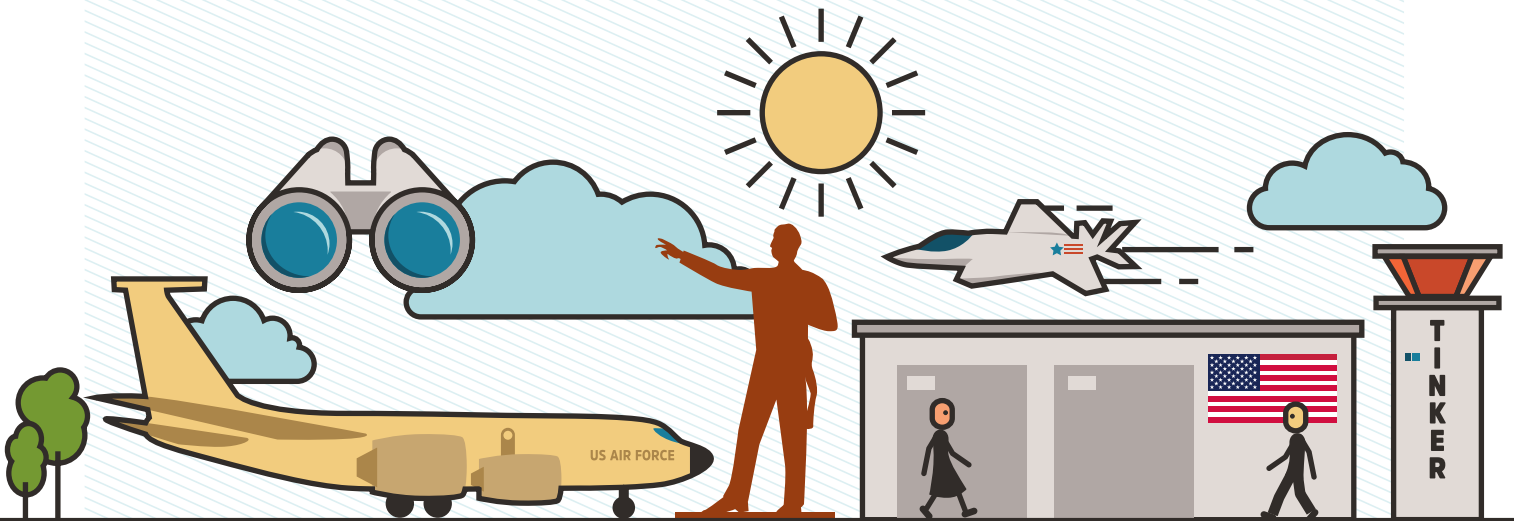


# CONGESTION AND SAFETY



Federal surface transportation laws have elevated congestion management and the safety of our national infrastructure to a top priority. Congestion management and safety are essential aspects of the transportation system, as both contribute to economic vitality and can improve the quality of life of system users. The regional congestion and safety goals identified in Encompass 2040, were crafted with the intended purpose of improving congestion and protecting transportation users in the OCARTS area through sound planning and engineering strategies, education, enforcement, and effective emergency services.

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### CONGESTION MANAGEMENT

Congestion has grown quite sharply over the past two decades and has become more unpredictable as well. Congestion is a result of physical road “bottlenecks”, traffic incidents, work zones, weather, traffic control devices, special events and fluctuations in normal traffic. In particular, congestion has become more unreliable as traffic incidents, events, and work zones become more common. In the Oklahoma City metropolitan area, congestion costs each driver an average of \$1,110 a year and drivers spend an average of 49 hours in traffic each year. This means extra time and money spent traveling to and from destinations, reducing the potential of those resources to be used elsewhere.

To help alleviate congestion across the nation, federal laws put forth guidance on a congestion management process that first began with ISTEA in 1991, as a congestion management system. Then, with SAFETEA-LU, the name changed to the congestion management process (CMP). This requirement was continued with MAP-21 and the most recent FAST Act. Both Acts increased emphasis on a continual performance based approach to congestion management planning and decision making. As with performance based planning and programming (Chapter 15), the congestion management process starts with the national goals to guide regional priorities. Of the seven national goals outlined in MAP-21 and carried forward into the FAST Act, the following are directly or indirectly related to congestion management: safety, infrastructure condition, congestion reduction, system reliability, and freight movement and economic vitality.

