

Savannah ATMS Stakeholder Meeting

June 8, 2016

Agenda

1. Introduction and Welcome
2. Overview of ATMS Feasibility Study
3. Symposium Recap and Summary
4. Phase 2 Tasks
 1. Goals and Objectives (recap)
 2. Traffic Management Improvement Options
 3. Regional Traffic Management Case Studies & Benefits
 4. ATMS Strategic Plan
5. Program Recommendations
6. GDOT Update
7. Final thoughts

Background

- The study is to build upon the goals and recommendations of previous studies, particularly recommendations from the Congestion Management Process:
 - Updating and coordinating signal timing could improve travel times and efficiency on 15-23% of the congested roadways.
 - The first phase of the study included a needs assessment and tours of peer agencies already implementing advanced traffic management systems (ATMS).
 - Phase II currently ongoing will result in an ATMS Strategic Plan for the region.

Summary of Phase 1 Activities and Findings

A. Existing Systems and Needs

■ Infrastructure Needs

❖ Communication

- City of Savannah - more capacity fiber (single mode)
- GDOT – 35% signals have no communications
- Chatham County – 96% have no communications
- Pooler – cannot communicate with signals (but has fiber to most)

❖ Controller and Cabinet Upgrades

- GDOT/City of Pooler – No upgrades needed
- Savannah – 10% need upgrading to 2070s + 332/336 Cabs
- Chatham County - 33% need upgrading to 2070s + 332/336 Cabs



Summary of Phase 1 Activities and Findings

A. Existing Systems and Needs

- **Infrastructure Needs (continued)**
 - ❖ **ITS Field Devices (All Agencies) :**
 - CCTV Cameras
 - DMS (fixed and portable)
 - System Detection
 - Adaptive Control
 - Video detection

- **What could pull all this together?**
TRAFFIC MANAGEMENT CENTER



Phase 1 Scan Tours

B. Lessons Learned from Scan Tours

- Jacksonville Regional TMC
- City of Valdosta
- Cobb County
- GDOT TMC



Symposium Recap

- February 11, 2016
- Open to a larger audience
- Overview of TMCs, ITS, and TSM&O
 - Intended for general audiences
- Status of Project
- Success Stories
 - Cobb County
 - Gwinnett County
 - GDOT

Alternatives Evaluation and Implementation Plan Phase II

- Task 1 – Goals and Objectives – long range aspirations for mobility and traffic management in the region
- Task 2 – Traffic Management Improvement Options – to meet short, medium and long term needs
- Task 3 – Regional Traffic Management – building on tours, making the case for regional traffic management through case studies
- Task 4 – Preparation of the Strategic Plan – responsibilities, costs, funding, etc.

Phase 2 Documents – Goals and Objectives (Task 1)

- Follow the Systems Engineering process
- Completed last fall, but per the SE process
 - Review when move forward
 - Make changes as appropriate
- Three primary Goals
 - Reduce Congestion
 - Enhance Travel Safety
 - Improve Regional Transportation System Operations

Goals and Objectives

Goals	Objectives
Reduce Congestion	<ol style="list-style-type: none">1. Minimize the wait time at signals2. Maximize throughput at signals3. Minimize the number of nonrecurring incidents4. Minimize the duration of incidents5. Minimize roadway impacts due to weather6. Provide information to travelers on congestion/incidents prior to reaching decision points7. Reduce congestion where major geometric changes are not currently programmed

Goals and Objectives

Goals	Objectives
Enhance Travel safety	<ol style="list-style-type: none"><li data-bbox="504 665 1373 715">1. Reduce the number of crashes<li data-bbox="504 739 1373 789">2. Reduce the severity of crashes<li data-bbox="504 813 1528 863">3. Provide advance warning for queues<li data-bbox="504 888 1126 938">4. Clear hazards quickly<li data-bbox="504 962 1431 1012">5. Provide safe travel in work zones

Goals and Objectives

Goals	Objectives
Improve Regional Transportation System Operations	<ol style="list-style-type: none"><li data-bbox="498 711 1709 821">1. Collect and share current travel conditions data with other agencies<li data-bbox="498 839 1535 885">2. Coordinate with other agencies on incidents<li data-bbox="498 903 1758 1013">3. Increase availability of and access to data for planning, operations, and programming purposes

Phase 2 Documents – Traffic Management Improvement Options (Task 2)

