASHINGTON  
OFFICE OF THE PRESIDENT

*Mark A. Emmert, President*

December 23, 2008

Governor Christine Gregoire  
Joint Transportation Committee

**RE: SR 520 Project Impact Plan**

Dear Governor Gregoire and Legislative Members of the Joint Transportation Committee:

The University of Washington is a world-class institution that is an essential asset to our community and our state. Granting over 12,000 degrees annually, we have numerous highly rated academic programs, including bioengineering, drama, microbiology, computer science and engineering, medicine, and much more. We win more research funding than any other public university in the nation, more than \$1 billion annually. Our partnerships with business and industry have spawned more than 200 startups out of the intellectual property that has flowed from our laboratories and our research. Additionally, the University is home to one of the top ten hospitals in the nation, serving all patients regardless of where they come from or their socioeconomic background.

The University is also a national leader in environmental stewardship. Through our aggressive Transportation Management Plan more than 75 percent of the campus population commutes to campus in a greener mode than driving alone. Despite a 24 percent growth in employee and student population since 1990, today's University-related peak hour traffic remains below 1990 levels. Furthermore, we have committed to reducing greenhouse gases by signing the Seattle Climate Partnership Agreement. We are a strong partner in managing the internationally renowned Washington Park Arboretum, which offers recreation and educational opportunities for citizens state-wide.

The State's investment in SR 520 is critical to the region's continued prosperity. SR 520 and its connection to Montlake Boulevard is one of the principal gateways to the campus. But we cannot allow the investment in the SR 520 infrastructure to adversely affect the investment that already exists at the University of Washington. With proper mitigation, we could accept any of the alternatives being considered so long as they:

301 Gerberding Hall Box 351230 Seattle, Washington 98195-1230 206-543-5010 FAX: 206-616-1784



Governor Christine Gregoire  
Joint Transportation Committee  
December 23, 2008  
Page Two

- Allow the University to grow in the future by retaining the building capacity of our property south of Husky Stadium.
- Fund the needed transit service and facility enhancements that result from removal of the Montlake Flyer Stop.
- Maintain the campus parking supply by replacing parking lost due to construction or permanent facilities.
- Do not degrade traffic operations through the Montlake Boulevard corridor.
- Protect the University's assets, including UW Medical Center, Husky Stadium, Washington Park Arboretum, and Waterfront Activities Center.

Attached are the University's comments on the SR 520 Project Impact Plan. These reflect specific elements that we believe need to be included in the various plan options in order to mitigate the project impacts to the University. Any final plan must commit to fully funding mitigation of University concerns. Otherwise, a project meant to solve transportation problems in the region may permanently damage one of the state's greatest assets.

Sincerely yours,

Mark Emmert  
President, University of Washington

Enclosures



ATTACHMENT

UNIVERSITY OF WASHINGTON COMMENTS ON THE  
SR 520 PROJECT IMPACT PLANS

The University of Washington has been an active participant in the SR 520 Mediation process and has considered the questions posed to all 34 members of the SR 520 Mediation Panel.

- A. Which west side interchange Option do you prefer and why?
- B. Are there changes that could be made to the other Options that would make them more acceptable?

The University has no position regarding a west side interchange option. Any of them could work if properly mitigated to address the UW's concerns. There is no question that Option A has the least impact on University of Washington property. The other two options (K & L) would require extensive mitigation to retain the UW's building capacity and parking in the area south of Husky Stadium. Our mitigation requirements are outlined in these five pages. The final page presents a matrix of our requirements for all three options.

OPTION A REQUIREMENTS:

- **Retain the SR 520 ramps to Lake Washington Boulevard.** WSDOT's analysis shows that eliminating these ramps would increase congestion at the SR 520/Montlake Boulevard Interchange, but would not substantially reduce traffic through the Arboretum.
- **Implement traffic calming through the Arboretum.** The project should provide design treatments in the Arboretum to slow traffic and enhance mobility for non-vehicular modes.
- **Construct the auxiliary westbound lane on SR 520 between the Montlake Boulevard On-ramp and the Roanoke Street/I-5 Off-ramp.** WSDOT's analysis shows that this auxiliary lane would dramatically improve traffic operations of Option A through the Montlake corridor. The lane would require very little additional pavement width on the Portage Bay Viaduct since much of the width would be required for the ramp transitions at each end. The operational benefits of this slight widening warrant including the auxiliary lane in Option A.
- **Construct the second Montlake Bridge.** The second bridge allows transit lanes to be provided across the Ship Canal, which would improve transit reliability to the UW.

OPTION K AND L REQUIREMENTS

- **Retain future building opportunities.** Construction of the new tunnel/depressed roadway south of Husky Stadium must maintain the UW's potential development capacity of that area, which is the largest remaining building area on campus near the Medical Center. Options to maintain development capacity could include relief of development regulations such as increasing the height, reducing set backs and other options. It must also include allowances for future development over and under the tunnel/depressed roadway, and increased cost of building over this tunnel.

1



## ATTACHMENT

- **Depress and lid the Montlake Blvd/Pacific Street intersection to accommodate unencumbered, at-grade pedestrian crossings.** Creating a four-leg intersection at the Montlake Boulevard/Pacific Street intersection (the new tunnel connection would be the new east leg) requires that pedestrian crossings be grade-separated. This provides the needed capacity at the intersection and improves pedestrian safety. Unlike other lids in the plan, this lid is required for the system to function and cannot be eliminated as a cost-trimming measure.
- **Replace parking displaced by construction.** Parking that is temporarily eliminated during the multi-year construction period must be replaced prior to construction. There are about 1,600 parking spaces in the stadium area parking lots. Replacement parking could be accomplished with a new parking structure somewhere south of the stadium or elsewhere on the southeast portion of the campus, such as an underground parking facility beneath Rainier Vista, near the Medical Center, or along side the stadium in a tiered garage as initially shown in the stadium renovation drawings completed by HOK Architects.
- **Do not degrade operations on Montlake Boulevard between Pacific Street and Wahkiakum Lane.** The Pacific Street Extension will become the higher-volume route across the Ship Canal. The design should provide a dual-left-turn lane from southbound Montlake Boulevard to eastbound Pacific Street to optimize the capacity and reduce potential queues for this route. This may be accomplished without (or with limited) widening of Montlake Boulevard. Operations with Option K or L should be no worse than expected for the No Build condition.
- **Provide direct access from Pacific Street Extension.** After construction is complete, any vehicular parking facility located south of the stadium must have access to all directions of the Pacific Street Extension. If parking is located in this area during construction, temporary access, including the ability to unload the garage in a timely manner after events, must be retained.
- **Retain pedestrian access to Husky Stadium from new parking facilities.** Replacement parking facilities must retain pedestrian access during construction.
- **Relocate the Waterfront Activities Center, moorage docks and Climbing Rock.**
- **Indemnify UW for potential structural damage to Husky Stadium and historic Canoe House.** Excavation and dewatering in the vicinity of Husky Stadium has the potential to affect the foundation and structural integrity of the stadium. A plan to monitor and remedy potential settling and damage during construction must be developed in association with the UW.

## REQUIREMENTS THAT ARE THE SAME FOR ALL OPTIONS

- **Fund improvements recommended by the High Capacity Transit (HCT) Plan.** All three Westside interchange options propose eliminating the Montlake Flyer Stop to decrease the width of I-5 through the Montlake neighborhood. Replacing the function of the Montlake Flyer stop will require significantly increased bus service hours between the Eastside and the University District, as well as improvements to the Montlake Multimodal Center to handle the increase in passengers and transit layover.
- **Implement the Rainier Vista Concept Plan by lowering Pacific Place at Rainier Vista to improve pedestrian movements and accommodate transit layover.** Elimination of the



## ATTACHMENT

Montlake Flyer Stop on SR 520 will increase bus transit trips to the UW from the Eastside. Additional bus layover space may be needed to accommodate added bus transit trips. The UW has proposed a plan to lower Pacific Place between Pacific Street and Montlake Boulevard to provide for grade-separated pedestrian crossings as well as to increase the curb space available for transit layover. This location would also be a logical transit transfer point due to its proximity to the planned Link Light Rail station.

- **Minimize dust and noise impacts on the UW Medical Center during construction.** WSDOT must develop a plan subject to UW Medical Center (UWMC) requirement to minimize dust and noise impacts on the UWMC. This would be similar to the requirements that UWMC imposes on its own construction, and were also imposed on Sound Transit construction.
- **Retain emergency access to the UWMC from Pacific Street.** The existing driveway to the hospital's emergency unit is located off Pacific Street. Access to and from both directions on Pacific Street must be maintained.
- **Signalize driveway at Montlake Boulevard/Wahkiakum Lane.** Increased capacity across the Ship Canal and increased volumes Montlake Boulevard **would require that the intersection be signalized.**
- **Provide bicycle parking displaced by removal of the Montlake Flyer Stop.** It is expected that removal of the flyer stop will increase bicycle parking in the vicinity of the Sound Transit station.
- **Provide for additional event management staff during construction.** Construction adjacent to Husky Stadium will create confusion for vehicular and pedestrian access. Additional event management and traffic control staff will likely be needed.

UW



ATTACHMENT

SR 520 Project - Summary of University of Washington Requirements

Mitigation Element	Alternative		
	A	K	L
<i>Features that Must be Included</i>			
Retain SR 520 ramps to Lake Washington Blvd	✓		
Construct 2 <sup>nd</sup> Montlake Bridge with transit/carpool lanes	✓		
Construct Direct HOV Access Ramps to Montlake Blvd	✓		
Provide two-lane on-ramp with auxiliary lane to westbound SR 520	✓		
Improve transit service and facilities in the vicinity of the Montlake Station	✓	✓	✓
Retain future building opportunities on E-11/E-12 lots		✓	✓
Depress and lid the Montlake Blvd/Pacific Street intersection to accommodate unencumbered, at-grade pedestrian crossings		✓	✓
Replace parking from E-11/E-12 displaced by construction		✓	✓
Provide direct access from Pacific Street Extension to parking replaced in E-11/E-12 lots		✓	✓
Retain pedestrian access to Husky Stadium from new replacement parking facilities in E-11/E-12		✓	✓
Relocate the Waterfront Activities Center, moorage docks and Climbing Rock		✓	
Retain access to Waterfront Activities Center and Climbing Rock			✓
Indemnify UW for potential structural damage to Husky Stadium due to tunnelling and/or trenching		✓	✓
Indemnify UW for potential structural damage to historic Canoe House		✓	
Minimize dust and noise impacts on the UW Medical Center during construction	✓	✓	✓
Retain emergency access to the UWMC from Pacific Street	✓	✓	✓
Do not degrade operations on Montlake Boulevard between Pacific Street and Wahkiakum Lane	✓	✓	✓
Signalize driveway at Montlake Boulevard/Wahkiakum Lane (access to Montlake Parking lot)	✓	✓	✓
Lower Pacific Place at Rainier Vista to improve pedestrian movements and accommodate transit layover	✓	✓	✓
Provide bicycle parking displaced by removal of the Montlake Flyer Stop	✓	✓	✓
Provide for additional event management staff during construction	✓	✓	✓





