

BPAC

Bicycle and Pedestrian Advisory Committee (BPAC)

February 1, 2024

Ed Ball Building, Room #3112



Photo Credit: Barry Cotter

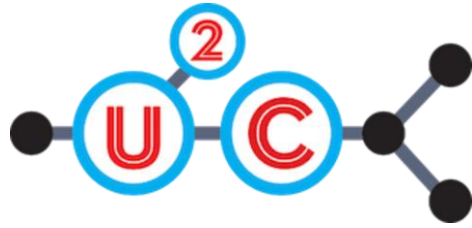
About Us

The BPAC educates, supports, promotes, & advocates for the needs of pedestrians & bicyclists throughout Jacksonville





Bicycle and Pedestrian Advisory Committee (BPAC)	
Agenda for 02/01/2024 Meeting	
5:30 - 5:45 PM	Introductions and Adoption of Minutes
5:45 - 6:15 PM	Presentation: Bay Street Innovation Corridor Director, U2C Program, Automation and Innovation Division, Jacksonville Transportation Authority (JTA)
6:15 - 6:45 PM	Discussion/Rapid Fire
6:45 – 6:50 PM	Wrap-up / Announcements / Next Meeting Info
	Adjourn



THE ULTIMATE URBAN CIRCULATOR: JACKSONVILLE TRANSPORTATION AUTHORITY



JACKSONVILLE
TRANSPORTATION
AUTHORITY

INTRODUCTION



Angie Williams

Director – U2C Program
Jacksonville Transportation Authority
ADWilliams@JTAFIa.com



AGENDA



- Project Overview
- Project Ecosystem
- Scope of Project
- Risks and Challenges



Project Website - U2C.jtafla.com

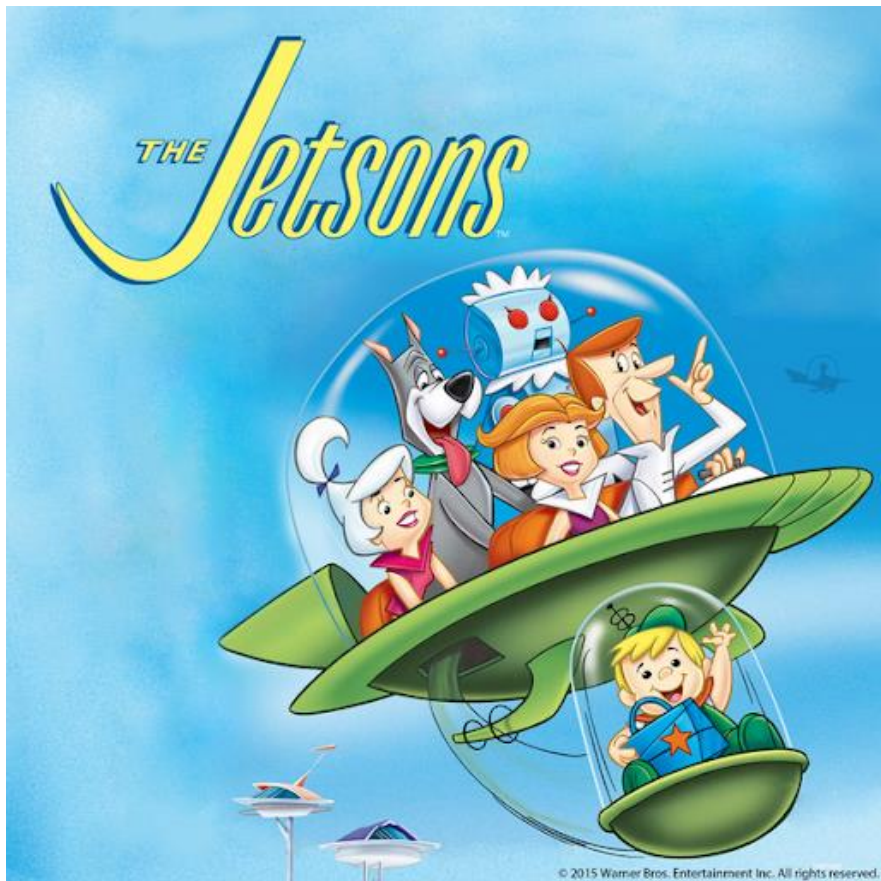


What Dreams Are Made Of

Innovation



Today's Innovations from the Past



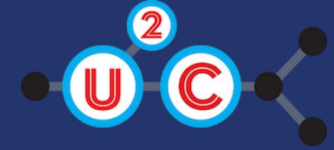
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Hanna Barbera
Thought
BOLD in '62



WHAT IS THIS PROJECT????



BOLD



INNOVATIVE

BIG



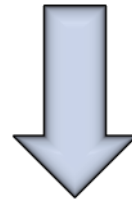
OLD



OVERVIEW



**U²C Program
Development**



**Bay Street
Innovation
Corridor**

Phase 1

**Skyway
Conversion**

Phase 2

**Neighborhood
Extensions**

Phase 3

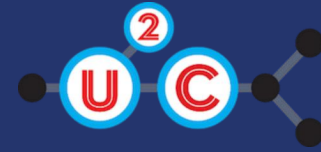
OVERVIEW



U2C Phase 1 - Bay Street Innovation Corridor

- 3+ miles along Bay Street corridor between TIAA Stadium and Jefferson St (Downtown Jacksonville)

