U²C Program
Innovative & Autonomous

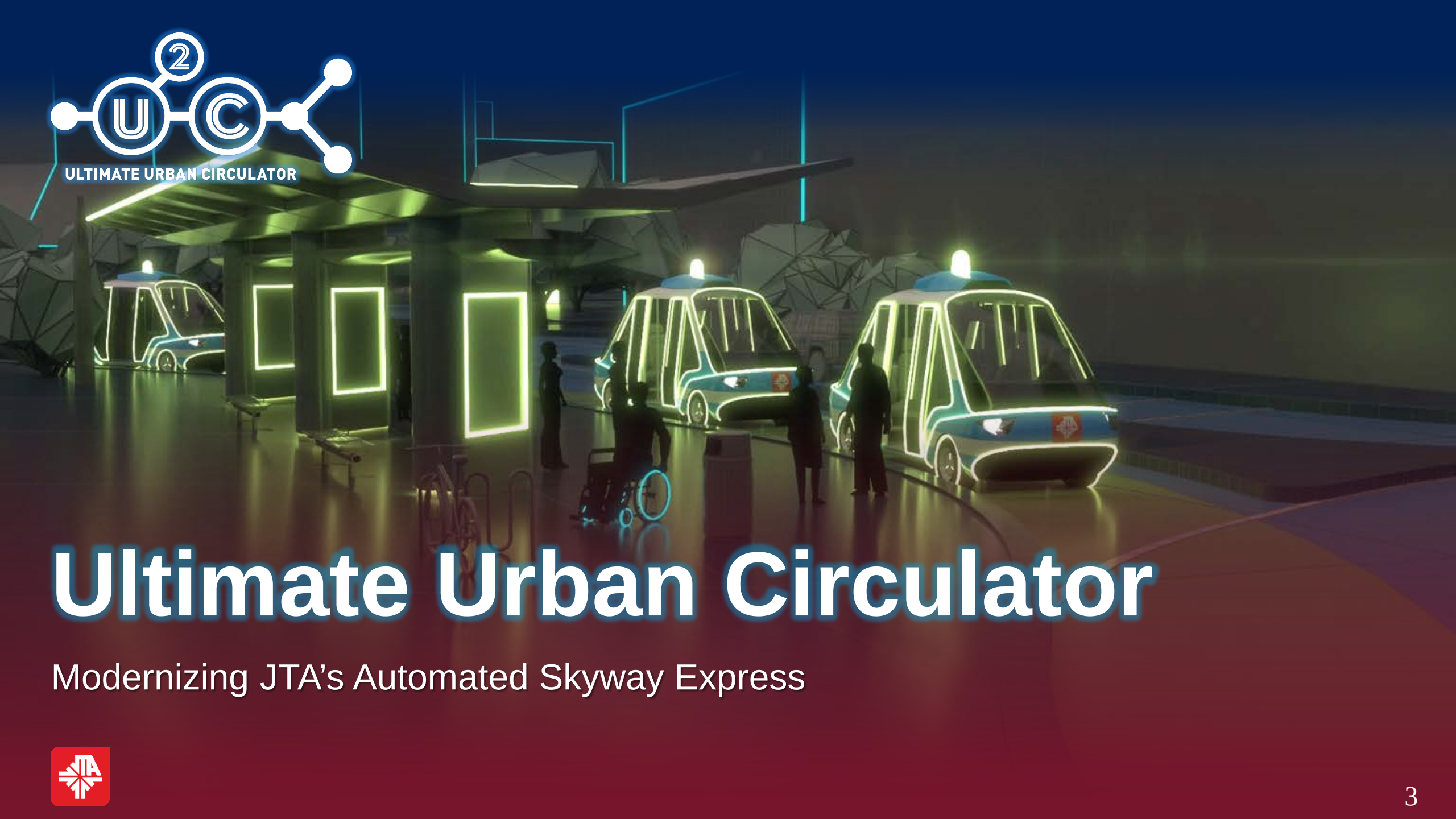
APTA Bus and Paratransit

May 8, 2018

U²C PROGRAM

- Modernizing the Automated Skyway Express
  - Vision
  - Project Roadmap
  - AV Test and Learn
  - Path Forward
- Beyond the Skyway Modernization

ULTIMATE URBAN CIRCULATOR



Ultimate Urban Circulator

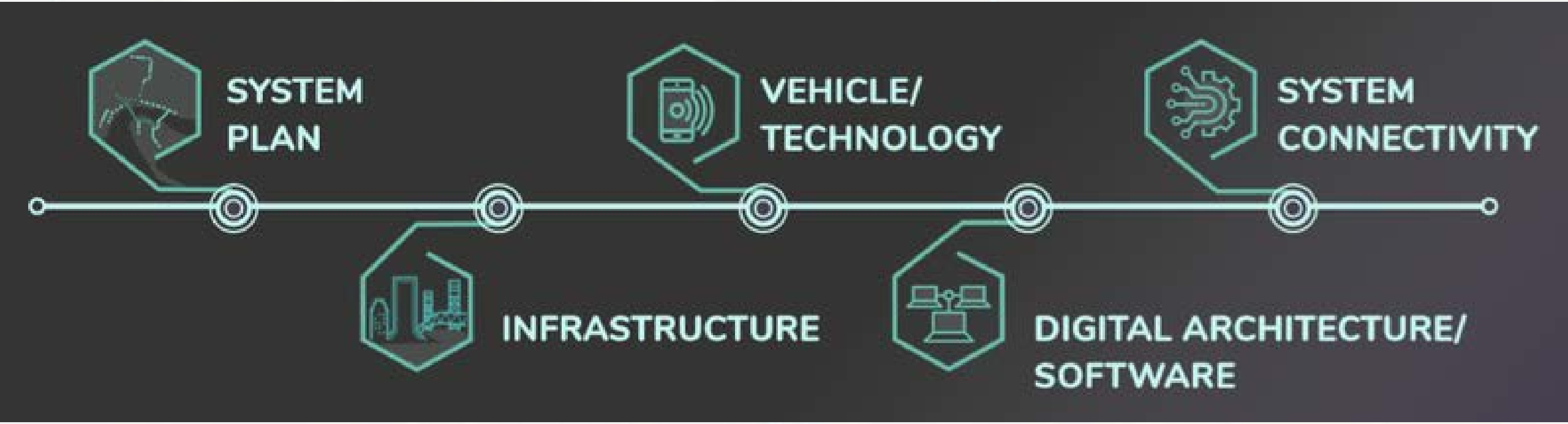
Modernizing JTA's Automated Skyway Express

