



Georgia Connected Vehicles

Progress and Plans



AASHTO SPaT Challenge

To challenge state and local public sector transportation Infrastructure Owners and Operators (IOOs) to deploy DSRC infrastructure with SPaT (and MAP) broadcasts in at least one corridor or network (approximately 20 signalized intersections) in each state by January 2020

20 intersections in 50 states by 2020!



26
States Committed

450+
Signals Operating

3,800+
Signals Planned

Pilot Deployment Objectives

Primary goal: Develop back-end infrastructure, network components, and business processes to support broad vehicle to infrastructure applications that is broadcast-medium agnostic, scalable, and sustainable.

Secondary goal: Begin broad installation of available roadside units and on-board units to facilitate applications that improve safety and mobility.

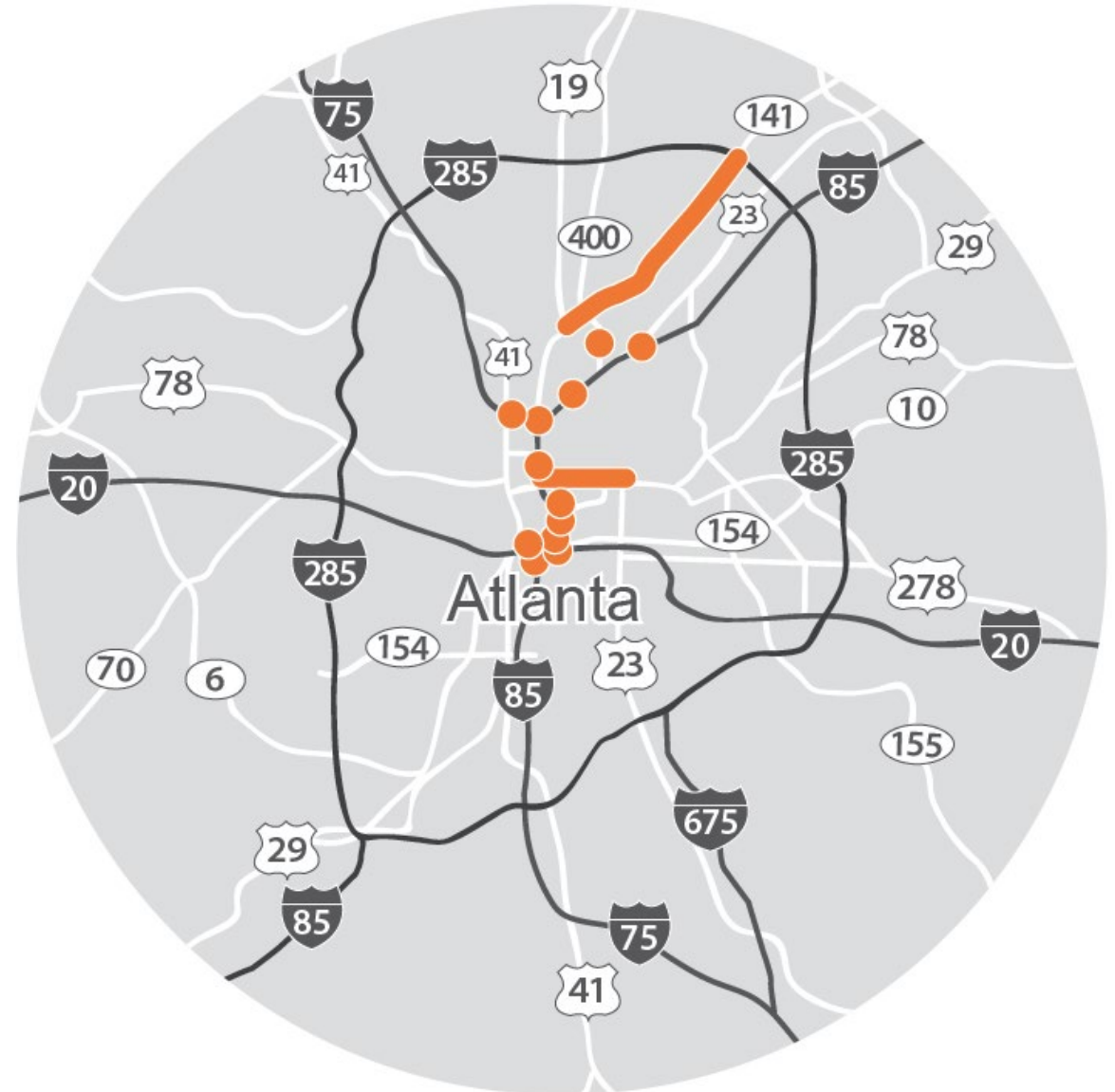
Primary Application Spaces:



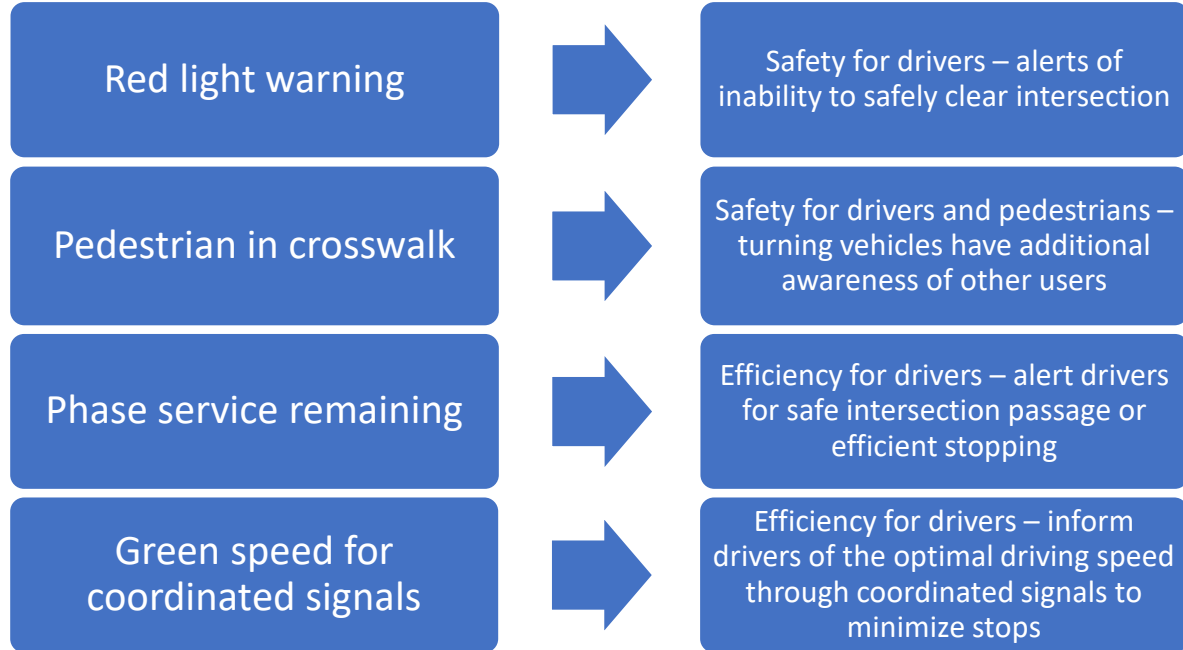
Initial Deployment

Phase 1: Pilot – Active June 2018

- SR 141 (Peachtree) from SR 9 to I-285
- SR 8 (Ponce de Leon) from Peachtree to SR 42
- 54 traffic signals
- 12 ramp meters
- Signal Phasing and Timing (SPaT)
 - Red light warning
 - Pedestrian in signalized crosswalk (in development)
 - Phase termination/next signal phase
 - Green-band speed (Green light optimal speed)



