

**SOUND TRANSIT
STAFF REPORT**

MOTION NO. M2002-98

**Contract Amendment with Hatch Mott McDonald Sverdrup for Beacon Hill Civil Facilities
Final Design**

Meeting:	Date:	Type of Action:	Staff Contact:	Phone:
Finance Committee	8/15/02	Discussion/Possible Action to Recommend Board Approval	Ahmad Fazel, Link Light Rail Director	(206) 398-5389
Board	8/22/02	Meeting Cancelled	Ron Lewis, Deputy for Link Light Rail Support Services	(206) 689-4905
Executive Committee	9/5/02	Action	Joe Gildner, Deputy for Link Light Rail Technical Services	(206) 689-3350
Board	9/12/02	Ratification		

Contract/Agreement Type:	3	Requested Action:	3
Competitive Procurement	3	Execute New Contract/Agreement	
Sole Source		Amend Existing Contract/Agreement	3
Memorandum of Agreement		Contingency Funds Required	
Purchase/Sale Agreement		Budget Amendment Required	

4 Applicable to proposed transaction.

OBJECTIVE OF ACTION

To amend the final civil facilities design contract with Hatch Mott MacDonald/Sverdrup Joint Venture (Segment D-710) to include the following:

- Design, monitoring installation, geotechnical instrumentation and testing for an exploratory test shaft at the Beacon Hill Station site, in response to Sound Transit's Tunnel Peer Review value engineering recommendation for reducing tunnel construction risks and costs.
- Extends design services to accommodate the late start of architectural final design caused by the delay in receipt of FTA authorization.

ACTION

- Authorize the Executive Director to execute a contract amendment with the Hatch Mott MacDonald/Sverdrup Joint Venture to provide additional civil engineering final design services for the Beacon Hill Station in the amount of \$2,571,701 for a new total authorized contract amount not to exceed \$12,016,263.

KEY FEATURES

- Provides all necessary engineering design and construction management services (including geotechnical engineering, instrumentation monitoring, and dewatering and grout testing) to allow for installation of an exploratory test shaft at the Beacon Hill Station site and for an associated testing program.

- The exploratory test shaft (which is proposed as an element of the D-710 final design program to reduce D-710 tunneling construction risks and potential contingency costs included in the bids by the tunnel contractors) is estimated to cost \$2 million to construct and maintain until the D-710 construction contract is started. A separate motion will be brought to the Board for the test shaft construction cost following receipt of contractor bids in November.
- Provides for extending the D-710 civil engineering final design services schedule by a period of seven months to accommodate the late start of D-710 architectural final design services necessitated by delay in receipt of FTA authorization for the architectural services.
- Additional design contingency has not been requested for these additional design tasks, as \$600,000 remains of previously allocated contingency.

BUDGET IMPACT SUMMARY

Project Description: Central Link Initial Segment

Current Status: Final Design

Projected Completion Date: 2009

Action Outside of Adopted Budget:	Y/N	Y Requires Comment
This Line of Business	N	
This Project	N	
This Phase	N	
This Task	Y	Funding this contract at this level will require using budget identified for unallocated final design costs.
Budget amendment required	N	
Key Financial Indicators:	Y/N	Y Requires Comment
Contingency funds required	Y	Unallocated final design costs carried within the final design phase
Subarea impacts	N	
Funding required from other parties other than what is already assumed in financial plan	N	

N = Action is assumed in current Board-adopted budget. Requires no budget action or adjustment to financial plan

BUDGET DISCUSSION

The total budget for the Initial Segment from CPS to South 154th is \$2.07 billion. Within that project budget, the activity contemplated within this motion is identified within the Final Design phase.

The engineering design and construction management services for the test shaft was included within the cost estimate with a budget of \$910,000. The additional \$1,748,489 will be transferred from the budget item for unallocated final design contingency. Thus, within the final design phase, there are sufficient funds to complete this work. With the award of this contract, there is sufficient budget remaining to complete the project.

REVENUE, SUBAREA, AND FINANCIAL PLAN IMPACTS

The proposed action is consistent with the current Board-adopted budget and is affordable within the agency's current long-term financial plan and subarea financial capacity. The action will have no new revenue impacts on Sound Transit.