AUTOMATED SKYWAY EXPRESS

- 2.5 mile, bi-directional system
- 8 Stations
- Elevated guidebeam
- 6-8 minute headways
- 5000 trips on average weekday
- 6 am to 9 pm weekdays and special events
- Vehicles past midlife
- Structure and vehicles have remaining useful life

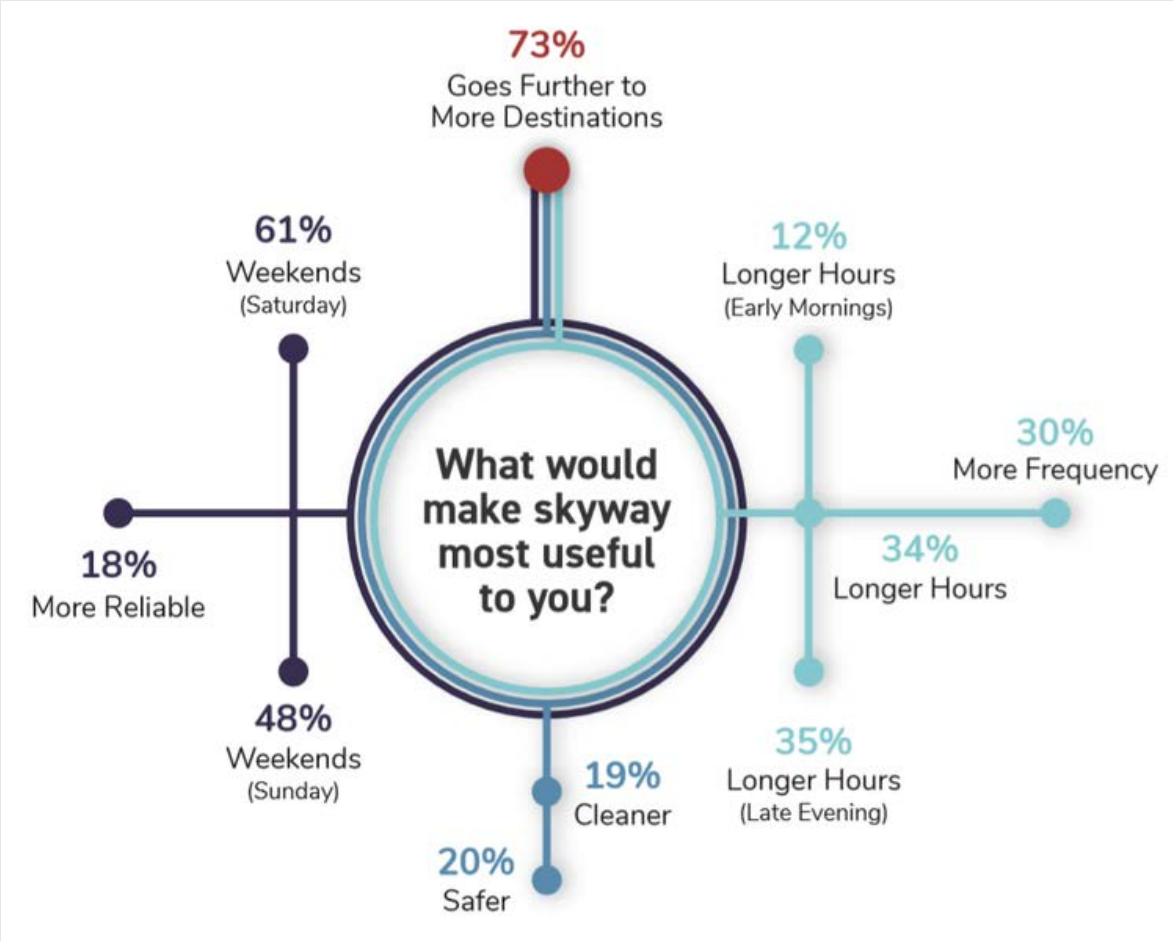
ULTIMATE URBAN CIRCULATOR

PROJECT ROADMAP



ULTIMATE URBAN CIRCULATOR

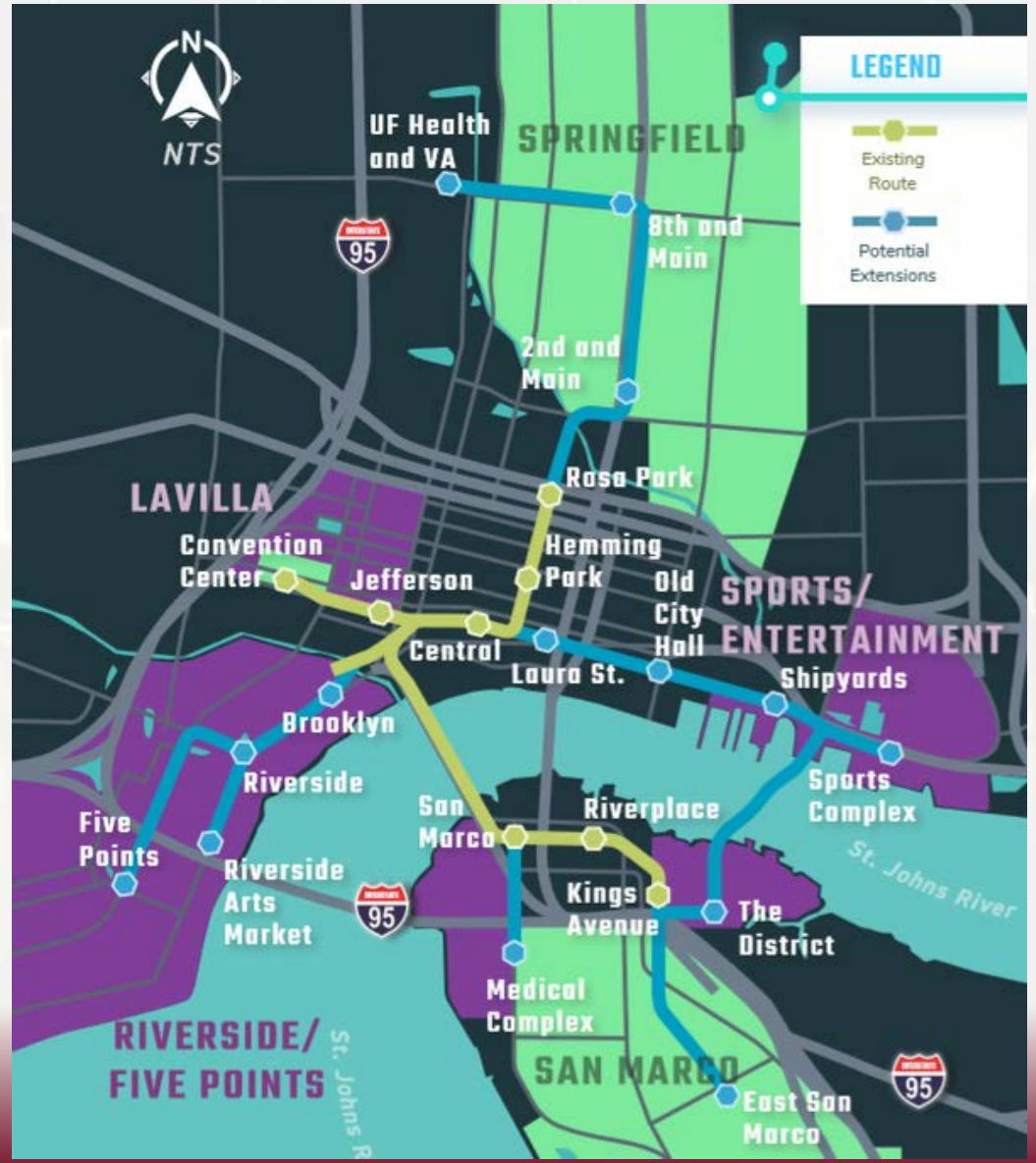
SYSTEM PLAN



- Go Further
  - Sports Complex
  - Neighborhoods
- Run Longer
  - Evenings
  - Weekends
- More Frequent
- Clean and Safe

ULTIMATE URBAN CIRCULATOR

