



RAIL CAR REPLACEMENT PURCHASE

Presented to: Committee of the Whole

April 4, 2023

Project Overview

- Design, Manufacture and Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles, Spare Parts, Tooling, and Training
- Option to Procure up to Thirty-Six (36) Additional High Floor Light Rail Vehicles to be Exercised within Seven Years of Contract Signature

Strategic Plan: Foundations for the Future

Economic
Impact
Study

Rail Car
Study

Fare
Equity Study

System
Redesign
Study

Financial and
Economic
Forecast &
Operational
Review

Project Overview – Pillar Study

- In 2018, GCRTA contracted with LTK Engineering Services to perform a comprehensive evaluation of the Heavy and Light Rail cars
- LTK's 2019 findings were to replace HRV in 5 years and LRV in 10 years
- The rationale for replacement for both fleets:
 - Structural loss from corrosion
 - Lack of readily available parts
 - Cost of rehabilitation far exceeds replacement cost

Existing Fleet



Existing Fleet

- The existing HRV fleet:
 - Manufactured by Tokyu Car Corporation
 - 60 cars delivered and 40 remain
 - Began service in 1984 (39 years ago)
 - Mechanical overhaul 2008 – 2012
 - Interior overhaul 2012 - 2016
- The existing LRV fleet
 - Manufactured by Breda
 - 48 cars delivered, 29 remain
 - Began service in 1981 (42 years ago)
 - Mid-life (structural & interior) 2005 - 2010

Existing Fleet Age

- HRV – Board Resolution No. 1981-186 authorized this purchase on August 18, 1981 – Vehicles delivered in 1984
 - Currently the 3rd oldest fleet in USA. The other 2 transit systems have performed major system upgrades.
- LRV – Board Resolution No. 1977-276 authorized this purchase on September 27, 1977 - Vehicles delivered in 1981
 - Currently tied for oldest average aged fleet

Current Project

- On January 21, 2020, the Board of Trustees authorized the award of a contract to LTK Engineering Services (“LTK”) to prepare the technical specifications for the replacement of the HRVs
- LTK prepared a Fleet Procurement Plan that recommended the procurement of a high floor light rail vehicle that would be capable of servicing both high and low platforms.

What is a High Floor LRV

- A car that can operate in both Heavy and Light Rail Territories.
- Doors that allow access from existing HRV platforms (approx 3.5 ft) & street level from LRV platforms
- ADA accessibility at light rail stations equipped with mini-high platforms

Benefits of High Floor LRV

- Replace 2 fleets with 1 vehicle
- Reduce inventory and maintenance costs
- Streamline Mechanic & Operator training, reduces costs
- Increased buying power and partner agencies
- Increased future rail route flexibility and customer access