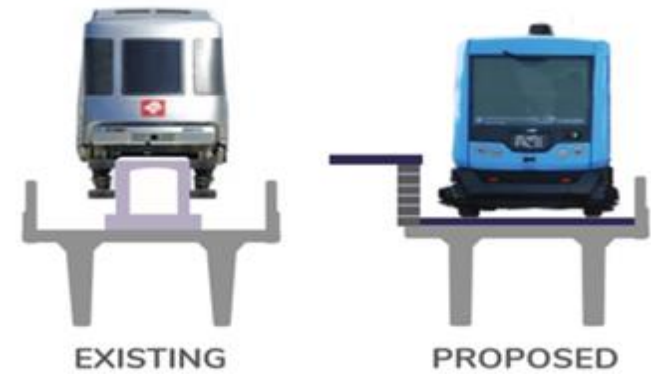
OVERVIEW



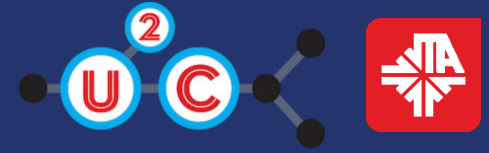
Bay Street Innovation Corridor



Skyway Conversion



PROJECT ECOSYSTEM



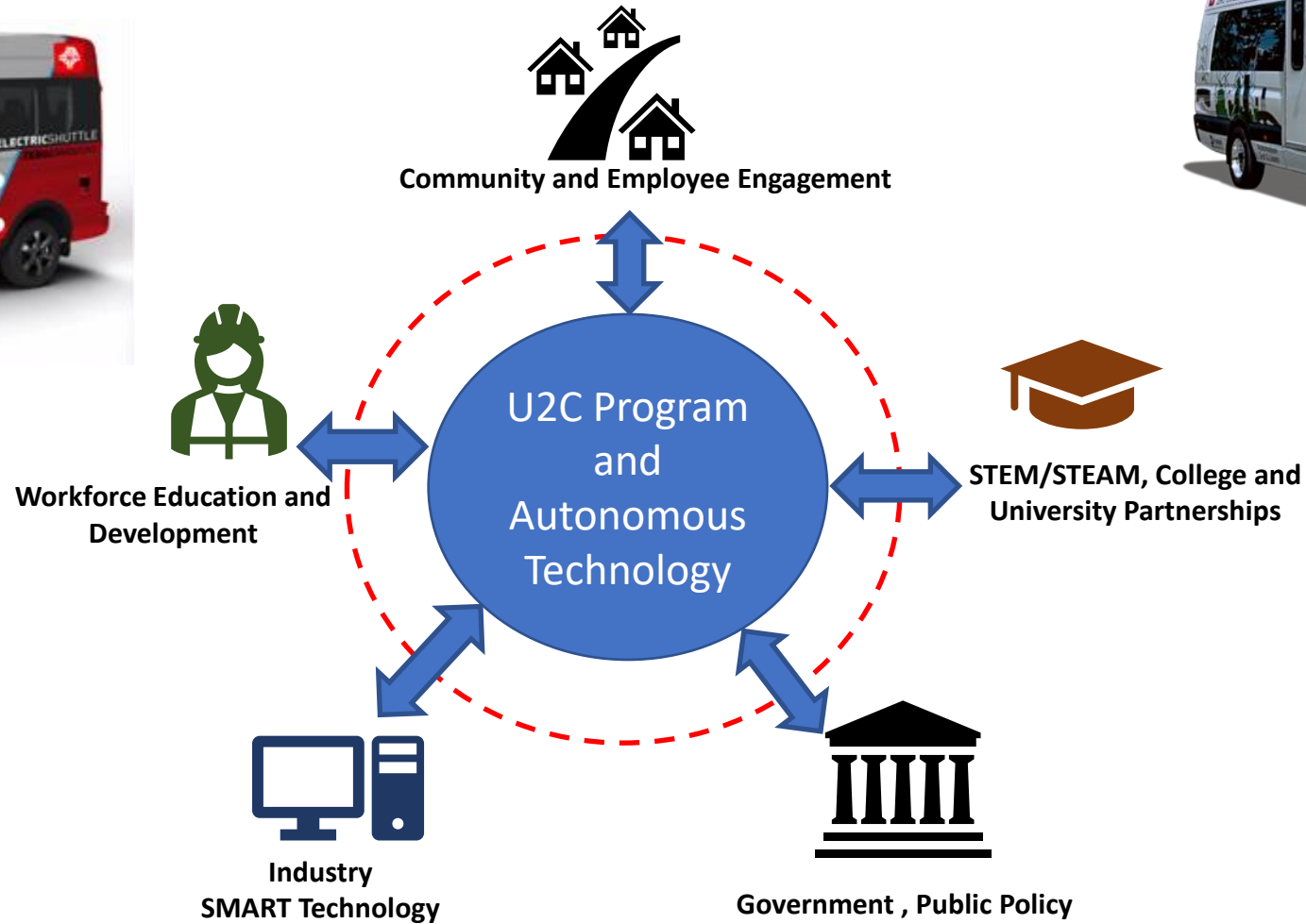
Balfour Beatty



- AVDBOM contract mechanism
- Balfour Beatty – Prime that leads V2R consortium
- True partnership between industry and agency
- Community Engagement
- Stakeholder Engagement



PROJECT ECOSYSTEM



BSIC SCOPE OF WORK



U2C Phase 1 - Bay Street Innovation Corridor

- 3+ miles along Bay Street corridor between EverBank Stadium and Jefferson St (Downtown Jacksonville)
- 12-15 Autonomous vehicles
- Mixed use traffic operation
- 12 Branded Stations
- Upgrade of traffic/safety technology
- ITS Infrastructure and upgrades
- Electric Charging Infrastructure
- Private LTE Network
- Cybersecurity
- Operation and Maintenance Center

BSIC Project Phases



- **Phase 1 – Bay Street Innovation Corridor Project**

- Phase 1A: 30% Plan Set Delivery
- Phase 1B: 60% Plan Set Delivery

- **Phase II: Final Design & Construction**

- 90% Plans
- BSIC Route and Stations
- System Integration
- New Operations and Maintenance Building

