SOUND TRANSIT
STAFF REPORT

MOTION NO. M2005-86 and RESOLUTION NO. R2005-18

Task Order with Washington Department of Transportation for Light Rail Simulation and Amending the Adopted 2005 Budget for High Capacity Transit Phase 2 Planning

Meeting:	Date:	Type of Action:	Staff Contact:	Phone:
Finance Committee	7/21/05	Discussion/Possible Action to Recommend Board Approval	Paul Matsuoka, Chief Policy and Planning Officer	(206) 398-5070
Board	7/28/05	Action	**Andrea Tull, Project Manager, Office of Policy and Planning**	(206) 398-5040

Contract/Agreement Type:	✓	Requested Action:	✓
Competitive Procurement		Execute New Contract/Agreement	
Sole Source		Amend Existing Contract/Agreement	
Interlocal Agreement	✓	Contingency Funds (Budget) Required	
Purchase/Sale Agreement		Budget Amendment Required	✓

✓*Applicable to proposed transaction.*

PROPOSED ACTIONS

MOTION NO. M2005-86 - Authorizes the Chief Executive Officer to execute a Task Order within Agreement GCA 3536 with the Washington State Department of Transportation for light rail operation simulation on the I-90 floating bridge using heavy trucks and an analysis of I-90 roadway structures in the amount of $772,058, with a contingency of $77,206, for a total authorized amount not to exceed $849,264.

RESOLUTION NO. R2005-18 - Amends the Adopted 2005 Budget to increase the 2005 High Capacity Transit Phase 2 Planning Program budget by $849,000 for payment to Washington State Department of Transportation for the light rail simulation on the I-90 floating bridge and the analysis of I-90 roadway structures, for an amended 2005 project budget of $7,962,000.

KEY FEATURES of PROPOSED ACTIONS

- The scope of work is divided into Part (A) light rail operations simulation with heavy trucks on the I-90 floating bridge for $486,148; and Part (B) evaluations of several structures on the I-90 roadway such as; Rainer Avenue, Bellevue Way ramps, and Center Roadway Viaduct (D2 Roadway) for $285,910. Sound Transit will authorize Part B after the completion of Part A.
- Washington State Department of Transportation will manage the testing set-up including instrumentation, traffic control, road closures, simulation, data collection and analysis.
- A budget amendment is necessary to fund the scope of work required for the High Capacity Transportation (HCT) Phase 2 Planning program. It will not change the lifetime Phase 2 budget nor jeopardize the completion of other activities planned for the 2006-2009 period.

BUDGET IMPACT SUMMARY

Project Description: HCT Phase 2 Planning Program
Current Project Phase: On-going
Projected Completion Date: December 2005

Action Outside of Adopted Budget:	✓	Comments on Checked Items
This Project	✓	This is an operations and maintenance project, and the Adopted 2005 budget is not sufficient to cover the agreement costs. However, this project has a lifetime budget that is sufficient to cover the proposed agreement's costs.
This Phase	✓	See above
This Task	✓	See above
Budget Amendment Required	✓	Reimbursement to WSDOT for these analyses requires a budget amendment. Funds will be moved to 2005 from future years.

Key Financial Indicators:	✓	Comments on Checked Items
Contingency Funds Required		
Funding required from other parties (other than what is assumed in financial plan)		

Not checked = action is assumed in current Board-adopted budget. No budget action or adjustment to financial plan required.

BUDGET DISCUSSION

The light rail simulation was not anticipated at the time of the adoption of the 2005 budget for the Phase 2 Planning Program. Sufficient budget exists in the lifetime project budget for this activity but a budget amendment needs to be performed to transfer funding from future years into 2005 to cover the $849,000 needed for this agreement. Listed below is a table summarizing the impact of the agreement on the Phase 2 Planning project's 2005 and lifetime budget.

Project: Phase 2 Planning

	2005 Annual Budget			Lifetime Budget		
Phase	2005 Adopted Project Budget	Budget Transfer	Revised 2005 Project Budget	Adopted Project Lifetime Budget	Budget Transfer	Revised Project Lifetime Budget
Operations & Maintenance	$ 7,113	$ 849	$ 7,962	$ 38,668	$ -	$ 38,668
Total	**$ 7,113**	**$ 849**	**$ 7,962**	**$ 38,668**	**$ -**	**$ 38,668**

Note: Project budget will be amended to increase the 2005 spending to reflect the current spending plan. There is no change to the lifetime project budget.

