

MOTION NO. M2014-105

Ratification and Amendment to Light Rail Vehicle Contract

MEETING:	DATE:	TYPE OF ACTION:	STAFF CONTACT:
Board	12/18/2014	Final Action	Mike Harbour, Acting Chief Executive Officer Ahmad Fazel, DECM Executive Director Joe Gildner, Executive Project Director – University Link

PROPOSED ACTION

(1) Ratifies the chief executive officer's finding of the existence of an emergency regarding the discovery of problems with gear units and traction motors on Sound Transit's fleet of light rail vehicles and (2) authorizes the chief executive officer to increase the contingency with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture for a sole source contract to provide the materials, labor and equipment necessary to complete the required repairs to Sound Transit's fleet of light rail vehicles in the amount of \$5,000,000, for a new total authorized contract amount not to exceed \$250,570,841.

KEY FEATURES SUMMARY

- In December 2014, the CEO declared an emergency and authorized the purchase of materials, equipment, services and labor necessary to complete repairs to Light Rail Vehicles (LRV's).
- This declaration was done in accordance with authority delegated under Resolution No. 78-2 and under Federal Transit Authority provisions (Circular 4220.1F – Unusual and Compelling Urgency). Resolution No. 78-2 requires the CEO to request Board ratification of the finding of an emergency and any purchases or contracts awarded at the first regular Board meeting following the declaration.
- This action ratifies the CEO's declaration of an emergency and staff actions.
- The proposed action will increase the contract contingency with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture (KI) to perform the following:
 - (1) Repairs to eliminate the premature wear of the bearings in the traction motors and gear units of the LRV's;
 - (2) Repairs to eliminate the risk that Sound Transit will not have a sufficient number of LRVs to allow University Link operations to commence in the first quarter of 2016.
- Some needed materials are "long-lead" times" items that and must be ordered immediately to ensure their delivery in time to implement the necessary repairs to commence pre-revenue testing in October 2015.
- The vehicles must be taken out of service for a time in order for the repairs to be made; consequently, those repairs must commence immediately in order to allow Sound Transit Operations staff to plan around the temporary loss of each of the vehicles requiring repair.
- The ratification and contract authorization is being requested due to the unusual and compelling urgency to complete this work on an immediate basis in order to ensure the safety of the public and Sound Transit's infrastructure.
- Sound Transit staff will pursue the recovery of costs the Agency incurs in completing these repairs.

BACKGROUND

In 2004, Sound Transit entered into a contract with KI for the purchase of 35 LRV's. That contract included an option for the purchase of 27 additional vehicles. In 2008, the first 35 LRV's were

delivered. In 2009 they were placed into active service in connection with Initial Segment/Airport Link revenue operations. Also in 2009, the contact option was exercised. The 27 additional LRV's were delivered in 2011. These 27 vehicles were commissioned and safety certified and placed into active service.

In mid-2011, Sound Transit operations and maintenance personnel began to notice and subsequently record unusual and excessive noise levels emanating from the area of the traction motors and gear units on several of the LRV's. Further inspections revealed that the bearings in the gear units were prematurely worn and pitted. At the same time Sound Transit discovered bearing failures on the traction motors due to the use of dissimilar metals between bearing and case. This condition creates the excessive noise, and on some of the vehicles, has necessitated the removal of the vehicle from service. As of the date of this motion, eight vehicles are out of service as a result of this condition.

Shortly after the discovery of the problems with the gear units and traction motors, KI was called in to assist with an investigation to determine the root cause. KI also called in Siemens to assist in this investigation. Inspection reports from KI and Siemens indicate the root cause of the problem with the traction motors is bearing failure caused by the incompatibility between the cast aluminum motor housing and the stainless steel motor bearing. This is causing damage to the bearing, which is in turn causing damage to the housing in which it is located.

With regard to the gear units, the failure analysis investigations indicate those units are experiencing bearing failures due to excessive current traveling from the drive end of the traction motor along the drive shaft to the high speed pinion bearing in the gear unit. Siemens, KI and Sound Transit jointly conducted testing to confirm the source of the high voltage on the drive shaft and a possible solution to correct the deficiency.

The parties are in agreement as to the repairs necessary to alleviate these problems and restore the LRV's to the condition in which they should be in but for these defects: for the traction motors, a sleeve must be inserted into the motor housing and all consequent damage must be repaired. This will consist primarily of replacing damaged bearings. For the gear units, ground brushes must be installed for each unit, which will prevent the excessive current from passing through the bearing; then all damage that resulted must be repaired.

To complete the necessary repairs to the traction motors and gearboxes on the entire fleet, Sound Transit must acquire four car sets of dummy trucks that will allow the removal of the traction motor/gearbox assemblies and thereby accelerate the repairs to both the traction motors and gearboxes. Sound Transit is pursuing accelerated delivery of the gearbox repair parts, making the procurement and delivery of the dummy trucks a high priority.