## Table of Contents

### I. Legislative Workgroup Recommendations Report – December 2009

#### II. Workgroup Operations

1. Rules & Operating Procedures
2. Workgroup Plan
3. Public Outreach and Engagement Plan
4. Member Roster

#### III. Workgroup Meetings and Materials

- A. Workgroup Meeting #1 - July 29, 2009 11 a.m.-12:30 p.m.  
Sound Transit - Union Station  
Ruth Fisher Board Room  
401 South Jackson Street, Seattle

##### Agenda Summary

1. Report on ESHB 2211 Requirements
2. SR 520 Program Overview
3. Action Items
  - Election of co-chairs
  - Workgroup operating rules
  - Westside subgroup members
  - Proposed work plan
  - Proposed outreach plan
4. Next Steps

##### Materials Presented

1. Letter from Governor Christine Gregoire
2. Letter to Governor Christine Gregoire from Paula Hammond
3. Presentation Slides

##### Meeting Minutes



- B. Westside Subgroup #1 - September 15, 2009, 9 a.m.-12 p.m.  
Seattle Center Northwest  
Fidalgo Room, Seattle

#### Agenda Summary

1. SR 520 Independent Cost Review
2. Community Presentations on Westside Interchange Options
3. Discussion on Option Refinements
4. Summary of SR 520 Project Environmental Effects
5. Follow-up and Next Steps

#### Materials Presented

1. Background Materials, I-5 to Medina: Bridge Replacement and HOV Project Transportation and Design Information
2. Option A Community Presentation Materials
3. Option K Community Presentation Materials
4. Presentation Slides

#### Meeting Minutes

- C. Workgroup Meeting #2 - September 22, 2009, 10 a.m. -1 p.m.  
Puget Sound Regional Council Board Room  
1101 Western Avenue Suite 500, Seattle

#### Agenda Summary

1. Report on 9/15 Westside Subgroup Meeting
2. Community Presentations on Westside Interchange Options
3. Environmental Regulatory Requirements and Westside Interchange Options
4. SR 520 Independent Cost Review
5. SR 520 Finance Plan Update
6. Process for Developing Recommendations
7. Follow-up and Next Steps

#### Materials Presented

1. Option A Community Presentation Materials
2. Option K Community Presentation Materials
3. Option L Community Presentation Materials
4. Presentation Slides

#### Meeting Minutes



- D. Westside Subgroup #2 - October 8, 2009, 1 p.m. – 4 p.m.  
The Center for Urban Horticulture  
3501 NE 41<sup>st</sup> Street, Seattle

#### Agenda Summary

1. Transportation Operations for Westside Options
2. Community Design Update
3. Option K Hybrid Conceptual Design
4. 9/15 Subgroup Meeting Follow-up
  - Montlake Bridge Openings
  - Arboretum Overview
  - Transit Operations
5. City of Seattle Update
6. Eastside Update
7. Preliminary Observations and Discussion
8. Follow-up and Next Steps

#### Materials Presented

1. Option A and L Community Presentation Materials
2. Option K Community Presentation Materials
3. Seattle City Council Update
4. Presentation Slides

#### Meeting Minutes

- E. Working Session #1 - October 20, 2009, 10 a.m. – 2 p.m.  
Sound Transit - Union Station  
Ruth Fisher Board Room  
401 South Jackson Street, Seattle

#### Agenda Summary

1. Current Funding – SR 520 Delivery Plan
2. Financial Phasing and Timing
3. Federal Reauthorization
4. Local Transportation Benefit District (TBD) Overview
5. Tolling Options
  - SR 520 Only
  - I-90 Options
6. Joint Transportation Committee Funding Study
7. Preliminary Observations and Discussion
8. Follow-up and Next Steps

#### Materials Presented

1. Supporting Materials – Taxing Authorities & Project Eligibility
2. Presentation Slides

#### Meeting Minutes



- F. Working Session #2 - November 5, 2009 1 p.m. – 4 p.m.  
University of Washington Waterfront Activities Center  
3900 Montlake Boulevard NE, Seattle

#### Agenda Summary

1. Finance Follow-up
  - Tolling Policies and Current Practices Related to I-90
  - Arboretum Ramp Tolling
  - Transportation Benefit Districts
2. Funding Options
  - Q&A Follow-up
  - Committed Funds/Financing Overview
  - Future Funding Scenarios
3. Current Options Review
4. University of Washington Update
5. Cost Overview
6. Independent Expert Review Panel Update
7. Preliminary Observations and Discussion
8. Follow-up and Next Steps

#### Materials Presented

1. Letter to Governor Christine Gregoire from Mark Emmert; President, University of Washington
2. E-mail to Sen. Oemig from constituent
3. Presentation Slides

#### Meeting Minutes

- G. Westside Subgroup #3 - November 10, 2009 9 am-12pm  
University of Washington  
Waterfront Activities Center  
3900 Montlake Boulevard NE, Seattle

#### Agenda Summary

1. Design Elements Review of Options A, K, L, A+ and M  
Member Observations and Comments
  - Design
  - Operations
  - Environmental Impacts
  - Costs
2. Finance Follow-up
  - Funding Scenario Chart
3. Key Observations Overview



### Materials Presented

1. Cost Estimate Comparison Summary
2. Detailed Option A Cost Map
3. Detailed Option K Cost Map
4. Detailed Option L Cost Map
5. Detailed Option A+ Hybrid Cost Map (see [updated version](#) presented 11/17)
6. Detailed Option M Estimate Cost Map (see [updated version](#) presented 11/17)
7. Comparison of SR 520 Westside Options: Cost and Design
8. Comparison of SR 520 Westside Options: Traffic Operations
9. Comparison of SR 520 Westside Options: Environmental
10. Comparison of SR 520 Westside Options: Data Sheet
11. Comparisons of SR 520 Westside Options: Considerations (in development)  
(see [updated version](#) presented 11/17)

### Meeting Minutes

- H. Workgroup Meeting #3 - November 17, 2009 10am-2pm  
Sound Transit - Union Station  
Ruth Fisher Board Room  
401 South Jackson Street, Seattle

### Agenda Summary

1. Finance Plan Update
  - Funding Decision Timeline
  - Tolling Scenarios
  - Funding Sources Matrix
2. Transit Agency Update
3. Westside Subgroup Observations
  - Statute Review
4. Design Option Update
  - Westside Option A+ Cost Update
  - Retrofit Options
  - West Approach Profile
5. Design Option Recommendations
6. Finance Plan Recommendations
7. Next Steps and Public Involvement

### Materials Presented

1. Floating Bridge and Landings Critical Path Elements
2. SR 520 Program Funding Requirements
3. Tolling Scenarios Analysis
4. Potential Funding Scenarios
5. Letter from Sound Transit
6. SR 520 Statutory Provisions
7. 4-Lane Retrofit Options
8. West Approach Profile Options: Draft
9. Detailed Option A+ Hybrid Cost Map
10. Detailed Option A Cost Map



11. Detailed Option K Cost Map
12. Detailed Option L Cost Map
13. Detailed Option M Cost Map
14. Comparison of SR 520 Westside Options: Cost and Design
15. Comparison of SR 520 Westside Options: Traffic Operations
16. Comparison of SR 520 Westside Options: Environmental
17. Comparison of SR 520 Westside Options: Data Sheet
18. Presentation Slides

### Meeting Minutes

- I. Workgroup Meeting #4 - December 8, 2009 10am-12pm  
Sound Transit - Union Station  
Ruth Fisher Board Room  
401 South Jackson Street, Seattle

### Agenda Summary

1. Overview of Public Comments on Draft Recommendations
2. Agreement on Design and Finance Plan Recommendations
3. Review Draft Workgroup Report

### Materials Presented

1. Draft Recommendations Report
2. Public Comment Summary
3. Minority Statement
4. Presentation Slides

### Meeting Minutes

## IV. Other Meetings and Public Outreach

- A. SR520 Rep. Deborah Eddy Community Forum - October 6, 2009 7pm  
Bellevue City Hall  
450 110<sup>th</sup> Avenue NE, Bellevue

### Materials Presented

1. Presentation Slides

- B. Seattle City Council Committee of the Whole - November 24, 2009 9:30am  
Seattle City Hall  
600 Fourth Avenue, Seattle

### Agenda Summary

1. Chair's Report
2. Briefing on the Washington State SR 520 Legislative Workgroup Preliminary Recommendations
3. Public Comment



#### Materials Presented

1. Presentation Slides

#### Meeting Minutes

- C. Legislative Workgroup Town Hall Public Meeting - November 24, 2009 6-8pm  
Center for Urban Horticulture  
3501 NE 41<sup>st</sup> Street, Seattle

#### Agenda Summary

1. Welcome and Opening Remarks
2. Presentation on Legislative Workgroup's Draft Recommendations
3. Public Comment
4. Closing Remarks

#### Materials Presented

1. Presentation Slides

#### Meeting Minutes

- D. Public Feedback Period

1. Letters/e-mails received
2. Verbatim comments

- V. Additional Resources

1. SR 520 Floating Bridge Strengthening Discussion (Dec. 18, 2007 mediation)
2. SR 520 Approach Bridges Retrofit Discussion (Dec. 18, 2007 mediation)
3. Proposal K – Tunnels at East Montlake and the Arboretum Conceptual Design and Cost Estimate, Part I - Report
4. Proposal K – Tunnels at East Montlake and the Arboretum Conceptual Design and Cost Estimate, Part II - Figures
5. SR 520 Health Impact Assessment
6. Tolling Implementation Committee Final Report
7. SR 520 Medina to SR 202: Eastside Transit and HOV Project TIGER Discretionary Grants Program Application
8. Independent Cost Review Panel Report





# SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project

## **DRAFT** - Reversible transit/HOV ramp to/from



Looking slightly northwest from 2343 Broadway E.

## Appendix S: references on traffic, air, and health

### Most Respected Studies of the Relationship between Traffic Associated Air Pollution and Cardiovascular Mortality

**Relative Risk** is the probability of the outcome for one exposure group divided by the probability of the outcome for another exposure group

#### **American Cancer Society Study (Krewski et al.2000).**

Relative risk (RR) for cardiopulmonary mortality of 1.30 (95% confidence interval [CI], 1.18–1.45) for a 24.5- $\mu\text{g}/\text{m}^3$  increase in PM<sub>2.5</sub>

#### **Harvard Six Cities Study**

association between an 18.6- $\mu\text{g}/\text{m}^3$  increase in PM<sub>2.5</sub> exposure and cardiopulmonary mortality (RR,1.31; 95% CI, 1.07–1.61)

#### **NLCS-AIR (Brunekreef et al 2009)**

cardiopulmonary mortality associated with black smoke exposure in these three Dutch cities, The Hague, Rotterdam and Utrecht (RR, 1.17; 95% CI, 1.00–1.36)

Also:

Smith KR, Jerrett M, Anderson HR, Burnett RT, Stone V, Derwent R, Atkinson RW, Cohen A, Shonkoff SB, Krewski D, Pope CA III, Thun MJ, Thurston G. Health and Climate Change 5 Public health benefits of strategies to reduce green house-gas emissions: health implications of short-lived greenhouse pollutants. *Lancet* (2009) 374:2091-2103

Brugge D, Durant JH, Rioux C. Near-highway pollutants in motor vehicle exhaust: A review of epidemiologic evidence of cardiac and pulmonary health risks. *Environmental Health* (2007) 6 (URL <http://www.ehjournal.net/content/6/1/23>), (DOI:10.1186/1476-069X-6-23)

Dockery DW, Pope CA, Xu X, Spengler JD, Ware JH, Fay ME, Ferris BG, Spiezer FE. An Association Between Air Pollution and Mortality in Six U.S. Cities. *The New England Journal of Medicine* (1993) 329:1753-1759

Krewski D, Jerrett M, Burnett RT, Ma R, Highes E, Shi Y, et al. Extended Analysis of the American Cancer Society study of particular ate pollution and mortality. Boston: Health Effects Institute; 2009

Krewski D, Burnett R, Goldberg MA, Hoover K. Siemiatycki J, Jerrett M, et al Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality, Part II: Sensitivity Analysis: A Special Report of the Institute's Particle Epidemiology Reanalysis Project. Health Effects Institute, Cambridge, MA, Cambridge, MA: 2000.

