Congestion Management Process Update

February 22, 2016

OLSSON ASSOCIATES

acog

CAMBRIDGE SYSTEMATICS

Project Purpose

- Develop a Congestion Management Plan and Process
- Identify congestion management strategies and move them to projects
- Determine how to link CMP goals, objectives and performance measures with Encompass 2040
- Ultimately make the transportation system more efficient

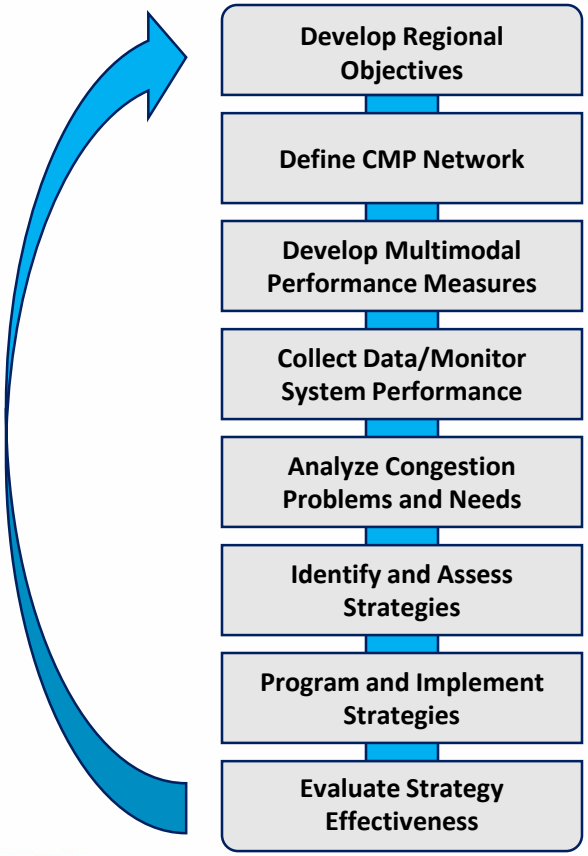
What is the Congestion Management Process?

A systematic process:

- Identifying congestion and its causes
- Applying congestion mitigation strategies
- Evaluating the effectiveness of implemented strategies

