



## Motion No. M2023-65

### Contract with BYD Coach and Bus LLC for Stride Bus Fleet and Chargers for the I-405 and SR522/NE 145<sup>th</sup> Street Stride Bus Rapid Transit Projects

Meeting:	Date:	Type of action:	Staff contact:
System Expansion Committee	08/10/2023	Final action	Brooke Belman, Deputy CEO, Chief Expansion Delivery Officer Ron Lewis, DECM Executive Director <b>Bernard van de Kamp, Program Executive, Bus Rapid Transit</b> <b>Lucien Bruno, Deputy Program Executive – Stride Operations</b>

### Proposed action

Authorizes the chief executive officer to execute a contract with BYD Coach and Bus LLC for the purchase of the electric bus fleet and charging infrastructure for the I-405 and SR522/NE 145<sup>th</sup> Street Bus Rapid Transit projects in the amount of \$33,520,000 plus a 10 percent contingency of \$3,352,000, for a total authorized contract amount not to exceed \$36,872,000, all within the Stride baseline budgets.

### Key features summary

- With Board authorization under two separate Motions, Sound Transit plans to award contracts to two different bus manufacturers through the Washington State Department of Enterprise Services (DES) Master Contract.
- This action would authorize a contract with BYD Coach and Bus LLC for the procurement of fourteen (14) articulated battery electric buses and charging receivers for the SR 522 BRT Project (Stride S3 line), and chargers for both BRT I-405 and SR 522 projects.
- \$4,840,000 of this contract will be committed from the I-405 BRT budget, with the remainder from the SR 522/NE 145<sup>th</sup> St. BRT project budget.
- The estimate informing this purchase order accounts for an assumed annual cost increase of 3.7% PPI based on recently observed rates from the PPI for Trucks and Bodies, Series No. WPU 1413.
- The Stride BRT project team engaged the Passenger Experience Department and its Passenger Persona program for a ride-along workshop and conducted an onboard survey for current ST Express passengers. As a result of these efforts, staff recommend purchasing Articulated Buses to serve the S3 Line.
- Through a series of modeling exercises vetted by industry experts, the project team confirmed the feasibility of BEB operations on all three Stride lines, leveraging fast opportunity charging at layover locations, as well as standard overnight and midday charging at Bus Base North.
- The all-electric SR522 Stride BRT fleet will help Sound Transit achieve its sustainability goals.

### Background

Stride will be Sound Transit's first BRT service and will be operated with a fleet of 46 battery electric buses (BEB), with a mix of articulated and double decker buses, out of Bus Base North. The fleet procurement will be completed through purchase orders issued through the Washington State

Department of Enterprise Services (DES) Master Contract. The project team has developed a series of fleet specifications and requirements to inform the purchase order, supported by engineering consultants from Jacobs and IBI, and in coordination with internal Sound Transit departments including Operations, Portfolio Services Office, Passenger Experience, and Safety & Security. Following the issue of this purchase order, Sound Transit will work directly with each fleet manufacturer to finalize onboard elements and configurations. Given the nature of this type of procurement, the project team has built in anticipated cost estimates and contingency to allow the flexibility to finalize these elements after issuing the purchase order.

Environmental review of BRT program elements under the State Environmental Policy Act (SEPA) is complete. Sound Transit issued a SEPA Determination of Nonsignificance (DNS) for the Bus Base North in August 2020; a DNS for the I-405 BRT in September 2020; and a DNS for the SR 522/NE 145th BRT in March 2021.

The sections below outline the planning process to inform bus fleet type and size, along with supporting charging infrastructure.

### **Fleet Type**

The project team recommends purchasing Articulated Buses on SR 522 (S3). Compared to the S1 and S2 routes, S3 will have shorter trips and shorter distances between stops, meaning that finding a seat for the duration of the ride will be less of a priority to passengers. The S3 route will also have more total stops. This will mean a higher proportion of the travel time is during the dwell. The articulated coaches will be ordered with three doors to facilitate efficient boarding and de-boarding.

### **Fleet Propulsion**

Through a series of modeling exercises vetted by industry experts, the project team confirmed the feasibility of BEB operations on all three Stride lines, leveraging fast opportunity charging at layover locations, as well as standard overnight and midday charging at Bus Base North. A fully electrified Stride fleet and supporting charging infrastructure is being designed and the needed equipment will be obtained through this purchase order. For S3 operations, (14) K11M 60' articulated buses will be purchased from RIDE.

### **Layover Charging**

Stride buses will utilize inductive fast chargers during their layover at all route termini. This method of charging was selected due to its minimal footprint in constrained urban areas and for having fewer moving parts compared to overhead pantograph chargers. The following route termini will each have two 300kW chargers: Burien Transit Center, Lynnwood City Center Station, South Shoreline/148th Station, SR 522/I405 Transit Hub. Downtown Bellevue layover will have four total chargers to support layover needs of the S1 and S2 lines. InductEV's 300kW fast chargers and bus receivers will be used for the entire Stride fleet.