SYSTEM PLAN



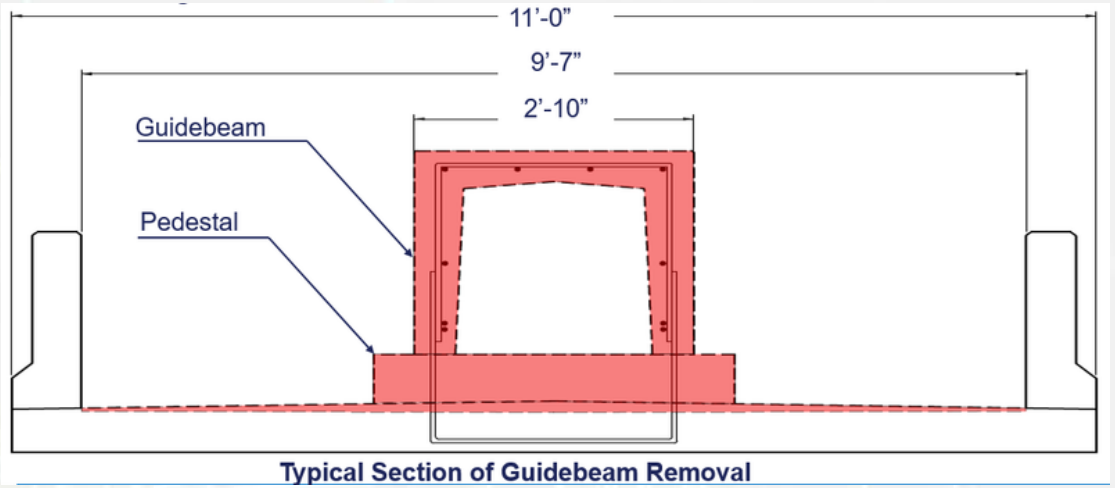
ULTIMATE URBAN CIRCULATOR

MODERNIZING SKYWAY WITH AV TECHNOLOGY

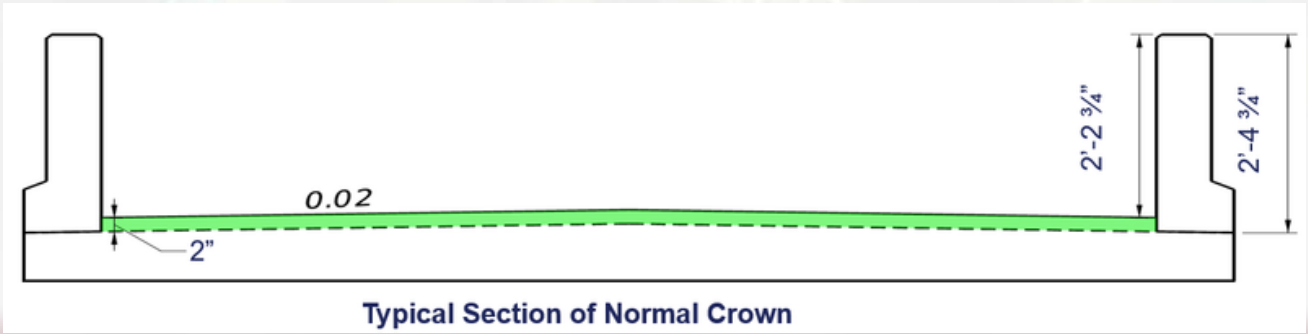
- Uses existing elevated structure
  - Maintains high level of reliability in urban core
  - Ideal platform to deploy AV technology
- Flexibility
  - High frequency or high capacity
  - Elevated or at-grade
- Feasibility of extensions
  - Context Sensitive
- Cost effectiveness
  - Stations, guideway, vehicles and O&M less costly than current system
- Opportunity for future expansion and innovation