- **Phase III: Operations and Maintenance**



AV ROUTE

WEST LOOP



AV ROUTE

EAST LOOP

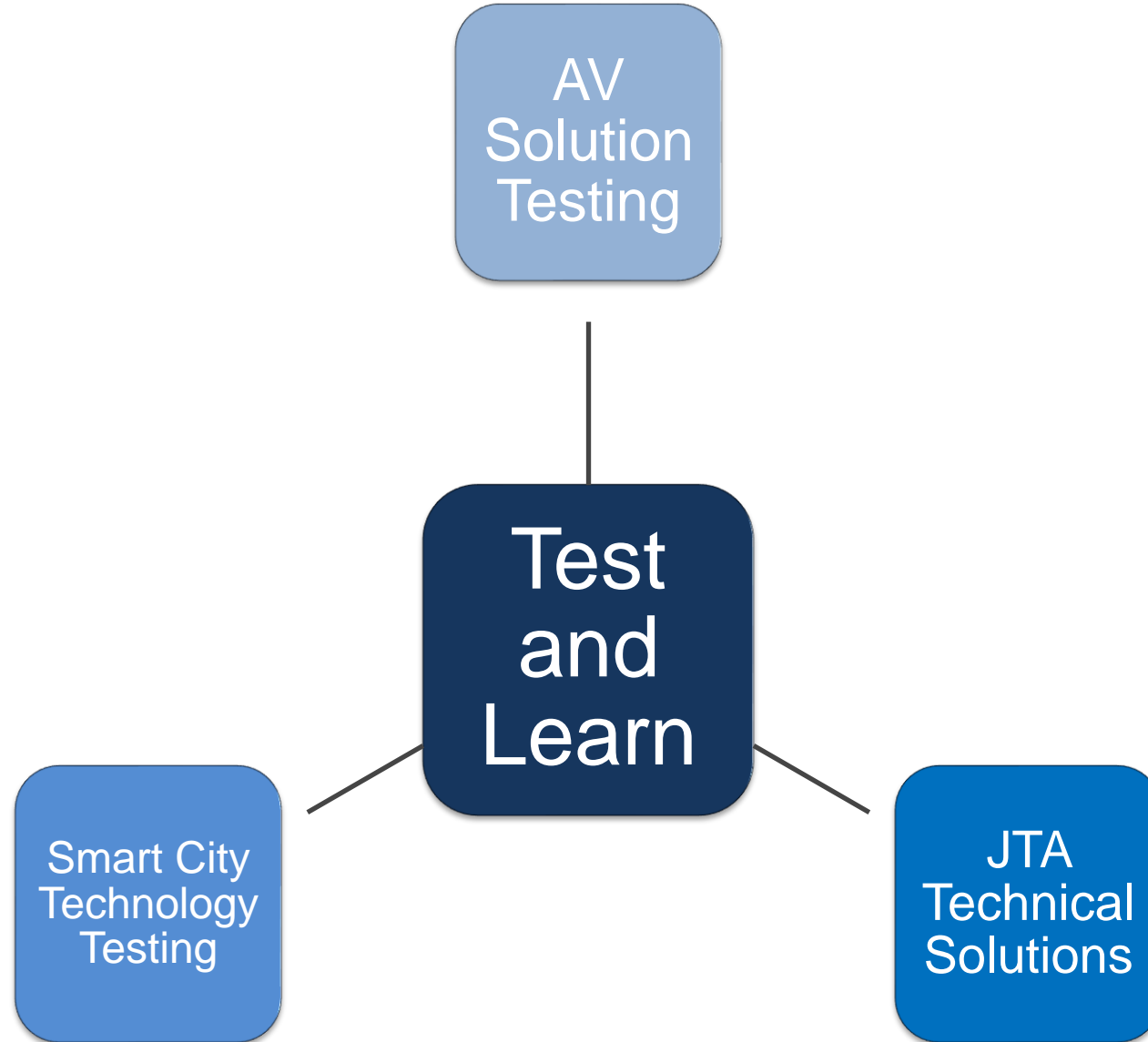


JTA TEST & LEARN FACILITY





Armsdale Test and Learn Facility



JTA TEST & LEARN FACILITY



JTA – Test and Learn Program – AV Leadership & R&D – ‘Golden 20’

Jacksonville Transportation Authority
Automation Division

Memo

TO: AV Manufacturers & AV Tech Companies
 From: Bernard Schmidt, VP of Automation
 Date: June 21, 2019
 Subject: Release of JTA's top 20 High level Critical requirements for Autonomous Vehicles

After considerable research, the JTA Automation Division has identified the critical requirements for acceptable deployment of Autonomous Vehicles/Shuttles for its Ultimate Urban Circulator (U²C) program. These requirements are particular to the JTA but are analogous to what we believe are critical requirements for all public transit agencies looking to deploy such a service.

These requirements are not all inclusive and we may find circumstances which dictate the need to add and modify this list. This is meant to serve as initial guidance to autonomous vehicle (AV) manufacturers and technology stack providers. These requirements are to be considered proprietary to the JTA and are copyrighted and are not to be shared or distributed beyond this memo without written consent of the JTA.

Below is the list of the 20 critical needed items/capabilities identified by the Automation Division for Autonomous Shuttles also known as the "Golden 20".

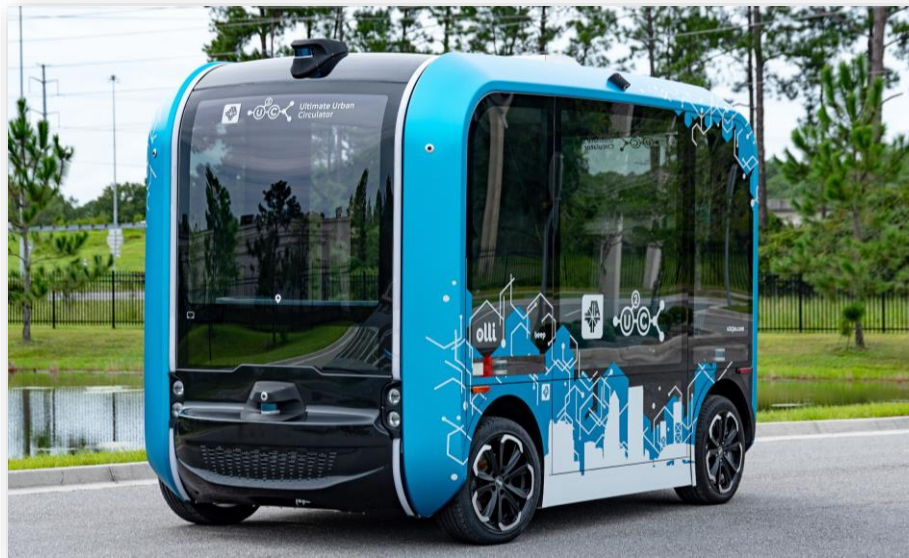
GOLDEN 20

JTA's (and Public Transportation's) Critical Needs of Autonomous Shuttles/Vehicles

- 1) Full ADA Compliance
- 2) Buy America/Buy American Compliance
- 3) Cybersecurity
- 4) Remote Route Programming with Low Latency
- 5) NHTSA Approval to operate on Public Road
- 6) Vehicle to Infrastructure and V2X Capabilities (DSRC & 5G)
- 7) Traverse Slope of ± 12 Degrees w/ Full Passenger load (Sustained Acceleration/Deceleration)
- 8) Operate bidirectionally up to 35 MPH
- 9) ≥12 hours of battery life
- 10) Operate at speeds of 15 MPH within ± 1 foot of Stationary Object
- 11) Operate at speeds of 15 MPH within ± 3 feet of Moving Object
- 12) May Operate during Inclement Weather (Rain, Fog, Wind, and Extreme Heat)
- 13) Internal Cab – Environment control with Rapid Cool capability & Sustained temperature with Full Passenger Load
- 14) Ability to be towed; Push/Pull and Steer AV Manually or towed via another AV
- 15) Crash Worthy up to 35 MPH
- 16) Ability for Fast Charge/Opportunity Charging
- 17) Ability to regulate passenger capacity
- 18) System for recording/storing video for at least 30 days (Black Box)
- 19) Emergency button to contact Authority/Agency control center
- 20) Remote command & control operations of vehicles with low latency
- 21) Complete Vehicle Monitoring system, including health monitoring

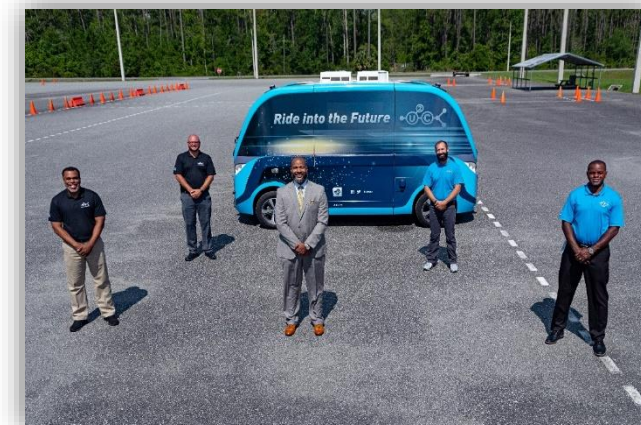
© 2019 Jacksonville Transportation Authority

The JTA will provide further details, guidance and explanation for each of the define requirements upon request. Our AV test protocol and program will also provide further guidance and establish more define pass/fail criteria for the U²C program. For autonomous shuttles which do not meet any or some of these critical requirements, the AV manufacturers will need to provide detailed explanation on how they plan to meet them in the future or provide an alternate solution deemed acceptable by the JTA.