### **Bus Base North Charging**

Stride buses will utilize plug-in charging at BBN. This approach will allow for the highest parking flexibility and be more cost-effective than providing inductive chargers for every bus. After returning to the yard, each bus will be plugged into a 2:1 shared charger. A Charge Management System will direct charge levels according to the needs of each bus, accounting for assigned pullout time and managing the overall load to minimize or avoid demand chargers. The fleet team has selected 180kW Heliox chargers due to their ability to provide dynamic charging and meet the operational needs. To support maintenance charging and startup prototype testing, BBN will house (4) 50kW portable chargers. BBN will also include (1) InductEV fast-charger for operator training, testing receivers, and any opportunity charging required for operations and maintenance.

### **Total Fleet and Charger Count**

The table below summarizes the total number of buses, chargers, and receivers to be obtained through these purchase orders. Note that total fleet count includes an industry standard spare ratio of at least 20%.

Item	Quantity
RIDE K11M Articulated Bus:	14
InductEV 300kW Inductive Charger:	13
Heliox 180kW 2:1 Plug-In Charger:	23
Heliox 50kW Portable Charger:	4

## Project status

Project Identification	Alternatives Identification	Conceptual Engineering/ Draft EIS	Preliminary Engineering/ Final EIS	Final Design	Construction

Projected completion date for Construction Phase: (a) Q3 2028 S1; (b) Q2 2029 S2; (c) Q2 2028 S3.

Project scope, schedule and budget summaries are located on pages 131 and 137 of the June 2023 Agency Progress Report.

The project team has developed vehicle specifications that have informed vehicle requirements and purchase orders. After issuing the purchase orders, the project team will work with the manufacturers during pre-production meetings and engineering phases to finalize design prior to the delivery of the initial prototype fleet.

## Procurement information

Sound Transit intends to purchase the buses and chargers using Washington State Department of Enterprise Services (DES) Master Contract 06719, which was competitively advertised in March 2020 and further awarded in April 2021 (final term ending March 2026) to multiple manufacturers in accordance with Revised Code of Washington (RCW) 39.26 and DES current procurement policies and procurement process. As a result of the multiple awards to several manufacturers, Sound Transit is able to leverage the contract to select bus models and supporting infrastructure that meet agency requirements without the need to complete a separate formal competitive procurement. Sound Transit has utilized DES contracts previously related to fleet orders for ST Express.

By way of DES competitive procurement, Sound Transit has reviewed the contract pricing and is in alignment with what the agency would expect to pay for buses of this type. Additionally, DES Contract 06719 terms and conditions allow bus manufacturers to offer lower prices to participants of the DES contract, as well as require that manufacturers must cap the base price of their bus to the annual change in Producer Price Index (PPI) for Truck and Bus Bodies, Series No. WPU 1413; however allows flexibility to negotiate a more favorable-fixed PPI rate. These reasons above, along with Sound Transit's independent review result in a determination that the pricing is be fair and reasonable. Sound Transit's Independent Cost Estimate currently accounts for anticipated PPI increases, based on current market trends, along with additional onboard amenities not included in the base price. With that said, Sound Transit needs to establish a contract prior to engaging in final negotiations. Upon obtaining Board approval to proceed with awarding a contract, Sound Transit intends to issue a Purchase Order pursuant to DES Contract 06719 directly with BYD Coach and Bus LLC.

Duration of this contract is anticipated to be from contract award in September 2023 (tentative) through final vehicle delivery and acceptance in December 2026.

## **Fiscal information**

This action is within the authorized project allocation to date and sufficient funds remain after approval of this action to fund the remaining work in the construction phase as contained in the current cost estimate of this project. This action does not impact the affordability of any other system expansion project.

The baseline budget for the SR522/NE 145<sup>th</sup> Street BRT project is \$581,500,000. Within the vehicle phase, \$38,320,000 has been allocated to the budget line item for vehicles and chargers. The action would commit \$32,032,000 to the contract amount for vehicles and chargers and leave a budget balance of \$6,288,000.

The baseline budget for the I-405 BRT project is \$1,269,000,000. Within the vehicle phase, \$94,060,000 has been allocated to the budget line item for vehicles and chargers. The action would commit \$4,840,000 to the contract amount for chargers and leave a budget balance of \$8,744,000.