- Traffic Signal Systems
 - Inventory and findings
- Operational Enhancements
- Communications Options
- System Integration Options

Traffic Management Improvement Options

Updated Signal Information

- Majority are 2070
- Agencies are happy with this controller



Traffic Management Improvement Options

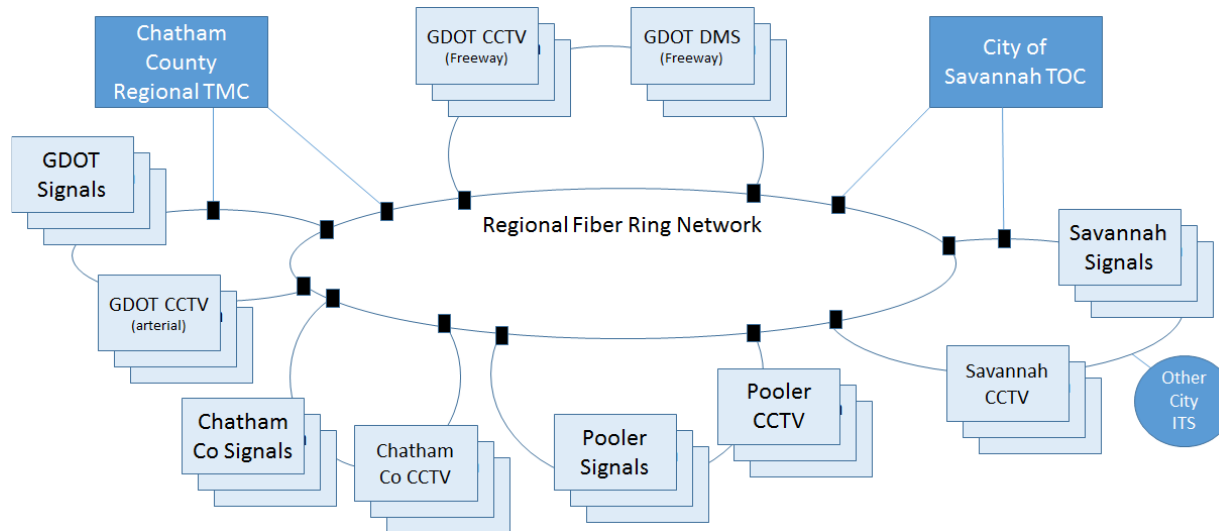
ICM – Integrated Corridor Management

- Improves traffic flow, travel times, and vehicle throughput on the corridor – not just on one road.
- Requires inter-agency coordination and communication to address both traffic and transit services within a corridor.
- Incorporates many different traffic signal and ITS elements into a coordinated congestion response strategy.
- May use a variety of technologies and operational strategies.