While Sound Transit, KI and Siemens all agree on the root cause of the problems and the repairs necessary to eliminate the problems, there is disagreement as to how the repairs should be performed and who will bear the costs. Sound Transit staff has been working and negotiating with representatives of KI and Siemens. While KI and Siemens have agreed to bear the costs for certain items, such as the ground brushes and steal sleeves, no agreement has been reached regarding other costs and responsibilities. Sound Transit staff believes that there is a strong basis to pursue the recovery of most, if not all of the costs the Agency incurs in effecting these repairs.

Sound Transit is scheduled to open the University Link light rail extension to the University of Washington in the first quarter of 2016. In order to achieve this, the Agency must have a full contingent of LRV's to simulate revenue service to the University of Washington Station starting in October 2015. Then, after University Link opens, Sound Transit will need to have the majority of

its 62 LRV's available for operations, while allowing only several to be out of service for maintenance at any one time. Since most of the materials and equipment necessary to implement the repairs will take several months to arrive, Sound Transit cannot wait for the resolution of the outstanding liability issues with KI and Siemens.

FISCAL INFORMATION

The Adopted 2014 Budget contains a Systemwide Contingency in the amount of \$5 million that was established as a part of the Sound Move program and supplemented in the ST2 Plan. The Systemwide Contingency is set aside to be available for use by the Board to deal with any unforeseen events.

The Systemwide Contingency will initially be used to allocate budget for this expenditure. The potential exists that Sound Transit will be able to recover most of the funds expended in completely the necessary repairs. If not, the expenditure of funds will need to be evaluated to determine whether the costs can be charged to a capital project (capitalized) or must be expensed. If the costs can be capitalized, staff will then determine which capital project will be charged for the outlays. Upon completion of this evaluation, staff will return to the Board in 2015 to seek final budget allocation and authorization for these expenditures and potentially restore the budget for the Systemwide Contingency.

SMALL BUSINESS/DBE PARTICIPATION

Sound Transit promotes and encourages small business participation, which also includes Disadvantaged Business Enterprises (DBEs). Small Business and DBE goals are based upon an examination of subcontracting opportunities contained in the work of this contract and the number of Small Businesses/DBEs available to perform such subcontracting work.

Sound Transit determined that Small Business and DBE subcontracting opportunities are infeasible or improbable based upon the work described in this contract, so Small Business/DBE goals were not established or required.

PUBLIC INVOLVEMENT

Not applicable to this action.

TIME CONSTRAINTS

The activities undertaken in connection with the investigation and repair work relating to Sound Transit's fleet of LRV's have been performed under the chief executive officer's authority as a compelling urgency. Sound Transit staff are working with KI to begin purchasing long lead items required for repairs. Any delay in approving this action would delay receiving materials in a timely manner.

PRIOR BOARD/COMMITTEE ACTIONS

Motion No. M2008-71: Authorize the chief executive officer to exercise the option with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture, to design, manufacture, and deliver 27 low floor light rail vehicles in support of the operational requirements for the University Link project, in the amount of \$94,577,000, with a 5% contingency of \$4,608,000 totaling \$99,185,000, for a new total authorized contract amount not to exceed \$245,570,841.

Motion No. M2005-117: Authorized the chief executive officer to execute a contract amendment with Kinkisharyo International, L.L.C./Mitsui & Co. Inc. Joint Venture, through exercise of an existing option, to manufacture and deliver four additional low floor light rail vehicles to support operational requirements for the Airport Link project, in the amount of \$13,892,426 with a 5% contingency of \$694,621, for a new total authorized contract amount not to exceed \$146,385,841.

Motion No. M2003-123: Executed a contract with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture, to design, manufacture, and deliver 31 low floor light rail vehicles for the Link Initial Segment, including systems support, spare parts, special tools, and test equipment in the amount of \$108,606,040 with an allowance for an economic price adjustment for inflation of \$9,579,808, an allowance for sales taxes of \$7,336,813, and with a 5% contingency of \$6,276,133 for a total authorized contract amount not to exceed \$131,798,794.

ENVIRONMENTAL REVIEW

JI 12/18/14

LEGAL REVIEW

JEN 12/18/14

MOTION NO. M2014-105

A motion of the Board of the Central Puget Sound Regional Transit Authority (1) ratifying the chief executive officer's finding of the existence of an emergency regarding the discovery of problems with gear units and traction motors on Sound Transit's fleet of light rail vehicles and (2) authorizing the chief executive officer to increase the contingency with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture for a sole source contract to provide the materials, labor and equipment necessary to complete the required repairs to Sound Transit's fleet of light rail vehicles in the amount of \$5,000,000, for a new total authorized contract amount not to exceed \$250,570,841.