### CONGESTION MANAGEMENT PROCESS

A Congestion Management Process (CMP) is a systematic process used to identify, evaluate, and respond to traffic congestion. CMPs identify specific strategies for locations on a transportation system to minimize traffic congestion and enhance the ability of

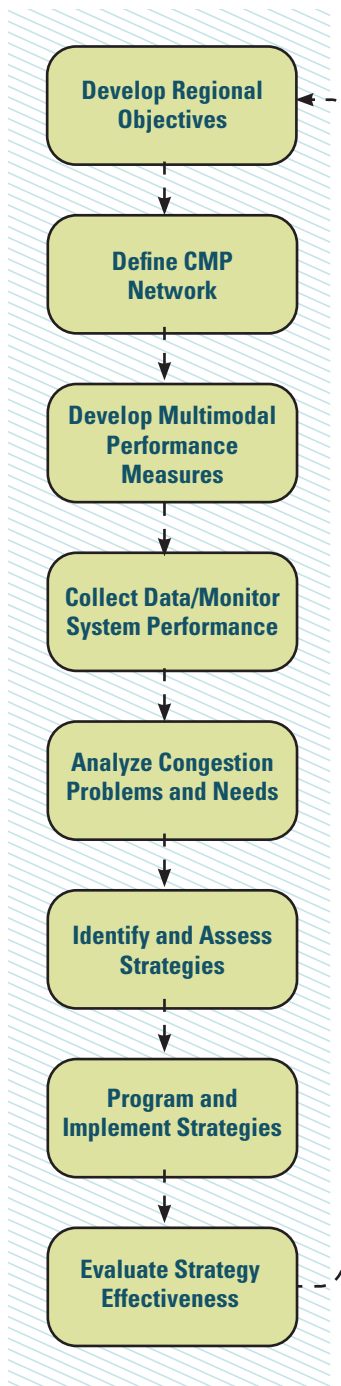
TABLE 9.1: OCARTS AREA CONGESTION SNAPSHOT

	2010	2040
VEHICLE MILES OF TRAVEL (DAILY)	30,266,000	46,550,000
VEHICLE MILES OF TRAVEL PER PERSON (DAILY)	26	29
VEHICLE HOURS OF TRAVEL (DAILY)	853,000	1,415,000
VEHICLE TRIPS (DAILY)	4,165,000	5,858,000
CONGESTED ROAD MILES	289	308
AVERAGE OVERALL SPEED	35 mph	33 mph
AVERAGE FREEWAY SPEED	45 mph	44 mph
AVERAGE ARTERIAL SPEED	35 mph	29 mph
AVERAGE TRIP LENGTH	7.27 miles	7.95 miles
AVERAGE TRIP LENGTH	12:18 min	14:30 min
DAILY HOURS OF DELAY	138,000	366,000
DELAY PER TRIP	1:59 min	3:45 min

people and goods to reach their destinations in a timely manner. The CMP is a process which identifies congestion and its causes, applies congestion mitigation strategies to improve transportation system performance and reliability, and evaluates the effectiveness of implemented strategies (Figure 9.2).

Congestion management strategies include a variety of projects, actions, programs, and policies that can be used to alleviate traffic congestion on the transportation network. Strategies identified are a customized range of options that can be used to address OCARTS regional congestion specific problems, bottlenecks, and mobility needs identified using collected data. OCARTS area recommended strategies are consistent with the Encompass 2040 goals and proposed CMP objectives. The following strategies (as identified in the CMP Toolbox) are thought to be achievable and implementable through close coordination of sponsoring and administering partners.

**FIGURE 9.2: ELEMENTS OF THE CONGESTION MANAGEMENT PROCESS (CMP)**



Source:  
FHWA, Congestion Management Process: A Guidebook.  
[http://www.fhwa.dot.gov/planning/congestion\\_management\\_process/cmp\\_guidebook/](http://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/)

1. Travel demand management (TDM) strategies that eliminate or reduce the need to make trips by motor vehicle
2. Transportation and land use cohesion strategies and policies that encourage mixed-use and transit oriented development to increase density and reduce the need for motor vehicle trips
3. Technology solutions using transportation systems management and operations (TSM&O) and intelligent transportation systems (ITS) to maximize the efficiency of the existing infrastructure
4. Public transit enhancements and projects to make transit a more attractive and competitive mode of transportation in the OCARTS region
5. Bicycle and pedestrian improvements to enhance the reach of the public transportation system and encourage trips by modes other than single occupancy vehicle
6. Improvements to roadways that include access consolidation and control, complete streets policies, restriping, and finally the addition of lanes or construction of new facilities where no other solutions can minimize or alleviate congestion effectively

The toolbox can be used by ACOG, ODOT, and other project sponsors to identify strategies for addressing congestion issues on the CMP network and to select the most appropriate strategy (or combination of strategies) that has the potential to benefit the location being evaluated. If a strategy shows promise, it can be evaluated in detail using the regional travel demand model and/or applicable analysis tools suggested in the toolbox.

For larger projects (particularly high cost, capacity-adding projects), the toolbox should be used to identify alternative strategies that can be incorporated as part of the project development process. CMP strategies usually will not result in the large capacity gains typical of capacity expansion projects; however, demand management and operational strategies could be incorporated into the capacity improvement project to potentially extend the number of productive years of the facility before additional capacity is needed.