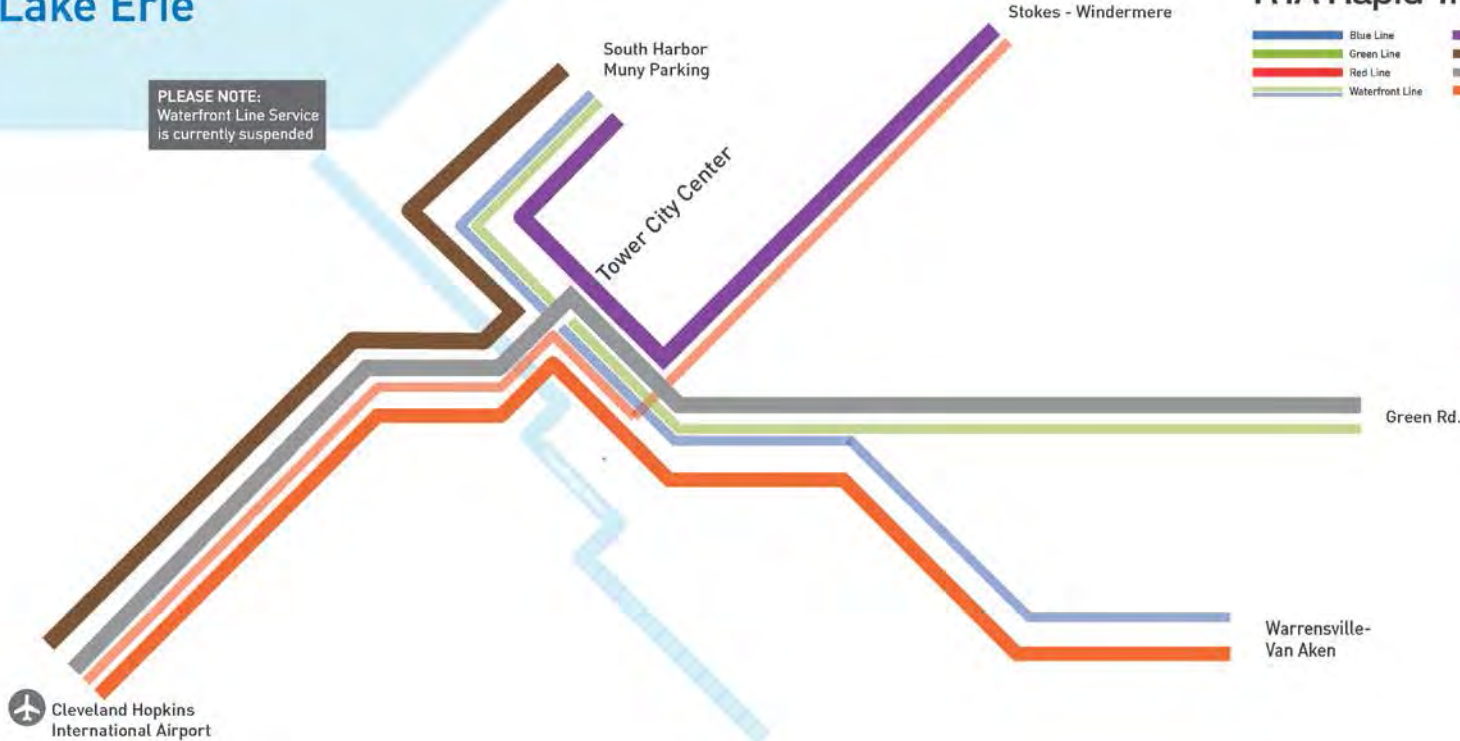
Dimensional Comparison

	Existing Fleet (HRV/LRV)	New Fleet
Length	75.83' / 80'	84.6'
Width	10.33' / 9.25'	8.7'
Floor Height	3.5' / 3.33'	41" tor
Weight	85,000lbs / 103,000lbs	89,604 lbs
Seating Capacity	80 / 84	52
Seat Type	Fabric	Plastic
Cameras	11 / 8	15

New Rail Alignment

Lake Erie

PLEASE NOTE:
Waterfront Line Service
is currently suspended



RTA Rapid Transit System

- | | | |
|-----------------|-------------|-----------------------------------|
| Blue Line | Purple line | Stokes Windermere to South Harbor |
| Green Line | Brown Line | Airport to South Harbor |
| Red Line | Gray Line | Green Rd. to Airport |
| Waterfront Line | Orange Line | Warrensville to Airport |



Greater Cleveland
Regional Transit Authority

For more information,
visit rideRTA.com or call the
RTAanswerline at (216) 621-9500

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Project Overview – 1st RFP

- On February 22, 2021, GCRTA issued its first Request for Proposals (RFP)
- No responsive proposals were received and the procurement was canceled
- Vendor debriefs provided (5 vendors)
- Industry survey were conducted (2 vendors)
- Peer Review (4 agencies)
- Internal specification revisit (5 sections re-evaluated)
- Specification updated reflecting the feedback

Project Overview – 2nd RFP

- The new Request for Proposals was issued on October 11, 2021 and one responsive proposal was received from Siemens Mobility, Inc.
- 37 scheduled meetings – May 2022 through March 2023
- Resolving technical issues, clarifying scope and negotiation

Recommended Vendor

SIEMENS

Key Features of New Vehicle

- First High floor LRV built to RT1-2020 design standards
- Ice cutter pantograph on every train
- Heated windshield and pantograph
- Load leveling system to adjust floor height
- Dedicated HVAC unit for operator cab
- 52 passenger seats, 2 wheelchairs and 4 bicycles

Comm

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Concept
Only



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RTA

Ergonomic Operator's Cab Reduces Driver Stress and Fatigue

Improved CCTV System

High-Platform Boarding doors

Low-Platform Boarding doors

LED Headlight

ASME RT-1-2020 Compliant

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The S200 LRV for the GCRTA Interior Design Concept

