

# RAIL CAR REPLACEMENT PURCHASE

Presented to: Committee of the Whole

April 10, 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

# 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

- 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

# 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

Lake Erie

South Harbor  
Muny Parking

Stokes - Windermere

### RTA Rapid Transit System

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

Purple line  
Brown Line  
Gray Line  
Orange Line

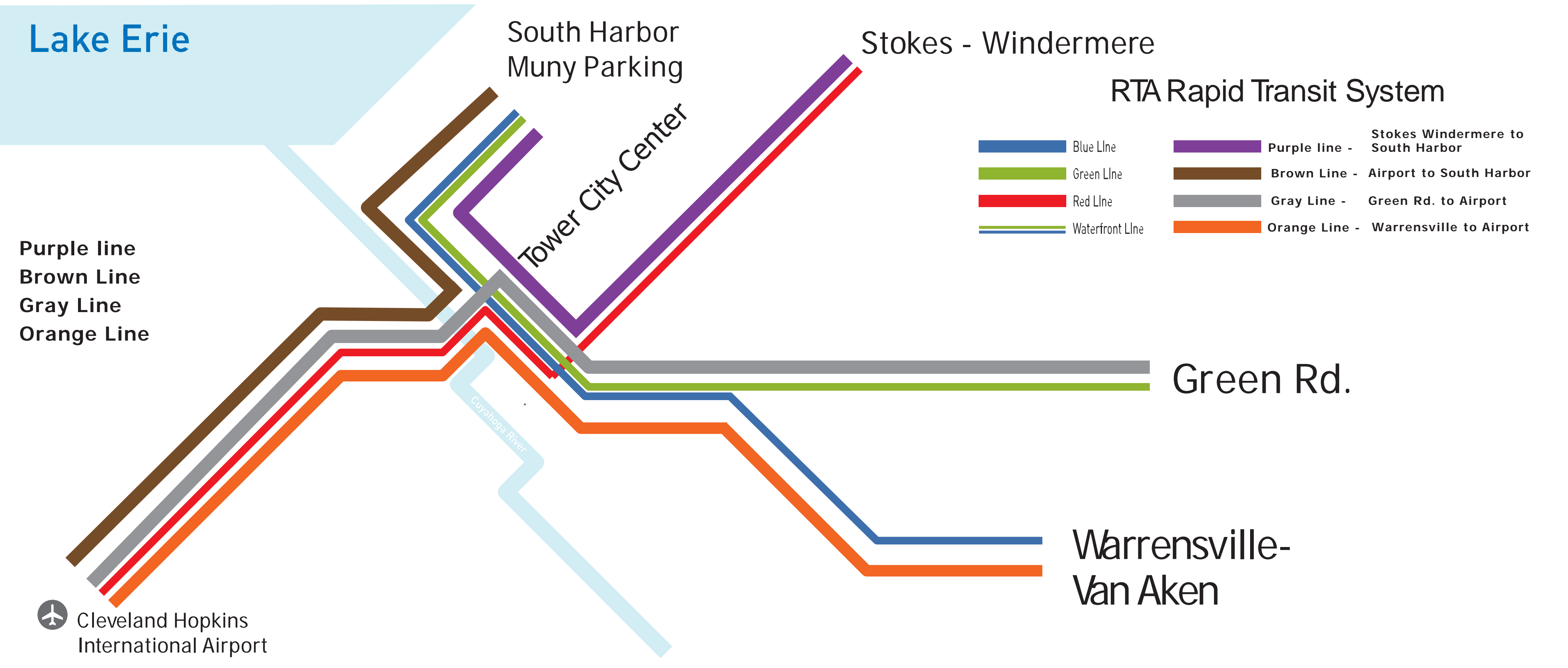
Green Rd.

Warrensville-  
Van Aken

Cleveland Hopkins  
International Airport

Tower City Center

Cuyahoga River





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

# Questions from the Community

- ADA Seating Arrangement
- Bike Storage Area
- Number of Seats + Vehicle Load Capacity
- Ice Cutters

# 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 | 72 / 72                  | 52         |
| Seat Type        | Fabric                   | Plastic    |
| Cameras          | 11 / 8                   | 15         |