**IMPLEMENTING CONGESTION MANAGEMENT STRATEGIES – RELATIONSHIP TO THE MTP AND TIP**

The congestion management process not only advances the Encompass 2040 goals, but also works to strengthen the connection between projects identified in the long-range transportation plan and the projects that are ultimately implemented through the short-range Transportation Improvement Program (TIP). The toolbox and associated strategies can be used to inform the project selection methodologies and scoring criteria for Encompass 2040 and the OCARTS Transportation Improvement Program. The CMP provides additional emphasis for alternative modes and strategies in the selection of future projects and is an important part of the performance based planning process.

**TRANSPORTATION SAFETY AND SECURITY INITIATIVES**

Motor vehicle crashes and fatalities have a major impact on the lives of Central Oklahomans. According to the National Highway Traffic Safety Administration (NHTSA), 132,350 people were killed and approximately 11.46 million injured in motor vehicle crashes across the nation between 2010-2014. In the OCARTS area alone, 585 people were killed and more than 22,000 were injured during the same timeframe. To combat this serious problem, transportation providers, agencies, and professionals are devoted to working cooperatively to plan and implement safety initiatives throughout Central Oklahoma.

### Oklahoma Highway Safety Plan

In compliance with SAFETEA-LU, the Oklahoma Department of Transportation (ODOT) first developed a Strategic Highway Safety Plan (SHSP) in 2007 to provide a comprehensive framework for reducing highway fatalities and serious injuries on all public roadways. The plan established strategies and countermeasures to reduce fatalities and injuries in the following areas of emphasis: crashes involving young drivers, lane departure crashes, unsafe driver behavior, and intersection crashes. The SHSP also includes the identification of emphasis area teams to oversee the implementation and continued responsibility of each area of emphasis. ODOT continues to update and implement their SHSP in accordance with newly established transportation laws and to ensure greater safety on Oklahoma's roadways.

### Trooper Nicholas Dees and Trooper Keith Burch Act of 2015

To help combat distracted and unsafe driving, Oklahoma passed a no texting while driving law. As of November 1, 2015, it is unlawful to operate a motor vehicle on any street or highway within Oklahoma while using a hand-held electronic communication device to manually compose, send or read an electronic text message while the motor vehicle is in motion. Any person who violates the provisions of the act, upon conviction, will be fined not more than 100 dollars. Exceptions to the law include: when communicating with an emergency response operator, a hospital, physician's office or health clinic, provider of ambulance services, a provider of firefighting services or a law enforcement agency.

## //////////////////////////////////// INCIDENT RESPONSE

It happens every day in Central Oklahoma – traffic delays caused by a crash or disabled vehicle in the roadway. In fact, over 60 percent of all traffic congestion in Oklahoma is the result of some sort of incident. For every one minute a wreck remains on the road, drivers can count on their travel being delayed an average of four additional minutes and the chances of a secondary crash increasing by 2.8 percent.

The OCARTS area has adopted several countermeasures to diminish traffic incident response time, reduce the amount of time first responders spend at the scene of an incident, and minimize the amount of incident-related congestion on the roadways of Central Oklahoma.

### Quick Clearance

On November 1, 2003, a new Oklahoma law came into effect focusing on safety for emergency responders and motorists. The new "Quick Clearance" law was instituted to help reduce delay caused by motor vehicle crashes and other incidents. In general, the law has two sections. The first section deals with the motoring public and says that drivers must make every reasonable effort to remove their vehicle in a "non-injury" traffic incident. The second section refers to law enforcement and reinforces the officer's authority to move disabled vehicles or require the driver to move them. Officers are not liable for any damages or loss to the vehicle or cargo as long as the officer did not act with gross negligence.

### Traffic Incident Management Protocol

Managing the scene of a traffic incident is vital to the safety and security of the victims of the incident and directly impacts the reduction of congestion and risk of secondary crashes for other motorists on the road. The Traffic Incident Management program in Central Oklahoma is critical to improving the safety and efficiency of our urban transportation system and to reducing the number of first responders and roadway patrons killed because of secondary crashes.

A multi-agency group including transportation, public safety, and emergency response agencies within the Central Oklahoma area was created in 2003 as an effort to minimize response and clearance times through better coordination and communication among traffic incident responders. A memorandum of understanding was signed by the heads of eight agencies responsible for traffic incident management, who pledged to cooperatively work towards the development of a coordinated incident management program in Central Oklahoma. Ongoing efforts, including inter-agency cooperation, informational workshops, and coordinated meetings, continue to raise awareness of the importance of traffic incident management and its vital role in reducing incident response time and ultimately saving the lives of first responders and travelers on Central Oklahoma roadways.