ULTIMATE URBAN CIRCULATOR

INFRASTRUCTURE



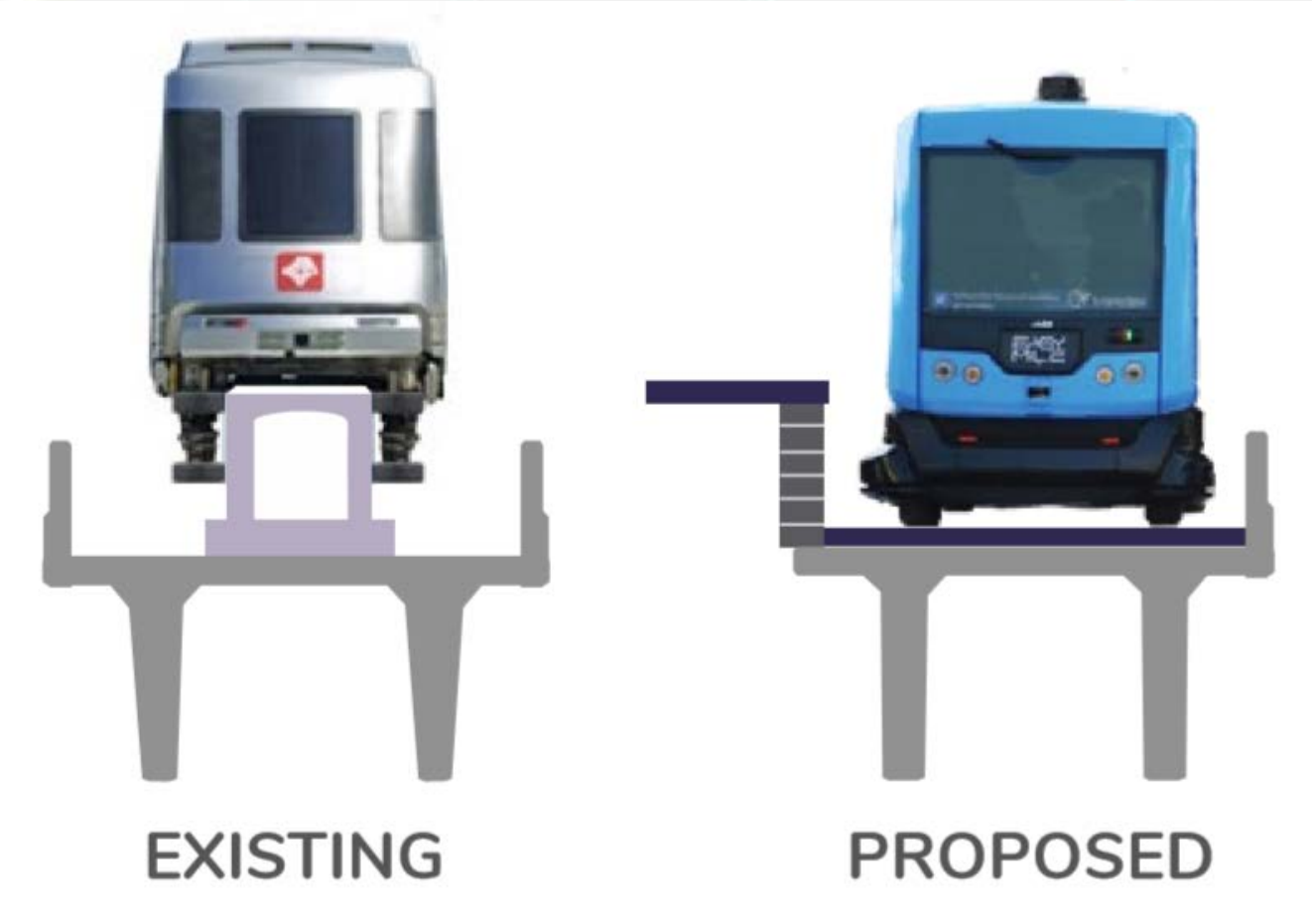
Typical Section of Guidebeam Removal



Typical Section of Normal Crown

ULTIMATE URBAN CIRCULATOR

INFRASTRUCTURE

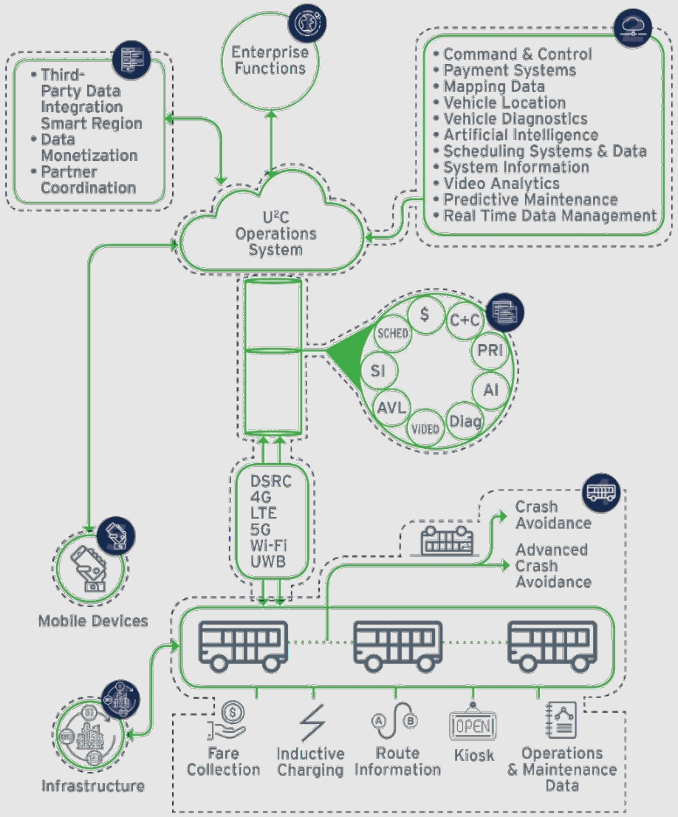


INFRASTRUCTURE

ULTIMATE URBAN CIRCULATOR

VEHICLES

DIGITAL ARCHITECTURE/SOFTWARE



- »Vehicles
- »Infrastructure
- »Software
- »Communications
- »Customer Interfaces
- »Enterprise Functions
- »Data Management
- »Cybersecurity
- »System Integration