BACKGROUND:

In 2004, Sound Transit entered into a contract with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture (KI) for the purchase of 35 LRV's. That contract included an option for the purchase of 27 additional vehicles. In 2008, the first 35 LRV's were delivered. In 2009 they were placed into active service in connection with Initial Segment/Airport Link revenue operations. Also in 2009, the contact option was exercised. The 27 additional LRV's were delivered in 2011. These 27 vehicles were commissioned and safety certified and placed into active service.

In mid-2011, Sound Transit operations and maintenance personnel began to notice and subsequently record unusual and excessive noise levels emanating from the area of the traction motors and gear units on several of the LRV's. Further inspections revealed that the bearings in the gear units were prematurely worn and pitted. At the same time Sound Transit discovered bearing failures on the traction motors due to the use of dissimilar metals between bearing and case. This condition creates the excessive noise, and on some of the vehicles, has necessitated the removal of the vehicle from service. As of the date of this motion, eight vehicles are out of service as a result of this condition.

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The parties are in agreement as to the repairs necessary to alleviate these problems and restore the LRV's to the condition in which they should be in but for these defects: for the traction motors, a sleeve must be inserted into the motor housing and all consequent damage must be repaired. This will consist primarily of replacing damaged bearings. For the gear units, ground brushes must be installed for each unit, which will prevent the excessive current from passing through the bearing; then all damage that resulted must be repaired.

To complete the necessary repairs to the traction motors and gearboxes on the entire fleet, Sound Transit must acquire four car sets of dummy trucks that will allow the removal of the traction

motor/gearbox assemblies and thereby accelerate the repairs to both the traction motors and gearboxes. Sound Transit is pursuing accelerated delivery of the gearbox repair parts, making the procurement and delivery of the dummy trucks a high priority.

While Sound Transit, KI and Siemens all agree on the root cause of the problems and the repairs necessary to eliminate the problems, there is disagreement as to how the repairs should be performed and who will bear the costs. Sound Transit staff has been working and negotiating with representatives of KI and Siemens. While KI and Siemens have agreed to bear the costs for certain items, such as the ground brushes and steal sleeves, no agreement has been reached regarding other costs and responsibilities. Sound Transit staff believes that there is a strong basis to pursue the recovery of most, if not all of the costs the Agency incurs in effecting these repairs.

Sound Transit is scheduled to open the University Link light rail extension to the University of Washington in the first quarter of 2016. In order to achieve this, the Agency must have a full contingent of LRV's to simulate revenue service to the University of Washington Station starting in October 2015. Then, after University Link opens, Sound Transit will need to have the majority of its 62 LRV's available for operations, while allowing only several to be out of service for maintenance at any one time. Since most of the materials and equipment necessary to implement the repairs will take several months to arrive, Sound Transit cannot wait for the resolution of the outstanding liability issues with KI and Siemens. Sound Transit staff will pursue the recovery of costs the Agency incurs in completing these repairs.

In December 2014, the CEO declared an emergency and authorized the purchase of materials, equipment, services and labor necessary to complete repairs to Light Rail Vehicles (LRV's). This declaration was done in accordance with authority delegated under Resolution No. 78-2 and under Federal Transit Authority provisions (Circular 4220.1F – Unusual and Compelling Urgency). Resolution No. 78-2 requires the CEO to request Board ratification of the finding of an emergency and any purchases or contracts awarded at the first regular Board meeting following the declaration.

This action ratifies the CEO's declaration of an emergency and staff actions. The proposed action will also increase the contract contingency with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture (KI) to perform the following:

- (1) Repairs to eliminate the premature wear of the bearings in the traction motors and gear units of the LRV's;
- (2) Repairs to eliminate the risk that Sound Transit will not have a sufficient number of LRVs to allow University Link operations to commence in the first quarter of 2016.

Some needed materials are "long-lead" times" items that and must be ordered immediately to ensure their delivery in time to implement the necessary repairs to commence pre-revenue testing in October 2015. The vehicles must be taken out of service for a time in order for the repairs to be made; consequently, those repairs must commence immediately in order to allow Sound Transit Operations staff to plan around the temporary loss of each of the vehicles requiring repair.

The ratification and contract authorization is being requested due to the unusual and compelling urgency to complete this work on an immediate basis in order to ensure the safety of the public and Sound Transit's infrastructure.

MOTION:

It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that (1) the chief executive officer's finding of the existence of an emergency regarding the discovery of problems with gear units and traction motors on Sound Transit's fleet of light rail vehicles is ratified, and (2) the chief executive officer is authorized to increase the contingency with KINKISHARYO International, L.L.C./Mitsui & Co. (U.S.A.) Inc. Joint Venture for a sole source contract to provide the materials, labor and equipment necessary to complete the required repairs to Sound Transit's fleet of light rail vehicles in the amount of \$5,000,000, for a new total authorized contract amount not to exceed \$250,570,841.

APPROVED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on December 18, 2014.



Paul Roberts
Board Vice Chair

ATTEST:



Marcia Walker
Board Administrator