### Use of Dynamic Message Signs

Dynamic Message Signs (DMS) are an Intelligent Transportation System (ITS) tool that provide travelers with information regarding traffic congestion, speed limits, traffic incidents, and serve as an additional safety measure to alert drivers of construction zones. DMS serve as a notification device to disseminate pertinent roadway information, allowing the driver to make informed decisions when choosing the most

FIGURE 9.3: DYNAMIC MESSAGE SIGNS AND CAMERA LOCATIONS

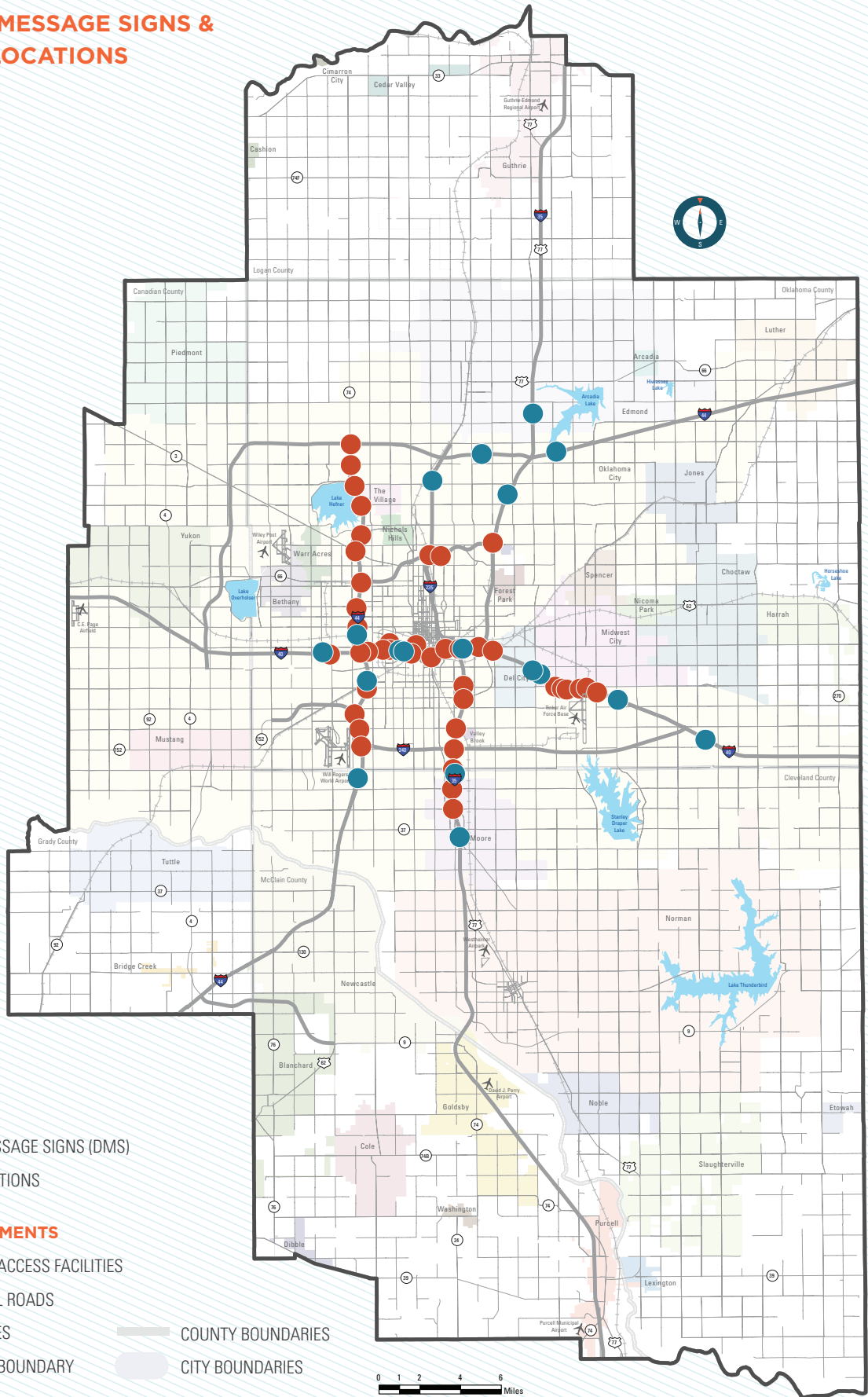
## DYNAMIC MESSAGE SIGNS & CAMERA LOCATIONS

### LEGEND

- DYNAMIC MESSAGE SIGNS (DMS)
- CAMERA LOCATIONS

### BASE MAP ELEMENTS

- LIMITED ACCESS FACILITIES
- ARTERIAL ROADS
- RAIL LINES
- COUNTY BOUNDARIES
- OCARTS BOUNDARY
- CITY BOUNDARIES



efficient route to their destination, ultimately contributing to the alleviation of heavy traffic congestion during a roadway incident.