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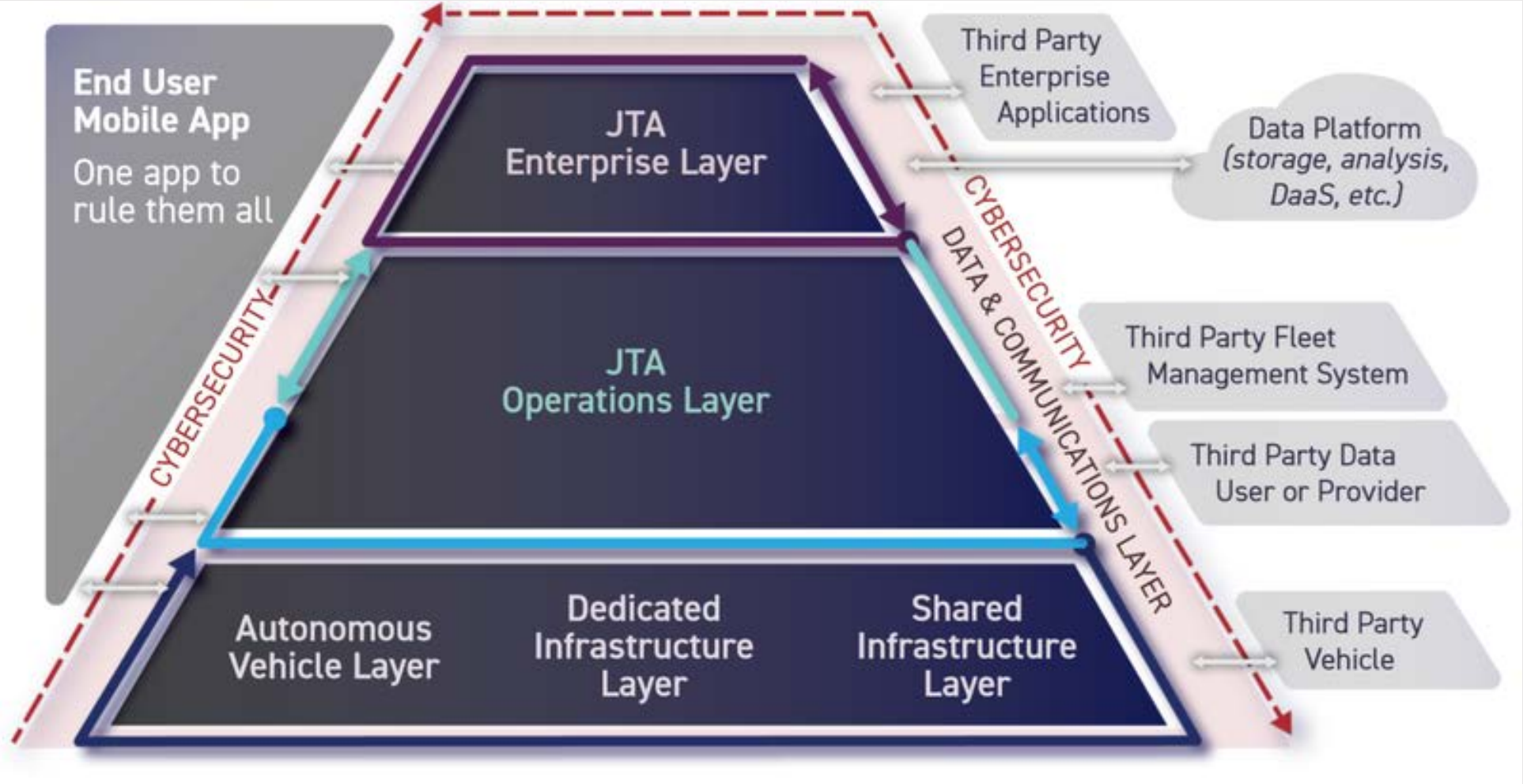
DIGITAL ARCHITECTURE/SOFTWARE



SMART AV NETWORK

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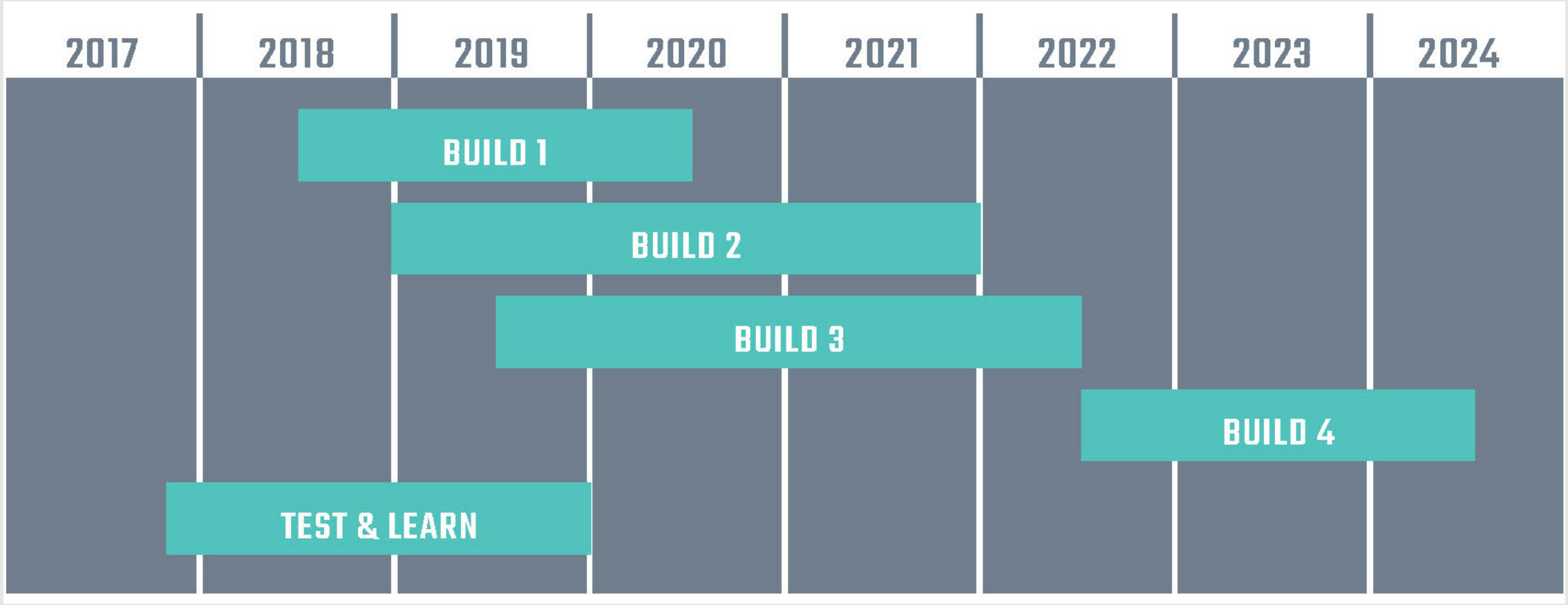
CHANGE TO PROGRAM DEVELOPMENT