SUMMARY FOR BOARD ACTION

Summary for Board Action (Year of Expenditure \$000)

Action Item: Hatch Mott MacDonald / Sverdrup

Initial Segment	Current Board Adopted Budget (A)	Committed To Date (B)	This Action (C)	Total Committed & Action (D)	Uncommitted (Shortfall) (E)
1 Agency Administration	226,200	8,373		8,373	217,827
2 Preliminary Engineering	37,992	36,600		36,600	1,392
3 Final Design	116,340	69,938	2,572	72,510	43,830
4 Right of Way	233,000	52,923		52,923	180,077
5 Construction	1,175,092	6,041		6,041	1,169,051
6 Construction Services	77,500	8,732		8,732	68,768
7 Third Party Agreements	58,800	14,136		14,136	44,664
8 Vehicles	145,076			0	145,076
9 Contingency				0	0
10 Total Current Budget	2,070,000	196,742	2,572	199,314	1,870,686

Phase Budget Detail

11 Beacon Hill Test Shaft Design	910		823	823	87
15 Other Final Design	115,430	69,938	1,748	71,686	43,744
16 Total Phase	116,340	69,938	2,572	72,510	43,830

Contract Budget

	Current Approved Contract Value (F)	Spent to Date (G)	Proposed Action (H)	Proposed Total Contract Value (I)
17 HMMS	8,630	3,178	2,572	11,202
18 Contingency	814	214		814
19 Total	9,445	3,392	2,572	12,016
20 Percent Contingency	9%	7%	0%	7%

- A Provisional budget based on estimates of historic costs to be allocated between the Initial Segment and Capital Hill. Upon completion of recoding costs to the current project structure, a finalized phase-level budget will be presented to the Board.
- B Commitments reflect total commitments for Central Link as estimated to be allocated between the Initial Segment and North Link together with all commitments currently under consideration by the Board. This provides a more conservative measure of uncommitted budget authority. Should all proposed actions not be exercised, then the uncommitted amount (column D) would be higher.

M/W/DBE – SMALL BUSINESS PARTICIPATION

The original contract authorized in 2000 allowed for construction of the running tunnels and a partially completed station tunnel shell, with ventilation shaft and associated surface facilities, and included 19.3% DBE participation. The subsequent decision in 2001 to realign the running tunnels and complete the station with the surface entrance structure and all associated additional station underground tunnel structures, increased the proportion of tunnel design work

(accomplished by the Hatch Mott MacDonald/Sverdrup team retained for its tunneling expertise) relative to the surface works (largely accomplished by DBE subconsultants), and resulted in the DBE percentage being reduced in February 2002 from 19.3% to 12.0%.

If J.L. Paterson, who at start of the program was a registered DBE, but who has subsequently graduated due to business success, and if PACE, who purchased Symonds (who was also a DBE on this contract initially) are also added, then this figure rises to 14.4% based on fees.

The additional work added by this proposed contract amendment would contain a similar DBE percentage participation. The same DBE firms are included in this work, and additionally, a DBE geotechnical drilling company has been added for the shaft work (approximately 25% of the geotechnical subconsultant budget). The revised DBE percentage for the new complete design contract (including J.L. Paterson and PACE) is 14.3%.

It is noted that tunnel design is a highly specialized field of design. It is also noted that although construction of the underground test facilities will also require highly specialized staff, there will be significant business opportunities of a more general nature associated with numerous surface activities at the test shaft.

HISTORY OF PROJECT

A contract with Hatch Mott MacDonald/Sverdrup Joint Venture was executed on August 1, 2000, for final design of the civil facilities for the Beacon Hill Tunnel. Scope included design of a limited portion of the shaft and tunnel structures for Beacon Hill Station whose completion was to be deferred to a future construction phase. Subsequently, and after a pause in the design program from February 23, 2001 through November 14, 2001, the Board in February 2002 authorized completion of the Beacon Hill Station with a revised station configuration and a revised tunnel alignment to avoid contaminated ground identified on the original alignment.

In March 2002, Sound Transit's Tunnel Peer Review Group recommended that an exploratory test shaft be excavated down to platform level at the location of the future station entrance shaft to examine the soils and anticipated tunneling conditions. It was the opinion of the Tunnel Peer Review Group (with which Sound Transit staff concurred) that the exploratory shaft and associated testing program would allow the tunneling risks to be better evaluated and the design to be modified appropriately as required. Of equal importance, the tunnel contractors bidding on the D-710 construction would be able to inspect the ground at tunnel depths and would be invited to observe the ground's behavior during test shaft construction. They would thus be better able to estimate the tunneling risks involved and would have increased confidence in submitting competitive bids, avoiding the addition of unnecessary construction contingencies. The FTA subsequently confirmed that such test shafts had been installed with beneficial results during final design of other FTA tunnel projects around the country, as a means of reducing construction risks and costs.

Accordingly, Board authorization is requested to proceed with the design of the test shaft, and if favorable test shaft construction bids are received, with monitoring installation of the test facility, conducting the testing program, and for incorporating the test results into the D-710 construction contract documents.