OLSSON ASSOCIATES | acog | CAMBRIDGE SYSTEMATICS

CMP Planning Process



OLSSON ASSOCIATES | acog | CAMBRIDGE SYSTEMATICS

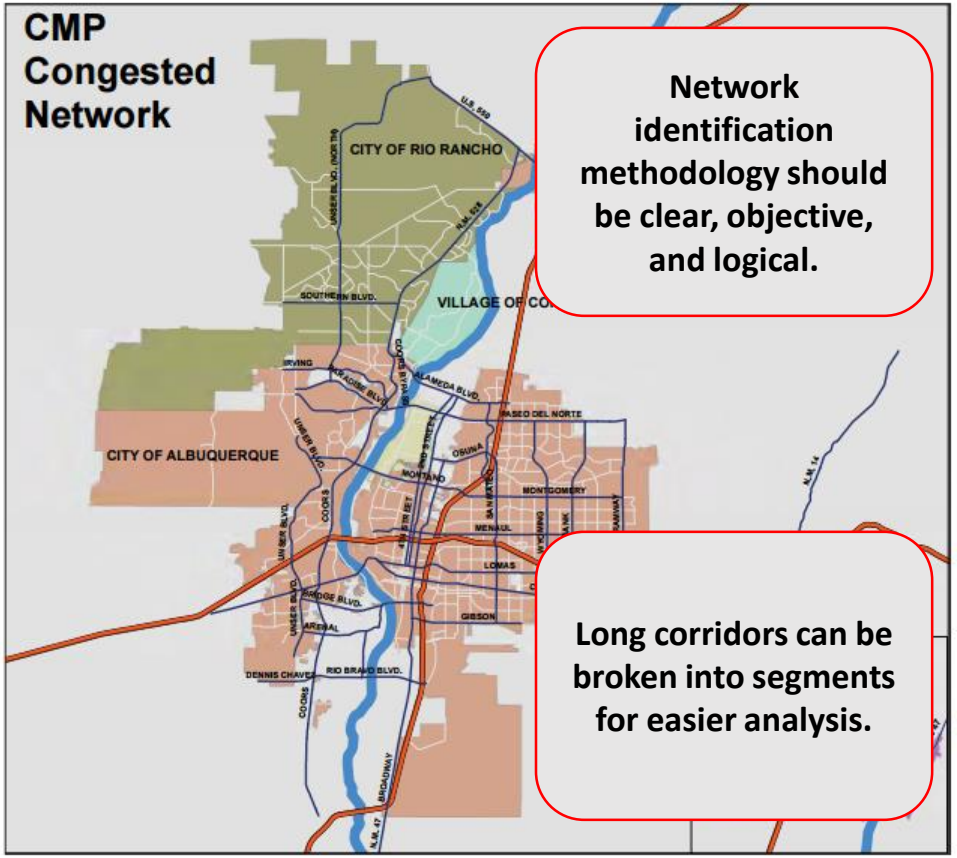
1. Develop Regional CMP Objectives

- SMART Objectives
  - Specific
  - Measurable
  - Agreed upon
  - Realistic and supported
  - Time-Bound
- Tiered Performance Measures
  - Tier 1 – Measurable with existing data
  - Tier 2 – Provide meaningful input, but require additional data

OLSSON ASSOCIATES | acog | CAMBRIDGE SYSTEMATICS

2. Define the CMP Network

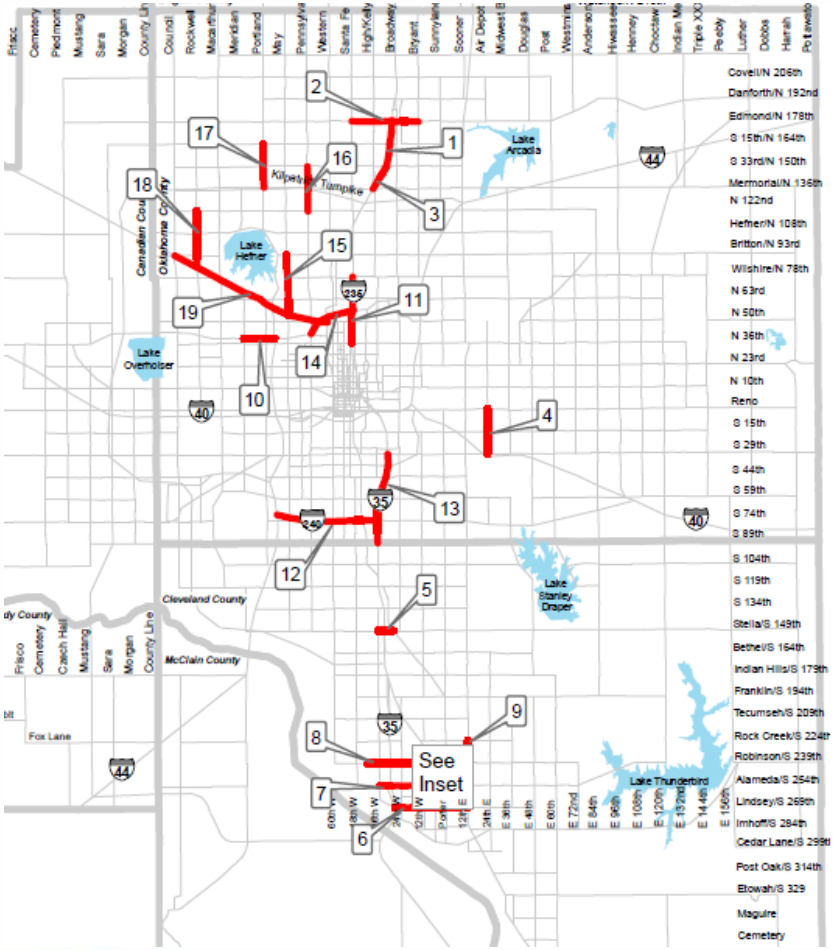
- Identify by functional class:
  - Freeways & Tollways
  - Arterials
  - Regional Transit Network
- Identify from planning documents:
  - TIP
  - MTP
- Identify by other criteria:
  - NHS routes
  - Level of Transit Infrastructure



