ITS in Georgia: Past, Present and Future
Silver Bullets? Innovative Intersections and Interchanges

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Approaching 20th Anniversary

• 2016 will mark the 20th year of operation of the Navigator system

• Staff moved into the TMC in late 1995 but the actual “switch was flipped” in April 1996 – about 3 months before the Olympics
Approaching 20th Anniversary

• Where have we been?

• Where are we now?

• Where are we going in the future?
What is NaviGAtor?

• Georgia’s Intelligent Transportation System (ITS)
• Consists of:
  – Cameras along the roadways
  – Electronic message signs
  – Traffic detection devices
  – Ramp meters
  – 511 website and phone system
  – Variable Speed Limits
What is ITS?

ITS improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into the transportation infrastructure and in vehicles. Intelligent transportation systems (ITS) encompass a broad range of wireless and wire-line communications-based information and electronics technologies.
How ITS began in Georgia

• 1996 Summer Olympic games were a big catalyst
• Approx $158 million of demonstration project funds were allocated to build a base system
• As soon as Olympics were announced in Sept 1990, work began to create the system
• TRW, Inc was hired as initial systems integrator and was on board 1992-1996
Initial System

• First phase of system
  – TMC was constructed
  – 38 centerline miles of coverage were built
  – Website started
  – Operators hired
  – Relationships with local counties/cities established, including TCCs
Initial Coverage

- 38 centerline miles
- Mainly central Atlanta
- Close to Olympic venues
- Included about
  - 60 cameras
  - 24 message signs
  - 400 detectors
System Expansion

1999

2004
System Expansion, cont.

2008

2011
Today’s Coverage

- 675 cameras
- 115 message signs
- 176 ramp meters
- 3000+ detectors
- 176 VSL signs

From 38 miles to 280 miles of coverage

(additional coverage also in Macon area)
Major program areas

- Incident Management
- Ramp Metering
- Traveler Information
- Variable Speed Limits
Incident Management

• System allows quick detection of problem
• Operators dispatch HEROs to scene
• HEROs take on traffic control duties
• Lanes reopened quicker
• Traffic flow restored sooner
Incident Management

Recently added Automated Location and Dispatch System, or ALADS

HEROs and TMC Operators can exchange incident data directly through system without need for voice communications.
Incident Management

Other programs

• TRIP program (Towing Recovery Incentive Program)

• Move Over Law & Steer It and Clear It Law
Ramp Metering

- 176 in metro Atlanta
- Operate during peak hours
- 5 began in 1996
- 4 more in 2005
- Remainder deployed in 2008-present
Ramp Metering

• Without meters, entrance ramp traffic adversely affects the flow of mainline traffic
• “Platoons” of vehicles force their way in, causing mainline traffic to brake
Ramp Metering

• With meters, traffic is held on the ramp, allowing only 1 car to merge at a time
• Entrance ramp traffic merges more easily, easing mainline congestion
Traveler Information

- Navigator uses many outlets to inform drivers
  - 511 phone system
  - Website
  - Apps
  - Twitter/Facebook
  - Message signs

www.511ga.org
Traveler Information

- Well-informed drivers are good for the system
- If drivers know the location of problems:
  - Avoid the area and save time
  - Reduce the traffic load on the incident location
  - Change their mode of travel
  - Reduce frustration
  - Increase safety of the responders
Traveler Information

Statistics

511 phone system: 20,000 calls a week
Website: 40,000-50,000 users a week
Apps: 120,000 iOS downloads and 50,000 Android downloads
Variable Speed Limits

• Began Oct 5, 2014
• Cover northern “half” of I-285
• 176 signs / 88 pairs
• 2 signs at each location
  – Right shoulder
  – Median barrier
Variable Speed Limits

- Run automatically
- Can be overridden by operators
- Run 24/7
- Show 65, 55, 45 or 35 mph only
- Controlled by speed detectors
Variable Speed Limits

Expected benefits

– Reduced crash rate, especially rear-ends
– Smoother traffic flow during peak periods, less “stop-and-go” and “accordion effect”
– Increased throughput

GDOT will use this project as a pilot and determine if deploying more VSL segments is beneficial
## Results

### Wasted fuel per driver

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<th>Year</th>
<th>Wasted Fuel per Commuter</th>
<th>Rank</th>
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<td>31 gals</td>
<td>7</td>
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<td>2006</td>
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<td>12</td>
</tr>
<tr>
<td>2011</td>
<td>23 gals</td>
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</tbody>
</table>

### Hours of delay per person

<table>
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<tr>
<th>Year</th>
<th>Hrs of Delay Per person</th>
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<tr>
<td>2011</td>
<td>51</td>
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</tbody>
</table>

Source: TTI Urban Mobility Report
Results

Travel Time Index – Metro Atlanta (2000-2011)

Source: TTI Urban Mobility Report
Results

Source: TTI Urban Mobility Report
Where are we headed with ITS?

New era is beginning:

- Technologies advancing
- Auto manufacturers getting involved
- Tolling becoming more common
- Mobile devices ubiquitous
Where are we headed with ITS?

Managed Lanes:

• Two major projects under construction
• I-75 Southside
• I-75 Northwest Corridor (NWC)
• Reversible, tolled lanes that operate in direction of peak flow
Managed Lanes

TMC’s role:
• Control gates
• Post sign messages
• Manage incidents

Current activities: Developing software requirements for a Navigator module that will control the gates/signs.

The State Road and Toll Authority (SRTA) will be moving into the TMC to host their Operations there.
TMC Remodel

- Entire 1st floor of TMC to be remodeled
- Main Ops floor will more than double in size
- Number of consoles increases from 19 to 36
- Creates “pods” for different managed lane systems
Winter Weather

Weather-related installations:
• Recently let a project to install 27 weather stations
• Installing additional cameras on I-20 and I-75
Video Distribution System

- Currently, anyone wanting to view video must have a Navigator account
- GDOT re-engineering the video distribution method
  - Simplified web-interface to select video
  - Will allow streaming video on website and mobile devices
Connected Vehicles

- Vehicles communicating with each other and with the roadside
- Safety applications
- Mobility applications

GDOT is likely going to submit a grant application for a pilot project in early 2015

Graphics: US DOT
Georgia NaviGAtor – Past, Present and Future

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