Pope CA III, Health Effects of Fine Particular Air Pollution: Lines That Connect. J Air Waste Manag Assoc. 2006 Jun;56(6):709-42.

Brunekreef B, Beelen R, Hoek G, Schouten L, Bausch-Goldbohm S, Fischer P, Armstrong B, Hughes E, Jerrett M, van den Brandt P. Effects of long-term exposure to traffic-related air pollution on respiratory and cardiovascular mortality in the Netherlands: the NLCS-AIR study. Res Rep Health Eff Inst. 2009 Mar;(139):5-71; discussion 73-89.

## Appendix T: Analysis of SDEIS assertions on air quality

### Supplemental Draft Environmental Impact Statement and Section 4(f)/6(f) Evaluation SR 520 Bridge Replacement and HOV Program - Executive Summary

January 2010

C-040-159

This executive document asserts that all options meet air quality standards and that the modeled concentrations of air pollutants are well below the 1-hour and 8-hour National Ambient Air Quality Standards for all design options. Page 33

**RESPONSE:** This statement does not specify the pollutants and toxics considered in this assertion. The statement does not specify the locations where the estimates of modeled concentrations of air pollutants were made relative to the center of SR 520. Effects are known to increase with vehicular traffic and fall off exponentially with distance from the road. The statement does specify the vehicular traffic volume at the time of estimates. There are standards for limited air pollutants and none for air toxics. The estimates are not specified with respect to distance from the center of the road.

Estimates of levels of air pollutants are unsatisfactory. Direct measurements are required. Direct measures of health effects are more relevant measures of the effects of traffic associated air pollution than modeled estimates.

C-040-160

“All options would reduce annual energy consumption by between 5 and 10 percent on SR 520 between Seattle and Medina” page 34

**RESPONSE:** This statement is not backed by factual data. In the HIA report it was asserted that increased capacity would result in a higher average speed. However, that hypothesis assumed that the limit on average speed was solely determined by number of lanes ignoring the limitations imposed by limited capacity for I-5 and I-405 to receive SR 520 traffic. Furthermore the hypothesis was not based upon any estimate of increasing traffic volume over the next 20 years when estimated population growth is 30 percent or 2 million people. Furthermore the assessment does not provide the public with figures comparing the effect upon annual

C-040-160 | **energy consumption between use of the additional two lanes for HOV versus transit with Rapid Bus Systems or Light Rail.**

**Current US oil consumption is 21 million barrels of oil per day, 25% of the total world's consumption. We are 4% of the world's population. We import 2/3 of our oil, 14 million barrels of oil per day. Five million barrels come from the Middle East. We produce 7 million barrels. All of the projected new exploration is likely to result in a maximum of 1-2 million barrels per day for a limited time, 10 years. We cannot base our future planning on f assertions not based upon fact and careful projections.**

C-040-161 | **" All options would reduce greenhouse gas emissions by approximately 10 percent in the project area." Page 34**

**RESPONSE: The report fails to recognize the difference between greenhouse emissions per vehicle and total greenhouse emissions. If the assertion were correct that greater SR 520 vehicle capacity would lower greenhouse emission per vehicle, the total greenhouse emissions would rise with greater vehicle use overwhelming any possible but unlikely benefit of a lower in greenhouse emission per vehicle traveling at a more optimal speed.**

C-040-162 | **"Air Quality – No mitigation proposed or necessary."**

**RESPONSE: This response is not based factual. It ignores consensus of extensive scientific literature from the US and other parts of the world and it ignores the growing body of literature from highly respected research groups at *the University of Washington*. The response is deaf to appropriate scientific methodology.**

***Three highly respected studies linking traffic associated air pollution with cardiopulmonary health are:***

**American Cancer Society Study (Krewski et al.2000)**

**Harvard Six Cities Study (Dockerya et al, 1993)**

**NLCS-AIR Study (Brunekreef et al 2009).**

**The relative risk for cardiopulmonary mortality associated with traffic associated air pollution in areas of high exposure was 1.30, 1.31, and 1.17 respectively. Persons living in area close to busy highways have a 17 to 31 percent high risk of cardiopulmonary mortality higher than those living at a**

C-040-162

distance. The conclusions stated in the EIS report are the result of conjecture based upon inadequate investigation.

Until the appropriate pollutants are measured directly in the zones of known high exposure adjacent to the existing SR 520 highway, it must be inferred that "Traffic-related air pollution is associated with cardiovascular morbidity and mortality" (Allen J 2009 in background to study on diesel exhaust) and that people are currently becoming ill and dying from traffic associated air-pollution along side high traffic highways in Seattle. There is no hope that these effects will get anything but worse with a growing population, increasing traffic and the lack of will to plan more appropriate transportation systems.

"Taken as a whole, the health studies show elevated risk for development of asthma and reduced lung function in children who live near major highways.

Studies of particulate matter (PM) that show associations with cardiac and pulmonary mortality also appear to indicate increasing risk as smaller geographic areas are studied, suggesting localized sources that likely include major highways. Although less work has tested the association between lung cancer and highways, the existing studies suggest an association as well. While the evidence is substantial for a link between near-highway exposures and adverse health outcomes, considerable work remains to understand the exact nature and magnitude of the risks." (Brugge D 2007)

Douglas Stewart, M.D.  
April 4, 2010

## Appendix V: Excerpt from Publicola blog:

### Federal Ruling Could Erase \$1 Billion in Funding for 520

Posted by [Erica C. Barnett](#) on April 13, 2010 at 4:30 PM

A ruling last week by US Transportation Secretary Ray LaHood could put funding for the proposed \$4.6 billion 520 bridge replacement in jeopardy, eliminating approximately \$1 billion in potential revenue from tolls on I-90 across Lake Washington.

City leaders have repeatedly [expressed support](#) for tolling the I-90 bridge across Lake Washington (in addition to tolling the 520 bridge) in part because tolling revenues from both bridges could help close the funding gap for a 520 bridge replacement. The state has been counting on tolling I-90 to pay for about \$1 billion of the 520 bridge replacement.

However, last week, LaHood [rejected](#) a petition by the state of Philadelphia to allow toll money from Interstate 80, which cuts across the center of the state, to be spent to help offset a transit funding shortfall. In his ruling, LaHood cited a little-known Bush-era federal law that prohibits the use of tolls collected on interstate freeways to pay for anything other than improvements to the freeway itself.

The ruling presents a huge, perhaps insurmountable, impediment to transportation leaders' plans here in Washington State, where I-90 tolls were supposed to help pay for 520, in addition to improvements to I-90 itself. The loss of that revenue would leave 520 with a funding shortfall of about \$1 billion.

"If Washington State wanted to toll I-90 it would be unable to do so right now, unless [toll money] went right back into that road," Bill LaBorde, policy director at the pro-transit Transportation Choices Coalition, said at a forum last week. "This is one place where the Obama Administration is less progressive than the Bush Administration." (It's conceivable, LaBorde says, that toll funds could be used to build light rail on I-90, but that remains "a bit speculative.")

Contacted by phone today, LaBorde called the ruling "a huge deal" for the region. "A lot of people are thinking the Obama Administration is out of options for financing transportation in the next six-year [transportation] bill," which was supposed to have been adopted in 2009.

"Maybe they'll revisit that issue in crafting a new bill." However, LaBorde adds, the Administration may fear that drivers will revolt (and vote against Democrats in Congress) if their toll money is used to pay for unrelated projects.

(more)

## Appendix W Fish Impacts By Maurice Cooper PE

C-040-164

The analysis of fish impacts in the SDEIS is characterized by heuristic arguments, not in the least supported by factual data.

Furthermore there is a glaring and outrageous omission of any connection between fish studies and aquatic plant research, particularly with respect to shading by over-water structures, which will certainly lead to unavoidable harm to salmon.

In particular there has been some excellent and recent research conducted, during the SR-520 study period, by the University of Washington, and herein incorporated by reference, which showed migratory patterns of salmon through the Ship Canal adjacent to the University of Washington and out through Union Bay. The results of this study have essentially been ignored. Instead there is the unsubstantiated argument made that shadowing by any bridge structure negatively impacts salmonid species, and this argument is extended to push in general for higher rather than lower bridge structures. The exact opposite is true.

In the ecosystems discipline report, it is pointed out that shadowing by bridge structures inhibits aquatic plant growth. This is certainly true. However this plant growth is almost exclusively of the invasive species kind. As this plant material grows and spreads, and subsequently decays, in the relatively shallow waters of Union Bay, it lowers the dissolved oxygen content of the water column. Salmonid species are extremely sensitive to two critical environmental factors - temperature and dissolved oxygen. This has been documented for the Lake Washington Ship Canal and its contiguous waterways at least as far back as the exhaustive and detailed RIBCO Studies from 1974 (q.v.). The more recent University of Washington study shows the preferred migratory pattern of the salmon emerging from the Montlake Cut, turning southeast as soon as the fish have cleared the weed-choked waters off the north end of Madison Park, and proceeding east following the north - and shaded - side of the existing bridge, until the fish reach the deeper, and cooler waters of Lake Washington. The salmon follow this path because it is (a) cooler, being in the shade, and (b) higher in dissolved oxygen content, being away from the plant growth and the decaying plant material.

To argue, therefore, for a higher bridge structure to decrease shading is to argue for an increase in invasive aquatic plant species, with the attendant lower dissolved oxygen in the water, and to argue for higher water column temperatures. In turn, therefore, to argue for a higher bridge structure in this location is to argue strongly against the health of salmon and hence against preservation of our dwindling and endangered salmon population - a backbone of Northwest Native culture, and an icon of the northwest.

It is essential that the misinformation and/or implied arguments in the DEIS regarding fish behavior be withdrawn and corrected.



**Board of Park Commissioners**

- Neal Adams, Vice Chair*
- John Barber*
- Terry Holme*
- Jourdan Keith*
- Diana Kincaid*
- Donna Kostka*
- Jackie Ramels, Chair*

April 14, 2010

Jenifer Young, Environmental Manager  
SR 520 Project Office  
600 Stewart Street, Suite 520  
Seattle, WA 98101

RE: The Arboretum and Botanical Garden Committee's Comments to the SR520, I-5 to Medina: Bridge Replacement and HOV Project Supplemental Draft Environmental Impact Statement (SDEIS)

Dear Ms. Young,

At its April 8, 2010, meeting the Seattle Board of Park Commissioners unanimously adopted the attached resolution as its official response to the SR520, I-5 to Medina: Bridge Replacement and HOV Project SDEIS. Please add these comments to the official record.