MRCOG 2012 CMP Atlas

OLSSON ASSOCIATES | acog | CAMBRIDGE SYSTEMATICS

Congestion Management Network (2007)



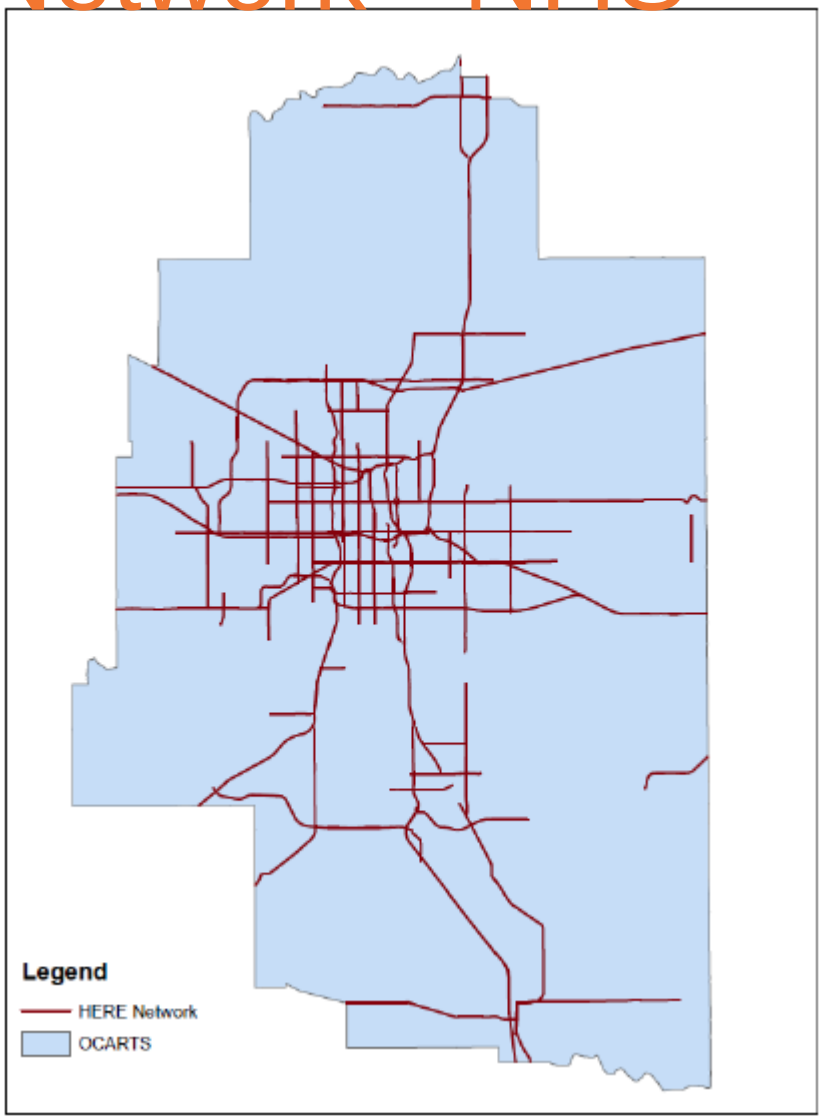
OLSSON ASSOCIATES

acog

CAMBRIDGE SYSTEMATICS

Travel Time Network - NHS

- HERE network
- Enhance NHS



