

Gwinnett County Smart Corridor

Project Lead:

Ken Keena, Engineer V, Department of Transportation, Gwinnett County

Project Work Location:

620 Winder Hwy, Lawrenceville, GA

Project Description:

The Traffic Engineering Division of the Gwinnett County Department of Transportation is responsible for the maintenance of 749 traffic signals, over 250 miles of fiber and over 350 CCTVs. Gwinnett DOT developed the [Connected Vehicle Technology Master Plan](#) as part of the inaugural cohort of the SCC.

This plan underpins the Gwinnett County Smart Corridor and Gwinnett's participation in the Regional Connected Vehicle Program, both of which are in partnership with GDOT. Both efforts are currently under construction and a significant number of devices should be deployed by summer 2022, so there will be connected vehicle messages actively being sent and received.

As part of this deployment, we are partnering with Georgia Tech to provide before and after analysis of the emergency vehicle preemption (EVP) component. This will allow us to evaluate the impact of emergency preemption, both to emergency response time as well as system recovery time. In addition, there are a number of connected vehicle initiatives outside of EVP to consider, including railroad preemption, mobile work zones, and pedestrian information. We would also like to dig into the Regional Integrated Transportation Information System (RITIS) and Automated Traffic Signal Performance Measures (ATSPMs) to determine what opportunities are available to facilitate automation in traffic and incident management.

Project Learning Goals:

Gwinnett County is the second largest maintaining agency in the state after GDOT, and we heavily leverage technology. This would give the intern real world experience with the new technologies that will be impacting our industry.

Top Desired Intern Skills:

In particular, we will be working with automated vehicle location data from Gwinnett Fire's Computer Aided Dispatch system, traffic signal data from Gwinnett DOT's Maxview, as well as Signal Phasing and Timing (SPaT) data and other connected vehicle transmissions. Given the nature and size of the data we deal with, it is usually a big help if one student available has some python programming experience, especially with the data analysis packages such as numpy and pandas. We can teach a computer-oriented student some critical transportation engineering principles and needs but given the timeline of the project, it is hard to go the other way.

In general, this summer we will be troubleshooting a lot of connected vehicle inputs and outputs as well as reviewing ATSPMs and RITIS data. We would happily host a traffic / infrastructure student and satisfy objectives of the smart corridor in a different fashion.

Intern Deliverables:

- Traffic data analysis
- I/O and message troubleshooting
- Signal timing analysis, support, and modification