Siemens Mobility, Rolling Stock | Greater Cleveland Regional Transit Authority

**Comfortable Air Flow:
Reduced Air Speeds
and Interior Noise**

**High Visibility Interior
Messaging Signs**

**Large Passenger
Windows**

**Maintenance friendly floor design: Clear
unobstructed concept allows easier cleaning,
wall-mounted brackets**



**Concept
Only**

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Interior Design Concept

Cab Wall, ADA area, Bicycle Rack/Articulation Area and Bird's Eye Views



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The S200 LRV for the GCRTA

Cab Wall and Forward Entrance – Design Concept

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The S200 LRV for the GCRTA ADA Area Design Concept

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Concept
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The S200 LRV for the GCRTA

Articulation Area and Bicycle Stowage - Concept

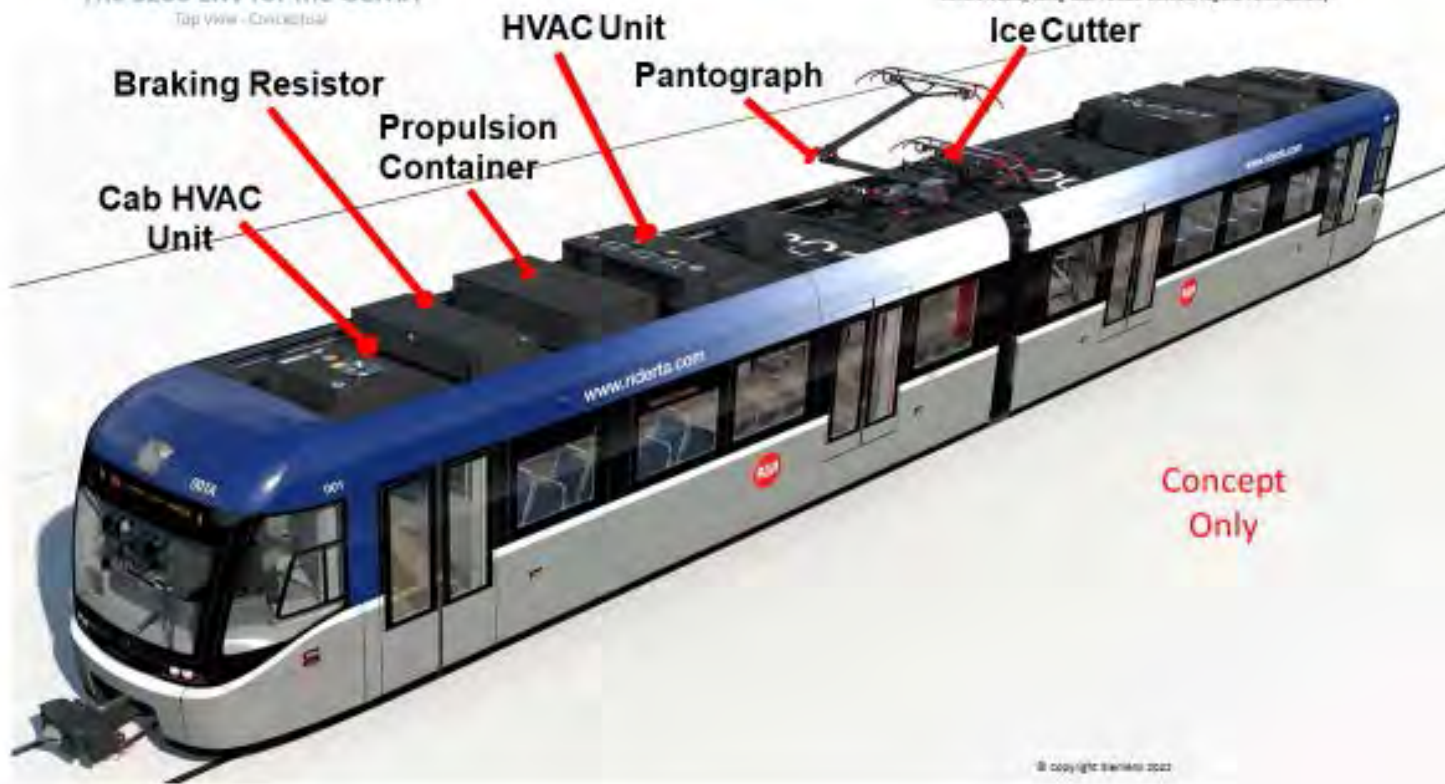
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Concept
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The S200 LRV for the GCRTA
Top View - Conceptual