Currently, in the OCARTS area there are 20 existing DMS locations. ODOT is responsible for maintaining the signs, which are strategically placed along major highways and interstates within Central Oklahoma, as seen in Figure 9.3.

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**EMERGENCY MANAGEMENT**

**Regional Snow Routes**

Although severe winter weather is infrequent in Central Oklahoma, it is not uncommon for the region to receive its fair share of winter precipitation. In an effort to improve public safety and avoid crashes attributed to winter weather, multiple municipal, county, and statewide entities and agencies work together to develop a comprehensive annual OCARTS Regional Snow Routes Map that highlights the best route choices for motorist when inclement winter weather strikes. The designated routes are considered to be the highest priority roadways and are to be the first roads to have resources directed to them during snow and ice storms.

The designated snow routes are the best routes to take if and when drivers are out in a severe winter weather event. However, motorists are encouraged to observe winter driving rules and to only drive on snow and ice covered roads when necessary.

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**ADVANCED TRAFFIC MANAGEMENT SYSTEMS**

**INTELLIGENT TRANSPORTATION SYSTEMS (ITS)**

Intelligent Transportation Systems (ITS) are the application of communications technologies, information processing, and advanced control strategies designed to assist and enhance transportation operations, mobility, and reduce congestion on roadways. ITS is a proven and critical tool used to effectively combat congestion and incident related traffic problems as well as improving the mobility of people and goods. This, in turn, promotes a strong economy, enhances and protects environmental quality, and improves overall quality of life. ACOG encourages the use and exploration of ITS capabilities for use within individual entities, and promotes the connectivity of roadway technologies between member local governments and across the Central Oklahoma region.

**ODOT – OU-ITS Lab**

Apart from the deployment of additional ITS technologies by member local governments, ODOT, in coordination with the School of Electrical and Computer Engineering at the University of Oklahoma, has developed a virtual regional ITS Lab. Since its inception in 2006, the OU-ITS Lab has provided regional stakeholders with direct access to traffic sensor information and travel speeds along major interstate corridors for the purpose of enhancing the traffic incident management process. Real-time video images from major interstate and highway intersections are also available for users on the Oklahoma Pathfinder website ([oktraffic.org](http://oktraffic.org)). Under defined circumstances, participating stakeholders are also given control over pan-tilt-zoom cameras and DMS.

**Smart Work Zones**

ODOT has also established and successfully deployed ITS based technology to alert drivers of construction zone delays and drive times to the end of construction zones. Smart Work Zones utilize ITS fiber optics and vehicle sensors to monitor traffic flow in construction zones, enabling motorists to change traffic patterns based on time delays posted on mobile DMS. The messages on the DMSs are triggered by data collected at the sensor sites downstream, relaying information about upcoming traffic conditions to the drivers ahead of time to help them in either choosing an alternate route or simply preparing for upcoming delays. The collected data is uploaded to the Oklahoma Pathfinder website for real-time monitoring, and has provided information to travelers in work zones along major interstate corridors within the OCARTS area.

**Regional Signal Coordination**

Edmond and Norman both have traffic signals that are connected by fiber optic cable. Many Edmond traffic signals also have CCTV cameras on them that are constantly streaming real-time video to their traffic management center. Rather than use fiber optic cable, Oklahoma City currently uses Verizon data modems to connect their 768 traffic signals. This method is more cost effective and functions as well as fiber optic cable with less bandwidth usage. Oklahoma City also uses magnetic loops in the roadway for detection of cars at traffic lights, but they are piloting the use of cameras and infrared light as a means of detection. Each city's traffic signals are connected to a main computer, typically at a local traffic management center, where the cities can monitor traffic incidents, improve congestion management, and lower emergency vehicle response times.

The next step forward for many cities in their ITS plans is to upgrade the traffic signal preemption for emergency vehicles

