Georgia Department of Transportation

Traffic Safety and the 5.9GHz Spectrum

Experiences, Plans, and Rationale

June 3, 2019

Georgia's CV Deployment History

Phase 1: SPaT Challenge, 54 intersections, June 2018

Initial DSRC in Metro Atlanta

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

Red light warning	Safety for drivers – alerts of inability to safely clear intersection
Pedestrian in crosswalk	Safety for drivers and pedestrians – turning vehicles have additional awareness of other users
Phase service remaining	Efficiency for drivers – alert drivers for safe intersection passage or efficient stopping
Green speed for coordinated signals	Efficiency for drivers – inform drivers of the optimal driving speed through coordinated signals to minimize stops

Georgia's CV Plans for Expansior

Phase 2: 1,700 intersections, DSRC, June 202

1,700 traffic signals in metro Atlanta

Over 200 installed

Over 600 on hand

Safety applications

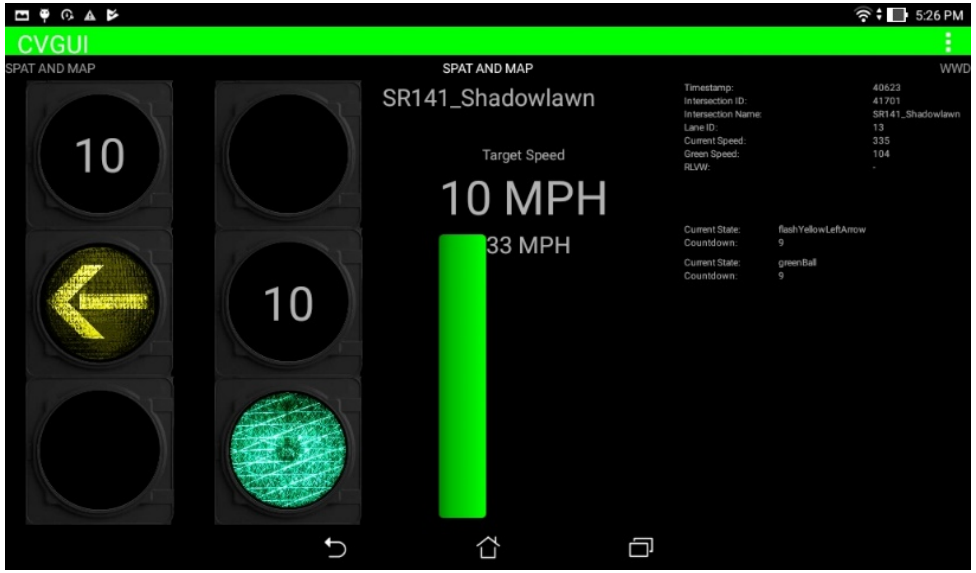
Signal applications

- Red light warning
- Pedestrian in signalized crosswalk
- Phase termination/next signal phase
- Green-band speed

Road and traffic conditions information

Why DSRC?

- Its legacy extends over two decades
- Numerous pilots, including the 2012 Ann Arbor, MI, pilot, as well as the ongoing New York, NY, Tampa, FL, and Wyoming pilots have greatly expanded the base of active CV deployments –both roadside and onboard
- The 5.9GHz spectrum was established with a focus on interoperability
  - Interoperability at all layers of the communications stack
  - Backwards compatibility allows new technologies to evolve
- Federal indecisiveness is killing technological progress that will positively impact vehicle safety and mobility
  - As a DOT, we don't care which way the market goes; we need clarity on direction
  - That applies also to the spectrum itself
  - DSRC is proven, in production, and a better option, but Georgia has built our backend systems to support any technology



Why is this important to GDOT?

Safety by the Numbers

- An estimated **39,141** people lost their lives on all modes of our transportation system in 2017. The vast majority—37,133 deaths—were from motor vehicle crashes[A,B]
- *Driver Factors:* Of all serious motor vehicle crashes, **94 percent** involve driver-related factors, such as impaired driving, distraction, and speeding or illegal maneuvers.

  In 2017:
  - Nearly **11,000** fatalities involved drinking and driving.[B]
  - Speeding was a factor in nearly **10,000** highway fatalities.[B]
  - Nearly **3,500** fatal crashes* involved distracted drivers.[B]
- *Commercial Vehicles:* **13 percent** of annual roadway fatalities occur in crashes involving large trucks.[B]
- In 2017, **82 percent** of victims in fatal large truck crashes were road users who were not an occupant of the truck(s) involved.[B]
- *Professional Drivers:* Professional drivers are **ten times** more likely to be killed on the job, and nearly nine times more likely to be injured on the job compared to the average worker.[C]
- *Pedestrians:* **5,977** pedestrians were killed by motor vehicles in 2017, representing 16 percent of all motor vehicle fatalities.[B]
- *Highway-Rail Grade Crossings:* Over the past decade, highway rail grade crossing fatalities averaged **253** per year, representing about one-third of total railroad-related fatalities.[A]

Sources:

A U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation, September 8, 2018

B NHTSA 2017 Fatal Motor Vehicle Crashes: Overview (DOT HS 812 603)

C Beede, David, Regina Powers, and Cassandra Ingram, *The Employment Impact of Autonomous Vehicles*, U.S. Department of Commerce, Washington, DC: http://www.esa.doc.gov/sites/default/files/Employment%20Impact%20Autonomous%20Vehicles_0.pdf

* *This number is likely underreported.*

Source: USDOT Preparing for the Future of Transportation – Automated Vehicles 3.0