Phase 1 SPaT/MAP Applications



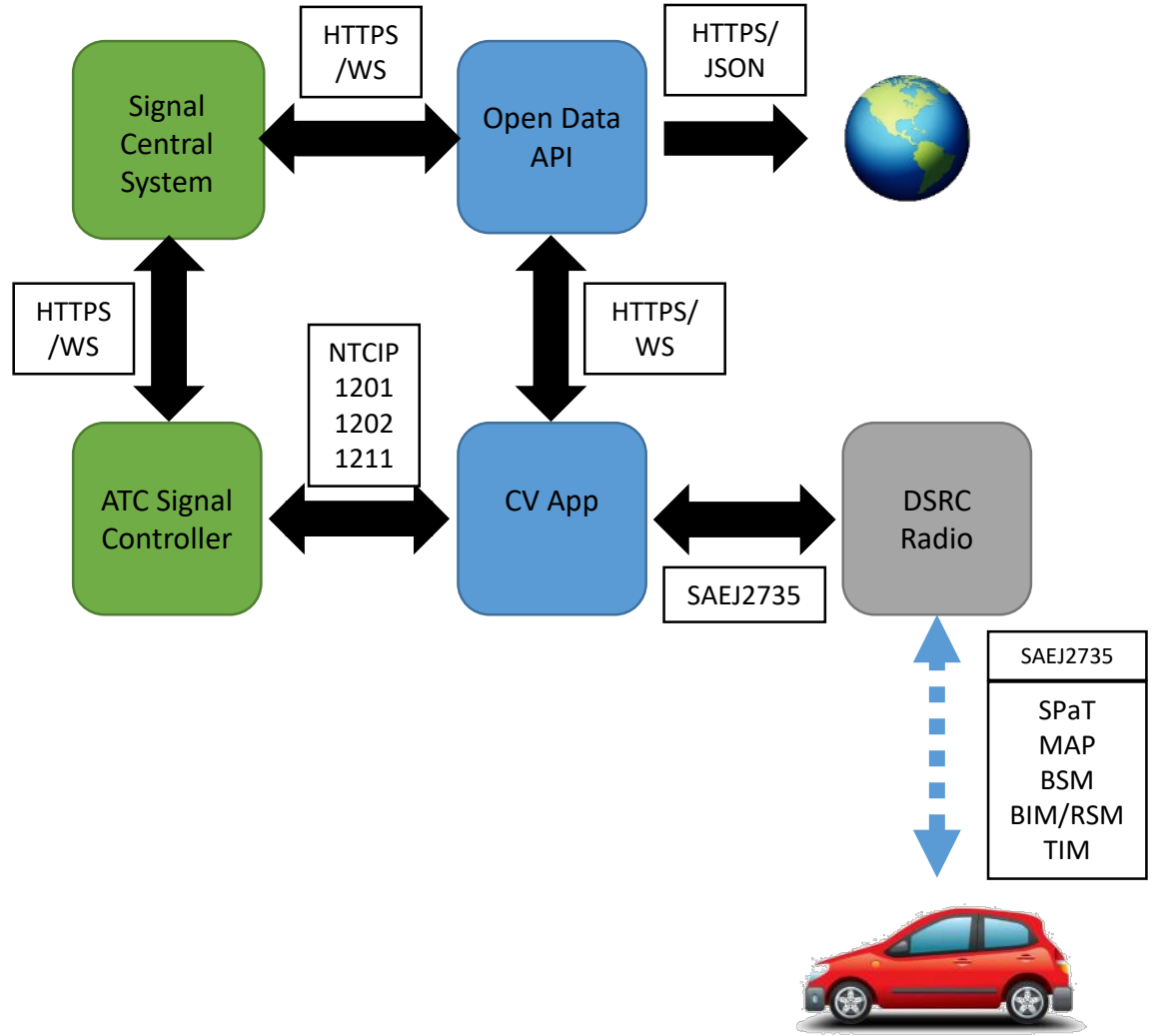
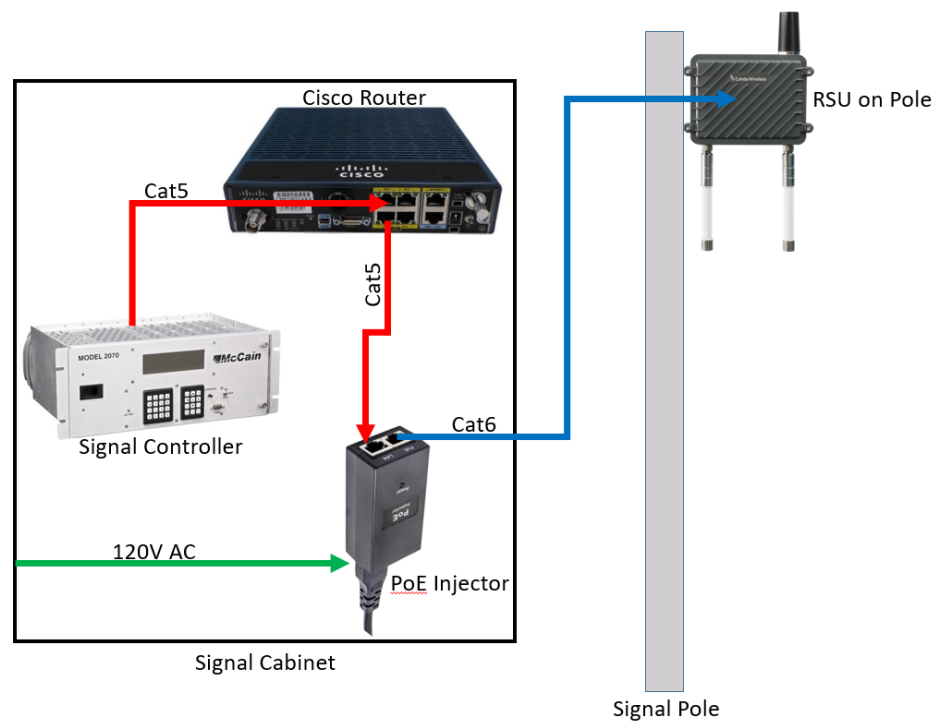
ACTIVE RSUs IN METRO ATLANTA