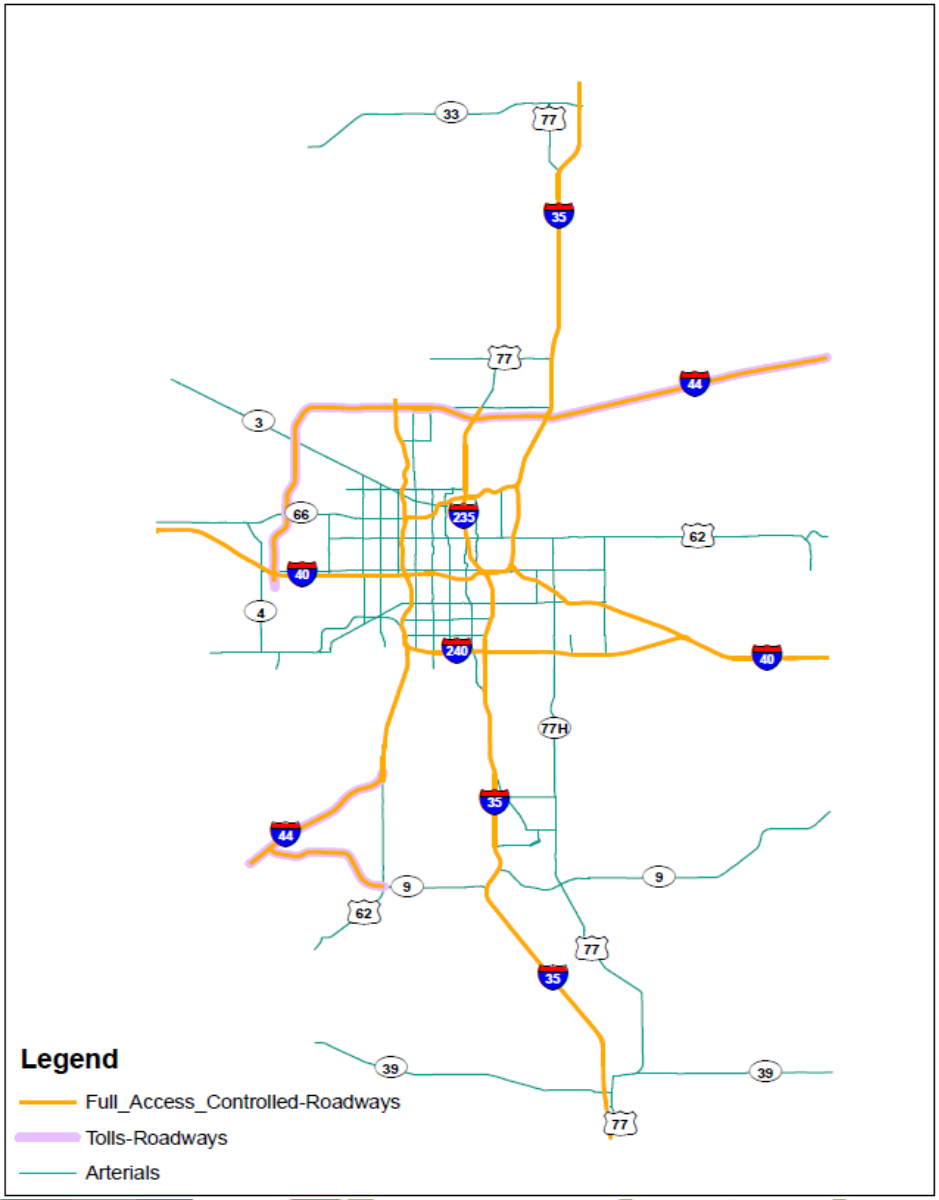
OLSSON ASSOCIATES

acog

CMP Network

Table 1. Mileage by Classification

CMP Map Category	Length (Miles)
Full Access Controlled Interstate & Freeway	**275.34**
Interstate (Non-tollway)	191.57
Tollway	68.09
Other	15.68
Arterial	**474.97**
Total	**750.31**



