OUTLINE

• Association of Central Oklahoma Governments and the Oklahoma City Area Regional Transportation Study Region
• Metropolitan Planning and ITS
• Continual ITS Planning Products and Integration
• Future Goals and Data Needs

**OCARTS:** Oklahoma City Area Regional Transportation Study
**ACOG:** Association of Central Oklahoma Governments
ACOG AND THE OCARTS REGION

- 2,000 square miles
- 47 Cities
- 6 Counties (some partial)
- 2010 Population - 1.1 Million
- 2040 Projected population - 1.6 Million

ACOG staff work on four missions:
- Economic Development
- 9-1-1 Administration
- Transportation and Planning/MPO Services
- Water Resources
METROPOLITAN PLANNING AND ITS

- Regional ITS coordination
- Data collection and information distribution
- Encouraging and funding ITS project implementation
ITS PLANNING PRODUCTS AND INTEGRATION

- Network Monitoring Reports
- Regional ITS Architecture
- Metropolitan Transportation Plans (MTP)
- Transportation Improvement Programs (TIP)
NETWORK MONITORING REPORTS

• Survey of all projects in the region completed the previous year
  - Request locations and project details including ITS projects
• Collecting since 2010
• Incorporate into the long range plan
  - Costs/Financial Planning
  - Modelling
• Make the report available to our members and the public
ITS ARCHITECTURE

• First OCARTS Area ITS Architecture: 2003
  - Updates in 2007, 2012 and 2016

• Provides an institutional and operations framework for the integration of systems across transportation agency boundaries
  - Roles and responsibilities of all entities

• Maintenance of the Regional ITS Architecture is ongoing as new players and systems come onboard
2016 REGIONAL UPDATE - ODOT

• The OU ITS Lab hosts an Advanced Traveler Information System (ATIS):
  - Virtual ITS consoles for a more widely distributed system
  - Many locations can work virtually as a traffic management center

• Monitor and Control: Travel Speeds, DMS and Camera Locations, OK Pathfinder Website and work zones
SNOW PLOW PLAN
• Plan to equip snow trucks with tablets to track the location of each plow and coordinate their efforts
• Also plan to install cameras on the plows
  - Take pictures at 10 minute intervals
  - Real time road conditions
  - Better inform the public during winter weather

RWIS STATIONS
• Roadside Weather Information System
• 5 Deployed so far
• Better monitor road conditions

SMART WORK ZONES
• ITS Fiber optics and vehicle sensors to monitor traffic flow
• Information then relayed to motorist through DMS signs
2016 REGIONAL UPDATE

OKC

• Use a Verizon data modem network to manage traffic signals

• Have 768 signals or 100% of the signals are connected to the network

• Over 114 miles of connected corridors
2016 REGIONAL UPDATE

EDMOND

• Connected by fiber optic
• Use Leddar infrared sensors to detect cars in intersections for light timing
• Two phases of signal interconnect
  - Phase 1: 2nd Street
  - Phase 2: Broadway and Danforth
2016 REGIONAL UPDATE

NORMAN

- Extensive system fiber optic connected signals
- Centracs traffic management system
  - 90% on system (8/2016)
  - Monitor traffic incidents, improve congestion and lower emergency vehicle response times
2016 REGIONAL UPDATE

MTP

• ITS incorporated into our long range plans since 2006

• Encompass 2040 – Our current plan
  - Included the 2016 updates
# ENCOMPASS 2040 TRANSPORTATION ALTERNATE NETWORK ASSUMPTIONS

## ALTERNATE COMPONENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>BASE NETWORK</th>
<th>ALTERNATE 1</th>
<th>ALTERNATE 2</th>
<th>ALTERNATE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Street Network (2010)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Base Fixed Transit Routes (2010)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Present + Committed Projects (2010-2016)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ODOT 8-Year Construction Work Plan (through 2016)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Encompass 2040 Member Projects</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Long-range ODOT Projects</td>
<td>✓</td>
<td></td>
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<tr>
<td>Gap Projects (Improvements that close gaps in the network)</td>
<td>✓</td>
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<tr>
<td>OTA Turnpikes</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Downtown Oklahoma City Streetcar</td>
<td>✓</td>
<td></td>
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<tr>
<td>ITS Integrated Corridor Management (Ramp metering and DMS)</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>ITS Adaptive Signal Control (Coordinated network of signals)</td>
<td>✓</td>
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<td></td>
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<tr>
<td>Signalization at Critical Locations (Stop sign conversion)</td>
<td>✓</td>
<td></td>
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<tr>
<td>Regional Transit (2030 Fixed Guideway Study Vision)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>0.3 – 0.47% Transit Mode Share</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0% Transit Mode Share</td>
<td>✓</td>
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</tr>
</tbody>
</table>
ENCOMPASS 2040 MODEL SCENARIOS