Traffic Management Improvement Options

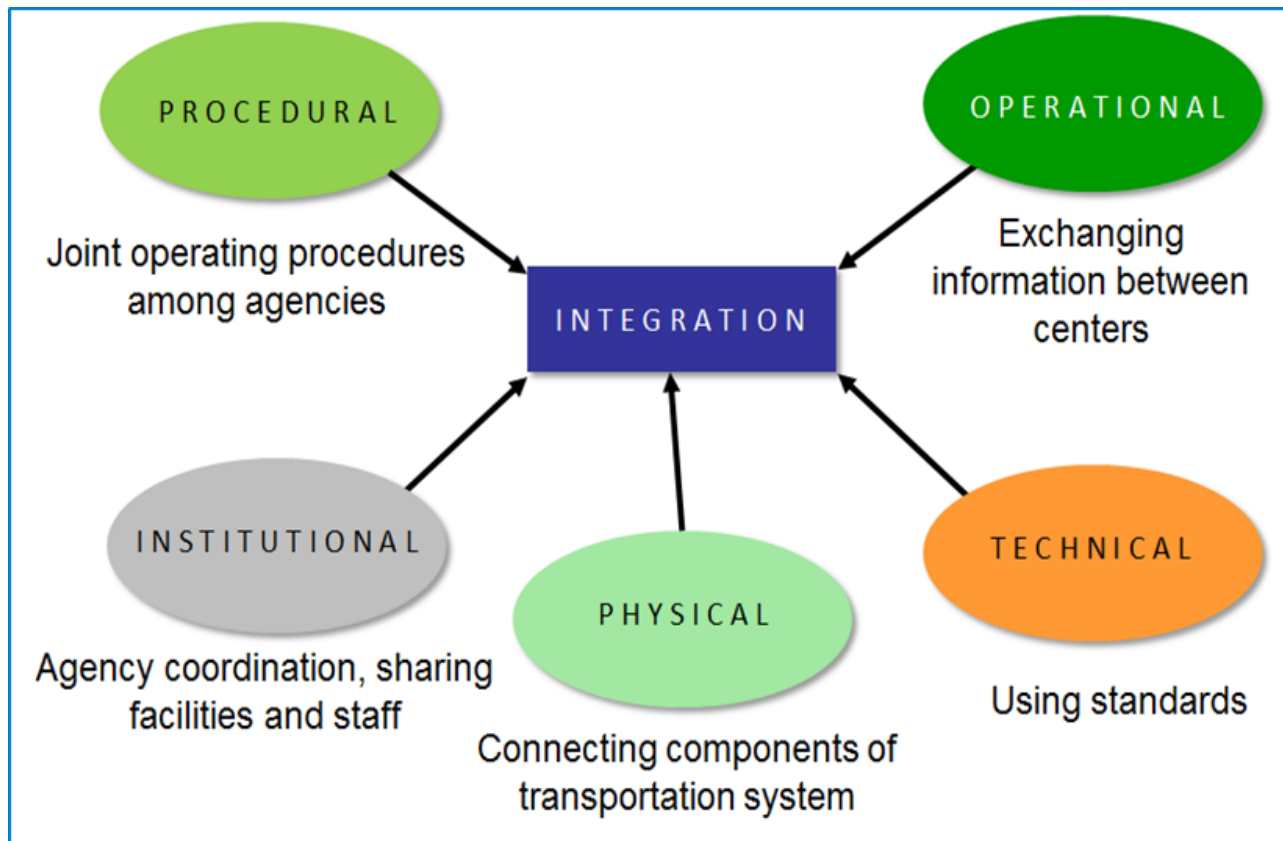
Communications

- About half connected by fiber



Traffic Management Improvement Options

- System Integration Options



Traffic Management Improvement Options

Recommendations

- Improve existing signal efficiency including: signal timing, detection, regional coordination, additional single-mode fiber
- System integration and data-sharing with GDOT and other agencies
- Address regional goals such as reducing congestion, enhancing safety, and improving operational efficiency
- Additional ITS devices in the City of Savannah such as DMS, CCTV
- Freeway management strategies such as ramp metering
- Improved incident management

Phase 2 Documents – Case Studies (Task 3)

Case Studies

- GDOT TMC
- Cobb County Regional TMC
- Gwinnett County TCC
- North Florida Regional TMC

GDOT TMC

- 24/7/365 Operation provides statewide information to authorities, public, and media
- Incident management including service patrol and state police dispatch
- Traffic management including ramp metering
- Regional Traffic Operations Program (RTOP)
- Traveler information via Georgia 511
- Managed lanes operated by SRTA



GDOT TMC

System

- CCTV cameras: 654
- 2,000+ Video Detection System (VDS) Stations
- 141 Changeable Message Signs
- 176 Ramp meters (metro Atlanta)
- 24 ITS Hubs (metro Atlanta)
- HEROs patrol 32 routes on 320 miles of metro interstates daily

GDOT TMC

Funding

- Annual operations cost: ~\$10M including staffing contract
- Recently remodeled and reconfigured: \$2.9M
- O&M including ITS maintenance funded through annual dedicated Federal O&M projects (NHS 80% Federal/20% State match).
- Capital ITS expansions funded by programmed capital project. Funding sources vary from State to Federal funds.
- HEROs funded by an annual Federal project. Also partially funded through a sponsorship project with State Farm.
- Managed lanes projects funded through a mix of Federal and State funds and PPP

GDOT TMC

TMC Partnering

- SRTA for toll facility operations,
- Local and county agencies for RTOP corridor operations,
- Georgia State Patrol (GSP) for incident management activities
- Specific contractors for operations on the TMC floor, management of RTOP, and management of the Georgia 511 system.

Cobb County Regional Transportation Management Center (RTMC)

- Began construction June 2009
- 24,000 square feet
- Modeled after the Nashville TMC.
- Operations Room monitors 70+ CCTV cameras on 9 operator consoles with an 8' x 16' video wall.
- Controls 500+ traffic signals in the County's ATMS, as well as several arterial DMS.
- Provides dispatching services for roadway and traffic signal maintenance.



