

Smart Corridor Deployment Program, Gwinnett County, Georgia. Gwinnett County is installing its first connected vehicle technology deployment project, a three-year program with a five-year option which includes turn key implementation of connected vehicle safety applications throughout the County's traffic signal system and within their vehicle fleet, installation of connected vehicle on board units (OBUs) and human machine interfaces on Gwinnett County vehicles such as emergency vehicles, transit buses, and department of transportation maintenance and construction vehicles.

The ultimate goal will enable safety enhancements using a connected vehicle service in the spectrum of 5.895 to 5.925 GHz for up to 386 intersections with CV2X fixed roadside equipment and 100 unique in-vehicle onboard units operating within the CV2X spectrum.

The project and experimentation provides six enhanced connected vehicle (CV) safety applications:

- Signal Phase and Timing (SPaT)
- Emergency Vehicle Preemption (EVP)
- Transit Signal Priority (TSP)
- Construction and Maintenance Vehicle Alert (CMVA)
- Rail Intersection Blocked Alert (RIBA)
- Pedestrian Presence Alert (PPA)

The six applications support the identified intersections of the deployment program. The six CV applications and roadside RSU hardware will be centrally managed, configured, and monitored through an enterprise application software allowing the operations and broadcast to be turned on or off at anytime.

Description of Equipment:

- a. Danlaw RouteLink Model 5 - C-V2X Roadside Unit
https://www.danlawinc.com/wp-content/uploads/DS_RouteLink_RSU_V14.pdf

How the program of experimentation will contribute to the development and expansion of the radio art:

The design motivations for the project architecture are:

1. Future-Proof
 - a. Decouple the RSU hardware from the software of the six CV applications.
 - b. Strategically select specific SAE J2735_201603 messages to be on-track with upcoming standards currently being developed.
2. Efficient Use of Safety Band Spectrum
 - a. Extract multiple uses of SAE J2735_201603 messages for implementing the six CV applications.
3. Flexible Configuration
 - a. Enable users to remotely configure CV system parameters through web user interfaces.
4. Transparent Operations
 - a. Provide users with a full-view of CV system status and enable full control of operations.

The applicant, 360 Network Solutions, LLC, is a corporation partnered with Gwinnett County to manage the radios and the connected vehicle applications. Our project team consists of consultants, software developers, and cyber security professionals to deliver the Smart Corridor Deployment Program including system integration and programming, system software, network integration, a security credential management system, testing, maintenance, and training.

Modifications to previous license:

We seek a grant that provides a project duration of 60 months, this will ensure successful testing of the six CV applications.

We have added an additional 72 radio locations of the Danlaw RouteLink Model 5 – C-V2X Roadside Unit. The radios will be mounted within an .2km radius of their registered GPS location in our application.

The radios are not yet mounted, and maybe relocated within their .2km radius depending on availability and performance of the radios at their respective locations.

These new locations will provide additional coverage for the next phase of the project, especially along Bus Route 35 Transit Signal Priority and two Fire Zones where Emergency Vehicle Preemption will take place. In the diagram below, the 72 radio locations will be mounted everywhere there is a **GREEN** traffic light icon within the **LARGE DARK RED** areas depicting the two Fire Zones, and their respective Fire Stations shown as **RED CIRCLES** servicing the city of Peachtree Corners, GA and the city of Norcross, GA, individually. Bus Route 35 is a bus route depicted by a **SMALL LIGHT RED** line, starting at the bottom left of the diagram and travels throughout the two fire zones.