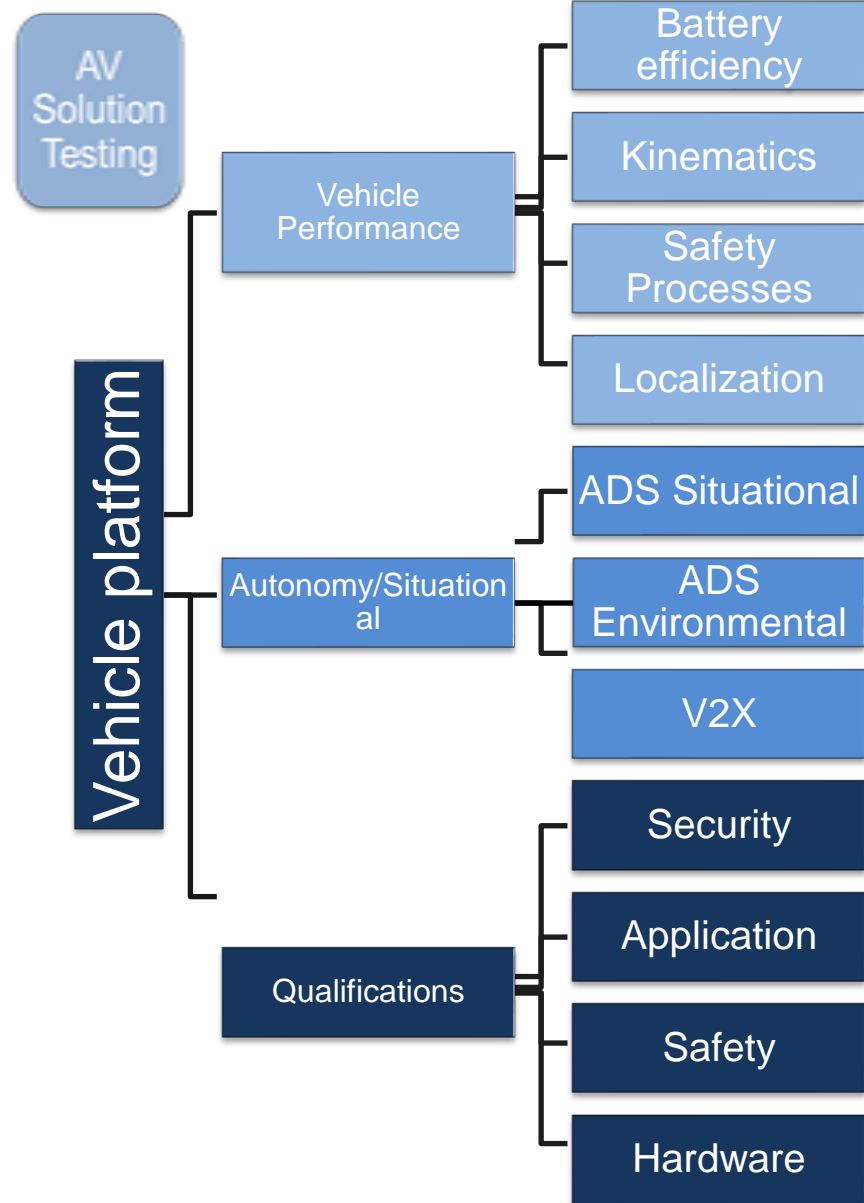
- New Test & Learn site is located in Jax. FL at the JTA Armsdale P-N-R Facility/FSCJ (AV's, CAV Technology, 3-D Ped. Cross-walks).
- Multiple vehicles across multiple platforms
- 1 ADA Prototype
- 1st Retrofit FMVSS Compliant AV

Operational De	Test Procedure: ADS – 2 : Perform a lane change/low speed merge
Operational De	Test Procedure: ADS – 3 : Move Out of Travel Lane to Pull Over/Park
Operational De	Test Procedure: ADS-5: Detect and Respond to Static Signs
Operational De	Test Procedure: ADS-7: Perform Vehicle Following
Operational De	Test Procedure: ADS – 9: Detect and respond to bicycles
Operational De	Test Procedure: ADS – 12: Detect and respond to emergency vehi
Operational De	Test Procedure: ADS – 13: Detect and respond to object in th
Operational De	Test Procedure: ADS – 14: Sensor performance in low condition/weather induced low visibility
Operational De	Test Procedure: ADS – 15: Detect and respond to b