- SR 141 (Peachtree) – 39 intersections
- SR 8 (Ponce de Leon) – 15 intersections
- North Ave – 22 intersections (Renew)

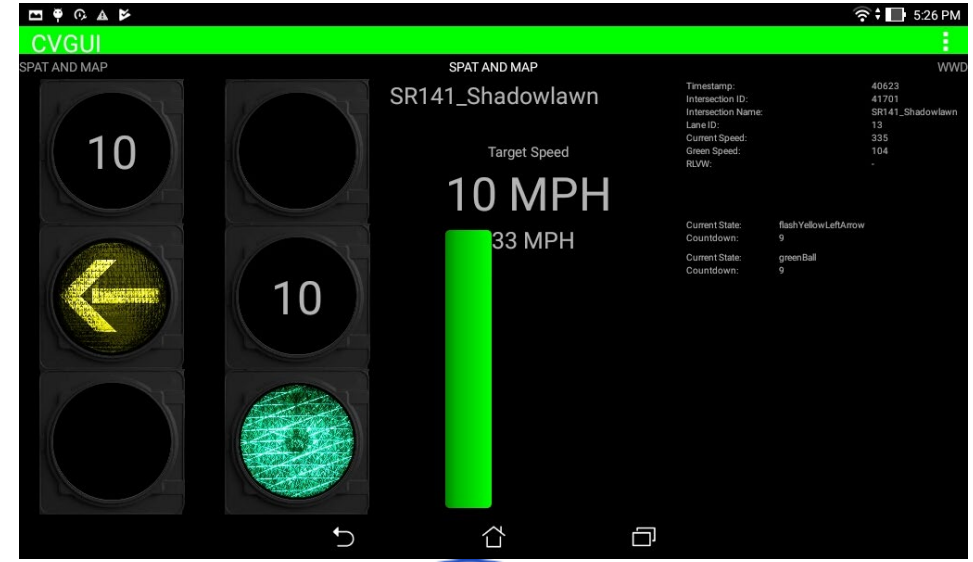
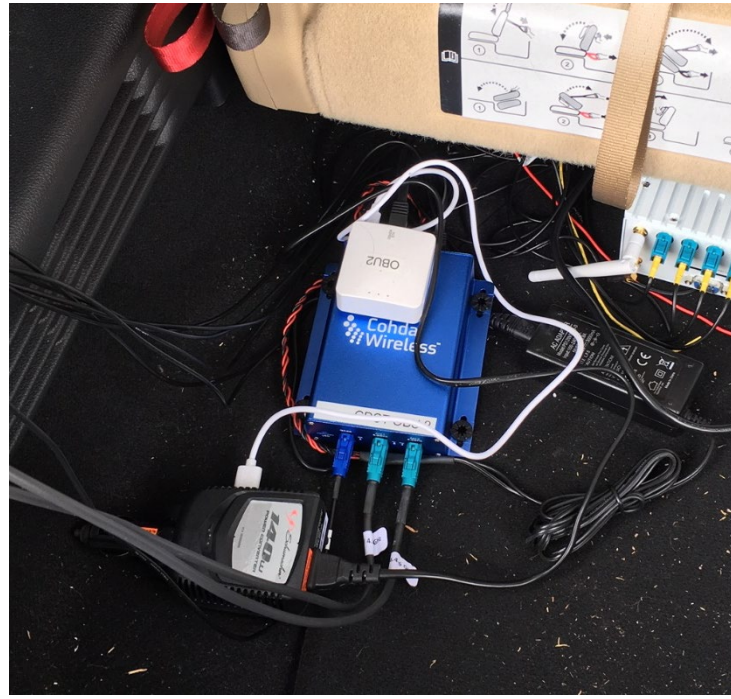