Sincerely,

Jackie Ramels, Chair  
Seattle Board of Park Commissioners

Attachment: The Seattle Board of Park Commissioner's Comments to the SR520, I-5 to Medina: Bridge Replacement and HOV Project SDEIS

- cc:
- Mike McGinn, Mayor, City of Seattle
  - The Honorable Richard Conlin, Chair, Seattle City Council
  - The Honorable Sally Bagshaw, Seattle City Council
  - The Honorable Mike O'Brien, Seattle City Council
  - The Honorable Nick Licata, Seattle City Council
  - The Honorable Jean Godden, Seattle City Council
  - The Honorable Tom Rasmussen, Seattle City Council
  - The Honorable Sally Clark, Seattle City Council
  - The Honorable Bruce Harrell, Seattle City Council
  - The Honorable Tim Burgess, Seattle City Council
  - Mark Emmert, President, University of Washington
  - Tim Gallagher, Superintendent, Seattle Parks
  - Peter Hahn, Director, Seattle Department of Transportation
  - Stephanie Brown, Seattle Department of Transportation

## RESOLUTION

A RESOLUTION expressing the position of the Seattle Board of Park Commissioners regarding the SR 520, I-5 to Medina: Bridge Replacement and HOV Project.

WHEREAS, the Seattle Board of Park Commissioners has been in continuous existence since 1887 and acts in an advisory capacity to the Mayor, City Council, Seattle Parks and Recreation and other City departments; and

WHEREAS, State Route 520 has been, since its completion in 1963, and continues to be to this day, a blight on the Washington Park Arboretum; creating noise and visual intrusions into the park; encouraging cut-through traffic along Lake Washington Boulevard in much higher volumes than was originally intended for the boulevard, disturbing the serenity of the Japanese Garden, and affecting the passage of people and wildlife between Marsh and Foster Islands and the remainder of the Arboretum; and

WHEREAS, the Washington Park Arboretum is Washington State's official State Arboretum and contains internationally recognized woody plant collections and North America's largest collection of *Sorbus* and Maple, the second largest collection of species Hollies and significant collections of oaks, conifers and camellias; and

WHEREAS, a new Master Plan for the Arboretum was adopted in 2001 that was the culmination of five years of planning work undertaken by Seattle Parks and Recreation, the University of Washington, the Arboretum Foundation, community groups and members of the general public; and that will guide improvements to the Arboretum for the next 20 years, including many specific projects to enhance the physical and natural characteristics of the Arboretum such as increasing habitat diversity by restoring the natural function of Arboretum Creek and the northern shoreline; and

WHEREAS, the Washington Park Arboretum contains the largest freshwater wetland complex of its type in the Seattle region, and the Master Plan, in conjunction with the existing wetlands, includes the restoration, enhancement, and creation of new wetlands by restoring the ecological and wildlife function of the former garbage dump surrounding existing SR Route 520 ramps, and creating a Pacific Northwest Marshland collection along the shoreline of Union Bay; and

WHEREAS, implementation of the SR 520, I-5 to Medina: Bridge Replacement and HOV Project, as currently proposed, will forever compromise the aesthetic setting, biological diversity, educational opportunities, and physical connections for people and wildlife within the Washington Park Arboretum:

**NOW, THEREFORE, BE IT RESOLVED BY THE SEATTLE BOARD OF PARK COMMISSIONERS THAT:**

The Board cannot endorse any of the alternatives identified in the Supplemental Draft Environmental Impact Statement for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project, issued on January 22, 2010, due to the profound negative environmental impacts the project would have on the Washington Park Arboretum and the other City of Seattle Parks along the SR 520 corridor. The Board makes the below recommendations

The preferred alternative chosen must be consistent with the following principles:

- The structure should minimize the impacts on the Washington Park Arboretum, especially the Japanese Garden and Foster and Marsh Islands, and other adjacent and nearby parks such as East Montlake and McCurdy Parks;
- The structure should have the least number of travel lanes possible;
- The structure width should be the minimum necessary for safe passage;
- Any structure should be designed to have the least amount of coverage and shadow impacts on park land below;
- Any structure should be designed to have the least amount of impact to wetlands, aquatic resources and fish, in particular Federally protected salmonids that travel through Portage and Union Bays to and from their spawning grounds and the Pacific Ocean;
- All construction activities must be sited and timed to have the least impact on park users and the natural environment;
- Clear, open, and safe access for people and wildlife under the structure must be provided to reconnect severed components of the Arboretum; and,
- Any required wetland mitigation must occur within the Arboretum first; if the area within the Arboretum is insufficient to accommodate the required mitigation, Park sites within Seattle on or adjacent to Lake Washington must be considered.

Mitigation of the continuing highway and future project impacts must be considered, regardless of the alternative/option chosen, to re-establish the Arboretum experience. As a starting point, the following should be considered in any mitigation package:

- Address the traffic impacts to the Arboretum caused by increased traffic along Lake Washington Boulevard (LWB) including prohibiting access to and from SR 520 to LWB; repaving LWB with "quiet" pavement; incorporating other traffic calming measures in LWB to discourage through traffic movements;

- Completely fund the Arboretum Master Plan, including wetland and shoreline restoration and planting (approximately \$60 million);
- Develop the stormwater pond in East Montlake Park for educational use;
- Provide a park-like lid at Montlake (depending on the option, the lid should extend as far as possible given the geography) which will create a strong connection between the neighborhood and the Arboretum;
- Replace (at WSDOT's expense) all of the functions served by the Museum of History and Industry (MOHAI) building; and,
- Design and provide access and parking at East Montlake Park for access to the Arboretum Waterfront Trail and for hand-launched boats.

The Board also respectfully submits the following comments in response to the Supplemental Draft Environmental Impact Statement (SDEIS) for the I-5 to Medina: Bridge Replacement and HOV Project issued on January 22, 2010:

- **Bagley Viewpoint** - Bagley Viewpoint is a well visited viewpoint along Delmar Drive East which provides views to the east of Lake Washington, Montlake Cut, the University of Washington and the Cascade mountain range. No other viewpoint in Seattle provides this unique view to the east. The viewpoint was redeveloped following the construction of the access freeway to the Evergreen Point floating bridge in 1963. The freeway cut the viewpoint off from its previous connection to Interlaken Park.
  - Loss of this unique viewpoint must be mitigated. The SDEIS indicates that a lid is proposed in this area that will provide similar view functions and also serve to reconnect the neighborhood through the triangle between 10<sup>th</sup> Avenue East, East Roanoke Street and East Delmar Drive. WSDOT must ensure that this lid remains part of the project and does not get removed due to funding concerns. Absent the lid, WSDOT must provide a view opportunity similar to the one now provided by Bagley Viewpoint and work to reconnect this viewpoint to Interlaken Park as it was originally constructed.
- **Montlake Playfield** - While the physical impacts to the playfield associated with the SR 520 project will be minimal, the visual impacts and noise associated with the project, both during construction and after it is completed will be significant. Every effort must be made to limit the potential for noise from the freeway to impact users of the playfields, members of the public who come to the area to take advantage of the newly reconstructed hand-carried boat launch, and the public and fauna that use the newly enhanced wetland areas.
  - During construction, any temporary work bridges and/or barges must not restrict canoe/kayak access between the Montlake Playfield boat launch and Portage Bay.
  - Seattle Parks is just completing a large wetland restoration project along the perimeter of Montlake Playfield. There are additional wetland

enhancement opportunities available. Montlake Playfield should be considered for any required wetland mitigation/enhancement as part of the projects mitigation requirements.

- **Lake Washington Boulevard** - Lake Washington Boulevard is referred to as a city street throughout the SDEIS. The 4f evaluation fails to identify Lake Washington Boulevard as either a historic resource or a park and recreation resource. This officially designated park boulevard is a 204-acre, 9.2-mile-long linear park wholly owned by the City and under the jurisdiction of Seattle Parks and Recreation. It is a crucial element in the 1903 Olmsted Plan for Seattle's boulevard system, sometimes referred to as the "Emerald Necklace." Decisions about the future design of the SR 520 improvements must be made with the understanding that Lake Washington Boulevard was never designed to function as an extension of direct-access ramps to and from SR 520. Where Lake Washington Boulevard serves as a corridor through the Arboretum, vehicles and bicycles must be able to travel on it in a manner consistent with the design and intent of the surrounding Arboretum.
  - There should be no direct access from SR 520 to Lake Washington Boulevard. From the day it opened, SR 520 and the access ramps to and from Lake Washington Boulevard have encouraged and facilitated traffic through the Arboretum which would not otherwise be there. This increased traffic through the heart of the Arboretum limits access to the Japanese Garden from the rest of the Arboretum, reduces the air quality due to vehicle emissions, increases noise from traffic and makes crossing Lake Washington Boulevard unsafe.
- **Lake Washington Boulevard Access** - If direct access to and from Lake Washington Boulevard to SR 520 is a component of the final design of the project then the following must be considered:
  - Lake Washington Boulevard has become an extension of the on/off ramps to SR 520. Had existing environmental laws been in place, mitigation for the impacts on the Arboretum of the original 520 project would have been significant or more likely, the project would have been redesigned. If direct access to and from SR 520 to Lake Washington Boulevard remains a part of the future project, exacerbating the current condition, the Arboretum should be duly compensated for the use of the boulevard in the future.
  - As mitigation for the increased traffic on Lake Washington Boulevard directly attributable to SR 520, traffic calming measures must be implemented on the boulevard.
  - If the SR 520 project includes direct access ramps to and from Lake Washington Boulevard to SR 520, additional tolls should be included on these ramps. Tolls should be included as a way of travel demand management to discourage people from using Lake Washington Boulevard to access SR 520. Also, the revenue from these tolls should be dedicated to the Arboretum to help mitigate the impacts of the increased noise, air emissions and vehicular distraction on the physical

nature, educational value and visitor experience of the Washington Park Arboretum.

- The most recent data from the Seattle Department of Transportation indicates that Lake Washington Boulevard carries 16,100 vehicles.<sup>1</sup> The SDEIS indicates that the ramps to and from Lake Washington Boulevard to SR 520 carry 3,000 vehicles in the AM and PM peak hours. Given 3,000 vehicles during two hours, the total amount of traffic that uses Lake Washington Boulevard exclusively to access SR 520 could be as high as 10,000 vehicles per day. Taken together, these traffic numbers indicate that as much as 62% of the traffic which uses Lake Washington Boulevard is directly related to SR 520. While Lake Washington Boulevard is a park boulevard, it is available for City residents to use as they travel throughout the City. However, this direct use of the boulevard as an access ramp to and from SR 520 is a highway use for which the boulevard was never intended. If WSDOT intends to continue to use Lake Washington Boulevard for a highway on and off ramp, then WSDOT must compensate the City annually in the range of \$1 - \$2.1 million, based on present value and an 8% rate of return, for the use of the property in a proportional share to the percentage of traffic which uses the boulevard to access SR 520.
- **Washington Park Arboretum** - The Washington Park Arboretum, State Arboretum for the State of Washington, is a stunning gem in Seattle's park system. It provides respite, scenery, recreation and solace to thousands of visitors in every season of the year. It provides educational, recreational, conservation and volunteering opportunities to those who seek it out. The City of Seattle and the University of Washington have been cooperatively managing this park since the original 1934 agreement.
  - Since the SR 520 highway was opened, the Arboretum has been fractured by the highway structure itself and the noise, pollution and visual intrusion of the structure on the physical nature, educational value and visitor experience of the Washington Park Arboretum. A percentage of the tolls collected on the main line of SR 520 should be dedicated to improvements in the Arboretum as mitigation for past current and future impacts of siting a transportation facility in the heart of a natural area and arboretum.
  - The physical nature, educational values and visitor experience within the Washington Park Arboretum should be enhanced by the construction and operation of the SR 520 I-5 to Medina: Bridge Replacement and HOV project if properly designed with sensitivity to the park.
  - All efforts must be made to avoid any adverse impacts to the Arboretum, both during construction and through the long term operation of the SR 520 facility.

