Agenda

• Background

• Georgia Smart Challenge/CV Technology Master Plan
  • Overview
  • Project Plan
  • Vision
  • Impact
  • Approach

• Future
  • Peachtree Industrial Boulevard Smart Corridor
• **722 Traffic Signals**
• **Over 550** communicate with TCC
• **Over 230** miles of fiber optic cable
• **More than 260** CCTV cameras
• **Over 220** flashing beacon locations
ATMS Expansion Projects

• Advanced Traffic Management System (ATMS) infrastructure expansion allows County transportation engineers to communicate with traffic signals and cameras along four high-traffic corridors in Gwinnett:
  • 29.5 miles of fiber optic cable
  • 55 new traffic monitoring cameras
  • 31 traffic signals - adding communication technology
  • Ronald Reagan Parkway
  • Five Forks Trickum Road
  • Old Peachtree Road
  • SR 316/University Parkway
Connected Vehicle Technology Master Plan - Overview

- Funded by both the Georgia Smart Communities Grant and SPLOST
- Builds on the 2017 update of the County’s ITS Master Plan
- Includes safety benefit research conducted by Tech faculty
- Goals
  - Establish recommendations of standards and best practices for CV
  - Have measurable outcomes for CV projects
  - Be replicable for both Gwinnett County and other local governments
5 year planning horizon

- Check-in with stakeholders throughout the process
- Deep dive on best practices, existing technology solutions, and technology solutions to expect in the next 5 years
- Final product must be replicable and implementable

Years until ¼ of American Population Adopted Tech

- 1876
  - 35 years
- 1983
  - 13 years
Project Vision

Gwinnett County desires to set the standard for the application of connected vehicle technology. Locally, the project will use the latest technological advances in traffic management systems to improve traffic congestion and reduce crashes in the Peachtree Industrial Boulevard Corridor. Beyond that, County leadership envisions that this project will be the first of several and will have broad applicability in the Atlanta region and across the country. The project will show how to set up a connected vehicle system, including costs, benefits, applications, equipment, both hardware and software, and personnel requirements. The project will help agencies charged with traffic safety and mobility manage expectations, costs, and fully realize the benefits of these new technologies.
Implement Goals developed with input from citizens during the Comprehensive Transportation Plan process

- Improve connectivity
- Leverage the County’s Transportation System to Improve Economic Vitality and Quality of Life
- Improve Safety and Mobility for All People Across All Modes of Travel
- Proactively Embrace Future Transportation Opportunities
- Continue to Serve as Responsible Stewards of Transportation Resources
<table>
<thead>
<tr>
<th>Event/Task</th>
<th>Event/Deliverable Date</th>
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<tbody>
<tr>
<td>GT kick-off meeting</td>
<td>Sept 6, 2018</td>
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<tr>
<td>ConnectATL</td>
<td>Sept 7, 2018</td>
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<td>Task 1: Public Engagement</td>
<td>Ongoing</td>
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<td>Task 2: Technology and CV Industry Review</td>
<td>Nov 2018</td>
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<td>Task 3: Applications Identification</td>
<td>March 2019</td>
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<td>GT Smart Communities Challenge midterm workshop</td>
<td>March 29, 2019</td>
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<td>Task 4: Final Report</td>
<td>Aug 27, 2019</td>
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<td>GT final workshop</td>
<td>Sept 5, 2019</td>
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## Connected Vehicle Technology Master Plan - Approach

<table>
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<tr>
<th>Stakeholders</th>
<th>GDOT, Public Safety Departments, Cities, CIDs</th>
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</table>
| Investigate Connected Vehicle technologies and applications | • V2I Field Communications & vehicle tech (4G, DSRC, SPaT, etc.)  
• Signalized Intersection Priority/Preemption for emergency vehicles and transit  
• Data Governance and Warehousing  
• Pedestrian/Bicycle Safety  
• School Zone Notifications  
• Freight solutions  
• Security concerns and mitigation |
| Information Opportunities for Road Users | • Emergency vehicle approaching  
• Traffic delays  
• Signal Timing |

**PREPARATION FOR THE COUNTY’S PILOT SMART CORRIDOR/CV TECHNOLOGY PROJECT PLANNED FOR PEACHTREE INDUSTRIAL BOULEVARD**
1. GDOT SPaT Challenge – SR 141/PIB
2. Regional Traffic Operations Program (RTOP)
3. ARC TSM&O Plan Update
4. GDOT I-85 Managed Lanes
5. Connect Gwinnett Transit plan
6. I-85 Corridor Study
7. Peachtree Corners AV Shuttle RFP
8. Truck Parking Study

The Need

Continued Population Growth

Based on ARC data.
Peachtree Industrial Boulevard Smart Corridor

Why this corridor?

- Infrastructure is maintained by Gwinnett County
- Has activity centers and rural sections
- Passes through 7 cities
- 6 fire stations within 1.5 miles
- Identified for Transit system expansion
• Project will add Connected Vehicle Technology
• Traffic signals will broadcast information
  – Signal Phase and Timing (SPaT)
  – Safety messages
• Adaptive Traffic Signal Control
Peachtree Industrial Boulevard
Smart Corridor

• Provide Fire & EMS vehicles with traffic signal preemption for reduced response times

• Provide Transit vehicle priority to keep buses on schedule

• Provide road users with information via mobile device or in-vehicle platform
Emergency Vehicle Signal Priority Impact Evaluation

Bottleneck analysis to identify congestion hotspots for
  • Emergency Vehicles
  • Passenger Cars

Delay pattern analysis for Emergency Vehicle paths with
  • GPS data for emergency vehicles
  • Response logs

Photo Credit: https://www.cnn.com/2013/04/10/us/georgia-firefighters-hostage/index.html
Emergency Vehicle Signal Priority Impact Evaluation (Cont.)

Signal Prioritization with Connected Vehicle

- Multi-signal look-ahead prioritization
- Queue flush downstream of Emergency Vehicle
- Minimization of Congestion Impacts on passenger cars
Thank you

Tom Sever, P.E.
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