

**SOUND TRANSIT
STAFF REPORT**

MOTION NO. M2006-46

**Contract Amendment for Civil Engineering Design Services During Construction for the
Beacon Hill Tunnel**

Meeting:	Date:	Type of Action:	Staff Contact:	Phone:
Finance Committee	6/01/06	Discussion/Possible Action to Recommend Board Approval	Ahmad Fazel, Link Director Robert Parsons, Link Civil Engineering Manager	(206) 398-5389 (206) 398-5150
Board	6/08/06	Discussion/Possible Action		

Contract/Agreement Type:	<input checked="" type="checkbox"/>	Requested Action:	<input checked="" type="checkbox"/>
Competitive Procurement	<input checked="" type="checkbox"/>	Execute New Contract/Agreement	
Sole Source		Amend Existing Contract/Agreement	<input checked="" type="checkbox"/>
Interlocal Agreement		Contingency Funds (Budget) Required	
Purchase/Sale Agreement		Budget Amendment Required	

✓Applicable to proposed transaction.

PROJECT NAME

Central Link Light Rail Initial Segment

PROPOSED ACTION

Authorizes the Chief Executive Officer to execute a contract amendment with Hatch Mott MacDonald/Jacobs Joint Venture to provide civil engineering design services during construction, including engineering oversight services for the sequential excavation work, for the Central Link Light Rail Initial Segment – Beacon Hill Tunnel, in the amount of \$3,120,000, for a new total authorized contract amount not to exceed \$21,788,763.

KEY FEATURES of PROPOSED ACTION

- The purpose of this action is to increase the contract amount for civil engineering design services during construction, including engineering oversight services for the sequential excavation work in the Beacon Hill Tunnel.
- Design services during construction include, but are not limited to: reviewing submittals; responding to requests for information from the contractor; preparing design modifications as required by existing conditions; and providing design change management.
- Additionally, the design services during construction include engineering oversight services required for the sequential excavation method (SEM) mining for the Beacon Hill Station, including provision of specialist staff experienced in SEM construction to monitor, inspect, and advise on the SEM work. This work involves multiple crews and shifts (twenty-four hours a day, six days a week) that are required to be coordinated with the contractor's work.

- During construction of the Beacon Hill Tunnel project, staff determined that the present level of design effort on the project is insufficient to address the tunnel platform redesign work and the number of submittals and requests for information from the contractor.
- \$1.7 million has been incurred to date to undertake the following unforeseen redesign actions that are intended to reduce construction risks:
 - Revising the jet grouting and dewatering plan;
 - Incorporating the contractor's value engineering proposal;
 - Redesigning the platform tunnels, shifting them 80 feet to the west due to sand lenses;
 - Redesigning the concourse SEM to accommodate the contractor's work methods;
 - Redesigning the platform tunnels temporary lining to steel fiber reinforced concrete to accommodate contractor's work methods;
 - Redesigning the northeast connector tunnel to SEM to accommodate contractor's work sequence;
 - Redesigning required to shift the east tunnel vent adit and west tunnel vent adit further east due to sand lenses;
 - Redesign of tunnel cross-passage openings to accommodate contractor's work methods.
- Design services during construction will continue to be provided by Hatch Mott MacDonald/Jacobs Joint Venture (HMM/J) on an on-call basis as determined necessary by Sound Transit staff. Services to be provided will be negotiated by staff and will be consistent with the project scope of work contained in the contract.

BUDGET IMPACT SUMMARY

Current Project Phase: Construction
 Projected Completion Date: 2009

Action Outside of Adopted Budget:	✓	Comments on Checked Items
This Project		
This Phase		
This Task	✓	This action exceeds the task budget by \$3.5M. This shortfall will be funded by unallocated contingency in the final design phase.
Budget Amendment Required		

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

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

BUDGET and FINANCIAL PLAN DISCUSSION

This action would authorize execution of a contract amendment with Hatch Mott MacDonald/Jacobs Joint Venture to provide civil engineering design services during construction, including engineering oversight services for SEM, for the Central Link Light Rail - Beacon Hill Tunnel (C710) in the amount of \$3,120,000, for a new total authorized contract amount not to exceed \$21,788,763.

The Adopted 2006 Budget for the Central Link Light Rail Initial Segment is \$2.07 billion. Within that budget, \$6,050,648 has been set aside for C710 design services during construction in the final design phase. Approval of the proposed action would result in a total shortfall of \$3,526,000 for this budget line item. There is sufficient unallocated contingency in the final design phase to fund this action. Consistent with the Sound Transit budget policies, this shortfall will be addressed in the 2007 budget process.