# Ergonomic Operator's Cab Reduces Driver Stress and Fatigue

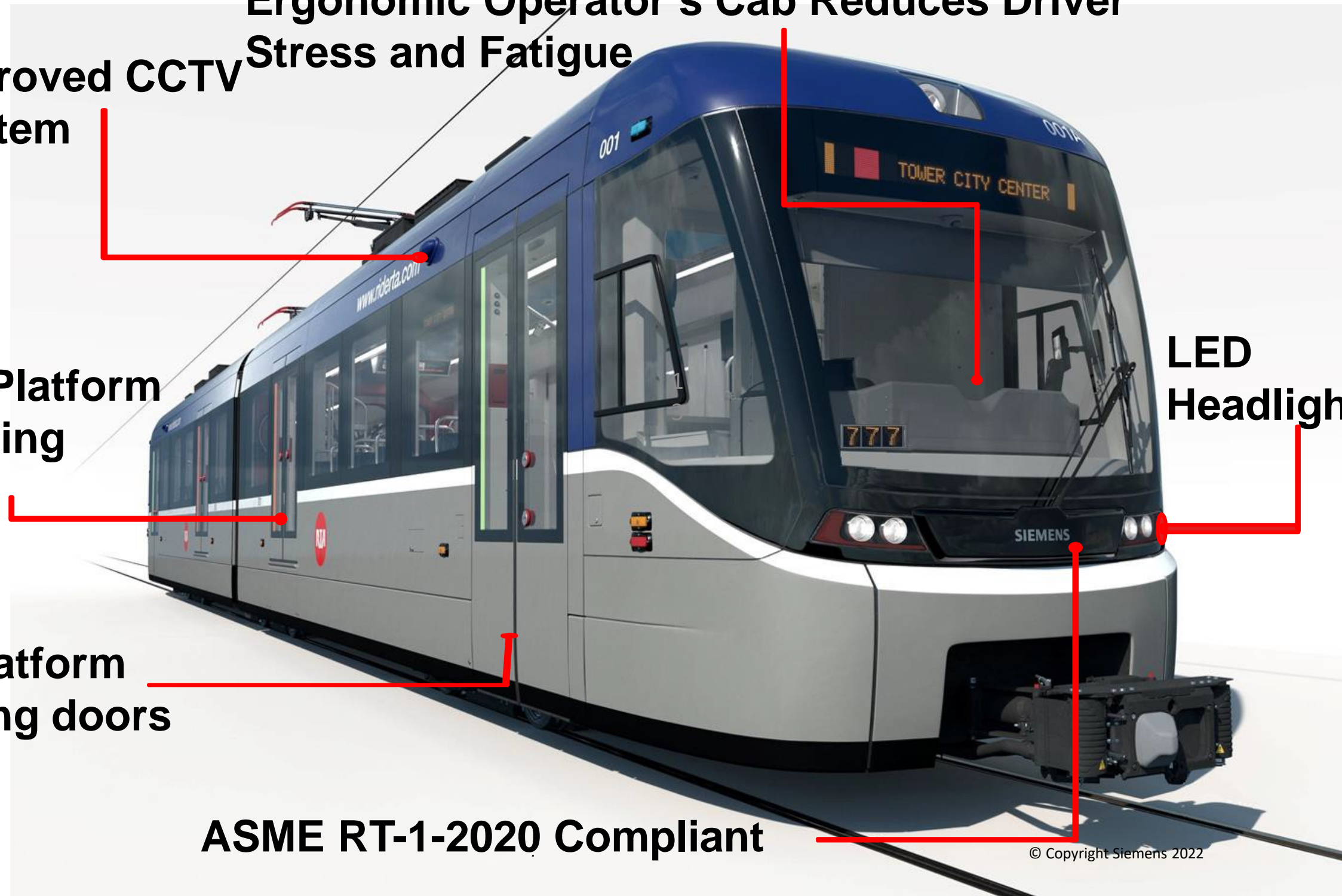
Improved CCTV System

High-Platform Boarding doors

Low-Platform Boarding doors

ASME RT-1-2020 Compliant

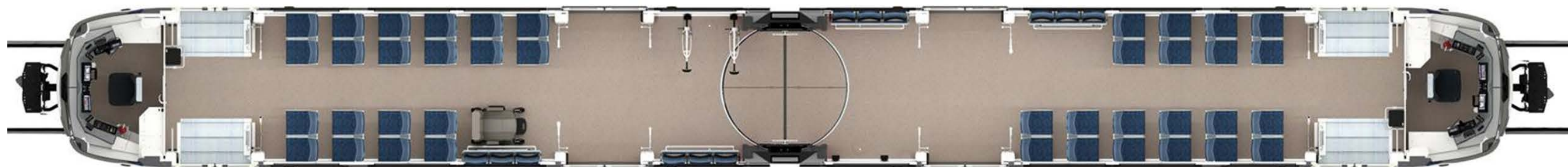
LED Headlight



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## Interior Design Concept

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



Concept  
Only

# The S200 LRV for the GCRTA ADA Area Design Concept

Siemens Mobility, Rolling Stock | Greater Cleveland Regional Transit Authority

Concept  
Only





## Concept Only - Mini-High Platform Extension

(High platforms would have similar extensions)



