What is a Smart City?

Data + Connectivity

Vehicle Technologies

Mobility Options

System Management & Smart Infrastructure

Freight & Logistics

Smart Cities
Transportation History

- Animal
- Bicycle
- Train
- Self-driving Car
- Modern Car
- Early Car
Levels of Autonomy

- **Level 0**: No vehicle autonomy. Driver has control.
- **Level 1**: Vehicle provides driver info/warnings. Driver has informed control.
- **Level 2**: Vehicle integrates detection response. Driver ready to take control.
- **Level 3**: Vehicle fully autonomous. Driver takes control in emergency.
- **Level 4a**: Vehicle fully autonomous. Occupants do not need ability to drive.
- **Level 4b**: Vehicle connected, cooperating. Optimized system operation and passive driver experience.

History of Technology

Years until tech was used by \(\frac{1}{4}\) of Americans

1876
35 years

1983
13 years
“People born today will never drive a car”

- Henrik Christensen
  UC San Diego Robotics

“A blind person could have access to the same things as a seeing person.”

- Kevin Dopart - Managing Director
  Intelligent Transportation System Joint Program Office

“Once you have a base map mapped out, you know where the side of the road is, so pavement markings are not actually that important.”

- Jennifer Carter
  HERE

“‘Turning inventory into information’ is a new term. The information about freight is more valuable than the freight itself. The data and information is more important than rails or roads.”

- Janine Miller and Sandy Lake
  Georgia Center for Innovative Logistics
Car math vs Mobility Math

By Mike Burgiss, VP of Mobility Services at Cox Automotive

<table>
<thead>
<tr>
<th>Car Math (Today)</th>
<th>Mobility Math (Future)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Person per car</td>
<td>&gt;1 Person per car</td>
</tr>
<tr>
<td>1 Car per driver</td>
<td>1 Car per many</td>
</tr>
<tr>
<td>$1 Per mile</td>
<td>&lt; $1 Per mile</td>
</tr>
<tr>
<td>1 lb of pollution per mile</td>
<td>&lt; 1 lb of pollution per mile / EV</td>
</tr>
<tr>
<td></td>
<td>&gt; 96 % utilization</td>
</tr>
</tbody>
</table>

< 4 % utilization

> 96 % utilization
Efficient Use of Space

Here are 200 people in 177 cars
Measuring Our Challenges

The diagram illustrates various challenges measured along two axes: Certainty and Impact. The axes are divided into Positive Impact, Negative Impact, Uncertainty, and Certainty. Different challenges are plotted on the graph, such as Transportation Funding, Direct Employment, Infrastructure Needs, Equitable Access, and Safety. The diagram also includes categories for Impact: Travel, Societal, Employment, and Infrastructure.
Cobb County
Cobb County Population
1980 vs. 2016

300,000 → 750,000
750,000 TRAFFIC
ABOUT COBB DOT

• Own and maintain the 2nd largest county-owned road network
  - 5,000 roads / 2,426 miles
  - 235 bridges, culverts

• Approximately 160 employees
Top Bottlenecks

Cobb County 2017 Top 10 Bottlenecks per District (Non-Interstate System)

**District 1 Top 10 Bottlenecks**
- Rank #1: WB Dallas Hwy @ Mars Hill Rd/Lost Mountain Rd
- Rank #2: NB Cobb Pkwy @ Kennesaw Due West Rd
- Rank #3: NB Cobb Pkwy @ Lake Acworth Dr
- Rank #4: SB Cobb Pkwy @ Acworth Due West Rd
- Rank #5: NB Cobb Pkwy @ Mars Hill Rd
- Rank #6: EB Dallas Hwy @ Barrett Pkwy
- Rank #7: WB Dallas Hwy @ John Ward Rd
- Rank #8: SB Barrett Pkwy @ Burnt Hickory Rd
- Rank #9: EB Dallas Hwy @ Mars Hill Rd/Lost Mountain Rd
- Rank #10: EB Dallas Hwy @ John Ward Rd

**District 2 Top 10 Bottlenecks**
- Rank #1: SB Cobb Pkwy @ Aker's Mill Rd
- Rank #2: SB Cobb Pkwy @ I-285/Exit 19
- Rank #3: EB Roswell Rd @ Johnson Ferry Rd
- Rank #4: SB Cobb Pkwy @ Paces Mill Rd
- Rank #5: SB S Cobb Dr @ Concord Rd
- Rank #6: EB Delk Rd @ I-75
- Rank #7: EB Roswell Rd @ Piedmont Rd
- Rank #8: NB Cobb Pkwy @ Windy Hill Rd
- Rank #9: WB Roswell Rd @ Piedmont Rd
- Rank #10: EB Roswell Rd @ Old Canton Rd

**District 3 Top 10 Bottlenecks**
- Rank #1: SB Cobb Pkwy @ Barrett Pkwy
- Rank #2: EB Whitlock Ave @ S Marietta Pkwy
- Rank #3: SB Cobb Pkwy @ S Marietta Pkwy
- Rank #4: SB Cobb Pkwy @ Bella Ferry Rd
- Rank #5: EB Barrett Pkwy @ Cobb Pkwy
- Rank #6: SB Church St @ N Marietta Pkwy
- Rank #7: NB S Cobb Drive @ S Farmground St/Walker St
- Rank #8: SB S Marietta Pkwy @ Powder Springs St
- Rank #9: EB Powder Springs St @ S Marietta Pkwy
- Rank #10: NB Cobb Pkwy @ Bella Ferry Rd