AV Testing System Framework





Smart City Technology Testing



Smart City
Technology
Testing

Edge Computing



Video Analytics



Pedestrian
Detection

Connected Vehicle
Technology

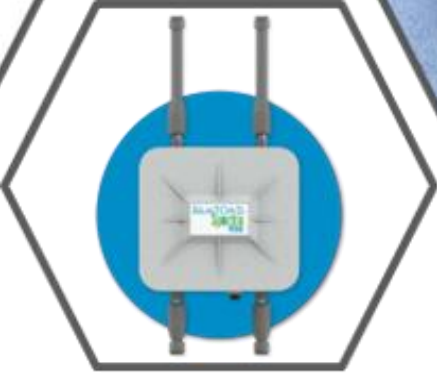


Blind Spot
Detection



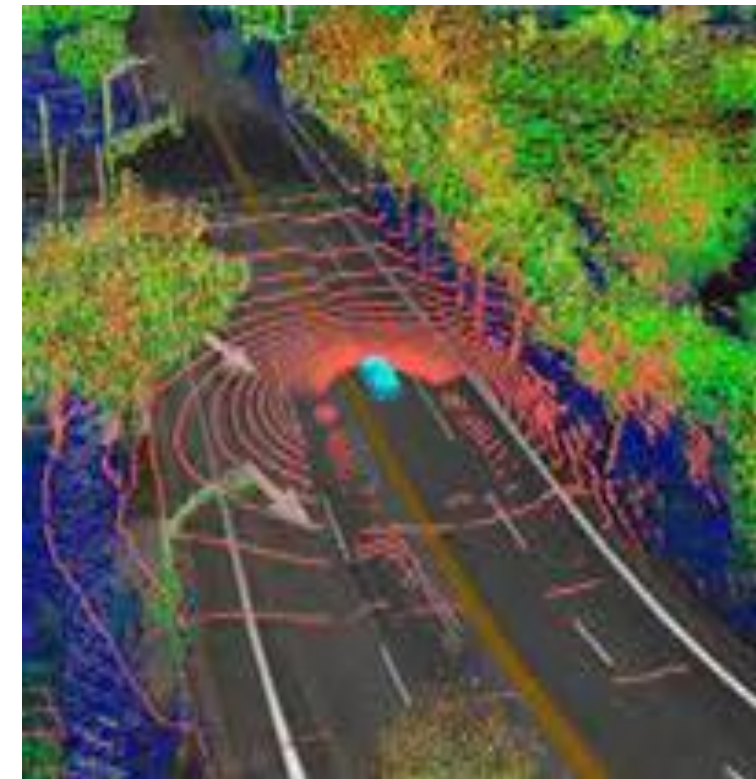
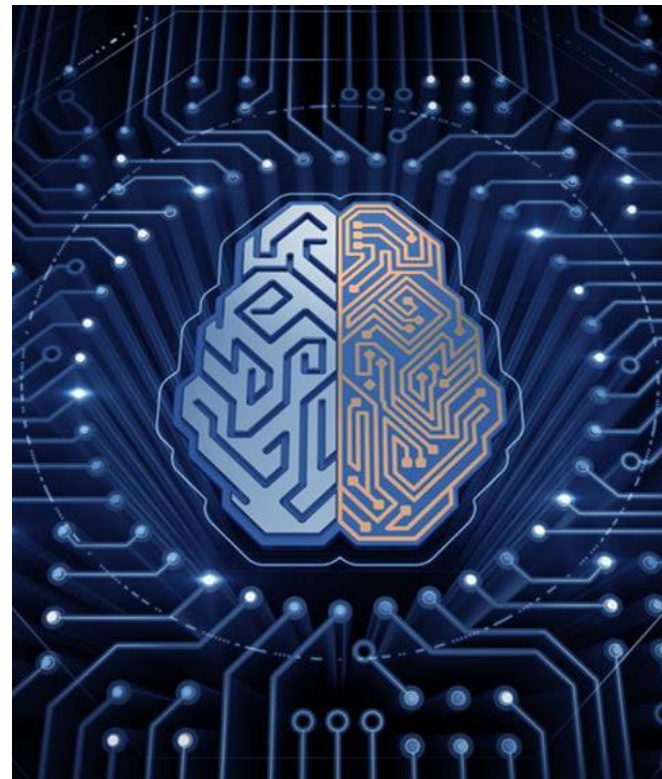
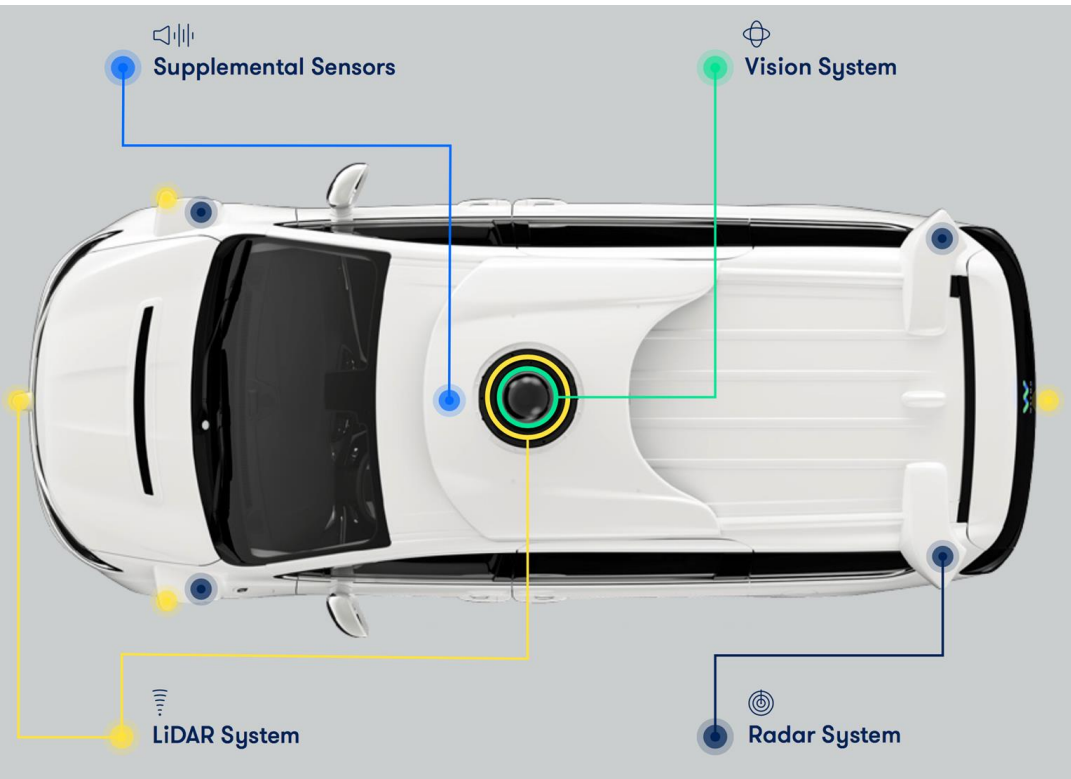
Weather Sensor

V2X





AV Tech Stack



Hardware

Software

High Definition Maps

JTA TEST & LEARN FACILITY



Test and Learn Program – Vehicle Platforms

Navya



Ev-Star



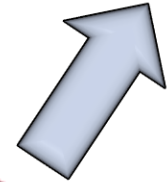
Easy Mile



Olli 2.0

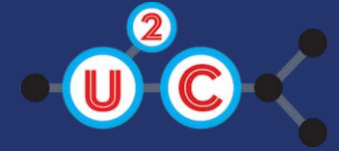


GEM



25

AV VEHICLES



NAVYA



local motors



LIGHTNING e MOTORS



HOLON ZF

2020

- Experimental platforms
- Autonomous: 12mph
- Regulated: 25mph roads
- 8 - 10 passengers
- ADA Compliant & Accessible

2021

2022

- Automotive w/ ADS
- Autonomous: 25MPH
- Driven: 55MPH
- Seating: 8 -10 passengers
- FTA Buy America Compliant

2023

- Automotive-grade
- Autonomous: 30+ mph
- ADA Compliant & Accessible
- Seating: 10 passengers