• Integrate the ITS data into the modelling process
  - Traffic signals, signal interconnects and DMS for the 2010 values

• ITS Data Included (from 2016 update):
  - OKC
  - Edmond
  - Norman
  - ODOT

• For 2040 projections:
  - 7% percent decrease in total congestion to account for better ITS integration
  - Traffic signals added at highly congested stop signs
  - Ramp metering
Alternate 2 for Scenario 1 (AM Peak)
TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

- Short range 4 year federally funded program of projects
- State Highway
- ITS are considered safety projects and eligible for 100% funding
  - Eligible types: Installation of traffic singles, school zone signals, signal synchronization and priority control systems for emergency or transit vehicles at signalized intersections
FUTURE ITS GOALS AND DATA NEEDS

- Maintain the previous work and continual updates
- Model Updates - more up to date current and planned ITS data
  - Would like to collect more detailed information from our members
- Short range transportation plan- Project selection criteria
  - ITS priority corridors (identify from entity priorities)
  - ITS Congestion Management Strategies and ‘CMP Toolbox’ Implementation
Identify and incorporate ‘ITS Priority Corridors’ into their long and short range plans through the project selection processes.
## CONGESTION MANAGEMENT TOOLBOX
### EXAMPLES OF ITS STRATEGIES

<table>
<thead>
<tr>
<th>PROJECT/PROGRAM</th>
<th>CONGESTION IMPACTS</th>
<th>COST</th>
<th>COMPANION STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Networks and Roadway Monitoring Coverage</td>
<td>Increased operational capability to monitor and respond to incidents on the network and provide traveler information</td>
<td>Low to moderate depending on deployment and existing network capabilities</td>
<td>Regional Traffic Management Center (TMC), Traffic Signal Coordination and Modernization, Traffic Incident Management (TIM) Program, Transit Programs</td>
</tr>
<tr>
<td>Regional Traffic Management Center</td>
<td>Reduction in incident response time, Reduced delay due to incidents, Increased travel time reliability</td>
<td>Low to moderate depending on deployment. If office space exists a TMC can be as small as a workstation with a computer and multiple monitors. TMCs can also be stand-alone structures with video walls</td>
<td>Traffic Incident Management, Communications Networks and Roadway, Monitoring Enhanced Enforcement, Traffic Signal Coordination and Modernization, Managed Lanes</td>
</tr>
<tr>
<td>Traffic Signal Coordination and Modernization</td>
<td>Reduced VHT, Reduced intersection delay, Increased travel time reliability, Improved travel time</td>
<td>Moderate capital cost for upgrades of signals, controllers, and communications network. Ongoing staffing cost for traffic engineers if expansion in staff is needed</td>
<td>Regional Traffic Management Center, Traffic Incident Management Program</td>
</tr>
<tr>
<td>Work Zone Management ITS, Smart Work Zones</td>
<td>Increased travel time reliability, Reduced VHT, Reduction in work zone related incidents</td>
<td>Low capital cost for purchase of mobile DMS signs. Ongoing staffing cost depending on deployment</td>
<td>Traffic Incident Management, Enhanced Enforcement</td>
</tr>
<tr>
<td>Bicycle and Pedestrian Intersection Enhancements</td>
<td>Increased mobility and access, Increased use of alternative modes, Increased bicycle/pedestrian safety</td>
<td>Low to moderate depending on scale of deployment</td>
<td>Traffic Signal Coordination and Modernization, Communications Networks and Roadway Monitoring</td>
</tr>
<tr>
<td>Ramp Metering</td>
<td>Reduced VHT, Increased travel time reliability</td>
<td>Low to moderate capital costs for new signals on existing ramps, Low capital costs for ramp widening where necessary</td>
<td>Traffic Incident Management, Traffic Signal Coordination and Modernization</td>
</tr>
<tr>
<td>Speed Harmonization Variable speed limits</td>
<td>Reduced VHT, Reduction in traffic incidents</td>
<td>Low to moderate capital cost for ITS deployment for speed detection and variable speed limit signage</td>
<td>Regional Traffic Management Center, Traffic Incident Management Program Enhanced Enforcement, Communications Networks and Roadway Monitoring</td>
</tr>
<tr>
<td>Traveler Information Systems Incident, congestion, and weather related</td>
<td>Increased travel time reliability, Reduction in work zone related incidents, Reduced delay due to incidents</td>
<td>Low to moderate depending on existing communications network and device deployment</td>
<td>Traffic Incident Management Program, Regional Traffic Management Center, Enhanced Enforcement</td>
</tr>
</tbody>
</table>
QUESTIONS?

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