ULTIMATE URBAN CIRCULATOR

TEST AND LEARN

- Can test various vehicles and explore application in pilots
- Develop organizational capacity
- Develop vehicles specifications for U^2C
- Gain public acceptance of technology

ULTIMATE URBAN CIRCULATOR

What's Next

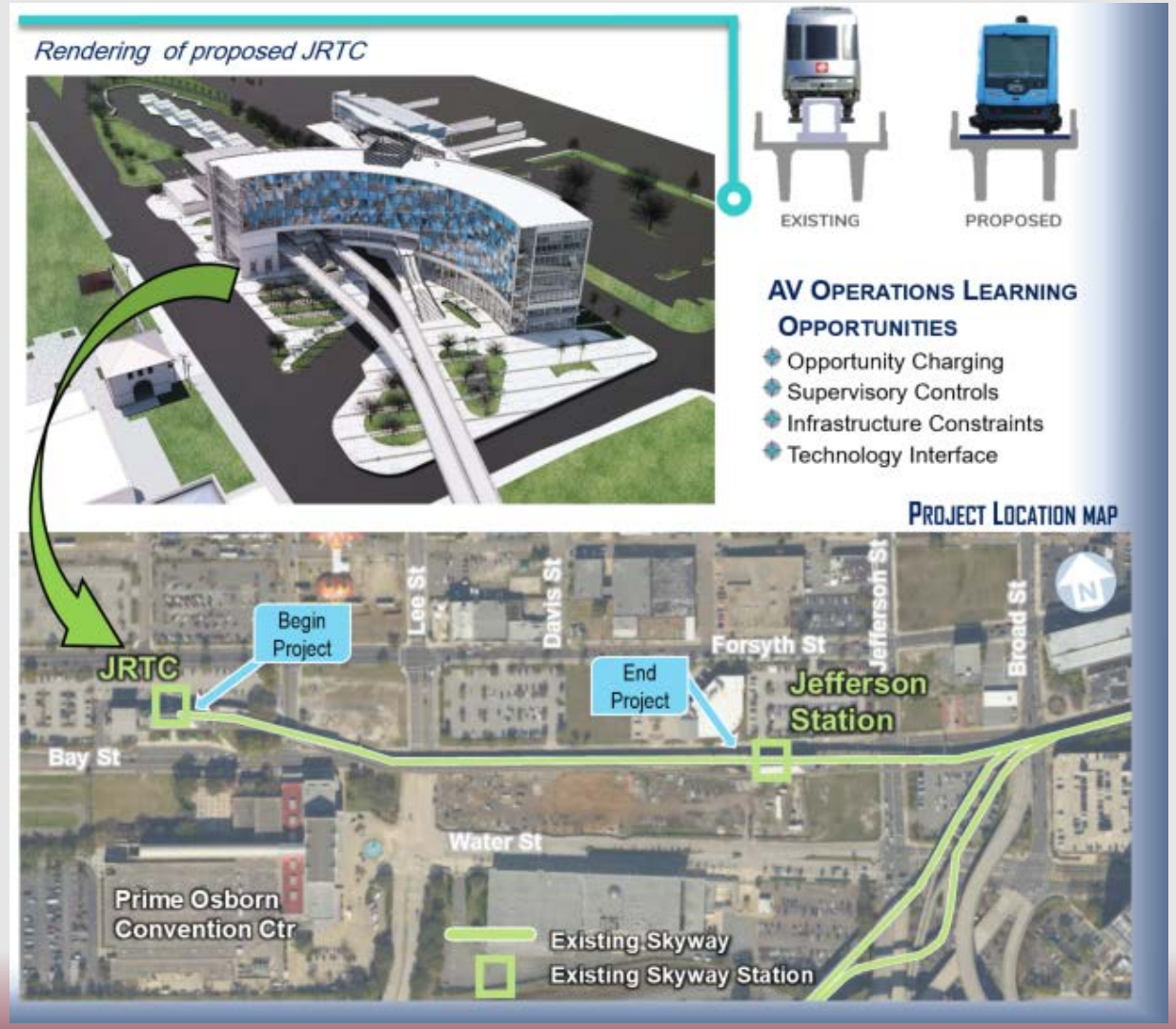
- Build 1: At-Grade Automated Transit Network
  - Scalable network: Initial system 1.5 to 2 miles and 10 vehicles
  - Mix of dedicated lanes and mixed traffic
- Elevated Test and Learn: JRTC Autonomous Avenue
  - Decommissioned section of Skyway
  - Pilot deployments
- Program Development
  - Transit Concepts and Alternatives Review
  - Funding and project delivery