REVENUE, SUBAREA, AND FINANCIAL PLAN IMPACTS

The proposed action is consistent with the current Board-adopted lifetime budget and is affordable within Sound Transit's current long-term financial plan and the subarea financial capacity.

BUDGET TABLE

Summary for Board Action (Year of Expenditure $000)

Action Item: Execute an agreement with the WSDoT for a heavy truck simulation of light rail operation on the I-90 floating bridge and additional structure analysis. ($s in thousands).

Contract Budget	Current Approved Contract Value	Spent to Date	Proposed Action	Proposed Total Contract Value
WSDoT	0	-	772	772
Contingency	0	-	77	77
Total	0	-	849	849
Percent Contingency	0%	-	10%	10%

Phase contract to be charged to:	Prior Year Expenditures	2005 Operating Budget	Future Operating Budgets	Total
Operations & Maintenance	7,235	7,113	24,320	38,668

	O&M Budget	2005 Operating Budget	2005 Anticipated Expenditures	This Action for 2005	2005 Suplus (Shortfall)
1	P2 Alternatives Analysis as budgeted	5,018	5,018	-	-
2	WSDoT agreement	-	-	849	(849)
3	Other budgeted studies/activities	2,095	2,095	-	-
	Total Account	7,113	7,113	-	(849)

Budget Shortfall

Level	$	Revenues	Funding Source
In 2005, at the Project, Phase & Task level	849	-	There is sufficient funding in the O&M budget in future years to fund the agreement via a budget amendment that moves future year dollars into the current year.

Notes

1 Assumes the current 2005 budget for Phase 2 Alernatives Analysis work will be spent as planned.
2 this is a new WSDOT request that wasn't included in the Phase 2 Planning's 2005 Alternative Analysis budget.
3 Other work functions budgeted within Phase 2 Planning's O&M budget. The 2005 budget for these activites is identified for other purposes and anticipated to be spent.

Project budget shown on page 35 of the Adopted 2005 Budget book.

M/W/DBE – SMALL BUSINESS PARTICIPATION

The Washington State Department of Transportation is the owner and operator of the I-90 roadway and bridges and will serve as the lead for this project. The consultant team is committed to maintaining a workforce reflective of our local region.

PROJECT DESCRIPTION and BACKGROUND for PROPOSED ACTION

Sound Transit has been working closely with WSDOT on the I-90 Two-Way Transit and HOV Operations project and on the analysis of high capacity transit in the I-90 corridor between Seattle and Bellevue and three branches on the Eastside, north to Totem Lake, northeast to Redmond and east to Issaquah. As part of this coordination, which supports development of the Sound Transit Long-Range Plan and the ST2 Plan, WSDOT and Sound Transit staff concluded that there was substantial benefit to the implementation of this simulation of light rail operation on the I-90 floating bridge during summer 2005.

In the early 1980's the I-90 Homer M. Hadley floating bridge was designed for future light rail operation in the center roadway. In 2001 Sound Transit initiated a study to verify the feasibility of light rail operation through the I-90 corridor using its current design standards for light rail operation. A computer simulated analysis indicated that the increased weight of the new LRT configuration could be mitigated by retrofitting the bridge with light weight tracks, barriers and overlay but the bridge deflections/motions were high enough that, if unmitigated, could cause operational problems for both train and vehicular traffic on the bridge. The high deflections/motions would probably need to be mitigated with the addition of auxiliary buoyancy or flotation to the pontoons.

Modeling the dynamic response of a floating bridge through computer analysis is very complex and would more than likely give conservative results requiring the costly addition of flotation to the pontoons, because in the absence of real-time data, worst-case assumptions are used in computer simulation tests. In lieu of the computerized dynamic analysis it is proposed that a full scale load test be performed that gives the actual motions and stresses on the bridge during LRT operation. Results of the test will inform design of any light rail facilities on the I-90 Bridge and carry the potential to reduce the cost of light rail implementation, if light rail becomes the preferred technology.

The Board may make a decision about the HCT technology in the I-90/Bellevue–to-Seattle corridor as early as autumn 2005.