**District 4 Top 10 Bottlenecks**
- Rank #1: SB S Cobb Dr @ I-285
- Rank #2: WB Powder Springs Rd @ Anderson Farm Rd
- Rank #3: WB Veterans Memorial Hwy @ Floyd Rd/Mableton Pkwy
- Rank #4: WW C H James Pkwy @ Florence Rd
- Rank #5: WB Powder Springs Rd @ Mcland Rd
- Rank #6: EB C H James Pkwy @ Humphries Hill Rd/Pacific Ave
- Rank #7: EB Powder Springs Rd @ Barrett Pkwy/Lost West Conn
- Rank #8: EB New Mcland Rd/Lost Mountain Rd @ Mcland Rd
- Rank #9: SB S Cobb Dr @ Windy Hill Rd
- Rank #10: NB S Cobb Dr @ Windy Hill Rd

Source: Atlanta Regional Commission's 2017 INRIX Data
Market Analysis Results

Cumberland West
Market Analysis Results

Downtown / Midtown
PRIORITY TRAILS

Allatoona Creek Greenway
Noonday Creek Trail
Rottenwood Creek Trail (Phase 1)
Hyde Farm Trail
Austell Powder Springs Road Trail
Nickajack Creek Greenway
Connect The Comet
Chattahoochee River Trail

Existing Trail
Under Construction
Programmed
Proposed
On-Street Bike Facility

Miles
Communications
Signals
V2X Communications
Vehicle to Vehicle
Vehicle to Infrastructure
Vehicle to Pedestrian ...
Pair 80158: (SR 120/Dallas Hwy & Barrett Pkwy to SR 120/Dallas Hwy & Due West Rd)
From 03-06-2017 to 05-19-2017 (Weekdays 05:00 to 20:00 every 15 min grouped by All Days (90th percentile))
Mobility As A Service

Source: www.optimile.eu
Responsive Transit
$12,000,000 of SPLOST FOR TECH

- Advanced Transportation Management Systems
- Integrated Corridor Management
- Planning Studies
- Traffic Signals & Timing
- Transportation Technology
Snowmageddon 2011
EVOLUTION OF SNOW MANAGEMENT

Define treatment routes
Define brine routes
Activate TMC
Gear up with equipment
Manage work on paper
Define treatment routes
Define brine routes
Challenges

How can we:
• manage snow work seamlessly?
  • Every event is different
  • Staff turnover
• communicate road status to citizens during a snow event?
Solutions

• Streamline work by going paperless
• Integrate systems to improve information flow
  • Near real time
SOLUTIONS

Snow Route Layer in OMS

Cobb Commute in OMS

Waze data download
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<thead>
<tr>
<th>Request</th>
<th>Task ID</th>
<th>Activity</th>
<th>Entry Date</th>
<th>Actual Start Date</th>
<th>Actual Stop Date</th>
<th>Applies To Street</th>
<th>Entered By</th>
<th>Status</th>
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**Task Layer**
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<tr>
<th>Task ID</th>
<th>Activity</th>
<th>Status</th>
<th>Actual Start Date</th>
<th>Actual Stop Date</th>
<th>Notes</th>
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<td>1/17/2018 12:00:00</td>
<td>1/17/2018 2:08:00</td>
<td>Route completed by Kohantis Haygood.</td>
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Inllement Weather Information

The information reported on this page only represents the timing of the most recent snow or route treatment performed by Cobb DOT, where treatment consists of the distribution of a salt and gravel (#69) mixture at varying proportions, or just gravel, depending on the weather.

Disclaimer

Cobb DOT hereby gives notice to all users that these maps and the data included herein, lack the accuracy required for site-specific uses. Cobb DOT makes no representation, guarantee, or warrant, either express or implied, regarding the accuracy of these maps or the data furnished therein, including, but not limited to, the condition of this product, this product’s merchantability, or this product’s fitness for any particular purpose or use.

More Info

- Georgia 511
- Documentation
Cobb Commute
SNOW AND ICE REPORTS – Waze vs. Calls to DOT

Waze
Wednesday Morning

Waze
Thursday midnight → 11 a.m.

Calls to DOT
Wednesday & Thursday
What is a Smart City?

- Data + Connectivity
- Vehicle Technologies
- Mobility Options
- Freight & Logistics
- System Management & Smart Infrastructure

Smart Cities
“The age of the “Smart City” is upon us! It’s just that, we don’t really know what that means. Or, at least, not yet.”

“Our goal is to create a City-wide strategy for the use of sensor technologies that is people-centered, problem-driven, and responsible. We need your help to get there.”

https://monum.github.io/playbook/

**Smart City Plays**

1. Stop sending sales people
2. Solve real problems for real people
3. Don't worship efficiency
4. Better decisions, not (just) better data
5. Platforms make us go \_(ツ)_/\`
6. Towards a "public" privacy policy
Cobb DOT Goals

• Situational Awareness
  • Congestion: Reoccurring and Incident-Based
  • Shorten Incident Response Times
  • Shorten Incident Clearance Times
  • Improve Transit Reliability and Speed

• Short-Term Use Cases
  • Signal Timing Data Needs
  • Intersection Improvement Plans
  • Safety Action Plans

• Long Range Planning
Thank you!

Eric Meyer
Cobb County DOT
eric.meyer@cobbcounty.org