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<sup>1</sup> Average Annual Daily Traffic (AAWDT) (5-day, 24-hour)

- To the extent that there will be adverse impacts to the Arboretum, every impact must be thoroughly mitigated.
  - Unavoidable adverse impacts must be mitigated. Those of shorter duration must be addressed during the construction phase. Long term impacts of facilitating increased traffic through the Arboretum which has a direct impact on the physical nature, educational value and visitor experience in the Washington Park Arboretum need to be avoided through sound design or mitigated appropriately.
  - Design of the new structure should address the potential for increased noise through the Arboretum as a result of the increased traffic. The project must be designed such that noise levels decrease from the levels experienced today.
  - The project must be designed such that the visual impact of the structure complements and does not detract from the physical nature, educational value and visitor experience of the Washington Park Arboretum. Designing a “signature” bridge does not reduce the visual impact of a concrete and/or steel structure in the heart of a 230-acre arboretum.
- **Washington Park Arboretum Master Plan** - In May 2001, the Seattle City Council approved the long-range master plan for the Washington Park Arboretum, creating a road map for Arboretum improvements over the next 20 years. The master plan ensures the Washington Park Arboretum will effectively fulfill three primary purposes—conservation, recreation and education—for decades to come. Together, University of Washington Botanic Gardens and Seattle Parks and Recreation, with support from the Arboretum Foundation, are working to implement the master plan. Substantial public and private funds have recently been raised and spent to improve the visitors’ experience. The newly created Pacific Connection Gardens have been created, the Japanese Garden Gatehouse has been redeveloped and a number of other park improvements have been made. All these contributions will likely be negatively impacted by the proposed SR 520 project.
    - The Master Plan adopted in 2001 made note of the fact that there would be limited new buildings built within the Washington Park Arboretum. Instead, UW, the Arboretum Foundation and Seattle Parks and Recreation would address their long term need for additional educational, maintenance and classroom space by expanding into the building which currently houses the Museum of History and Industry (MOHAI), once MOHAI vacated the building. The City of Seattle owns the building which MOHAI currently occupies. Since all of the options in the SDEIS involve expansion of the roadway such that the MOHAI will be demolished, WSDOT must provide replacement space as envisioned in the Master Plan.
    - There are four significant projects at the north end of the Arboretum which are identified in the Arboretum Master Plan: complete the Waterfront Trail as a loop all the way around Duck Bay; add access,

sitting and viewing areas on the west side of Duck Bay; daylight Arboretum Creek; and, create an entry at the west/north end of the Arboretum with the same grand character as the south entry. The redevelopment of SR 520 has the potential to negate the potential to undertake some or all of these projects to the detriment of the Arboretum and contrary to the goals set out in the Master Plan. To the extent mitigation measures are necessary as a result of unavoidable significant impacts associated with the SR 520 project, these identified Arboretum Master Plan project should be fully funded by WSDOT for implementation by Parks and/or UW.

Adopted by the Seattle Board of Park Commissioners the 8th day of April, 2010 and signed by me in open session in authentication of its adoption this \_\_\_\_ day of \_\_\_\_\_, 2010.



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Chair of the Seattle Board of Park  
Commissioners



# **SR 520 Pontoon Construction Design-Build Project**

# **Request for Proposal**

**September 24, 2009**

## **Appendix M16 Preliminary Bridge Plans**

PT. OF MIN. VERT. CLEARANCE (6-LANE)  
 WEST CHANNEL ML 138+63.22, 47.33' LT (43'-8" CLR)  
 EAST CHANNEL ML 215+74.92, 54.62' LT (70'-4" CLR)

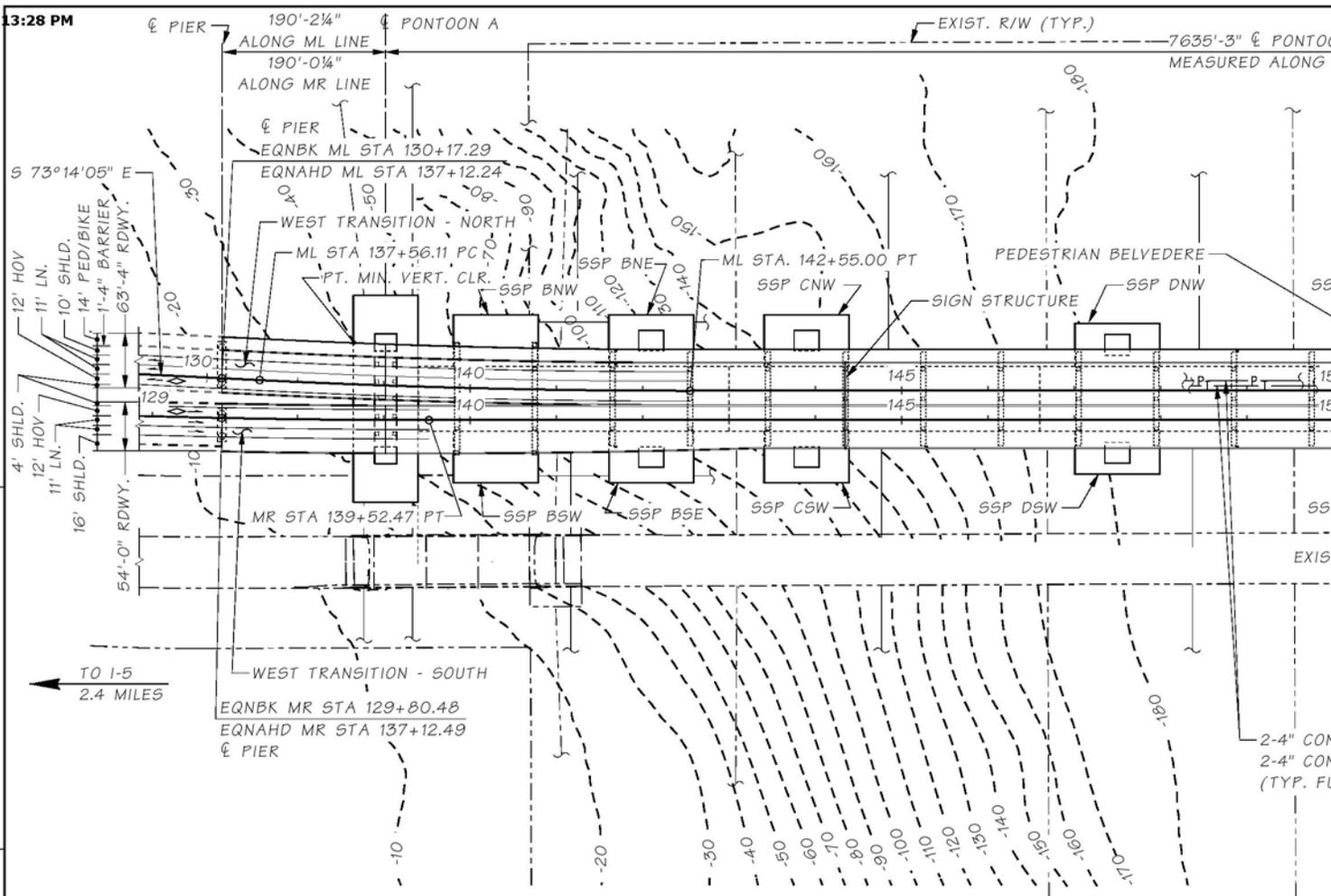
COAST GUARD LIAISON  
 COAST GUARD PERMIT REQ'D.  
 PERMIT TARGET DATE

W58G PRESTRESSED CONC. GIRDER  
 5'-9" SUPERSTRUCTURE DEPTH  
 DECK PROTECTIVE SYSTEM 1 (EPOXY COATED REBAR)  
 CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000

FILE NO. SHEET 1 OF 18

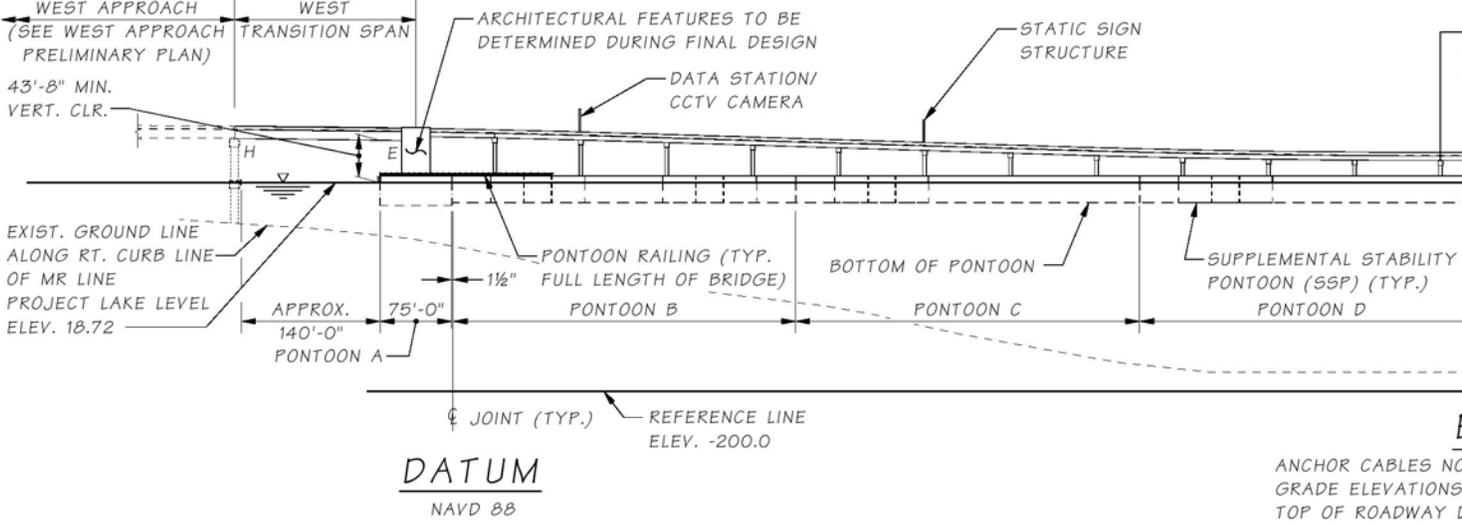
SR 520 Bridge Replacement and HOV Project