**SR 522 Bus Rapid Transit Project**  
(in thousands)

Project Phase	Authorized Project Allocation	Board Approvals	This Action	Board Approved Plus Action	Uncommitted / (Shortfall)
Agency Administration	\$57,810	\$15,344		\$15,344	\$42,466
Preliminary Engineering	15,790	15,399		15,399	391
Final Design	43,400	32,132		32,132	11,268
Third Party Agreements	7,350	2,084		2,084	5,266
Right of Way	89,620	8,495		8,495	81,125
Construction	303,370	34,959		34,959	268,411
Construction Services	25,840				25,840
Vehicles	38,320		32,032	32,032	6,288
<b>Total Current Budget</b>	<b>\$581,500</b>	<b>\$108,412</b>	<b>\$32,032</b>	<b>\$140,444</b>	<b>\$441,056</b>

**Phase Detail**

**Vehicles**

Vehicles	\$38,320	\$	\$32,032	\$32,032	\$6,288
<b>Total Phase</b>	<b>\$303,370</b>	<b>\$34,959</b>	<b>\$32,032</b>	<b>\$32,032</b>	<b>\$6,288</b>

**I-405 Bus Rapid Transit Project**  
(in thousands)

Project Phase	Authorized Project Allocation	Board Approvals*	This Action	Board Approved Plus Action	Uncommitted / (Shortfall)
Administration	\$52,220	\$20,668		\$20,668	\$31,552
Preliminary Engineering	43,540	38,168		38,168	5,372
Final Design	26,130	12,140		12,140	13,990
Third Party Agreements	5,810	1,608		1,608	4,202
Right of Way	53,500	32,283		32,283	21,217
Construction	963,550	580,516		580,516	383,034
Construction Services	30,190	1,789		1,789	28,401
Vehicles	94,060	80,476	4,840	85,316	8,744
<b>Total Current Budget</b>	<b>\$1,269,000</b>	<b>\$687,171</b>	<b>\$80,476</b>	<b>\$772,487</b>	<b>\$496,513</b>

**Phase Detail - Vehicles**

Vehicles	\$94,060	\$80,476	\$4,840	\$85,316	\$8,744
<b>Total Phase</b>	<b>\$94,060</b>	<b>\$80,476</b>	<b>\$4,840</b>	<b>\$85,316</b>	<b>\$8,744</b>

Contract Detail	Board Approvals to Date	Proposed Action	Proposed Total for Board Approval	Current Approved Contract Status
RIDE				
Contract Amount	\$	\$33,520	\$33,520	\$33,520
Contingency		3,352	3,352	3,352
<b>Total Contract</b>	<b>\$</b>	<b>\$36,872</b>	<b>\$36,872</b>	<b>\$36,872</b>
Percent Contingency	0%	10%	10%	10%

Amounts are expressed in Year of Expenditure \$000s.

\* Board Approvals = Commitment and PO Contingency Remaining as of 7/31/23

For detailed project information, see page 146 of the 2023 Financial Plan & Adopted Budget.

## Disadvantaged and small business 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/agreement and the number of small businesses/DBEs available to perform such subcontracting work.

Given that this was procured via a cooperative purchase (Washington State Department of Enterprise Services (DES) Master Contract.), analyses for determining small business goals were not undertaken. As such, small business goals were not established by Sound Transit for this procurement.

## **Public involvement**

Sound Transit will continue to lead community outreach with jurisdictions if and when there are any new developments related to the Stride fleet and charging. This effort will include but is not limited to open houses, workshops, customer surveys, City Councils, Planning and Transportation Commission briefings and ongoing education as needed to support the project outreach efforts.

## **Time constraints**

A one-month delay would not have a significant impact to the project.

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**Environmental review** – KH 7/25/23

**Legal review** – JSA 8/4/23



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A motion of the System Expansion Committee of the Central Puget Sound Regional Transit Authority authorizing the chief executive officer to execute a contract with BYD Coach and Bus LLC for the purchase of the electric bus fleet and charging infrastructure for the I-405 and SR522/NE 145th Street Bus Rapid Transit projects in the amount of \$33,520,000 plus a 10 percent contingency of \$3,352,000, for a total authorized contract amount not to exceed \$36,872,000, all within the Stride baseline budgets.

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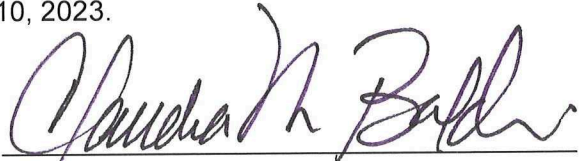
The all-electric SR 522 Stride BRT fleet will help Sound Transit achieve its sustainability goals.



**Motion**

It is hereby moved by the System Expansion Committee of the Central Puget Sound Regional Transit Authority that the chief executive officer is authorized to execute a contract with BYD Coach and Bus LLC for the purchase of the electric bus fleet and charging infrastructure for the I-405 and SR522/NE 145th Street Bus Rapid Transit projects in the amount of \$33,520,000 plus a 10 percent contingency of \$3,352,000, for a total authorized contract amount not to exceed \$36,872,000, all within the Stride baseline budgets.

APPROVED by the System Expansion Committee of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on August 10, 2023.



Claudia Balducci  
System Expansion Committee Chair

**Attest:**



Adam Montee, on behalf of  
Kathryn Flores  
Board Administrator