FIGURE 9.4: OCARTS AREA CONNECTED INTERSECTIONS

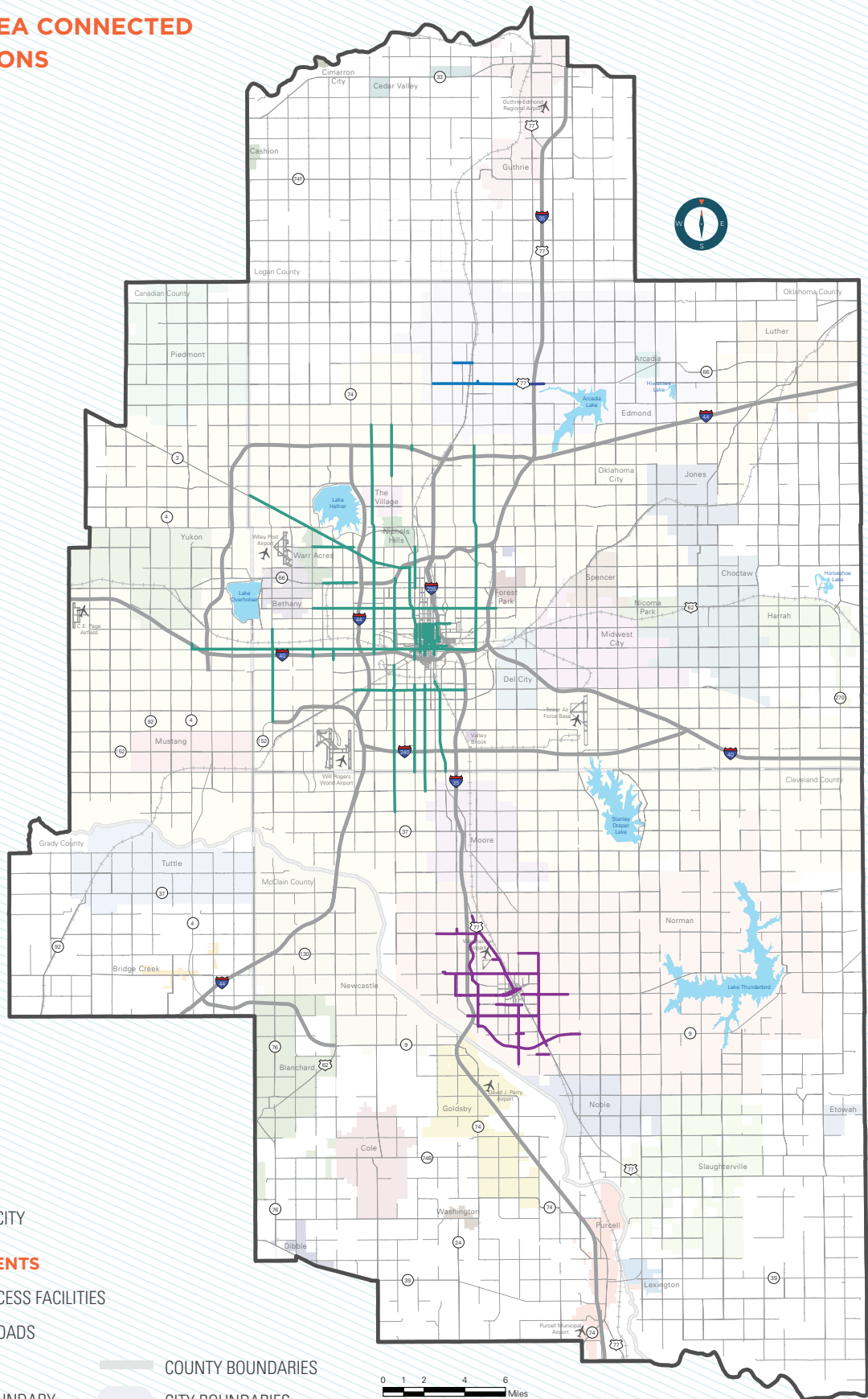
## OCARTS AREA CONNECTED INTERSECTIONS

### LEGEND

- EDMOND
- NORMAN
- OKLAHOMA CITY

### BASE MAP ELEMENTS

- LIMITED ACCESS FACILITIES
- ARTERIAL ROADS
- RAIL LINES
- OCARTS BOUNDARY
- COUNTY BOUNDARIES
- CITY BOUNDARIES



to the next generation of technology by using GPS instead of infrared light. Cities like Norman and Oklahoma City have found that the most useful aspect of ITS is the ability to know immediately when traffic signals are malfunctioning. Rather than hearing about it from the public, cities are immediately alerted by the system if a signal is malfunctioning.

Innovative ITS implementation will remain a top priority for assisting in the analysis of traffic incident patterns and contribute to achieving the overall reduction of recurring and non-recurring congestion in Central Oklahoma. Signal coordination throughout the region is a technology that can provide for the efficient movement of goods, administer safety alerts and countermeasures, and support live traffic updates to centralized traffic management centers within the OCARTS area. Establishing an initial framework of signal coordination between member local governments is fundamental for the continued success of the regional transportation organization and for advancing safety efforts to users of the Central Oklahoma transportation system.

See Figure 9.4 for a map of OCARTS area connected intersections.

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**STREET AND HIGHWAY  
PROJECT SELECTION**

Developing a list of transportation projects that improve the safe movement of people and goods around the region was a critical element in establishing the long-range transportation plan for the OCARTS area. Planned projects span a multitude of transportation options including bicycle trails, roadways, sidewalks, public transit, and more. Implementing safety measures in all transportation projects is highly encouraged by FHWA and crash severity rate, in particular, is a consideration in the selection of projects to receive federal funding.