GDOT CV Architecture

- CV Application resides on signal controller
- No additional hardware (outside of RSU) required
- Open access to third parties
- **Conformity to national standards and open access**



Deployment



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MAXTIME CV

- Search
- Home
- Status
- Connected Devices**
- SPaT Message
- MAP Message

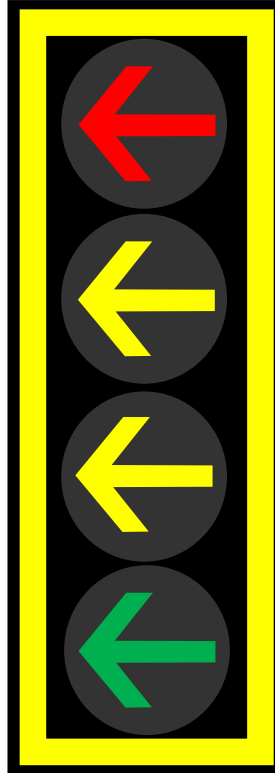
Connected Devices Status

Show All Devices

Device	Device Type	Peer ID	Connection Status
1	MaxTime	1	Connected
2	RSU 4.1 SPAT UDP	2	Connected
3	RSU 4.1 MAP UDP	3	Connected
4	RSU 4.1 TIM UDP	4	Connected
5	Generic RSU UDP	5	Connected

Project Challenges

- Device interoperability
 - Controller to RSU
 - RSU to OBU
 - OBU to OBU
- MAP message creation and validation
- Protected/permissive left turns
- Application deployments
- Security credentialing
- Data
- Limited fleet
- Regional communications network
- **Technology risk and Spectrum Uncertainty**