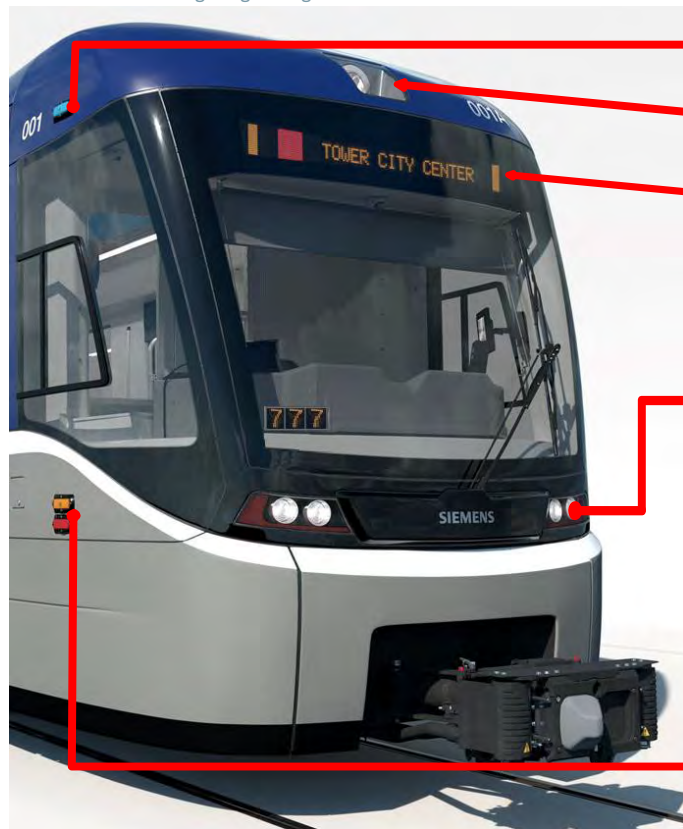
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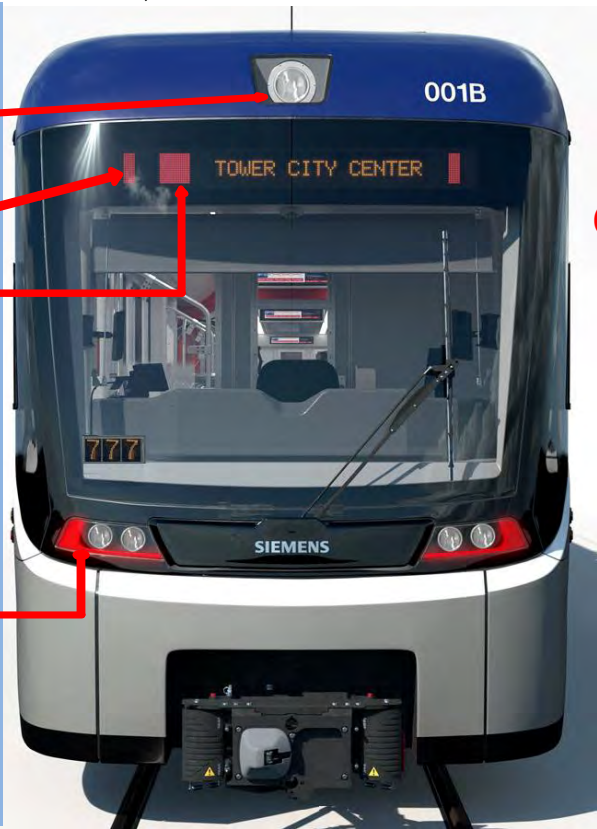
The S200 LRV for the GCRTA

Exterior Lighting Configuration

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LED Active Cab lights
Railroad Light
Amber/Red Marker Light
Route Color Block
LED Headlights for Improved Maintenance
LED Stop / Taillights Assembly for Improved Maintenance
Red/Amber Side Marker Lights