OLSSON ASSOCIATES

acog

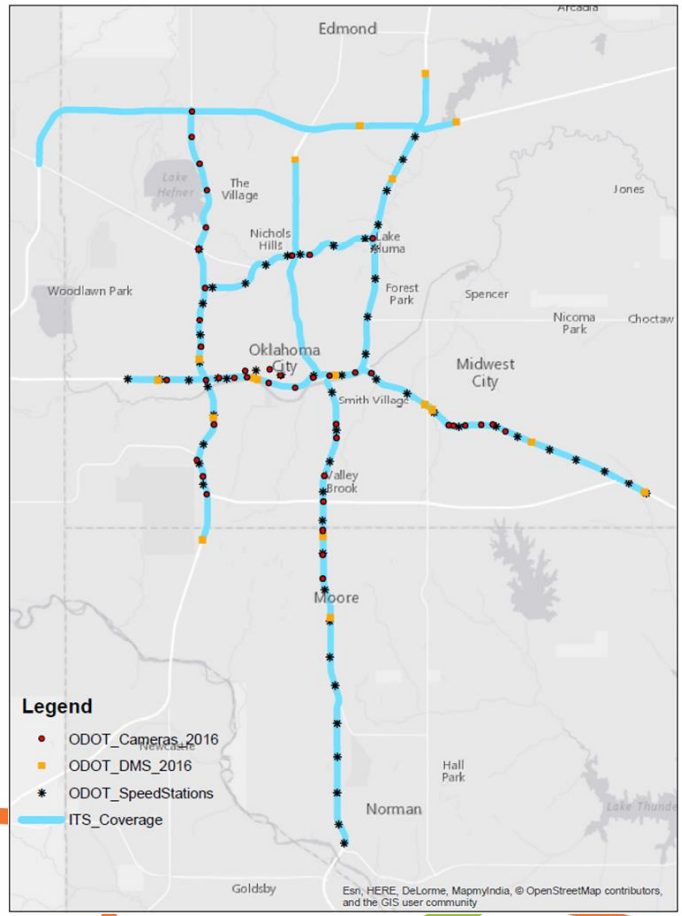
CAMBRIDGE SYSTEMATICS

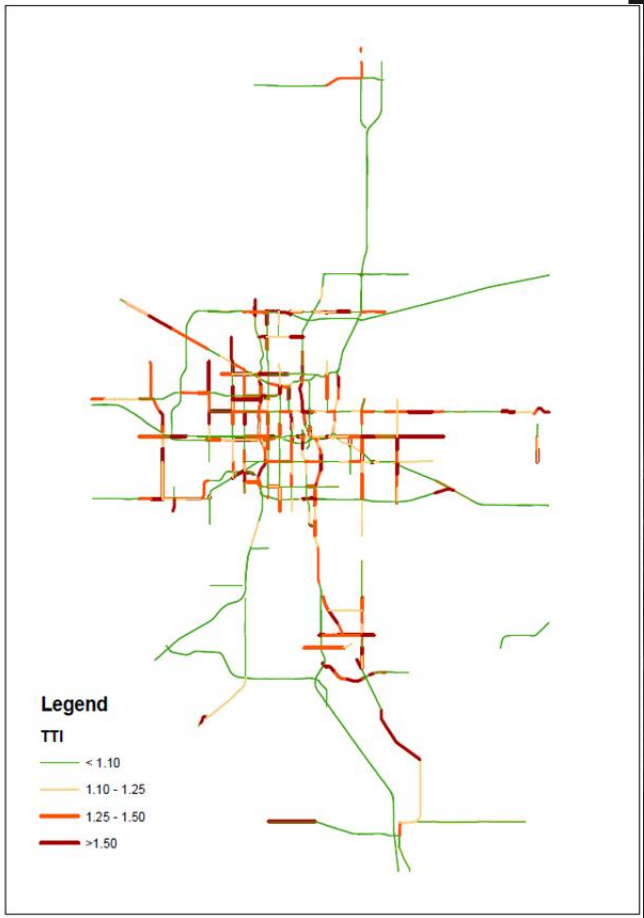
3. Performance Measurements

Goal Area/ Performance Measure	Definition	Calculation Method	Data Required	Source Agency	Source Data System
Economic Strength					
Vehicle hours of delay	Annual number of traveler-hours or vehicular hours of delay. Delay is the amount of extra time spent traveling due to congestion, provides a measure of congestion intensity.	((VMT/Speed) – (VMT/congestion threshold speed)) *OR* ((VMT/Speed) – (VMT/congestion threshold speed)) x 1.2 persons/veh	Daily VMT, free-flow speed, congestion speed, average vehicle occupancy rate	ACOG	ACOG Travel Model Various Year/Scenario
Cost of delay	The cost estimated based on the vehicle hours of delay and the values of time.	((VMT/Speed) – (VMT/congestion threshold speed)) x value of time (Dollar/hours)	Daily VMT, value of time	ACOG	ACOG Travel Model Various Year/Scenario
Truck travel time index (TTI)	The ratio of the peak-period travel time as compared to the free-flow travel time. The peak period for NPMRDS data is the AM peak period (7:00 a.m. to 9:00 a.m.) and PM	Identify truck routes and calculate TTI for those routes: average travel time during congestion period / free-flow travel time	TTI, congestion travel time, free-flow travel time, truck routes	FHWA NPMRDS, ACOG/ODOT	HERE.COM