FTA architectural final design authorization was originally scheduled for February 12, 2002 to allow D-710 final design to start immediately after completion of preliminary design. This FTA approval is now expected during August to allow the start of architectural final design in

October. This delay has resulted in Sound Transit having to extend the on-going civil engineering final design program, which had received earlier FTA authorization when the design had included the tunnels and partial underground station structures, but not the station's surface structures because the completion of Beacon Hill Station had been deferred.

This contract amendment will mitigate the increase in civil design costs due to the need to extend the civil engineering final design program by using Hatch Mott MacDonald/Sverdrup project staff to design the test shaft (including monitoring construction, and testing and reporting activities). At this time, some Hatch Mott MacDonald/Sverdrup project staff in New York, Virginia and Ontario have been directed to cease work on this project while the co-located employees in Seattle bring the architectural and civil designs to the same levels of completion.

Sound Transit staff is seeking authorization from the FTA for additional elements that are not within the general scope of the original agreement. Sound Transit will seek Board authorization for those elements if approved by the FTA.

**Prior Board or Committee Actions
and Relevant Board Policies**

Motion or Resolution Number	Summary of Action	Date of Action
M2002-09	Authorizing the Executive Director to execute a contract amendment with Hatch Mott MacDonald/Sverdrup (HMM/S) Joint Venture to provide additional Civil Engineering Final Design Services in the amount of \$3,355,269 plus a contingency of \$287,293 for a total of \$3,642,562 and for a new total authorized contract amount not to exceed \$9,444,562	2/14/02
R2001-16	Selected the initial segment of the Central Link Light Rail Project to be constructed and operated by 2009.	11/29/01
M2000-55	Authorizing the Executive Director to execute a contract with Hatch Mott MacDonald/Sverdrup for civil engineering final design services associated with construction of the Beacon Hill tunnel segment for the Central Link Light Rail project for a contract amount of \$5,275,000 with a 10% contingency of \$527,000 for a total authorized amount not to exceed \$5,802,000.	7/13/00

CONSEQUENCES OF DELAY

Significant delay in Board action would result in the loss of the cost savings anticipated by carrying out the test shaft program in time to incorporate the results into the construction bid documents.

REGIONAL PARTNERSHIP AND COOPERATION

Sound Transit staff have and are continuing to work closely with Washington State Department of Transportation (WSDOT) to coordinate the design of the light rail structures where they cross WSDOT property and pass beneath the I-5 viaducts adjacent to the tunnel's west portal. Cooperation continues with the City of Seattle agencies such as Seattle Transportation, Seattle City Light and the Seattle Light Rail Review Panel, and with the City's fire and police departments.

PUBLIC INVOLVEMENT

Several community meetings have been held at Beacon Hill (most recently in July 2001 and March 2002), and more are planned, particularly to present the developing design of the station surface structures. Regular briefings have been made to the North Beacon Hill Community Council and the Beacon Hill Chamber of Commerce.

LEGAL REVIEW

JDW 7//24/02

SOUND TRANSIT

MOTION NO. M2002-98

A motion of the Board of the Central Puget Sound Regional Transit Authority authorizing the Executive Director to execute a contract amendment with Hatch Mott MacDonald/Sverdrup Joint Venture to provide additional civil engineering final design services for the Beacon Hill Station in the amount of \$2,571,701 for a new total authorized contract amount not to exceed \$12,016,263.

Background:

A contract with Hatch Mott MacDonald/Sverdrup Joint Venture was executed on August 1, 2000, for final design of the civil facilities for the Beacon Hill Tunnel. Scope included design of a limited portion of the shaft and tunnel structures for Beacon Hill Station whose completion was to be deferred to a future construction phase. Subsequently, and after a pause in the design program from February 23, 2001 through November 14, 2001, the Board in February 2002 authorized completion of the Beacon Hill Station with a revised station configuration and a revised tunnel alignment to avoid contaminated ground identified on the original alignment.

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This contract amendment will mitigate the increase in civil design costs due to the need to extend the civil engineering final design program by using Hatch Mott McDonald/Sverdrup project staff to design the test shaft including monitoring construction, and testing and reporting activities.

Motion:

It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that the Executive Director is authorized to execute a contract amendment with Hatch Mott MacDonald/Sverdrup Joint Venture to provide additional civil engineering final design services for the Beacon Hill Station in the amount of \$2,571,701 for a new total authorized contract amount not to exceed \$12,016,263.

ADOPTED by the Executive Committee on September 5, 2002 and ratified by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on September 12, 2002.



Ron Sims
Board Chair

ATTEST:



Marcia Walker
Board Administrator