Prior Board/Committee Actions on this Project and Relevant Board Policies

Motion or Resolution Number	Summary of Action	Date of Action
M2005-19	Executed Agreement GCA 3536 Task Order #12 with the Washington State Department of Transportation for design services for Stage 1 of the I-90 Two-Way Transit and HOV Operations project.	5/18/05
M2004-63	Authorized the Chief Executive Officer to enter into an amendment to the I-90 Memorandum Agreement.	8/12/04
R2004-09	Amended Sound Move to provide for Two-Way Transit and HOV Operations in the outer roadways of I-90 and to select Alternative R-8A as the project to be built.	8/12/04
M2003-120	Directed staff to negotiate an amendment to the Memorandum Agreement for I-90 to define the guiding principles for the ultimate configuration of the I-90 roadway with HCT in the center roadway.	11/13/03
M2003-99	Identified Alternative R-8A as the preferred alternative for the I-90 Two-Way Transit and HOV Operations Project.	11/13/03
R98-12	Authorized execution of a Master Agreement with WSDOT for the Big Four Projects (including Mercer Island/I-90).	4/9/98

CONSEQUENCES of DELAY

The Washington State Department of Transportation, owner and operator of the I-90 roadway and bridges, has requested the test be completed during summer 2005 when weather and wind conditions are optimal in order to identify design considerations for possible light rail implementation on the I-90 Bridge. This information would be incorporated into the analysis of technology modes in the I-90/Bellevue-to-Seattle corridor.

To meet the test's deadline, a limited notice-to-proceed, with a maximum value of $116,500, has been executed with WSDOT.

PUBLIC INVOLVEMENT

Not applicable to this action.

LEGAL REVIEW

JW 6/21/05

SOUND TRANSIT

MOTION NO. M2005-86

A motion of the Finance Committee of the Central Puget Sound Regional Transit Authority authorizing the Chief Executive Officer to execute a Task Order within Agreement GCA 3536 with the Washington State Department of Transportation for a light rail operation simulation on the I-90 floating bridge using heavy trucks and an analysis of I-90 roadway structures in the amount of $772,058 with a contingency of $77,206, for a total authorized amount not to exceed $849,264.

Background:

As part of the development of the Long Range Plan and ST2 Plan, Sound Transit and WSDOT have been working closely on the I-90 Two-Way Transit and HOV Operations project and on the analysis of high capacity transit in the I-90 corridor. WSDOT and Sound Transit staff concluded that there was substantial benefit to the light rail operation simulation.

In 2001 Sound Transit initiated a study to verify the feasibility of light rail operation through the I-90 corridor using its current design standards for light rail operation. A computer simulated analysis indicated that the increased weight of the new LRT configuration could be mitigated by retrofitting the bridge with light weight tracks, barriers and overlay but the bridge deflections/motions were high enough that, if unmitigated, could cause operational problems for both train and vehicular traffic on the bridge. The high deflections/motions would probably need to be mitigated with the addition of auxiliary buoyancy or flotation to the pontoons.

Modeling the dynamic response of a floating bridge through computer analysis is very complex and would more than likely give conservative results requiring the costly addition of flotation to the pontoons, because in the absence of real-time data, worst-case assumptions are used in computer simulation tests. In lieu of the computerized dynamic analysis it is proposed that a full scale load test be performed that gives the actual motions and stresses on the bridge during LRT operation. Results of the test will inform design of any light rail facilities on the I-90 Bridge and carry the potential to reduce the cost of light rail implementation, if light rail becomes the preferred technology.

The Board may make a decision about the HCT technology in the I-90/Bellevue-to-Seattle corridor as early as autumn 2005.

Motion:

It is hereby moved by the Finance Committee of the Central Puget Sound Regional Transit Authority that the Chief Executive Officer is authorized to execute a Task Order within Agreement GCA 3536 with the Washington State Department of Transportation for a light rail operation simulation on the I-90 floating bridge using heavy trucks and an analysis of I-90 roadway structures in the amount of $772,058 with a contingency of $77,206, for a total authorized amount not to exceed $849,264.

APPROVED by the Finance Committee of the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on July 21, 2005.

Jack Crawford
Finance Committee Vice Chair

ATTEST:

Marcia Walker
Board Administrator