The proposed action is otherwise 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 impact on Sound Transit.

BUDGET TABLE

Action Item: Hatch Mott MacDonald/Jacobs Joint Venture (provide civil engineering design services during construction including SEM oversight for the Beacon Hill Tunnel C710 section of the Central Link Initial Segment project)

(Year of Expenditure \$000)

Initial Segment		Adopted 2006 Budget (A)	Committed To Date (B)	This Action (C)	Total Committed & Action (D)	Uncommitted (Shortfall) (E)
1	Agency Administration	216,780	115,195		115,195	101,585
2	Preliminary Engineering	34,000	33,611		33,611	389
3	Final Design	145,523	142,343	3,120	145,463	61
4	Right of Way	223,516	191,692		191,692	31,824
5	Construction	1,170,439	1,057,975		1,057,975	112,464
6	Construction Services	86,875	84,437		84,437	2,438
7	Third Party Agreements	59,560	58,690		58,690	870
8	Vehicles	133,307	131,799		131,799	1,508
9	Total Current Budget	2,070,000	1,815,742	3,120	1,818,862	251,138
Final Design Phase Detail						
10	DSDC C710	6,051	6,457	3,120	9,577	(3,526)
11	Other Design Support	22,856	23,888		23,888	(1,031)
12	Other Final Design	112,869	111,908		111,908	961
13	FD Unallocated Contingency	3,748	91		91	3,657
14	Total Phase	145,523	142,343	3,120	145,463	61
Contract Amount						
		Board Approvals to Date (F)	Current Approved Contract Value (G)	Proposed Action (H)	Proposed Total for Board Approval (I)	Proposed Contract Value (J)
15	Contract Amount	17,757	18,669	3,120	20,877	21,789
16	Contingency	912	-	-	912	-
17	Total	18,669	18,669	3,120	21,789	21,789
18	Percent Contingency	5%	0%	0%	4%	0%
Budget Shortfall						
19	Task Level	\$ (K)	Potential Resources (L)		Source (M)	
20						

Notes:

10(B) COMMITTED TO DATE includes pending board motions to increase contract amounts for other consultants providing Design Services during Construction (DSDC) for construction contract C710.

11(B) COMMITTED TO DATE includes pending board motions to increase contract amounts for other consultants providing Design Services during Construction (DSDC) for construction contract C755.

M/W/DBE – SMALL BUSINESS PARTICIPATION

Prime Consultant/Contractor

HMM/J is the prime civil facilities design consultant for the Beacon Hill Tunnel contract. During construction, the need to engage the designer of record is driven by the scope of a change or review, and the timeliness of the response required. The actual M/W/DBE utilization will vary depending on these needs. To date actual M/W/DBE utilization is 8.96%.

It is intended that DSDC services for elements of the work that were designed by M/W/DBE would be directed to these subconsultant designers. However, as this subconsultant effort is focused on the relatively limited civil engineering surface and utility works, and given that the majority of the design support services for this contract are required in the specialist field of tunnel engineering (including the very specialized field of SEM mining), it is estimated that M/W/DBE participation during the construction phase of the design contract would be in the order of 5%.

The M/W/DBE goal was originally established for this contract at 13% and re-established at 8.96%. Performance to date on this contract has achieved 8.96% M/W/DBE participation. The M/W/DBE participation estimate for HMM/J's design services during construction and SEM services is 5%, which reflects the expected greater utilization of prime consultant staff and highly specialized services from non-DBE consultants during this phase. The resulting M/W/DBE participation for the overall contract is estimated to be 8.0% at completion.

The following M/W/DBE subconsultants may be utilized for this contract amendment:

RoseWater Engineering	WBE/DBE
Garry Struthers Assoc	MBE/DBE

EEO Commitment

HMM/J workforce demographics are 18.7% women and 20.7% minorities.

PROJECT DESCRIPTION and BACKGROUND for PROPOSED ACTION

The Beacon Hill Tunnel project includes construction of an approximately one-mile long, twin tube tunnel beneath Beacon Hill, plus a deep mined tunnel station. Vertical circulation to the tunnel station will be provided through an access shaft with four high-speed elevators and stairways. A secondary shaft will be provided for emergency egress. A station headhouse will provide access to elevators and stairways. East of the tunnel, the alignment continues on an elevated guideway, including an aerial station near McClellan Street. The aerial Mount Baker Station is fully enclosed and includes a new urban plaza. The alignment descends to grade in the median of Martin Luther King Way just north of South Walden Street.