2010 SDPIS Comments and Responses - Comments Only



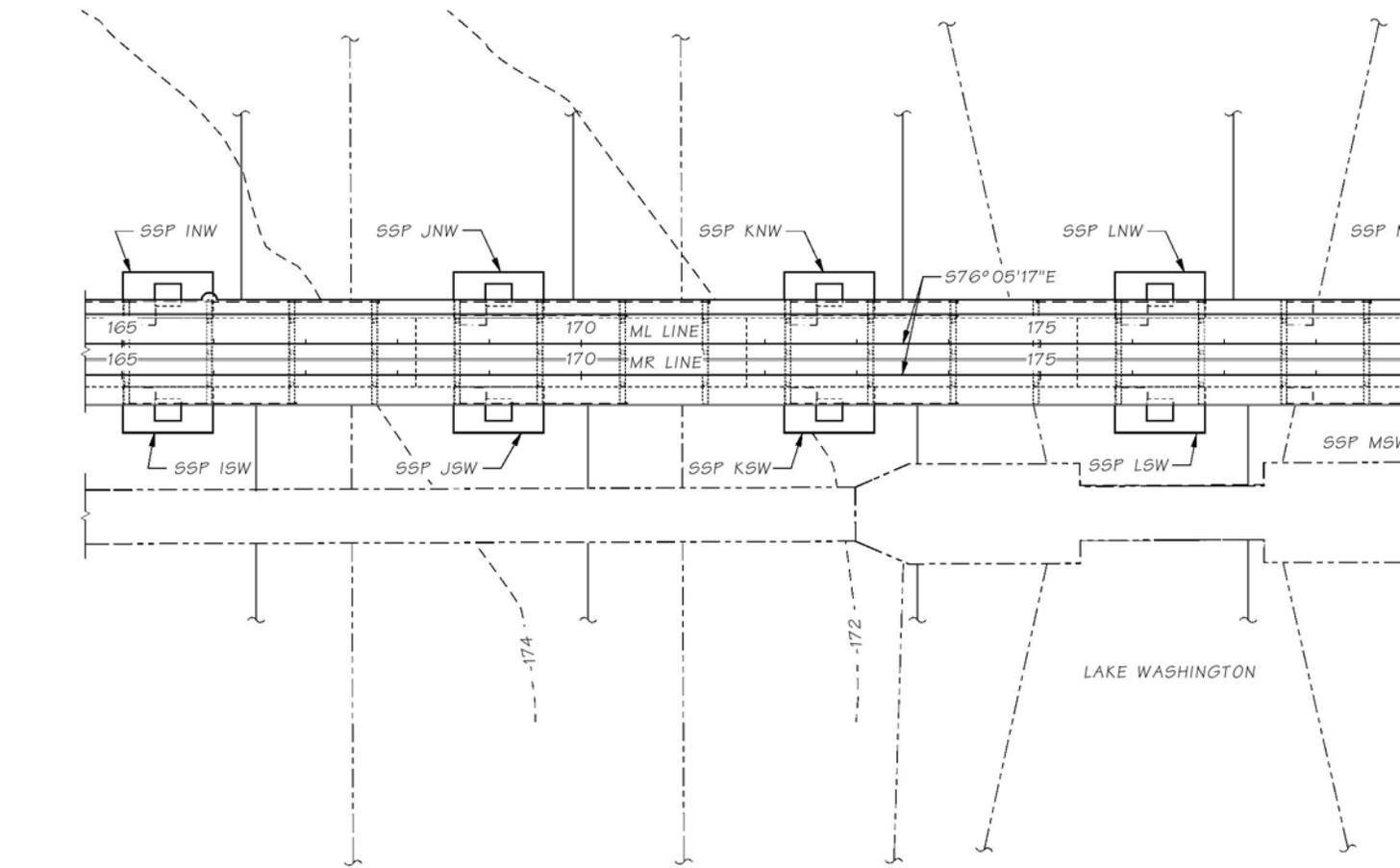
FIXED TRANSITION PIER  
 EQNBK ML STA 130+17.29 ELEV. = 75.02  
 EQNAHD ML STA 137+12.24 ELEV. = 75.02  
 EQNBK MR STA 129+80.48 ELEV. = 75.05  
 EQNAHD MR STA 137+12.49 ELEV. = 75.05

PIER A  
 PONTON A  
 ML STA. 139+02.30 ELEV. = 72.61  
 MR STA. 139+02.50 ELEV. = 72.63

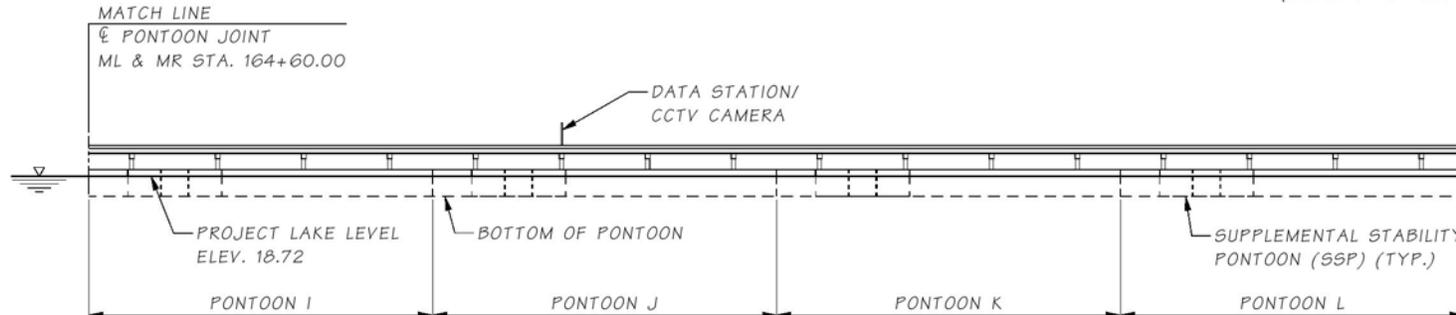


BEARING OF ALL PIER APPROACH PIERS S N 13°54'43" E (NOR)

Bridge Design Engr. Khaleghi, B		M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\LAYOUT 6 LANE-1.WND			
Supervisor Clarke, PT		REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
Designed By		10	WASH.		TOTAL SHEETS
Checked By Ferluga, E / Olson, D 03/09		JOB NUMBER			
Detailed By Puryear, D 03/09					
Architect/Specialist Kinderman, P		DATE	REVISION	BY	APPD



PL  
BEARING OF ALL PIERS ON FLOOR  
(NORMAL TO PONTON)



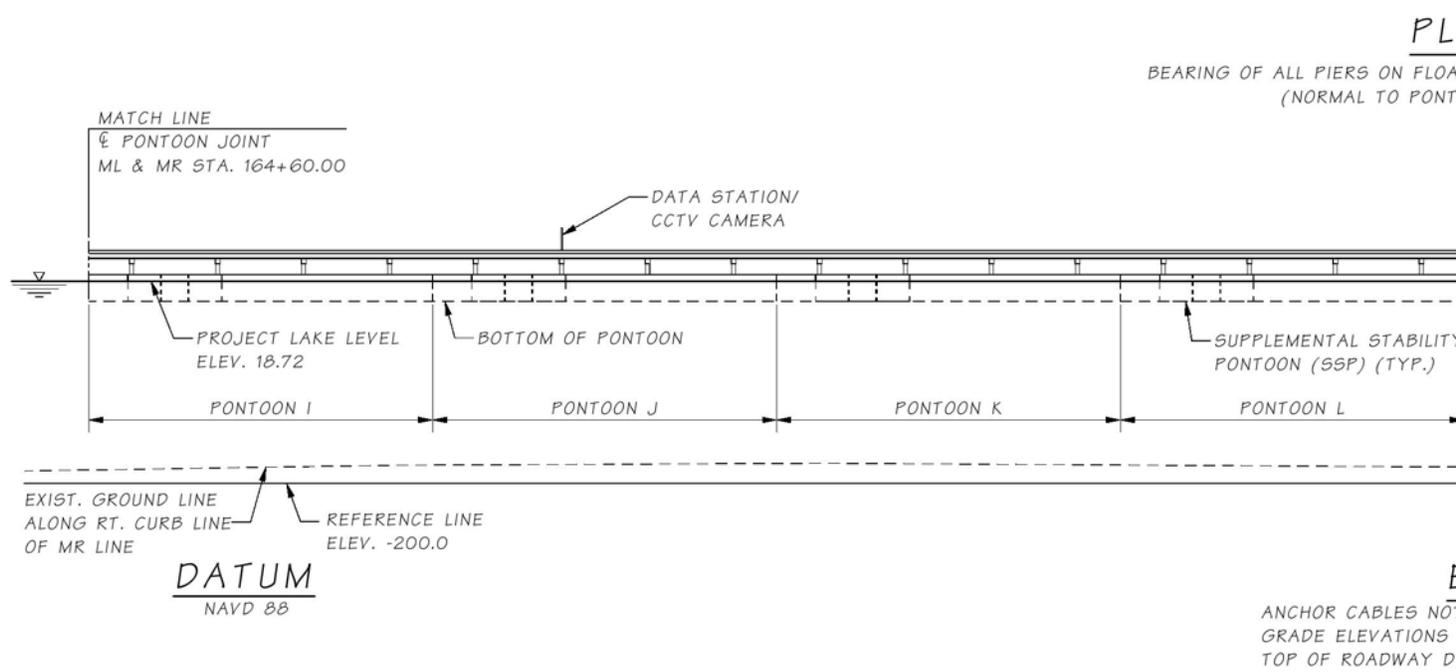
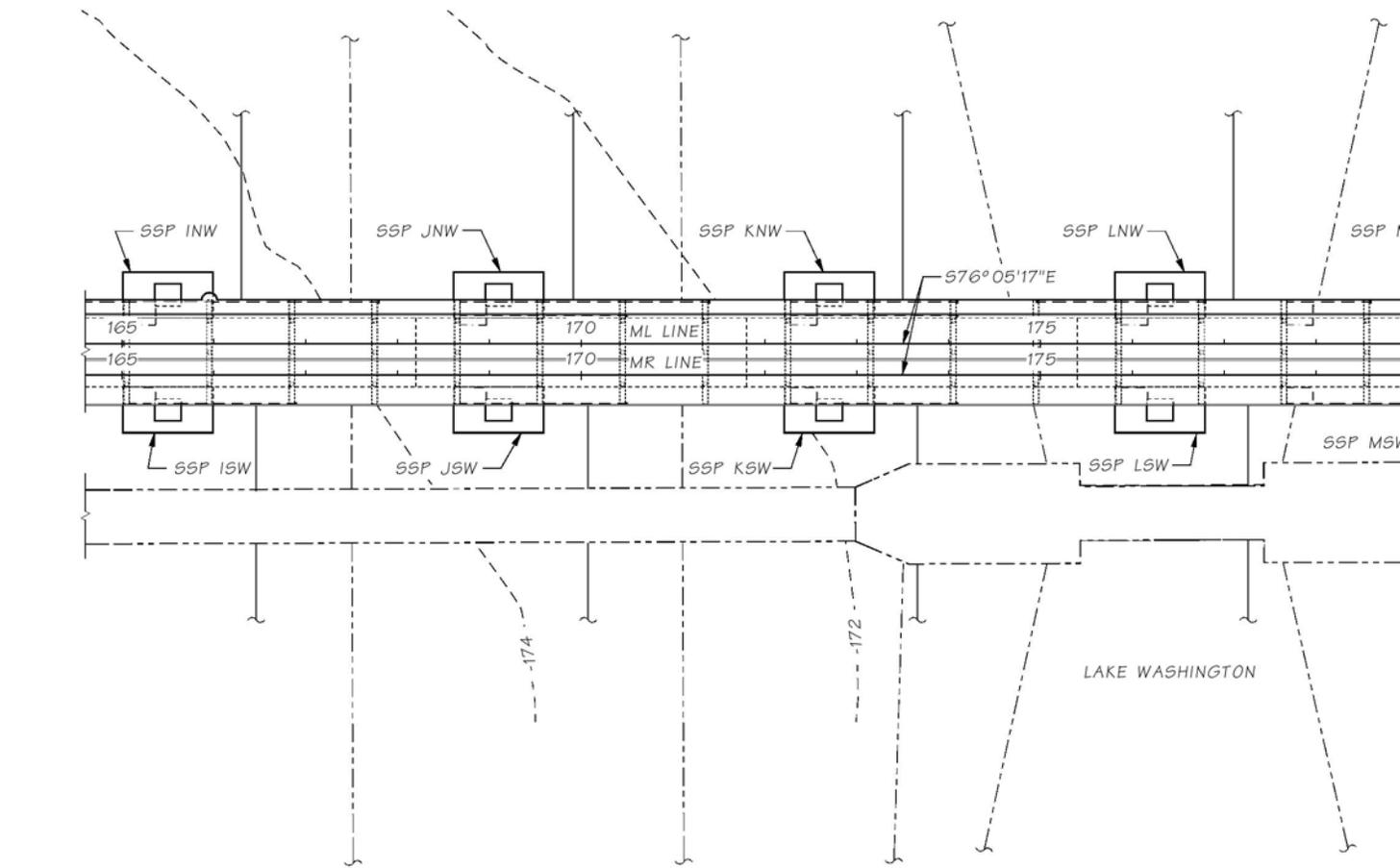
ANCHOR CABLES NOT  
GRADE ELEVATIONS  
TOP OF ROADWAY D