AV VEHICLES



HOLON

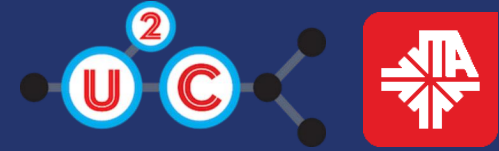
Top Speed	37 mph
Range	60+ miles
Power	150 kW
Capacity	11 seated + 4 standing
GVWR	>11,000 lb
Dimensions	15.7' L x 7.6' W x 9.2' H
Step-In Height	10.6"
ADS	Mobileye Drive
ADA Compliant	Yes
Availability	2025



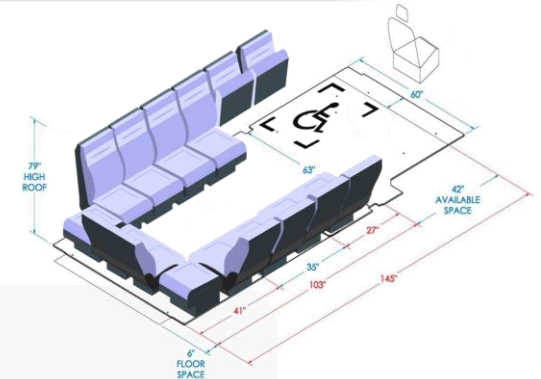
Top Speed	35 mph
Range	100 miles
Power	50-100 kW
Capacity	15 seated + 7 standing
GVWR	>11,000 lb
Dimensions	22' L x 7.6' W x 9.5' H
Step-In Height	10.6"
ADS	ZF ProAI
ADA Compliant	Yes
Availability	2025



AV VEHICLES



Ford e-Transit



Ongoing activities

- Design – Exterior and Interior
- Blueprints
 - Electrical
 - Mechanical
 - ADS
- Extended range vehicle to be released in August/23
 - Current platform = 108miles, New = 186miles (Projected)
- Extra battery
 - Air conditioning
 - Lift
 - ADS equipment
- Determination of ADA equipment
 - Need to maintain Buy America compliance
- Selection of Final Stage Manufacturer
 - Ford recommendations
- Warranties and maintainability
 - As comprehensive as possible
 - As close to Ford's as possible



SUPERVISORY SYSTEM



1. **CV04** Administrative Process
2. **DM02** Performance Monitoring
3. **PT10** Intermittent Bus Lanes
4. **ST05** EV Charging Station Management
5. **SU01** Connected Vehicle System Monitoring and Management
6. **SU02** Core Authorization
7. **SU04** Map Management
8. **SU07** ITS Communication
9. **SU08** Security and Credentials Management
10. **SU09** Device Certification and Enrollment
11. **SU10** Center Maintenance
12. **SU12** Vehicle Maintenance
13. **VS01** Autonomous Vehicle Safety Systems
14. **VS02** V2V Basic Safety
15. **VS04** V2V Special Vehicle Alert
16. **VS12** Pedestrian and Cyclist Safety
17. **VS16** Automated Vehicle Operations

TIMELINE & NEXT STEPS



Phase 1A
Detailed
Requirements

**01/21/2022
to
08/31/2022**

**30% Design
Complete**

Phase 1B
Design to
Requirements

**09/01/2022
to
02/28/2023**

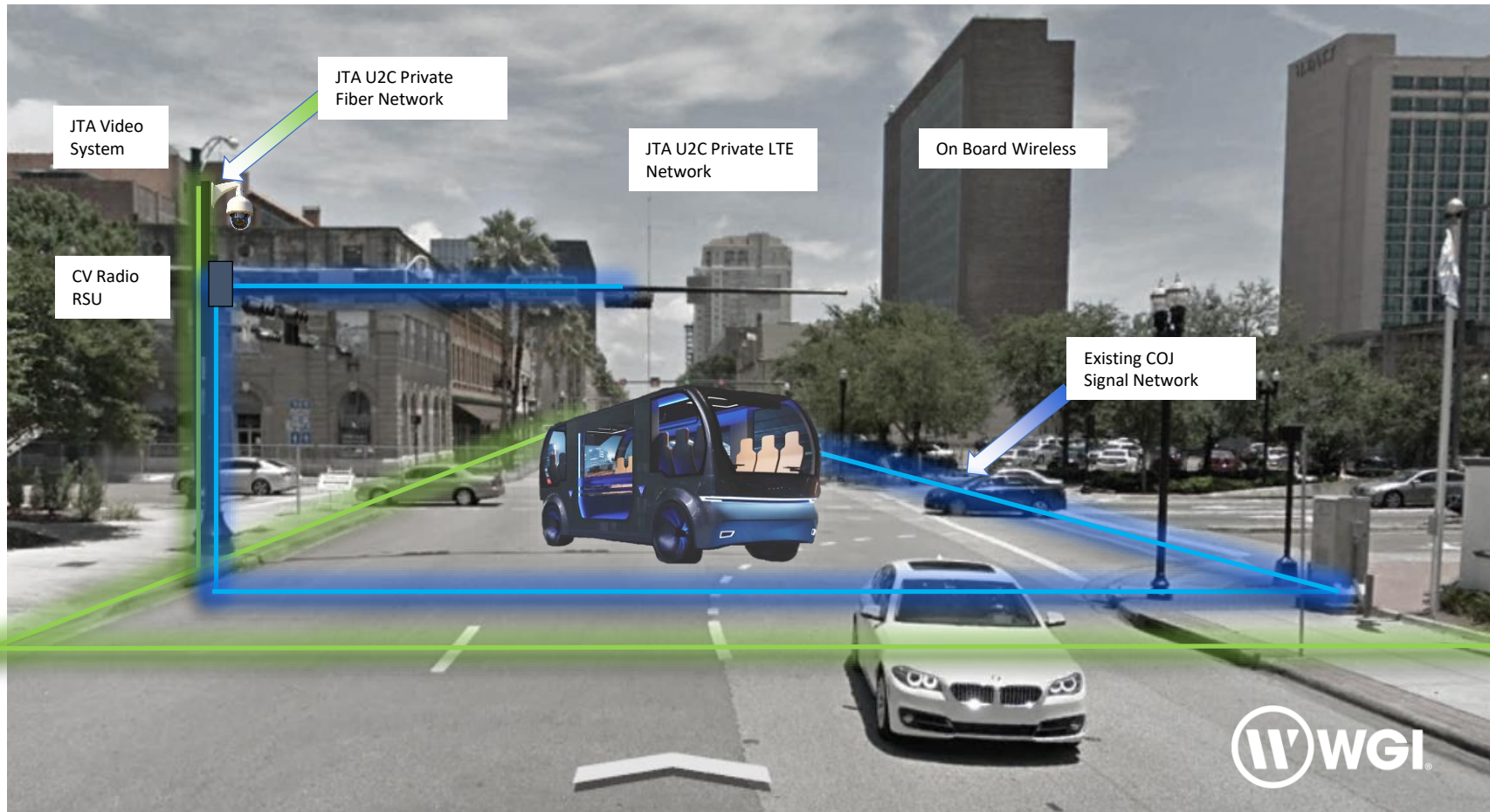
**45-60%
Design
Complete**

Phase 2
Build to
Design

**03/01/2024
to
06/30/2025**

**90% Design +
AV Burn-in**

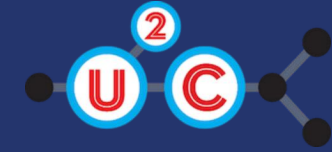
INFRASTRUCTURE



- Signalization
- ITS Design (CCTV, RSU, detection)
- Utilities
- Structures
- Architecture (O&M Facility)
- Survey
- Integration
- Systems Engineering