# 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

# The S200 LRV for the GCRTA

Articulation Area and Bicycle Stowage - Concept

Siemens Mobility, Rolling Stock | Greater Cleveland Regional Transit Authority



Concept  
Only

# The S200 LRV for the GCRTA

## Cab Wall and Forward Entrance – Design Concept

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Concept  
Only

# Vehicle Features

Operator's Cab  
Forward View

Siemens Mobility, Rolling Stock | Greater Cleveland Regional Transit Authority

Concept Only

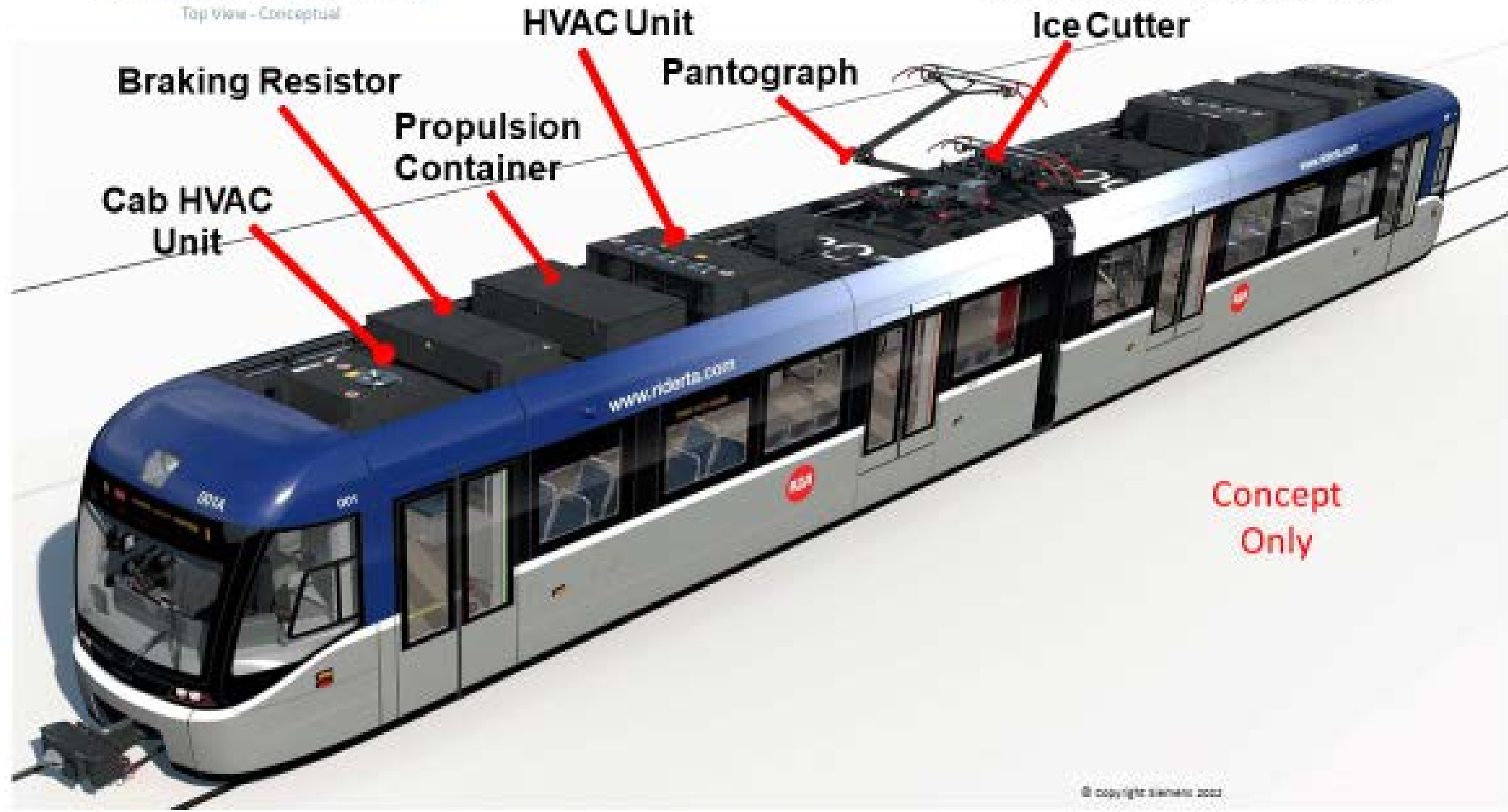


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The S200 LRV for the GCRTA  
Top View - Conceptual