FILE NO. SHEET 2 OF 18

Bridge Design Engr. Khaleghi, B		M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\LAYOUT 6 LANE-2.WND						
Supervisor Clarke, PT				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Designed By				10	WASH.			
Checked By Ferluga, E 03/09				JOB NUMBER				
Detailed By Puryear, D 03/09								
Architect/Specialist Kinderman, P		DATE	REVISION	BY	APPD			

SR 520 Bridge Replacement and HOV Project  
2010 SDPIS Comments and Responses -- Comments Only

Thu Sep 24 08:24:00 2009

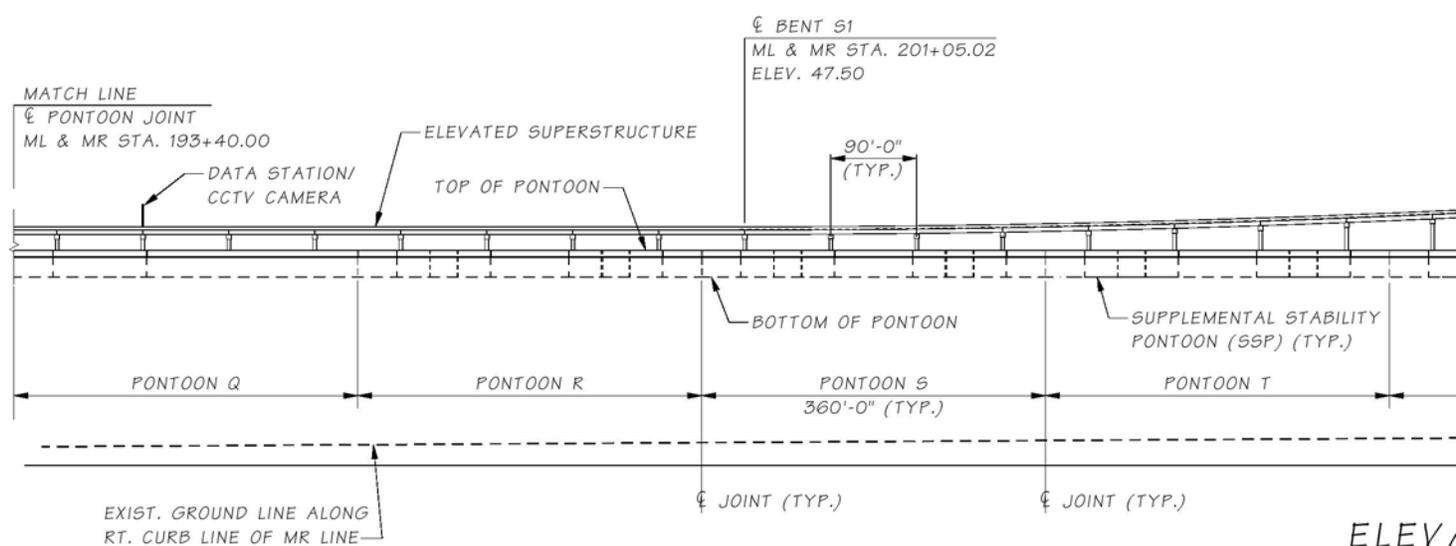
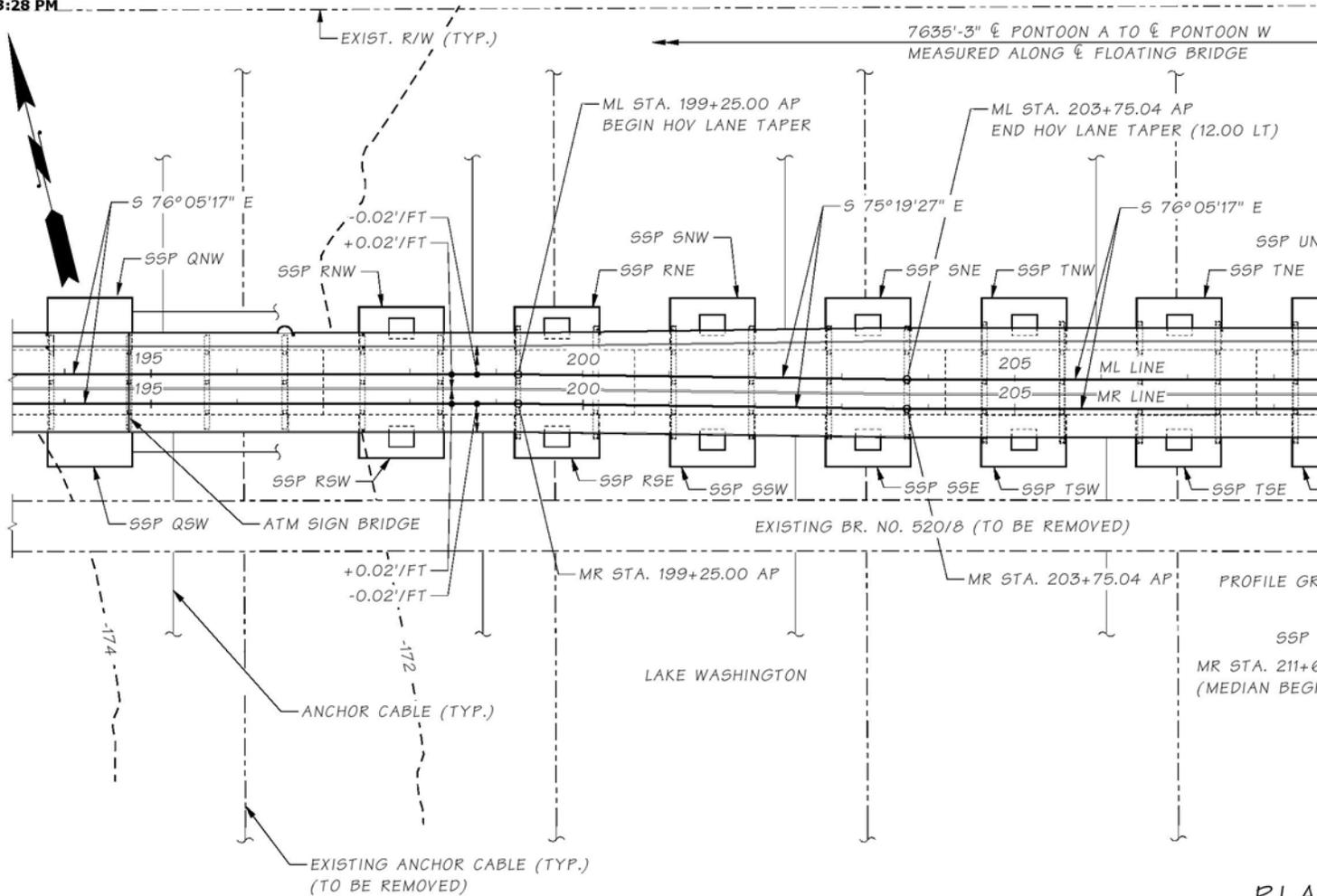


FILE NO. SHEET 2 OF 18

Bridge Design Engr.	Khaleghi, B	M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\LAYOUT 6 LANE-2.WND					REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Clarke, PT					10	WASH.				
Designed By						JOB NUMBER					
Checked By	Ferluga, E	03/09									
Detailed By	Puryear, D	03/09									
Architect/Specialist	Messinger, AD	09/09									
	Kinderman, P					TL					
		DATE	REVISION	BY	APPD						

SR 520 Bridge Replacement and HOV Project  
2010 SDPIS Comments and Responses -- Comments Only