ARCHITECTURE – O&M FACILITY



Design concepts:

- Connected
- Futuristic
- Blend of existing JTA brand with SMART FUTURE
- Safety and security
- Brand extension
- Design adaptability for future phases
- Resilient and maintenance-friendly
- Sustainability
- Alternative energy and EVC
- Identifiable U2C brand





AIC Architectural Concept



JEFFERSON STREET





AIC Architectural Concept

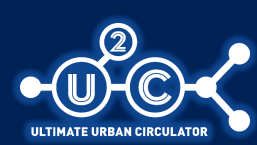


BAY ST OVERHEAD





AIC Architectural Concept





AIC Architectural Concept

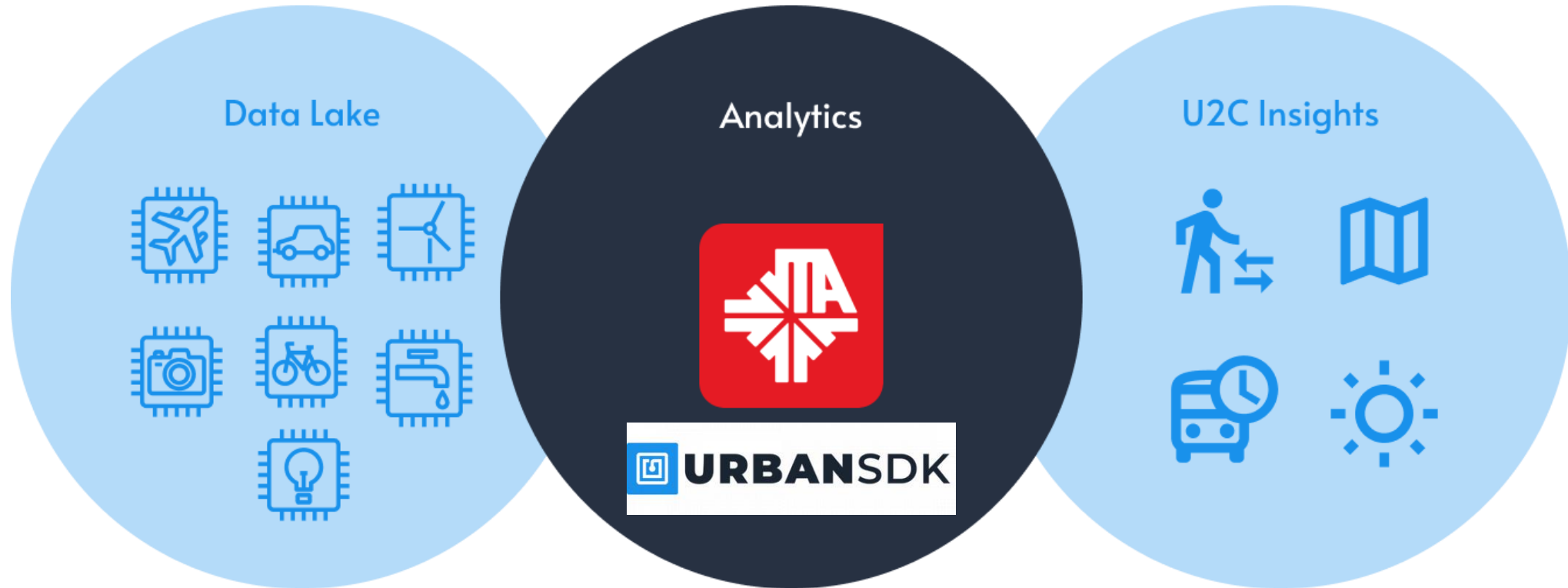
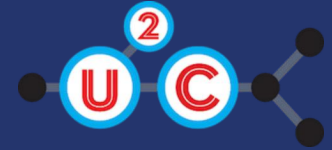