4. Collect Data/System Performance

Car, Truck, Van - Drive along	82.20%
Car, Truck, Van - 2+	10.93%
Transit, Railroad	0.50%
Bicycle	0.28%
Walked	1.54%
Taxi, Motorcycle, Others	1.13%
Work at home	3.42%





OLSSON ASSOCIATES

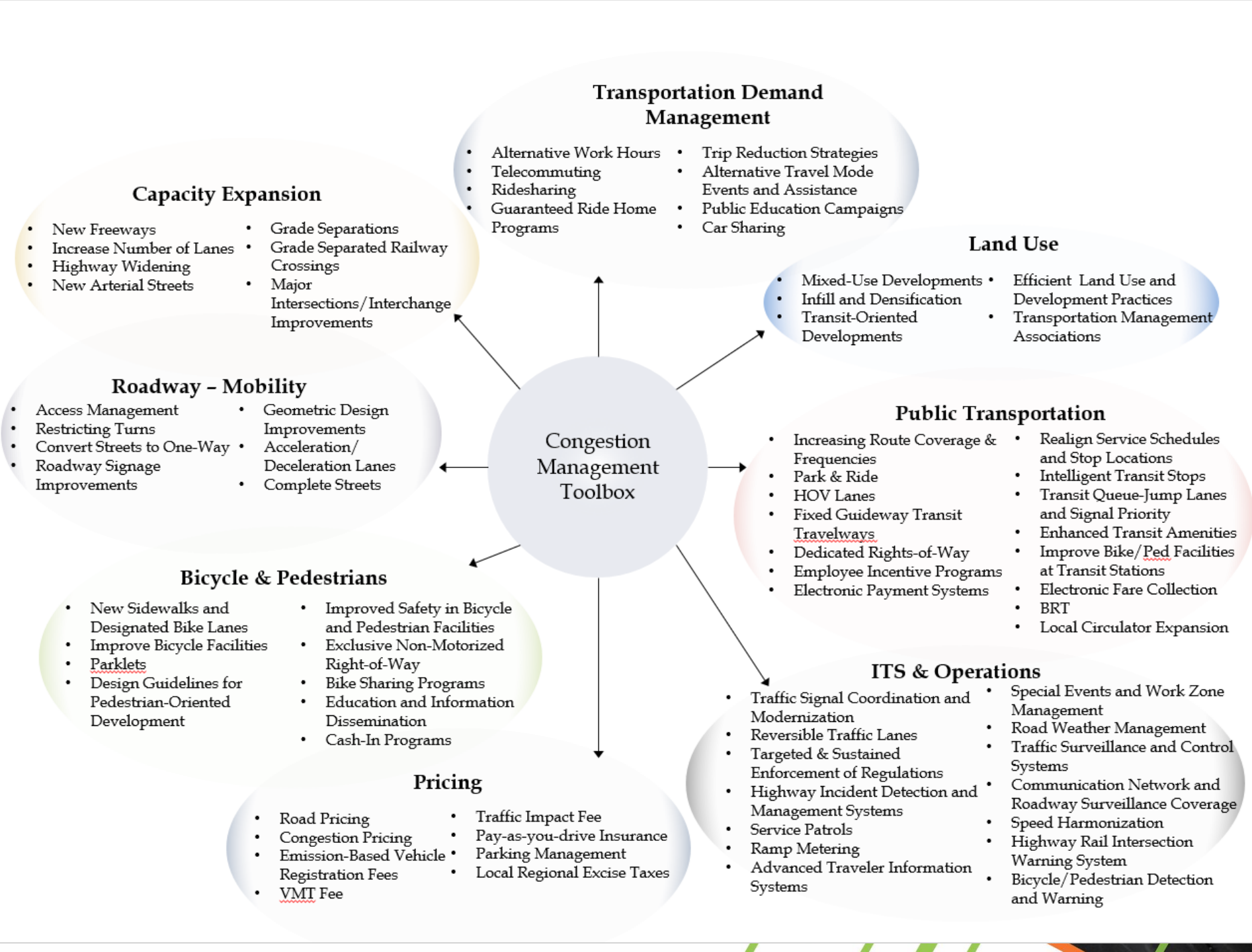
acog

CAMBRIDGE SYSTEMATICS

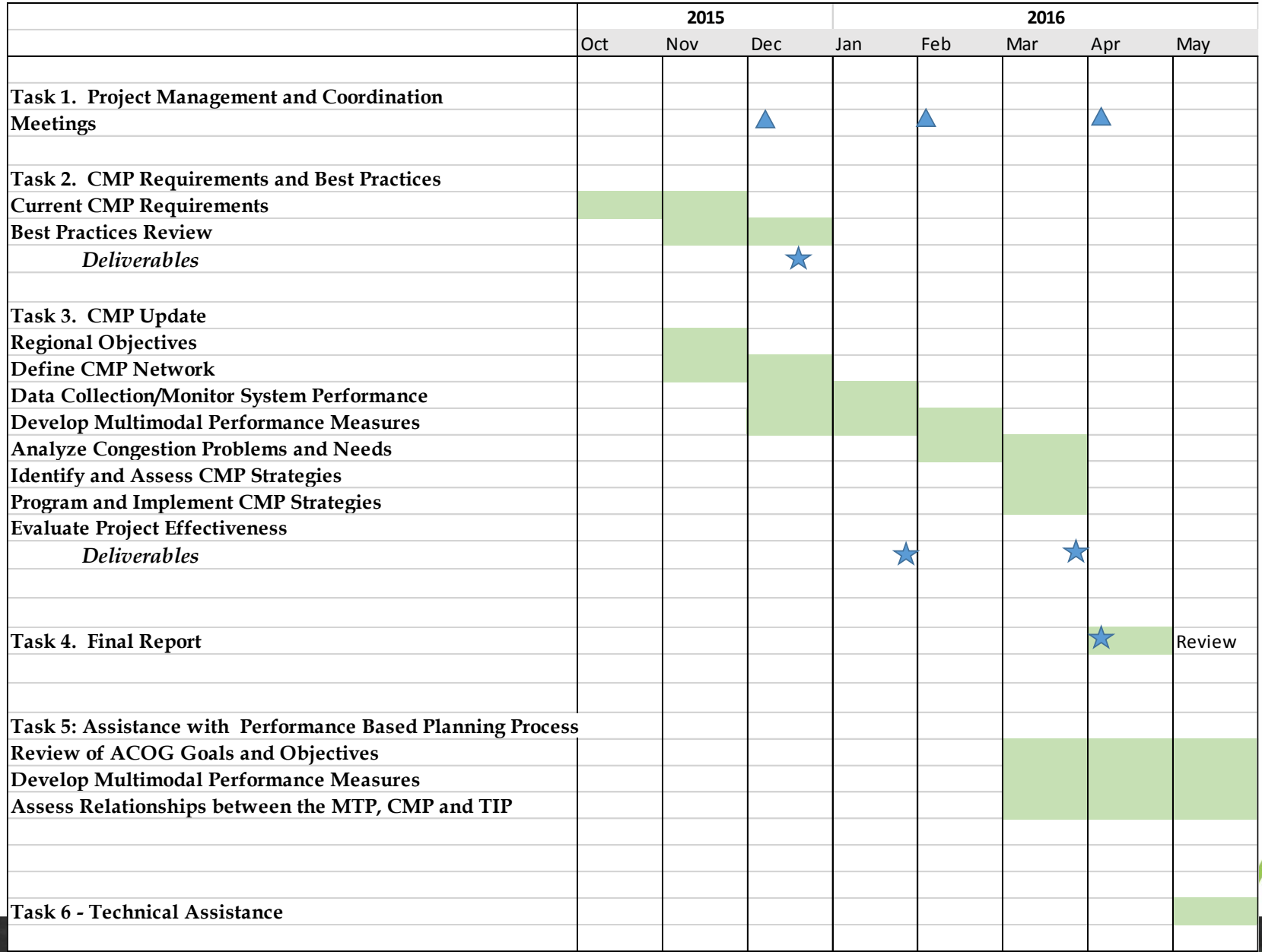
Next Steps

- **Summarize Congestion Problems and Needs**
- **Identify and Assess Strategies**
- **Describe how to Program and Implement Strategies**
- **Develop Methods to Evaluate Strategy Effectiveness**

OLSSON ASSOCIATES | acog | CAMBRIDGE SYSTEMATICS


Congestion Management Toolbox
Transportation Demand Management
Alternative Work Hours
Telecommuting
Ridesharing
Guaranteed Ride Home Programs
Trip Reduction Strategies
Alternative Travel Mode Events and Assistance
Public Education Campaigns
Car Sharing
Capacity Expansion
New Freeways
Increase Number of Lanes
Highway Widening
New Arterial Streets
Grade Separations
Grade Separated Railway Crossings
Major Intersections/Interchange Improvements
Land Use
Mixed-Use Developments
Infill and Densification
Transit-Oriented Developments
Efficient Land Use and Development Practices
Transportation Management Associations