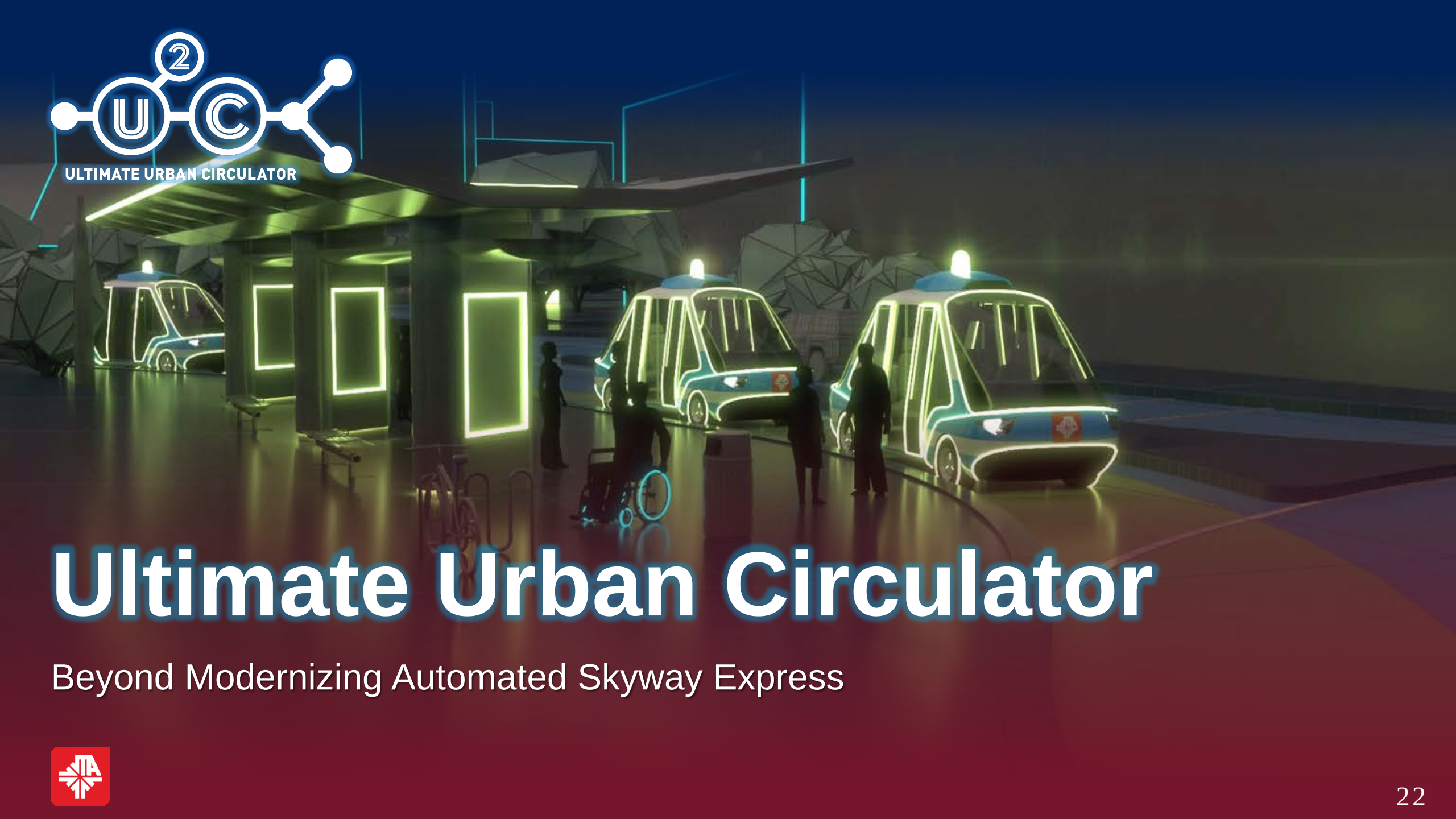
BUILD 1: BAY STREET AV CORRIDOR

- 1.6 miles at-grade
- 10 Autonomous Vehicles (AV)
- “Smart” Intersections
- Vehicle Charging Stations
- Advanced Communication System
- Supervisory Control Software
- Skyway Connection

JRTC Autonomous Avenue

- 0.3 miles Elevated Test Track
- Two Autonomous Vehicles (AV)
- Multiple Roadway Surfaces
- Photo Voltaic Pavement
- Sensor Enabled
- Vehicle Charging Stations
- Pedestrian Walkway