Cobb County RTMC

Annual Operating Costs

- \$3M for the Traffic Operations Division, TMC and Traffic Signal groups combined.

Funding Sources

- Federal CMAQ and GDOT ATMS funding sources, which paid for 80% of the construction (appx. \$3.5 mil.), with the County providing a local match of 20% (appx. \$880k).

Cobb County RTMC

System

- 70 traffic cameras, over 500 traffic signals, and 4 dynamic message signs.
- Operates 12 hours a day, five days a week with two operators.
- Plans to ramp up to a 24-hour, seven-day-a-week operation over the next 5 years.
- Networked with the GDOT TMC to support RTOP and data sharing activities.
- Traffic signals in the county are connected through a dedicated County fiber network for traffic operations.

Gwinnett County DOT Traffic Control Center (TCC)

- Provides real-time monitoring of arterial operations using traffic signal communications and 230 video cameras.
- ITS covers about 220 miles of major arterials in Gwinnett County on mostly fiber optic cable with some wireless links.
- Ethernet connections to 488 of 705 traffic signals, and closed loop dial-up to about 45 more.
- Uses Layer 2 networking for individual arterials and Layer 3 networking for redundancy and aggregation. Layers refer to the different parts of IT network communications.

Gwinnett County DOT TCC

- Gwinnett DOT provides county public safety personnel access at the 911 center, EOC, Police HQ and Fire HQ.
- Integrated with the GDOT Navigator system so county cameras and RTOP signals are available to their staff and vice versa.
- 3 engineers and 18 technicians work in the TCC.
- One shift is from 6 am to 3 pm and the other is 10 am to 7 pm, both Monday-Friday.



Gwinnett County DOT TCC

Annual Operating Costs

- Appx. \$100,000 in 2015 with an on-demand contractor for camera maintenance and repairs to damaged fiber cable. Appx. \$116,000 in 2014. Also appx. \$40,000 in equipment repairs or replacements each of those years.

Funding Sources

- Primary funding source – county's DOT Annual operating budget
- Construction of the TCC and ITS network funded with County SPLOST leveraged to get state/federal funds (STP and CMAQ).
- Total investment to date – about \$22 million. Through about 35 separate construction projects over 10 years.

North Florida Regional Transportation Management Center (RTMC)

- Located in Jacksonville, FL
- Covers 18 counties for FDOT and Florida Highway Patrol (FHP).
- Merged separate FDOT and FHP facilities into one center.
- Opened in late 2015, with about 1,000 Centerline miles of roadway responsibility for traffic and incident management activities, plus traffic signal operations on freeways and arterials.
- The Northeast Florida region has nearly 200 miles of freeway coverage including a fiber network for broadband communications with CCTV cameras, dynamic message signs and traffic detection.

North Florida RTMC

System

- The RTMC control room contains 32 operator workstations.
- Florida Highway Patrol staff: 12
- Jacksonville Sheriff's Office (JSO) staff: 4 for major events and at least one on weekday hours.
- 4 Fish & Wildlife staff work closely with FDOT to monitor wildlife crossings.



North Florida RTMC

Annual Operating Costs

- FDOT spends about \$1.5 million per year on contracts to support operations and maintenance (O&M).

Funding Sources

- Federal CMAQ funds including appx. \$1 million for design and \$9.75 million for construction. FHP provided some funding for operation consoles (appx. \$600,000). FDOT provided some office furniture, consultant staff, and construction support (appx. \$350,000). The NFTPO is co-located with the RTMC.
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Phase 2 Documents – ATMS Strategic Plan (Task 4)