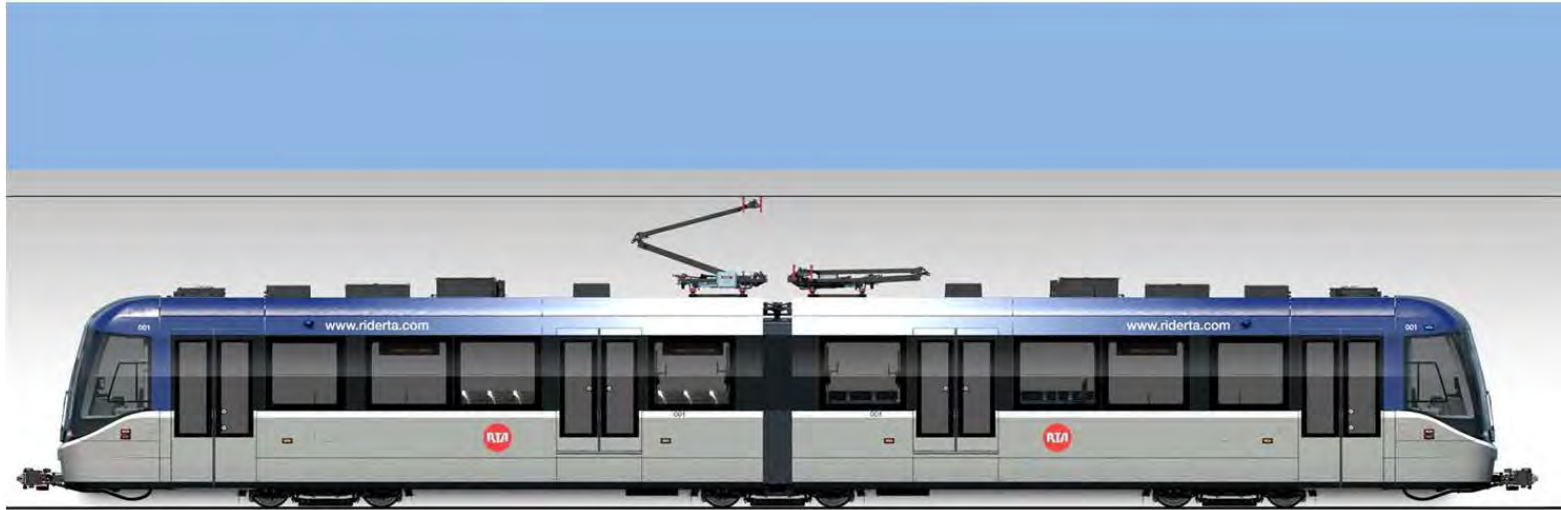
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Vehicle Features

II. Exterior Design Concept

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Vehicle Features

Operator's Cab
Forward View

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Concept Only





Concept Only - Mini-High Platform Extension

(High platforms would have similar extensions)

Operating in Other Cities

- SFMTA Muni



- Calgary Transit



Project Overview – Funding Strategy

- Based on the study by LTK Engineering Services, GCRTA accelerated savings to fund local portion of the initial \$300M program
- Plan devised to identify savings in General Fund, and to budget and transfer funds into a Reserve Fund to get to the \$60M local match
 - An average of \$10M has been transferred into the Reserve Fund since 2017 for a total of \$70M
 - Plan for 2024-26 is for a total of \$23M, if needed for contingencies
 - The local portion of the total program is mostly funded
 - No additional debt issuances are planned

Project Overview – Funding Strategy (contd)

- A firm plan in place to secure the Local match assisted in outreach to potential partners at Federal, State and Local levels
- Identified funding through these efforts to secure:
 - Federal formula funds
 - Federal competitive and community project grants
 - Ohio OTP2 grants
 - Ohio General Revenue Fund (GRF)
 - NOACA Surface Transportation Block Grant (STBG)
- Additional efforts continue to bridge the remaining gaps

Project Overview – Funding Strategy (cont'd)

The expected funding for the total program:

Source	Amount	Percentage
RTA	\$ 79.0M	20.1%
Federal	\$230.0M	58.5%
State	\$ 60.0M	15.3%
Local (NOACA)	\$ 24.0M	6.1%
TOTAL	\$393.0M	100.0%