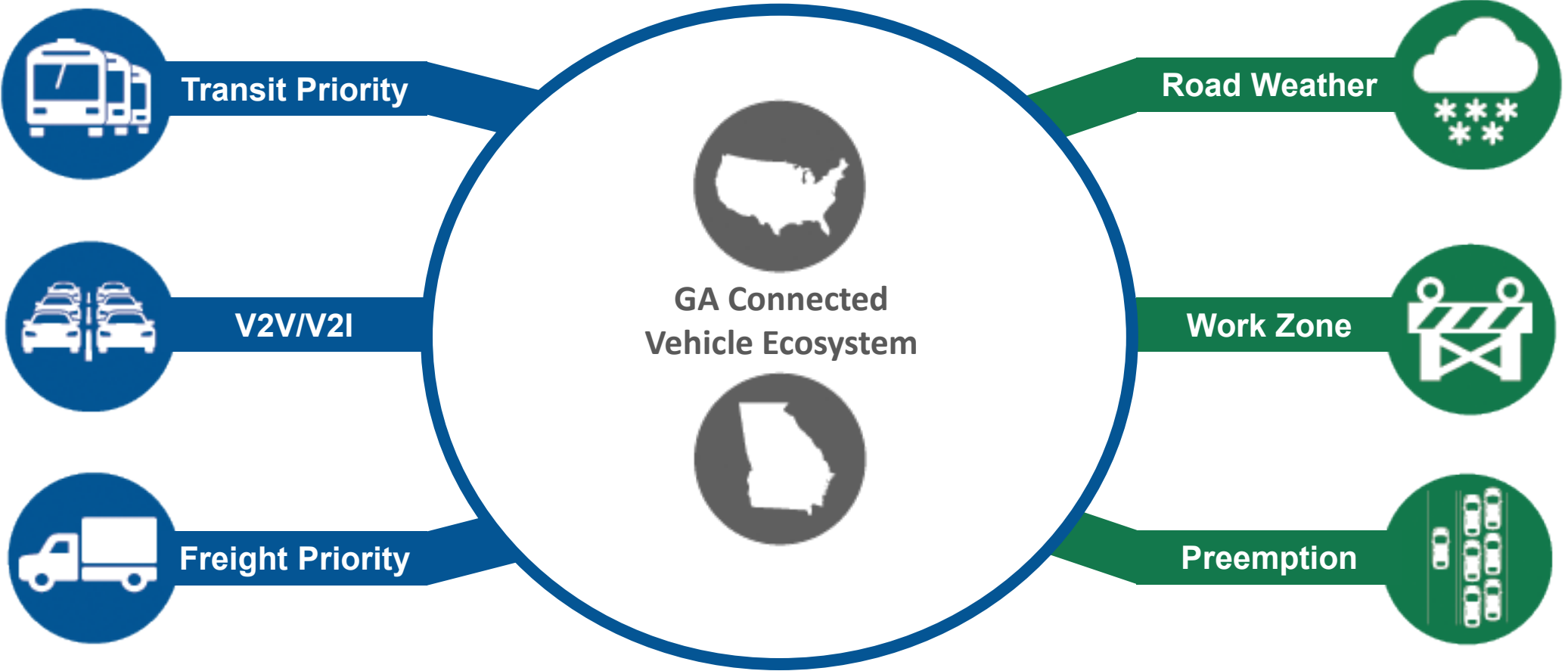
Phase 2 Deployment

Scalable
Deployment
Strategy

- Communications
- ATC Signal Controller
- DSRC Radio

**Broad deployment
potential in
Georgia**

Interoperable Ecosystem



Regional interoperability through standards-based, non-proprietary technology deployments

Phase 2 Deployment

Phase 2.1: RTOP – Fall 2019

- Additional 600 of FY 2019 to be installed by Fall 2019
- 305 RSUs operational as of July 2019
- Connectivity on every major arterial in metro Atlanta
- Open data stream to third parties also available