- Approach
- Concept Plans
- Funding
- Operational Needs

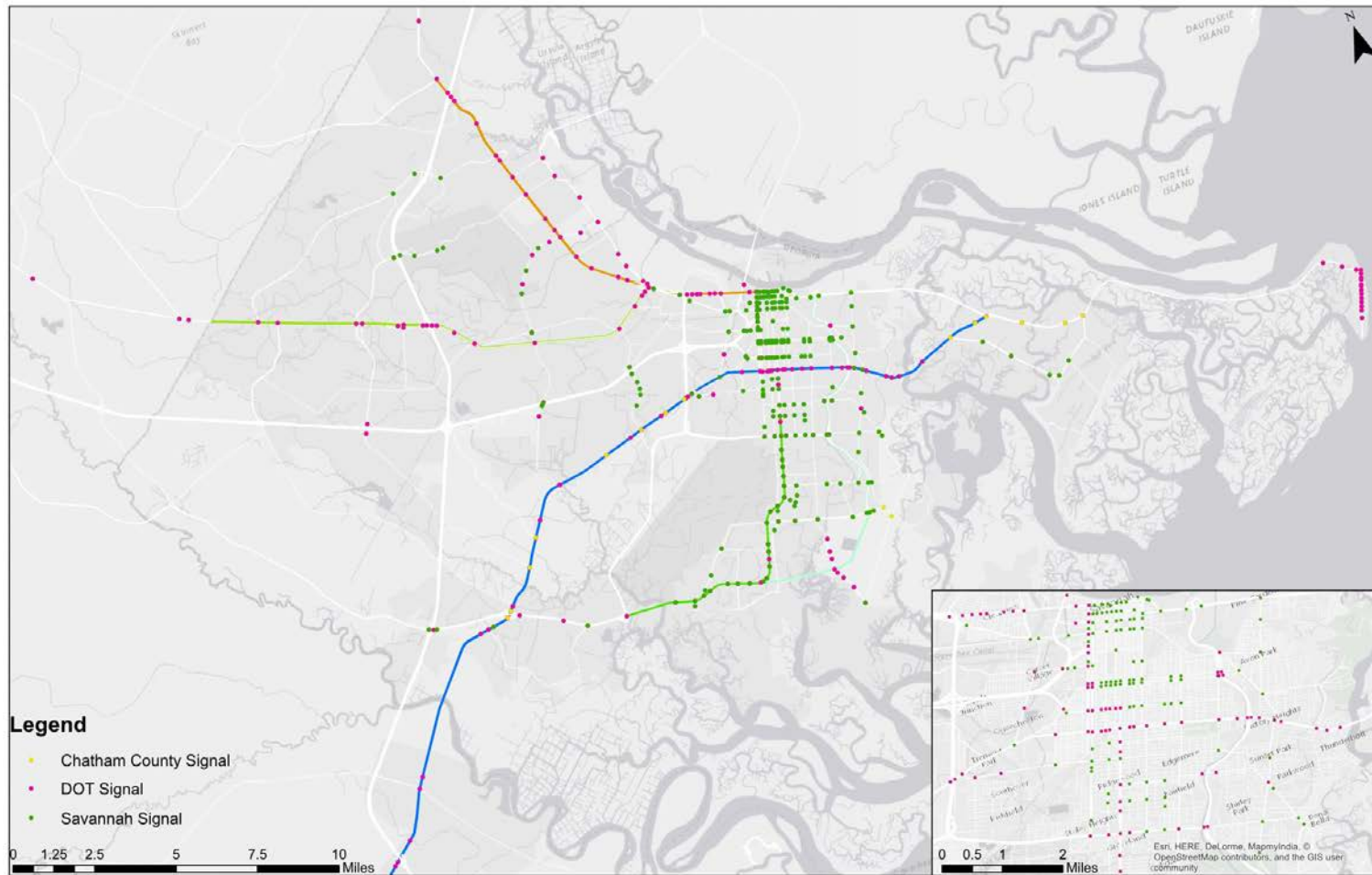
Approach

- Five year focus
 - Technology changes
 - NOT an issue of obsolescence
 - IS an issue of right tool
 - Integration
 - Sometimes A has to follow B
- TSM&O
 - Focus on operations, not just technology
 - Recognize people (time) are key

Concept Plans

- Four Areas
 - Signals
 - Communications
 - TMCs
 - Other
- Standard format of project
 - Base information (owner, name, etc.)
 - Costs/Schedule
 - Project Summary