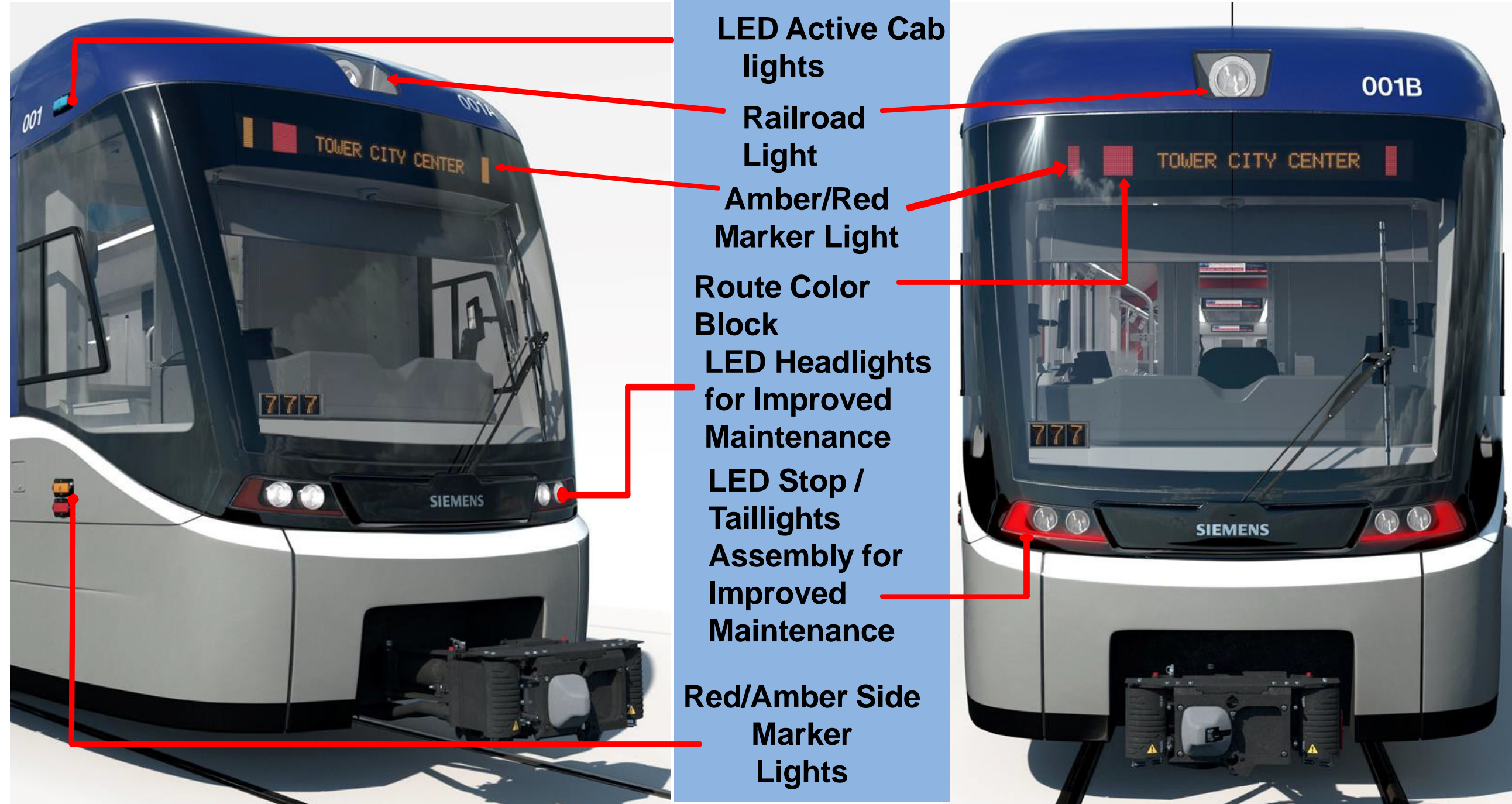
siemens mobility, rolling stock | greater cleveland regional transit authority