A contract with Hatch Mott MacDonald/Jacobs Joint Venture (HMM/J) was executed on August 1, 2000 for final design of the civil facilities for the Beacon Hill Tunnel. The scope included design of a limited portion of the shaft and tunnel structures for the Beacon Hill Station to be constructed with the running tunnels in the initial construction phase.

The design program authorized by the Board in February 2002 (Motion No. M2002-09) included Task 13: Assistance during Construction. No budget or detailed scope was provided for this task for work by the C710 civil facilities consultant during the construction phase. The outline scope stated that Task 13 was to provide for review of the contractor's submittals and for the provision of field representatives specifically to monitor and provide engineering oversight services for all aspects of the sequential excavation method mining construction. The Board authorized an amendment to HMM/J's contract to budget for these design services during construction in May 2004 through its approval of Motion No. M2004-51. This proposed amendment to the HMM/J contract will increase the budget for these required services.

Motion or Resolution Number	Summary of Action	Date of Action
M2004-51	Authorized the Chief Executive Officer to execute a contract amendment with Hatch Mott MacDonald/Jacobs Joint Venture to provide civil engineering design services during construction, including engineering oversight services for the sequential excavation work for the Beacon Hill Tunnel in the Central Link Light Rail Initial Segment Project in the amount of \$5,580,000 with no contingency for a new total authorized contract amount not to exceed \$18,668,763.	5/27/04
R2004-05	Amended the Adopted 2004 Budget by transferring the surplus lifetime capital budget of \$8 million from the Administration Phase and \$12 million from the Construction Phase of the Central Link Light Rail Initial Segment Project to the Final Design Phase of the project.	4/22/04
M2003-102	Authorized the Chief Executive Officer to execute a contract amendment with the Hatch Mott MacDonald/Jacobs Joint Venture to provide additional civil engineering final design services for the Beacon Hill Tunnel in the amount of \$975,000, with a 10% contingency of \$97,500, for a total of \$1,072,500, and for a new total contract amount not to exceed \$13,088,763	10/9/03
M2002-98	Executed 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.	9/12/02
M2002-09	Executed 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
M2000-55	Executed 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

A significant delay in Board action could result in less timely responses to the contractors' submittals and requests for information, which could delay the construction schedule.

PUBLIC INVOLVEMENT

Not applicable to this action.

ENVIRONMENTAL COMPLIANCE

JI 05/18/06

LEGAL REVIEW

JW 5/26/06

SOUND TRANSIT

MOTION NO. M2006-46

A motion of the Board of the Central Puget Sound Regional Transit Authority authorizing the Chief Executive Officer to execute a contract amendment with Hatch Mott MacDonald/Jacobs Joint Venture to provide civil engineering design services during construction, including engineering oversight services for the sequential excavation work, for the Central Link Light Rail Initial Segment – Beacon Hill Tunnel, in the amount of \$3,120,000, for a new total authorized contract amount not to exceed \$21,788,763.

Background:

The Beacon Hill Tunnel project includes construction of an approximately one-mile long, twin tube tunnel beneath Beacon Hill, plus a deep mined tunnel station. Vertical circulation to the tunnel station will be provided through an access shaft with four high-speed elevators and stairways. A secondary shaft will be provided for emergency egress. A station headhouse will provide access to elevators and stairways. East of the tunnel, the alignment continues on an elevated guideway, including an aerial station near McClellan Street. The aerial Mount Baker Station is fully enclosed and includes a new urban plaza. The alignment descends to grade in the median of Martin Luther King Way just north of South Walden Street.

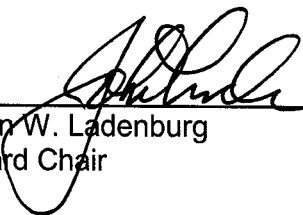
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Motion:


It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that the Chief Executive Officer is authorized to execute a contract amendment with Hatch Mott MacDonald/Jacobs Joint Venture to provide civil engineering design services during construction, including engineering oversight services for the sequential excavation work, for the Central Link Light Rail Initial Segment – Beacon Hill Tunnel, in the amount of \$3,120,000, for a new total authorized contract amount not to exceed \$21,788,763.

APPROVED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on June 8, 2006.



John W. Ladenburg
Board Chair

ATTEST:



Marcia Walker
Board Administrator