**STBG-UZA**

Surface Transportation Block Group Program–Urbanized Area (STBG-UZA) funds, made available on an annual basis by the Federal Highway Administration through ODOT, are for the implementation of eligible transportation projects within the OCARTS area. Up to 10 percent of these annual funds are available each year to fund 100 percent of eligible safety projects that have been selected; Eligible safety projects include: traffic control signalization; pavement markings; commuter carpooling; vanpooling; and installation of traffic

signs, traffic lights, guardrails, impact attenuators, concrete barrier end treatments, breakaway utility poles or priority control systems for emergency vehicles or transit vehicles at intersections.

**Encompass 2040 Project Selection Criteria**

ACOG understands that congestion management and safety are vital to having a high-performing transportation network. A set of criteria was established to encourage projects that employ strategies that are proven to reduce congestion and improve safety. These measures include projects that improve traffic signal timing, access management, intersection geometry and sight distance; add lane capacity; deploy Intelligent Transportation Systems (ITS); promote the use of alternate modes of transportation; increase transit services, coverage area, and access; promote carpooling and park-and-ride; and transportation projects located within a school zone.

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**TRANSIT SAFETY**

Integrating safety into all aspects of a transit system’s daily operations solidifies an ambition for working toward the prevention of accidents involving public transportation operators and patrons. Transit agencies within the OCARTS area, the Central Oklahoma Parking and Transit Authority (COTPA), Cleveland Area Rapid Transit (CART), and Citylink, are encouraged to rely on the Federal Transit Administration’s Transit Safety Management and Performance Measurement Guidebook as a template for establishing their own safety management systems and safety performance measurement systems.

In addition to monthly Unified Planning Work Program Safety Reporting and periodic safety audits, which ensure transit passenger and driver safety, Central Oklahoma transit agencies have incorporated Intelligent Transportation Systems into their daily operations, both within the vehicles and at vehicle maintenance facilities.

**Maintenance Facility Upgrades**

In April 2009, COTPA upgraded their M5 Maintenance Software System, which automates tracking of repair and fueling activities in each EMBARK Transit bus. In this system, buses are “detected” as they are placed in queue at the fueling bay alerting maintenance staff as to the proper fuel required and which fluids are ready to be refilled in the buses.



### Automated Vehicle Location

Since 2008, CART has implemented Automated Vehicle Location (AVL) devices on their entire fleet of fixed-route buses, including an automated passenger counting system. The Agency has also installed on-board camera systems to ensure safety of drivers and passengers. Likewise, COTPA is slated to install similar AVL devices and on-board camera systems to their fleet of buses.

### Emergency Preparedness

Updated in May 2017, CART has an Emergency Response Plan designed to respond effectively and safely to an emergency. This includes properly informing individuals, ensuring they are safely evacuated or sheltered, and accounting for them once the emergency is resolved. The plan includes procedures for tornadoes, fires, indoor or outdoor chemical spills, armed individuals, violent individuals, suspicious packages, utility failure, earthquakes, explosions, and regional/national emergencies.

## //////////////////// BICYCLE AND PEDESTRIAN SAFETY

Central Oklahoma has witnessed a renewed interest in sidewalk and bicycle facility construction. Aging infrastructure and the desire to provide residents with more and better transportation options has fueled the resurgence of bike and pedestrian facilities and produced a safer system that is nationally recognized.

### Complete Street Initiatives: Project 180

In an effort to make the central core more pedestrian friendly and to improve the appearance of streets, sidewalks, parks and plazas in the downtown area, Oklahoma City initiated a four-year downtown revitalization measure known as Project 180. The project, funded largely from Tax Increment Financing (TIF) from the Devon Tower construction and the 2007 General Obligation Bond, called for the addition of landscaping, public art, marked bike lanes, decorative street lighting, reduction of street lanes in an effort to slow traffic, and additional on-street parking spaces within the Central Business District.

### Trail Design Workshops

Transportation planners and engineers are encouraged to participate in various multimodal workshops aimed at promoting bicycle and pedestrian friendly communities and construction projects. The first biannual Oklahoma Bike Summit was held in Oklahoma City in 2011, which highlighted many

opportunities for planners and engineers to incorporate bicycle, pedestrian, and multi-modal infrastructure into the current roadway framework. Bike Friendly Community Workshops, sponsored by the League of American Bicyclists, encourage communities to review their current bicycle and pedestrian infrastructure and prioritize consideration for future expansion of their current non-motorized infrastructure.

### Safe Routes to School

The Federal Safe Routes to School (SRTS) program provides funding to empower communities to make walking and biking to school safer for students. It was established in the August 2005 SAFETEA-LU Transportation Act and has been carried through to the most recent FAST Act of December 2015 as a part of a set-aside fund. This 100% federally funded program allows schools to partner with their host city to gain funds for both educational projects as well as infrastructure projects within two miles of a school. Eligible projects include: street crossing upgrades, crosswalks, bicycle facilities, and programs that encourage parents and their children to walk or ride a bike to school, among others. The most recent SRTS cycle in the OCARTS area was in 2012 and another statewide SRTS application cycle is expected by 2019.