# The S200 LRV for the GCRTA

Exterior Lighting Configuration

Siemens Mobility, Rolling Stock | Greater Cleveland Regional Transit Authority



- 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

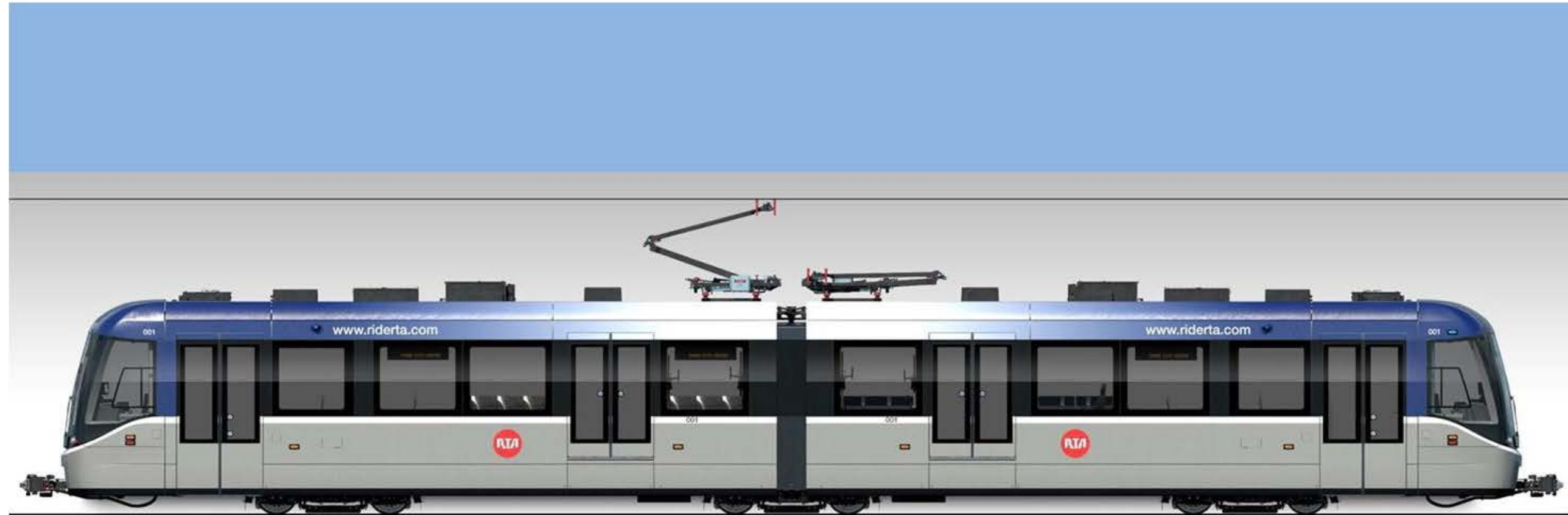
Concept Only

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# Vehicle Features

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## II. Exterior Design Concept



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# 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

# 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:

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

# 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-<br>Design Only (W/O Local Match)            | \$8,870,000    | \$6,400,000   | \$2,470,000  | \$0           |
| FTA SECTION 5307 AND 5337 FORMULA GRANT FUNDS<br>-Rail Car Purchase (W/O Local Match)      | \$50,930,000   | \$18,068,087  | \$21,361,613 | \$11,500,000  |
| FTA SECTION 5307 AND 5337 FORMULA GRANT FUNDS<br>-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 | \$55,507,726 | \$180,100,000 |

# 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            | \$ 39,928,051.00 |
|               |            |                                                                        |                |                  |
|               |            | Total                                                                  |                | \$163,920,115.00 |



# Nonrecurring Costs

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

# 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

## 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 designing and manufacturing light rail vehicles
- Demonstrated experience in assembling, testing and commissioning light rail vehicles

# 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:

Based on the Committee of the Whole recommendation for award on April 4, 2023, a resolution will be presented for approval at the April 18, 2023 Board of Trustees meeting.

# Questions

# Public Comments

- In person
- Phone: 440-276-4600
- Web form at [www.riderta.com/events](http://www.riderta.com/events)
  - Click/Select meeting event
  - Scroll to bottom to fill out form
  - Comments will be sent to Board and staff