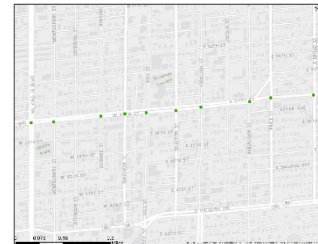
Concept Plans



Concept Plans

- Signal Example

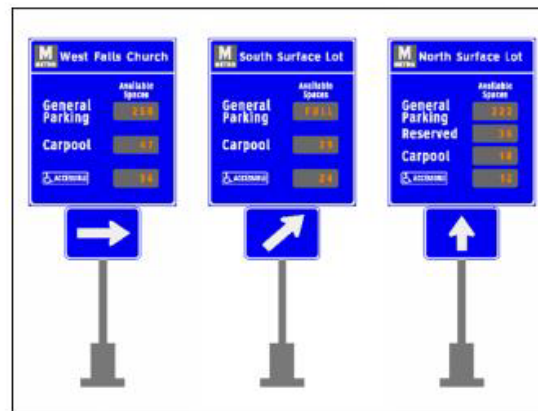
Owner		Cost	Year
City of Savannah	Engineering (study and design)	\$ 60,000	1
Project Name	Construction	\$ -	1
37th Street System Study	Total	\$ 60,000	
Project Number	Potential funding source		
SIG 37TH 1			
Description	<p>Per City of Savannah 2014 inventory information the group of signals listed below are operating in "fixed time" system with no detection (actuation) in City of Savannah System 1. Four other intersections in system 1 are operating with detectors (actuated or semi-actuated). This project would involve optimizing the timing of the corridor and evaluating changing the fixed time intersections to more of a detector based intersections.</p> <p>Fixed time signals grouped for Sig #1:</p> <ul style="list-style-type: none"> 37th Street @ Abercorn Street 37th Street @ Barnard Street 37th Street @ Bull Street 37th Street @ Drayton Street 37th Street @ East Broad Street 37th Street @ Habersham Street 37th Street @ Montgomery Street 37th Street @ Price Street 37th Street @ Whitaker Street 		



Concept Plans

- Other Example

Owner		Cost	Year
City of Savannah	Engineering (study and design)	\$ 50,000	2
Project Name	Construction	\$ 250,000	3
Parking Management System	Total	<u>\$ 300,000</u>	
Project Number	Potential funding source		
OTH PM 2			
Description	This project will take the recommendation for potential parking management systems, finish the design, and procure the initial system. Depending on the recommendations from the initial study, this may be a stand alone system, or part of the Savannah TMC.		



Funding

- Federal – FAST Act
 - NHS Funds
 - Ex. TMC Operations and Maintenance
 - ITS Program
 - Ex. Traffic Signals
 - Advanced Transportation and Congestion Management Technologies Deployment
 - Ex. Advanced Traveler Information Systems
- State – HB 170
 - Signal and Camera replacement – Maintenance Project
 - New Signal and Camera – Capital Project
- Local - Chatham County SPLOST
 - Could be used as a match

Operational Needs

- Staffing
- Maintenance

Function	Staff time	Maintenance costs	Notes
Signals	Minimal additional staff	Similar to current	Additional detection will add to costs. Additional training will also be required
TMC	1-3 full time staff for Savannah and Chatham County. 1 staff for GDOT. Regional TMC 5+ staff	\$100K/year for field devices \$150K/year for software and hardware	Contracted staffing a potential for larger systems.
Regional cooperation	200 hours a year per agency	\$50k/year for support contract	Start with RTOC and GDOT TIME program
Communications network	To maintain interagency connections, one person half time	\$100K/year to support fixes to network	

Operational Needs by Agency

City of Savannah

- Have extensive signals and an initial TMC
- Need to build out and integrate
- Staff – potentially 1-3 more as TMC builds
- Staff time – attend/participate in regional meetings
- Maintenance – not much more than now
- Be a key part of the regional communications network

Operational Needs by Agency

Chatham County

- Have extensive signals and plans for initial TMC
- Need to build out and integrate signals
- Staff – potentially 3-5 more when build TMC
- Staff time – attend/participate in regional meetings
- Maintenance – not much more than now
- Be a key part of the regional communications network

Operational Needs by Agency

GDOT

- Implement regional TMC at district office
- Need to integrate signals
- Need to build out interstate field devices
- Staff – assumed minimal with Statewide covering
- Staff time – attend/participate in regional meetings
- Maintenance – may be significant
- HERO – new implementation
- Be a key part of the regional communications network