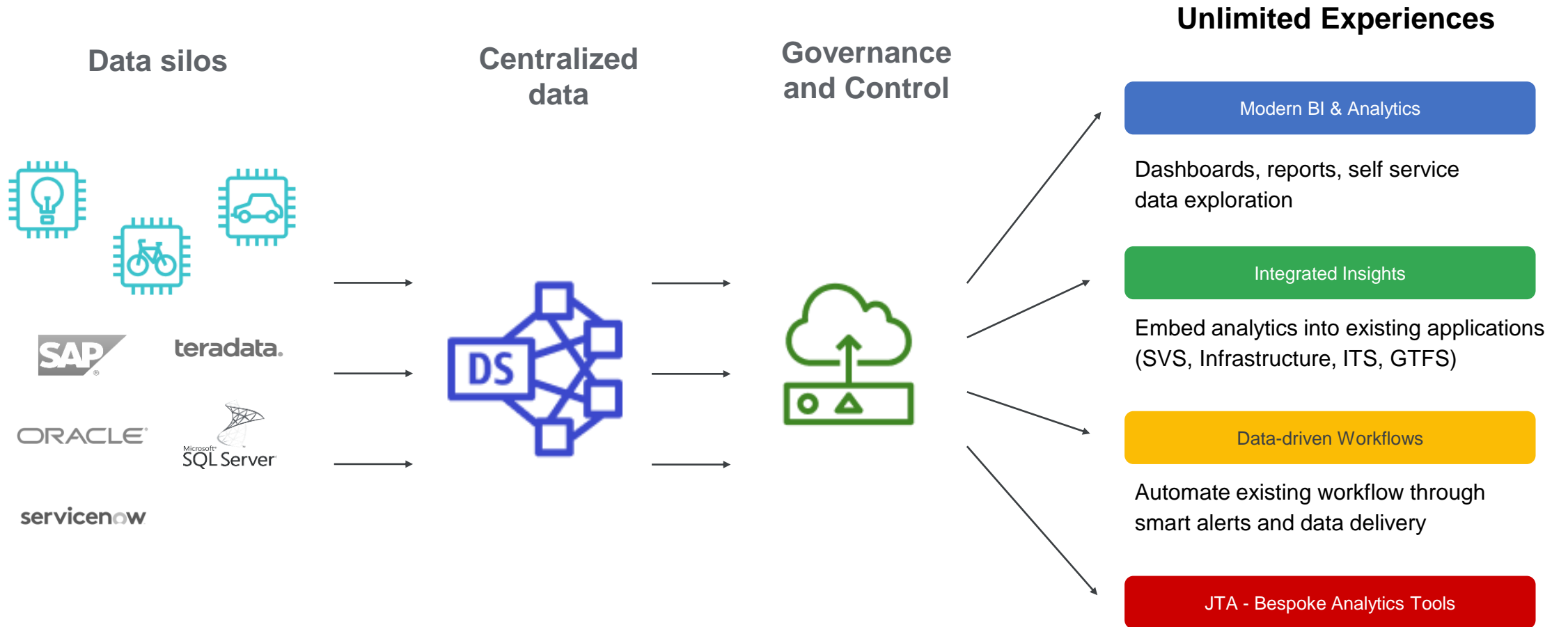
Balfour Beatty  **WwGI**

BAY STREET PLAZA

DATA MANAGEMENT/ DATA LAKE



DATA MANAGEMENT/ DATA LAKE





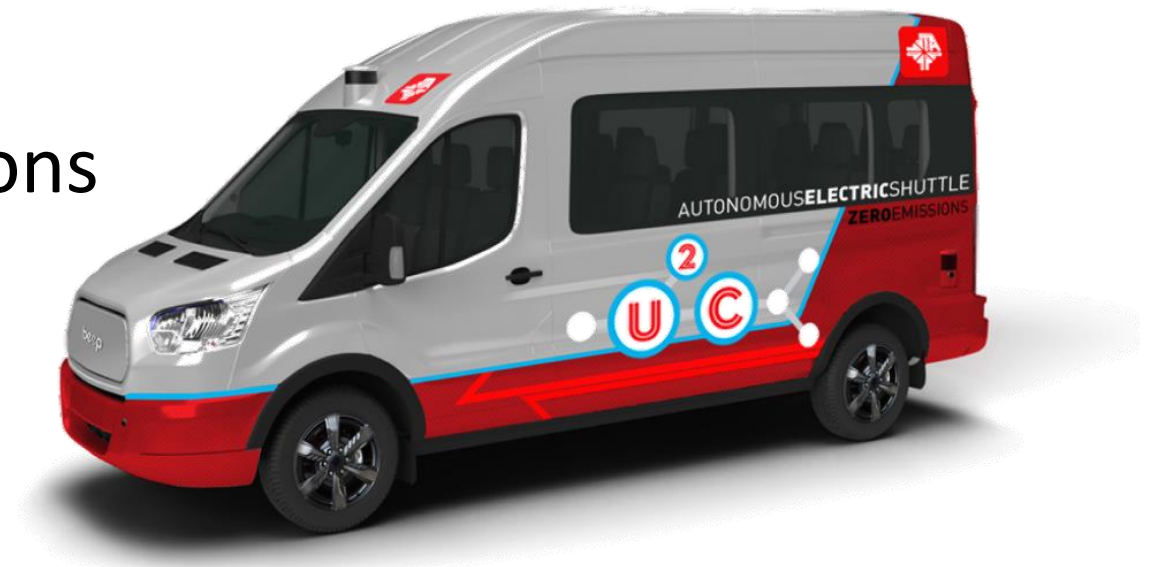
- **Challenge:** Assess a network and corresponding cybersecurity environment not yet built
- **Risk:** Assumptions/decisions made during the assessment process could introduce areas of vulnerability into the later design and build of the BSIC U2C cyber/technical environment
- **Solution:**
 - Prioritize assessment on JTA and harmonize all cybersecurity requirements including regulatory and technical considerations (e.g., ARC-IT) into an operational roadmap (Phase 1B Architecture) for both JTA and U2C BSIC Team
 - Ensure JTA requirements are operationally viable and applicable (by Trade Partner) through parallel efforts of maturing JTA and U2C BSIC Team cybersecurity environments through Phase 2 Build.



RISKS & CHALLENGES



- Buy America Compliance
- Useful Life Determination
- NHTSA Waiver Acquisition
- Insurance and Liability Transfer
- Federal and State Regulations
- Safety Standards and Regulations
- Performance and Acceptance





What Does This Mean for JAX

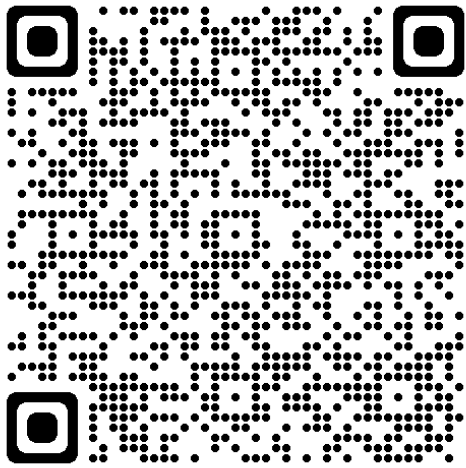


QUESTIONS



Angie Williams
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UPCOMING EVENTS



<https://www.eventbrite.com/e/moai-move-naturally-biking-in-west-jacksonville-tickets-728876508257?aff=oddtcreator>



BLUE ZONES PROJECT
JACKSONVILLE

Moai: Move Naturally (Biking)

Every Saturday
January 6 - March 9
12:00 pm - 1:00 pm

Location:
Baldwin Rail Trail
1800 Imeson Road, 32220

**Not a professional cyclist?
Not a problem!**
This event is beginner friendly & is hosted in partnership with the Major Taylor Cycling Club of Northeast Florida.



- FREE biking event aimed at connecting residents with an opportunity to learn more about biking and biking with others in community
- Every Saturday the Major Taylor Cycling Club of North Florida will serve as the mentors to the program
- Blue Zones Project Jacksonville is also offering five (5) scholarship awards for residents to use a rental electric bike for the activity

For more info contact Marlo Zarka: marlo@bluezones.com



lifesaversconference.org

More than 80 workshops will present information about best practices in a variety of topic areas including child passenger safety, distracted driving, impaired driving, occupant protection, & pedestrian/bicycle safety, & more



SAVE THE DATE

2024

Safe Routes to School
National Conference

Fort Collins, Colorado
October 22 - 24, 2024





MINNEAPOLIS | APRIL 13-16
ONLINE | MAY 8-10

MINNEAPOLIS CONVENTION CENTER
PLANNING.ORG/CONFERENCE

Where Planners Connect





DESIGNING CITIES 2024



GET RAD!
May 7 - 10, 2024
Miami, FL



**NEXT
MEETING**

ADJOURN