Thu Sep 24 08:24:00 2009

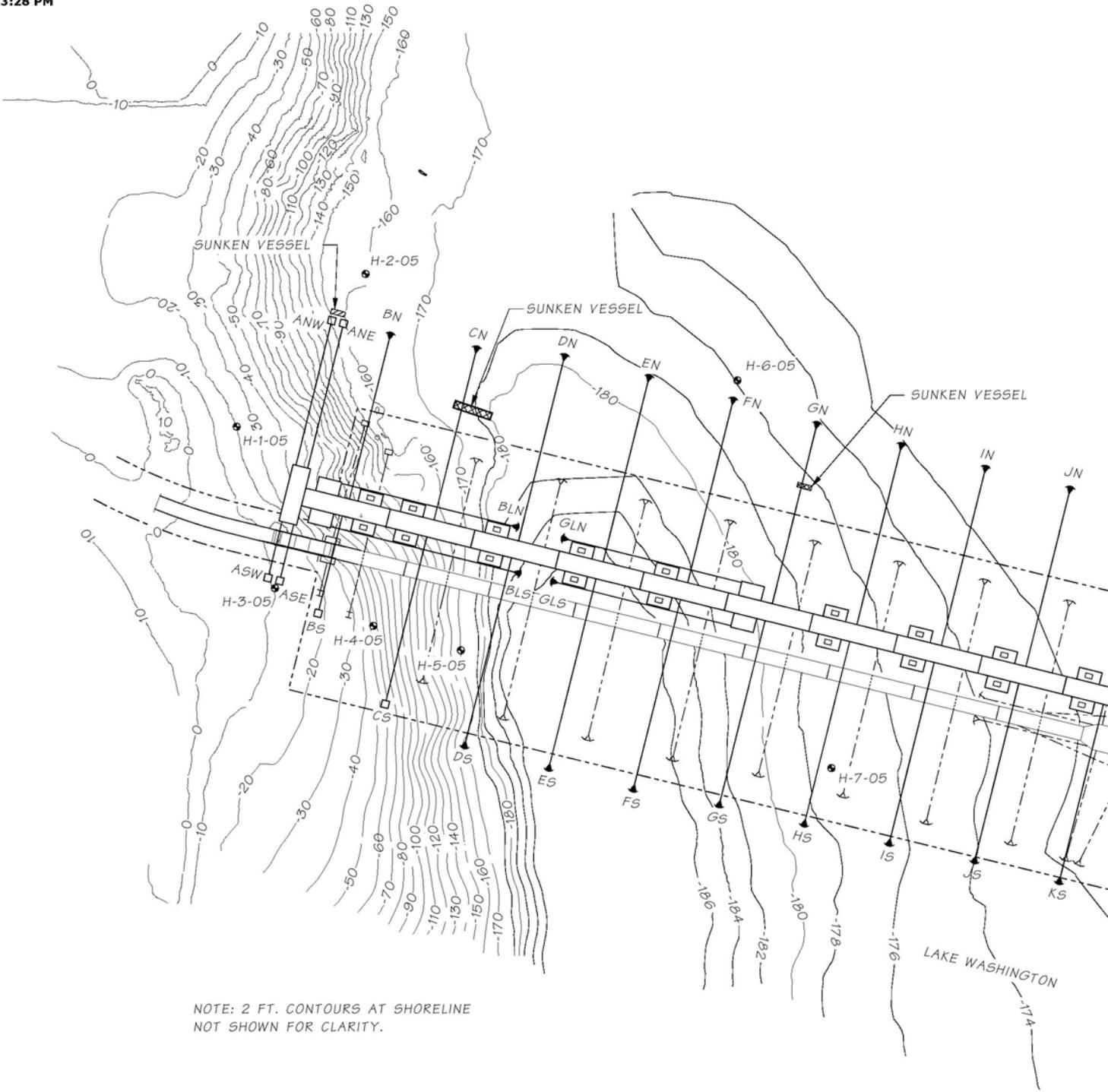


**DATUM**  
NAVD 88

ANCHOR CABLES NOT SHOWN F  
GRADE ELEVATIONS SHOWN AR  
TOP OF ROADWAY DECK AND A

FILE NO. SHEET 3 OF 18

Bridge Design Engr. <b>Khaleghi, B</b>		M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\LAYOUT 6 LANE-3.WND			
Supervisor <b>Clarke, PT</b>		REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
Designed By		10	WASH.		TOTAL SHEETS
Checked By <b>Ferluga, E / Olson, D</b> 03/09		JOB NUMBER			
Detailed By <b>Puryear, D</b> 03/09					
Architect/Specialist <b>Kinderman, P</b>		DATE	REVISION	BY	APPD
SR 520 Bridge Replacement and HOV Project		09/09	NEW SHEET	TL	



NOTE: 2 FT. CONTOURS AT SHORELINE  
NOT SHOWN FOR CLARITY.

ANCHOR

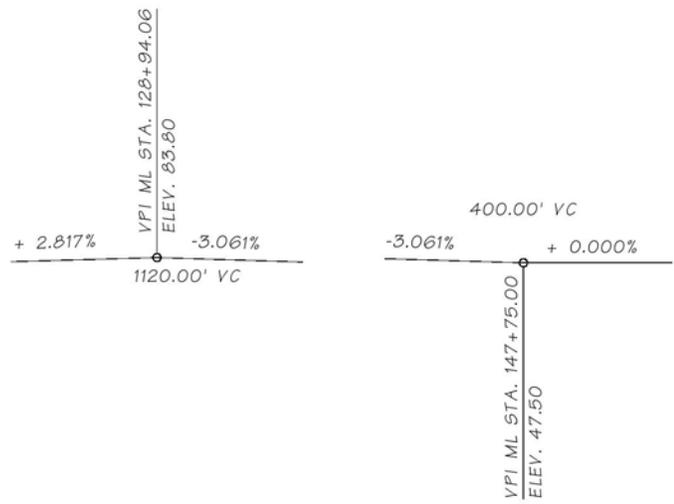
FILE NO. SHEET 4 OF 18

Bridge Design Engr.	Khaleghi, B	M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\ANCHOR LAYOUT & BOREHOLE LOC.WND					REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Clarke, PT					10	WASH.				
Designed By						JOB NUMBER					
Checked By	Ferluga, E	03/09									
Detailed By	Puryear, D	03/09									
Architect/Specialist	Messinger, AD	03/09									
DATE	REVISION	BY	APPD	TL							

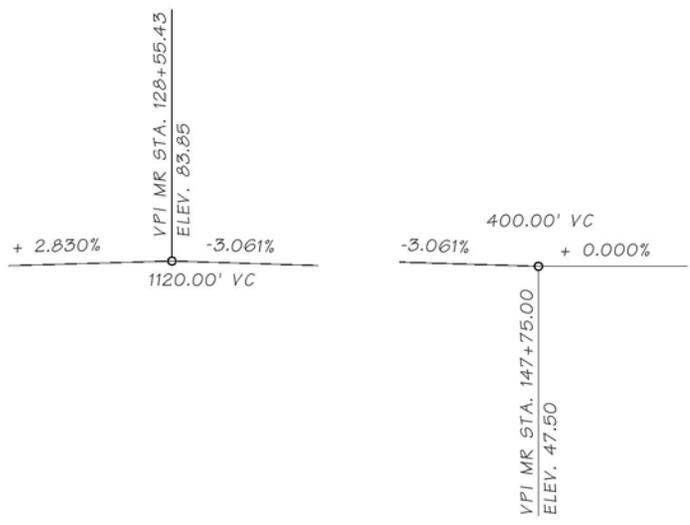
SR 520 Bridge Replacement and HOV Project

2010 SDPIS Comments and Responses -- Comments Only

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ML LINE PROFILE

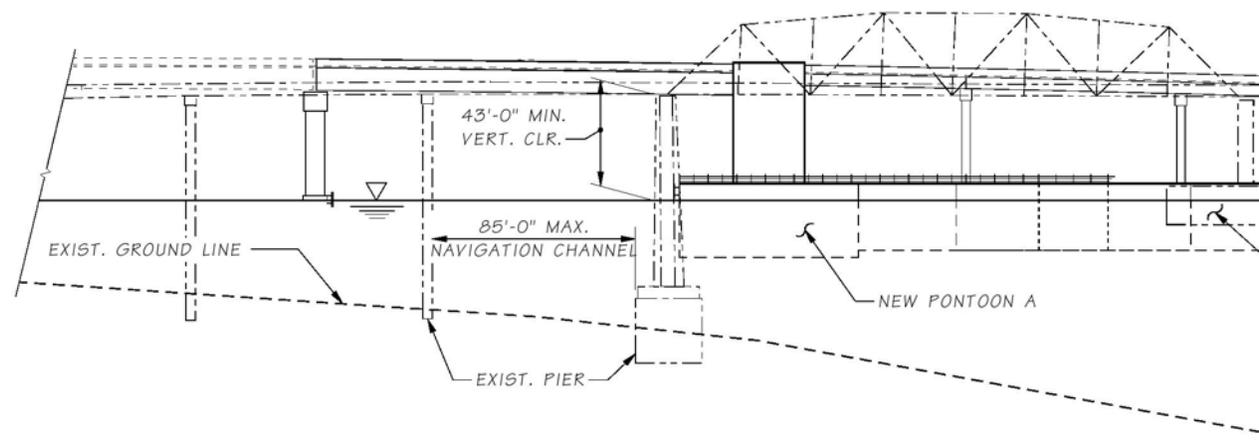
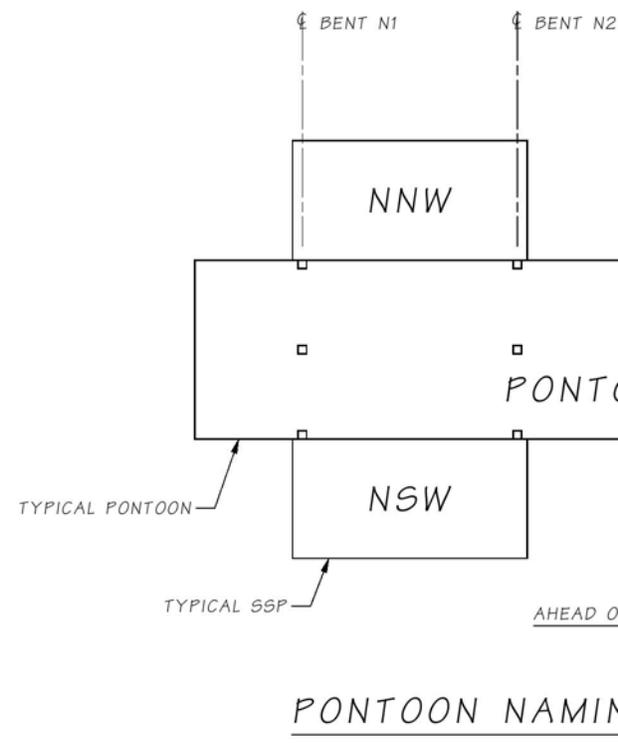


MR LINE PROFILE

CURVE DATA					
P.I. STATION	$\Delta$	RADIUS	TANGENT	LENGTH	BK. TANGENT BRG.
ML 140+05.61	2°51'11.8" LT	10018.04'	249.50'	498.89'	573°14'05.0"E
MR 128+45.62	3°40'32.6" LT	11690.00'	375.10'	749.95'	572°24'44.3"E

SR 520 FILE NO. SHEET 5 OF 18

Bridge Design Engr. Khaleghi, B	M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\CURVE DATA & PROFILES.WND					REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor Clarke, PT						10	WASH.			
Designed By						JOB NUMBER				
Checked By Ferluga, E / Olson, D	03/09									
Detailed By Puryear, D	03/09									
Prepared By Messmer, M / Aldrich, P	09/09	NEW SHEET	TL							
Architect/Specialist Kinderman, P	DATE	REVISION	BY	APPD						



CONSTRUCTION OPENING DIAGRAM  
TEMPORARY NAVIGATION CHANNEL UNDER WEST TRANSITION

SR 520 FILE NO. SHEET 6 OF 18

Bridge Design Engr. Khaleghi, B	M:\w-Team\SR 520 FLOATING BRIDGE\PRELIMINARY PLAN>window files\CONSTRUCTION OPENING.WND							SHEET NO.	TOTAL SHEETS
Supervisor Clarke, PT				REGION NO.	STATE	FED. AID PROJ. NO.			
Designed By				10	WASH.				
Checked By Ferluga, E / Olson, D 03/09				JOB NUMBER					
Detailed By Puryear, D 03/09									
Architect/Specialist Kinderman, P	DATE	REVISION	BY	APPD					