ADDITIONAL APPLICATIONS

Emergency vehicle
preemption



Preemption at select signals to
improve emergency vehicle
response time

Transit signal priority

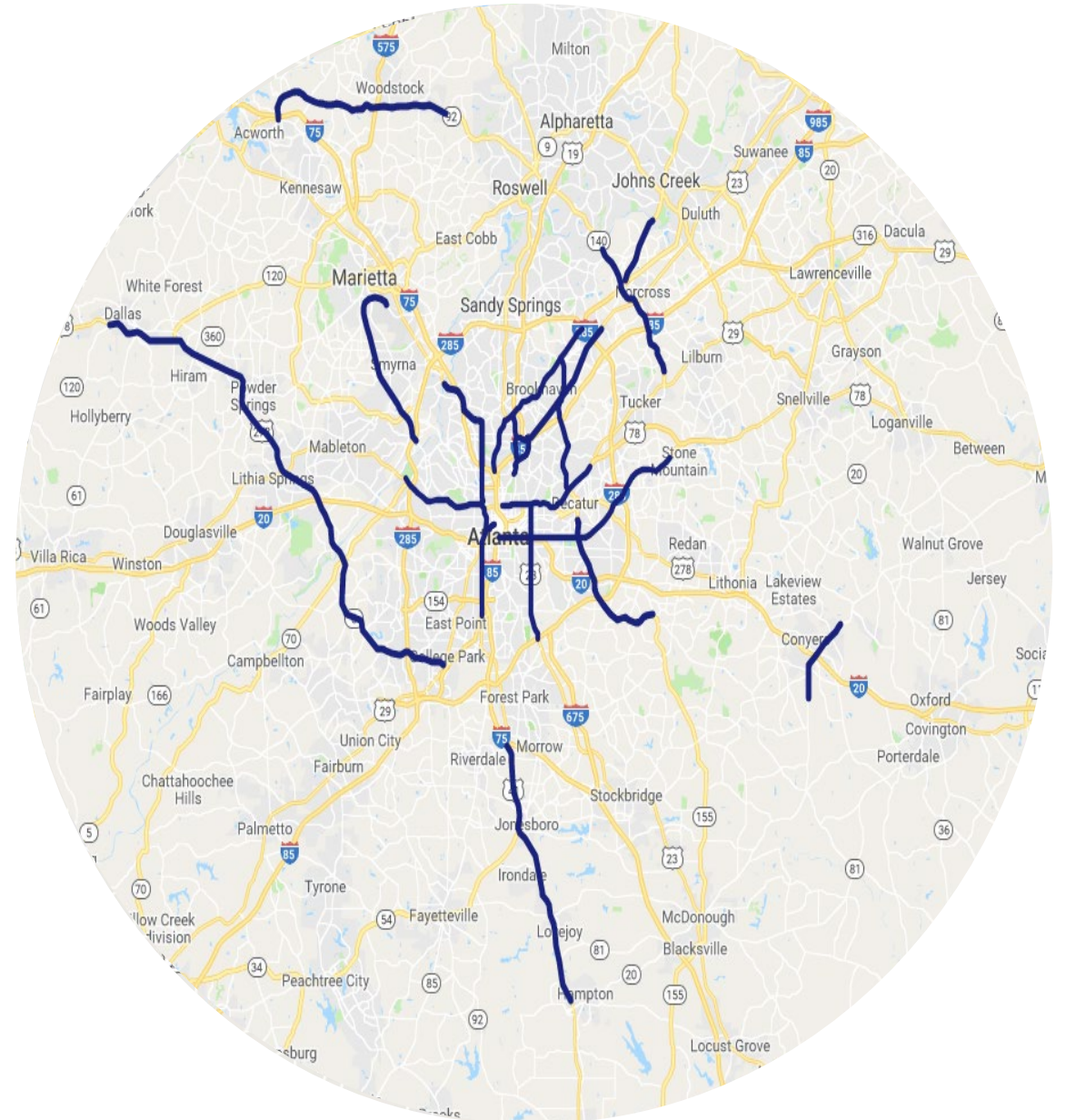


Priority requests to signal
controllers for specific transit
applications and routes

Freight signal priority



Signal priority for freight vehicles
that are operating in cooperative
platooning mode





Phase 2 Deployment

Phase 2 Deployment Est.	FY 2019 (600)	FY 2020 (1000)
RSU Equipment	\$780,000	\$1,300,000
RSU Deployment	\$510,000	\$850,000
RSU Configuration & Support	\$1,200,000	\$2,000,000
ATCMTD OBUs (1000)	-	\$1,000,000
TOTAL	\$2,490,000	\$4,150,000

<ul style="list-style-type: none"> •1,600 Roadside units at \$1,300 per device. •RSU deployment at \$850 per location. •RSU configuration at \$2,000 per device. •OBU costs at \$1,000 per device (optional). 	Total:	\$6,640,000
	654 RSUs to be operational by Fall 2019	