Operational Needs by Agency

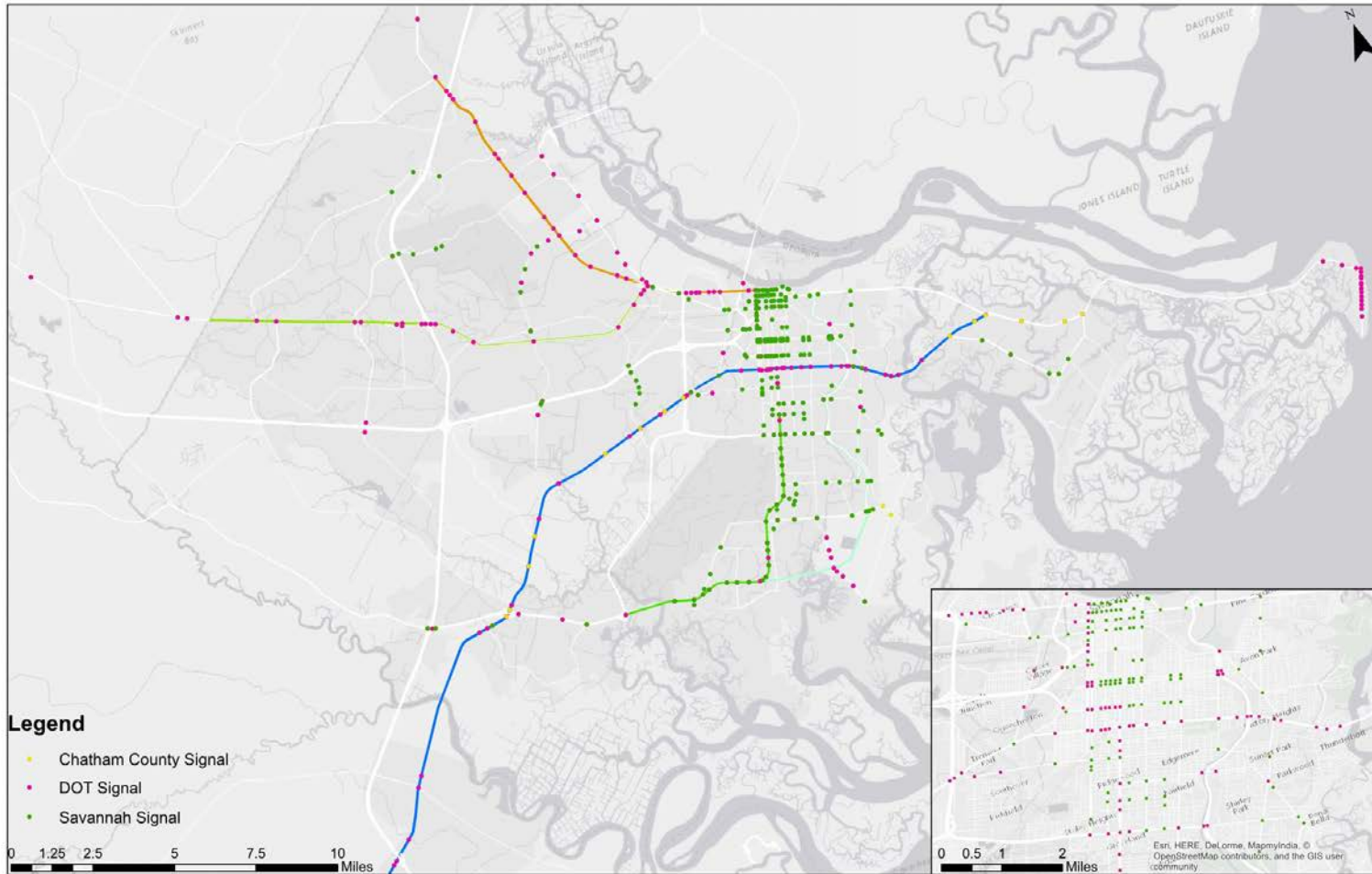
Chatham Area Transit

- Build from initial TMC functions
- Staff – depending on how TMC is developed, may be minimal
- Staff time – attend/participate in regional meetings
- Maintenance – not much more than now

City of Pooler

- Determine TMC needs
- Need to build out and integrate signals
- Staff – assumed minimal
- Staff time – attend/participate in regional meetings
- Maintenance – may be significant

GDOT Update



Next Steps

- Regional committees
 - CORE RTOC
 - TIME
 - Focus on TSM&O
 - All of these systems work best when cooperating
- Program
 - Include in TIP processes
 - Tap into existing funding opportunities
- Initial Projects
 - Communications Plan
 - Examine each agency in detail for TMC design

Contact Information

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