Roadway – Mobility
Access Management
Restricting Turns
Convert Streets to One-Way
Roadway Signage Improvements
Geometric Design Improvements
Acceleration/ Deceleration Lanes
Complete Streets
Public Transportation
Increasing Route Coverage & Frequencies
Park & Ride
HOV Lanes
Fixed Guideway Transit Travelways
Dedicated Rights-of-Way
Employee Incentive Programs
Electronic Payment Systems
Realign Service Schedules and Stop Locations
Intelligent Transit Stops
Transit Queue-Jump Lanes and Signal Priority
Enhanced Transit Amenities
Improve Bike/Ped Facilities at Transit Stations
Electronic Fare Collection
BRT
Local Circulator Expansion
Bicycle & Pedestrians
New Sidewalks and Designated Bike Lanes
Improve Bicycle Facilities
Parklets
Design Guidelines for Pedestrian-Oriented Development
Improved Safety in Bicycle and Pedestrian Facilities
Exclusive Non-Motorized Right-of-Way
Bike Sharing Programs
Education and Information Dissemination
Cash-In Programs
ITS & Operations
Traffic Signal Coordination and Modernization
Reversible Traffic Lanes
Targeted & Sustained Enforcement of Regulations
Highway Incident Detection and Management Systems
Service Patrols
Ramp Metering
Advanced Traveler Information Systems
Special Events and Work Zone Management
Road Weather Management
Traffic Surveillance and Control Systems
Communication Network and Roadway Surveillance Coverage
Speed Harmonization
Highway Rail Intersection Warning System
Bicycle/Pedestrian Detection and Warning
Pricing
Road Pricing
Congestion Pricing
Emission-Based Vehicle Registration Fees
VMT Fee
Traffic Impact Fee
Pay-as-you-drive Insurance
Parking Management
Local Regional Excise Taxes

Schedule


2015
2016
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Task 1. Project Management and Coordination
Meetings
Task 2. CMP Requirements and Best Practices
Current CMP Requirements
Best Practices Review
Deliverables
Task 3. CMP Update
Regional Objectives
Define CMP Network
Data Collection/Monitor System Performance
Develop Multimodal Performance Measures
Analyze Congestion Problems and Needs
Identify and Assess CMP Strategies
Program and Implement CMP Strategies
Evaluate Project Effectiveness
Deliverables
Task 4. Final Report
Review
Task 5: Assistance with Performance Based Planning Process
Review of ACOG Goals and Objectives
Develop Multimodal Performance Measures
Assess Relationships between the MTP, CMP and TIP
Task 6 - Technical Assistance