### Bike Friendly America

Sponsored by the League of American Bicyclists, Bike Friendly America is a program that provides incentives, hands-on assistance, and awards communities, universities, and businesses that actively support bicycling and foster a bike-friendly environment within their communities. In 2011, the City of Norman was designated a Bicycle Friendly Community, and received a bronze rating for adding striped bike lanes, increased bicycle signage, and other bicycle related facilities along existing bike routes within the city. A few years later, in the fall of 2015, Norman added a green striped bike lane on Cedar Lane, further proving their commitment to creating safe places for cyclists to ride. All communities within the OCARTS area are encouraged to review their existing multimodal transportation infrastructure and increase safety by placing an emphasis on separating bike and pedestrian facilities from motor vehicle facilities.

### 3-Foot Law

In 2006, the Oklahoma State Legislature passed a bill requiring motorists to yield at least three feet from a bicyclist when passing on a roadway. To ensure compliance at the local law enforcement level, Oklahoma City, Edmond and Norman adopted city ordinances in support of the state law.

The passage of the bill and ratification of city ordinances demonstrates a desired commitment for bicycle safety in Oklahoma, and paves a path for future, safety-driven bicycle and pedestrian efforts.

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**TRANSPORTATION SECURITY**

Concern over the security of the transportation system has grown as the country has responded to increasing incidents of terrorism and natural disasters. Federal regulations now require that security be addressed as a separate factor in the long-range transportation planning process.

ACOG has embraced this mandate and is actively involved in dialogue among local governments, transportation providers, and emergency responders regarding the regional coordination of response plans, response capabilities, and emergency medical services in the event of a major incident or catastrophic event. Central Oklahoma’s intelligent transportation infrastructure is an integral part of the region’s security. Current and future transportation and transit ITS elements include closed-circuit televisions, lane control signals, dynamic message signs, vehicle detectors, transit vehicle tracking, integrated radio systems and automated vehicle location, and centralized intersection signal control. These traffic monitoring, incident detection, and response systems are utilized in improving the security of the regional transportation system.

Additionally, ACOG has a long history of working in the area of security and emergency management. ACOG was instrumental in developing and implementing the enhanced 9-1-1 emergency system in Central Oklahoma. System financing was provided by a vote of the area’s citizens in the spring of 1987, followed by the system coming “on-line” May 1, 1989. Again, in 2005, ACOG led a regional movement to address the 9-1-1 system’s capacity to receive calls from mobile phones with the number and location information necessary to dispatch emergency services. A regional election was held in December 2005, and voters in all Central Oklahoma counties voted to approve of a monthly service fee to finance the system.

**Emergency Evacuation Coordination**

Understanding the critical role transportation infrastructure can play in a catastrophic event, ACOG has increased its involvement in regional security working groups. In 2007, ACOG participated with other regional stakeholders to

develop an evacuation plan for the Oklahoma Office of Homeland Security Region 6 (Canadian, Cleveland, Lincoln, Logan, McClain and Pottawatomie Counties) and Region 8 (Oklahoma County). The plan grants the governor and political subdivisions the authority to require evacuation during an emergency that threatens the health and safety of the public. The plan addresses resources that would be available to respond to the need for localized evacuations in the event of natural or man-made catastrophes, such as acts of terrorism or a release of hazardous materials. The plan also outlines evacuation operations and notification procedures through the state’s 511 system, mass transit notification, designation of evacuation routes, and traffic management coordination between the Oklahoma Department of Transportation, Oklahoma Turnpike Authority, Oklahoma Highway Patrol and local law enforcement agencies.

**Identifying Security Gaps**

Central Oklahoma has an extensive transportation network that residents have come to depend on in their daily activities. As part of the region’s preparedness efforts, Encompass 2040 addresses the need to identify critical infrastructure that may be at risk. This analysis underscores the importance of having a transportation network that “builds in” redundancy for moving large numbers of people and goods, and strategies for dealing with choke points or bottlenecks in the system. Through a careful analysis of future traffic congestion and the ability of our regional infrastructure to accommodate that growth, the Encompass 2040 Plan identifies infrastructure improvements that will keep the transportation system functional. Planned improvements can be viewed in Chapter 13 – The Adopted Plan. Encompass 2040 also recognizes the need to maintain the existing streets and bridges that are critical to a safe and secure system. In fact, over 50 percent of projected transportation funds will be allocated to street and bridge maintenance. Additionally, the Oklahoma Department of Transportation has accelerated its bridge maintenance efforts throughout the state. Since 2006, ODOT has replaced or rehabilitated 1,264 bridges and will replace or rehabilitate an additional 824 bridges as part of the 2017-2024 Construction Work Plan.