Railcar Replacement Funding Stack

FUNDING SOURCE	FUNDING AMOUNT	AWARDED	COMMITTED	UNFUNDED
GCRTA ROLLING STOCK RESERVE FUND	\$79,000,000	\$71,724,187	\$7,275,813	\$0
FTA SECTION 5307 AND 5337 FORMULA GRANT FUNDS- Design Only (W/O Local Match)	\$8,870,000	\$6,400,000	\$2,470,000	\$0
FTA SECTION 5307 AND 5337 FORMULA GRANT FUNDS -Rail Car Purchase (W/O Local Match)	\$50,930,000	\$18,068,087	\$21	\$0
FTA SECTION 5307 AND 5337 FORMULA GRANT FUNDS -Rail Car Modifications (W/O Local Match)	\$15,200,000	\$5,200,000	\$10,000,000	\$0
FTA SECTION 5337 Rail Car/USDOT BUILD/RAISE FUND	\$155,000,000	\$25,000,000	\$0	\$130,000,000
ODOT STBG/CMAQ	\$50,000,000	\$16,900,000	\$0	\$33,100,000
ODOT GRF	\$10,000,000	\$4,500,000	\$0	\$5,500,000
NOACA STBG	\$24,000,000	\$9,600,000	\$14,400,000	\$0
Total	\$393,000,000	\$157,392,274	\$67,007,726	\$168,600,000

Project Overview – Cost

Base Contract				
	QTY	Description of Item	Unit Price	Total Price
1	(up to) 24	Vehicles	\$5,166,336.00	\$123,992,064.00
2		Nonrecurring costs (Engineering, Support, Spare Parts & Special Tools)	N/A	\$39,982,051.00
		Total		\$163,920,115.00

Nonrecurring Costs

- Project Management
- Engineering
- Testing
- Training
- Manuals
- Field support
- Spare parts and special tooling

Infrastructure Modifications

- Brookpark Shop – facility and yard modifications. This is the location for commissioning & testing.
- CRMF – facility and shop modifications
- Stations – Platform width Red Line & mini highs on Blue & Green Lines
- Railroad Connection – vehicle delivery

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

- RFP issued on October 11, 2021
- Accessed on the GCRTA website by 125 interested parties which included prime contractors and subcontractors
- One responsive and responsible proposal was received on March 9, 2022
- Proposer was interviewed and submitted Best and Final Offer

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

- Rail Equipment
- Rail Transportation
- Rail Power & Way
- Fleet Management/Engineering
- Engineering & Project Development
- Safety
- Legal
- Office of Management and Budget
- Procurement
- Internal Audit

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

Evaluation Criteria:

- Technical Evaluation
- Qualifications
- Schedule
- Least modifications to infrastructure
- Price

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

Recommended Company:

- Siemens Mobility, Inc.
 - Located: Sacramento, CA

In accordance with federal regulations, the Office of Business Development does not establish goals on rolling stock procurements.

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

Company Experience:

- Since 1975, more than 1,800 LRV's have been ordered from Siemens to meet urban transport needs in the U.S. and Canada
- More modern high-floor LRV's designed, built and operated in the US than any other carbuilder
- Industry leader in providing designing and manufacturing light rail vehicles
- Demonstrated experience in assembling, testing and commissioning light rail vehicles

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

Relevant clients have included:

- San Francisco Metropolitan Transportation Agency (SFMTA)
- Utah Transit Authority, Salt Lake City (UTA)
- Denver, Colorado Regional Transportation District (RTD)
- St. Louis, Missouri Metro Transit/Bi State Development Agency
- Edmonton Canada Transit System (ETS)
- Calgary, Alberta-Canada Calgary Transit (CT)

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Federal Transit Administration - Buy America Review

As a condition to receiving FTA grant funds for the purchase of rolling stock, GCRTA must certify compliance with Buy America and the pre-award and post-delivery audit requirements, as prescribed by 49 CFR part 663.

- The manufacturer must demonstrate the cost of the components produced in the US is equal or greater to 70%. We must verify the manufacturer's information.
- Final assembly of the vehicles must take place in the United States in accordance with 49 CFR Part 661.11.
- The rolling stock it is purchasing is the same product described in its solicitation specification; and the proposed manufacturer is a responsible manufacturer with the capability to produce a vehicle that meets the GCRTA's specification.
- Internal Audit is scheduled to conduct the pre-award audit at the site of the proposed manufacturer after Board award and before notice to proceed.

Design, Manufacture And Delivery of up to Twenty-Four (24) High Floor Light Rail Vehicles

Recommendation:

At the April 10, 2023 Committee of the Whole meeting, staff will request that a recommendation is made to the Board of Trustees for the award of a contract for replacement rail cars.