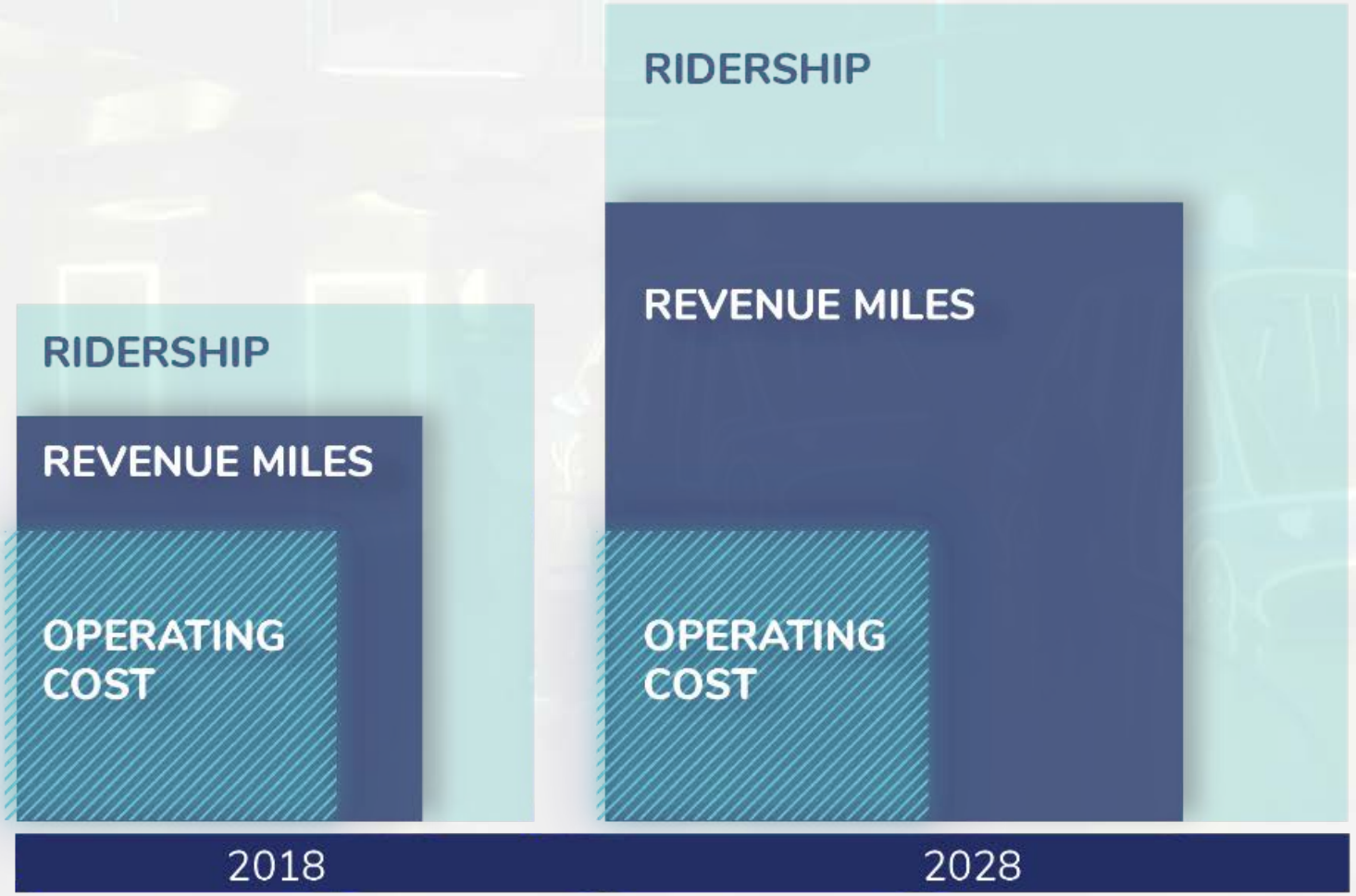




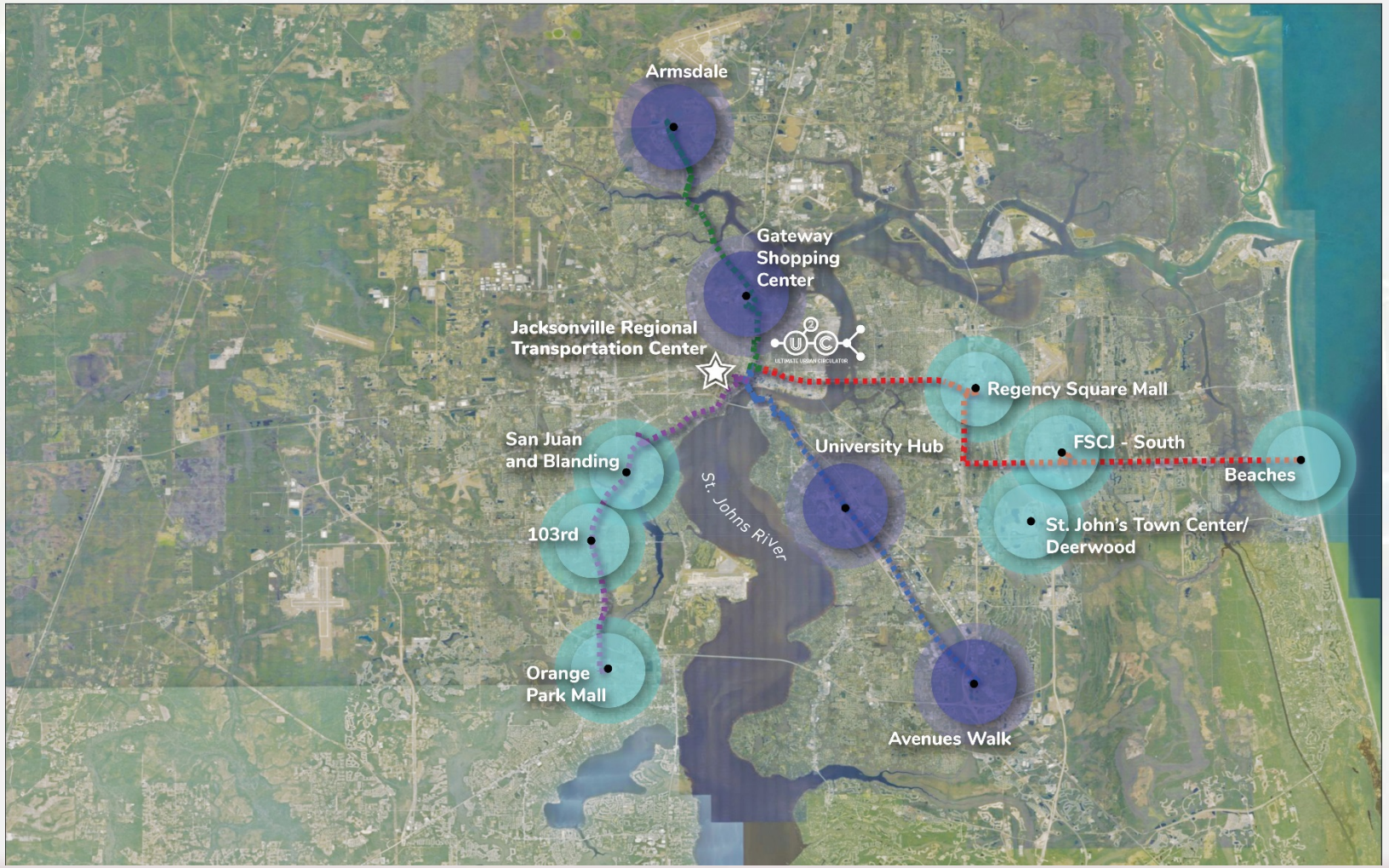
Ultimate Urban Circulator

Beyond Modernizing Automated Skyway Express

AV TECHNOLOGY POTENTIAL



REGIONAL CONNECTIVITY/MOBILITY HUBS



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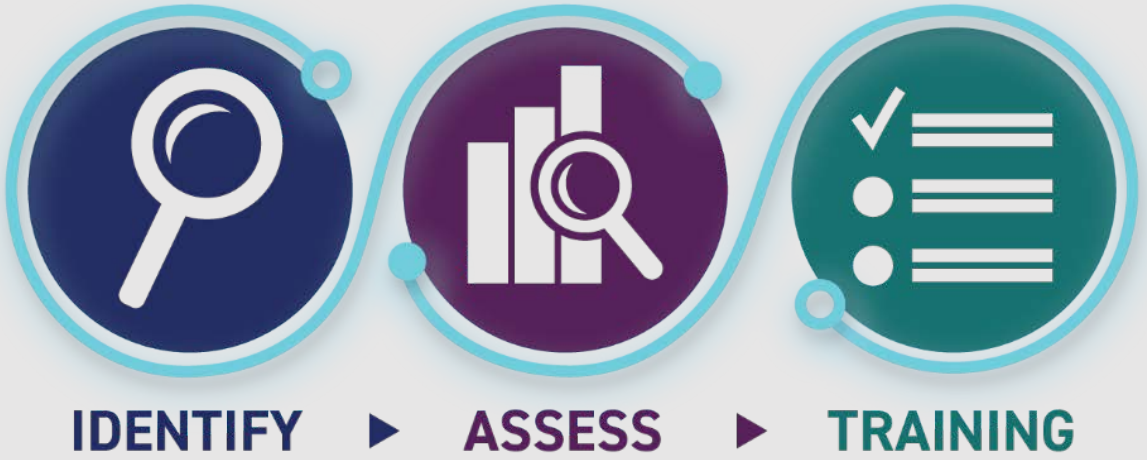
POSITIONING THE WORKFORCE



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THANK YOU