

# 2030 OCARTS PLAN REPORT

Oklahoma City Area Regional  
Transportation Study

Adopted by the Intermodal Transportation Policy Committee  
and Endorsed by the Board of Directors  
of the Association of Central Oklahoma Governments  
on August 18, 2005

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# 2030 OCARTS Plan Report

## December 2006

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# PART 1

## INTRODUCTION

In today's world, mobility is essential to the vitality of any region. Residents of the area rely upon sensible transportation choices to move from home to work, school, shopping or recreation. Safe and easy freight movement is central to a sound economy. The region's quality of life is contingent upon the quality of, and the choices within, its transportation system.

This report is the culmination of a five-year transportation planning process that began in 2000 within the Oklahoma City Area Regional Transportation Study (OCARTS) area. In 2000, Central Oklahoma was home to more than 990,000 people and employed more than 530,000. The area's population is projected to grow by nearly 35 percent to over 1.3 million by the year 2030 with employment increasing at a similar rate. As the population increases so will the demand for streets, highways, trails and transit in order to meet the area's transportation needs.

The *2030 OCARTS Plan* describes how the region will manage, operate and invest in its multimodal transportation system over the next three decades. The plan describes goals and objectives for the region, policies to help achieve the goals, and actions to support the policies. The plan views transportation in terms of the movement of people and goods, not just vehicles. While the plan is divided into sections corresponding to specific transportation modes (i.e. highways, public passenger transit, trails, freight), it stresses the interrelationships between these modes and promotes their integration into a system that efficiently meets the access and mobility needs of the region.

### Federal Legislation

The *2030 OCARTS Plan* was developed in conformance with the Transportation Equity Act for the 21st Century (TEA-21), which was signed into law on June 9, 1998. TEA-21 authorized highway, highway safety, transit and other surface transportation programs for a six-year period. However, Congress extended TEA-21 numerous times, well beyond its original Sept. 30, 2003 expiration date, due to lack of legislation to take its place. Finally, on July 29, 2005, Congress approved the Safe, Accountable, Flexible, Equitable Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and the President signed it into law on August 10, 2005.

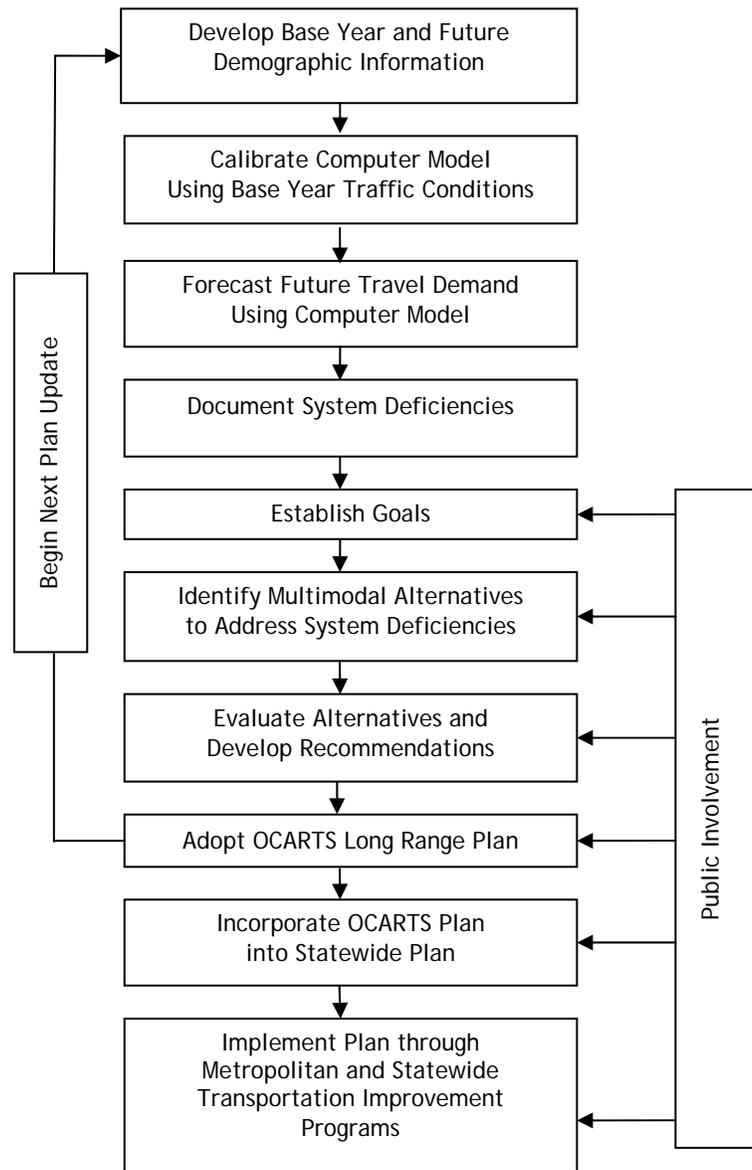
Federal guidelines associated with TEA-21, and continued under SAFETEA-LU, emphasize the role of state and local officials, in cooperation with transit operators, for tailoring the transportation planning process to meet local needs. Federal guidelines also emphasize protection of the natural environment and advancement of the nation's economic growth and competitiveness domestically and internationally through efficient and multimodal transportation.

Specifically, TEA-21 cited seven factors to be considered in the planning process. Plans should support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency. The safety and security of the transportation system should be increased, including motorized and non-motorized travel. Accessibility and mobility options should be expanded. Plans should protect and enhance the environment, promote energy conservation, and improve the quality of life for the metropolitan area. Planners should strive to enhance the integration and connectivity of the transportation system, creating a true multimodal system for people and freight movement. The plan should promote efficient system management and operation. Lastly, the plan should emphasize the preservation of the existing transportation system.

Within the nation's larger metropolitan areas, planners must develop a congestion management system, and may also provide input into other statewide systems for improved management of bridges, pavement, highway safety, public transportation facilities, and intermodal facilities. Long range transportation plans must address the transportation needs identified by such management systems.

TEA-21 also encouraged proactive and inclusive public involvement in the development of the long range transportation plan. Beginning with a public review of the area's proposed public involvement process (PIP), metropolitan areas must create opportunities for the public to participate in key short and long range transportation decisions. Communication and coordination between the state and the metropolitan planning organizations (MPOs) in development of the metropolitan and statewide long range plans is also essential. In addition, each state and metropolitan area must develop biennially a project-specific document, known as the transportation improvement program (TIP), to implement its long range transportation plan. The Statewide TIP incorporates TIPs from each of its MPOs in addition to all other state planned projects. Figure 1 provides a general picture of the overall transportation planning process called for by federal laws.

**Figure 1:  
OCARTS Transportation Planning Process**



## Purpose of the Plan Report and Relationship to other Plan Documents

The purpose of this *Plan Report* is to provide citizens, business leaders and elected officials with a non-technical document, highlighting the transportation planning process, which led to the adoption of the long range transportation plan for Central Oklahoma. Greater detail on specific topics discussed in this report may be obtained from ACOG, and a list of the reports available is provided in Appendix A. Several of the reports are included on ACOG's Web site at [www.acogok.org](http://www.acogok.org).

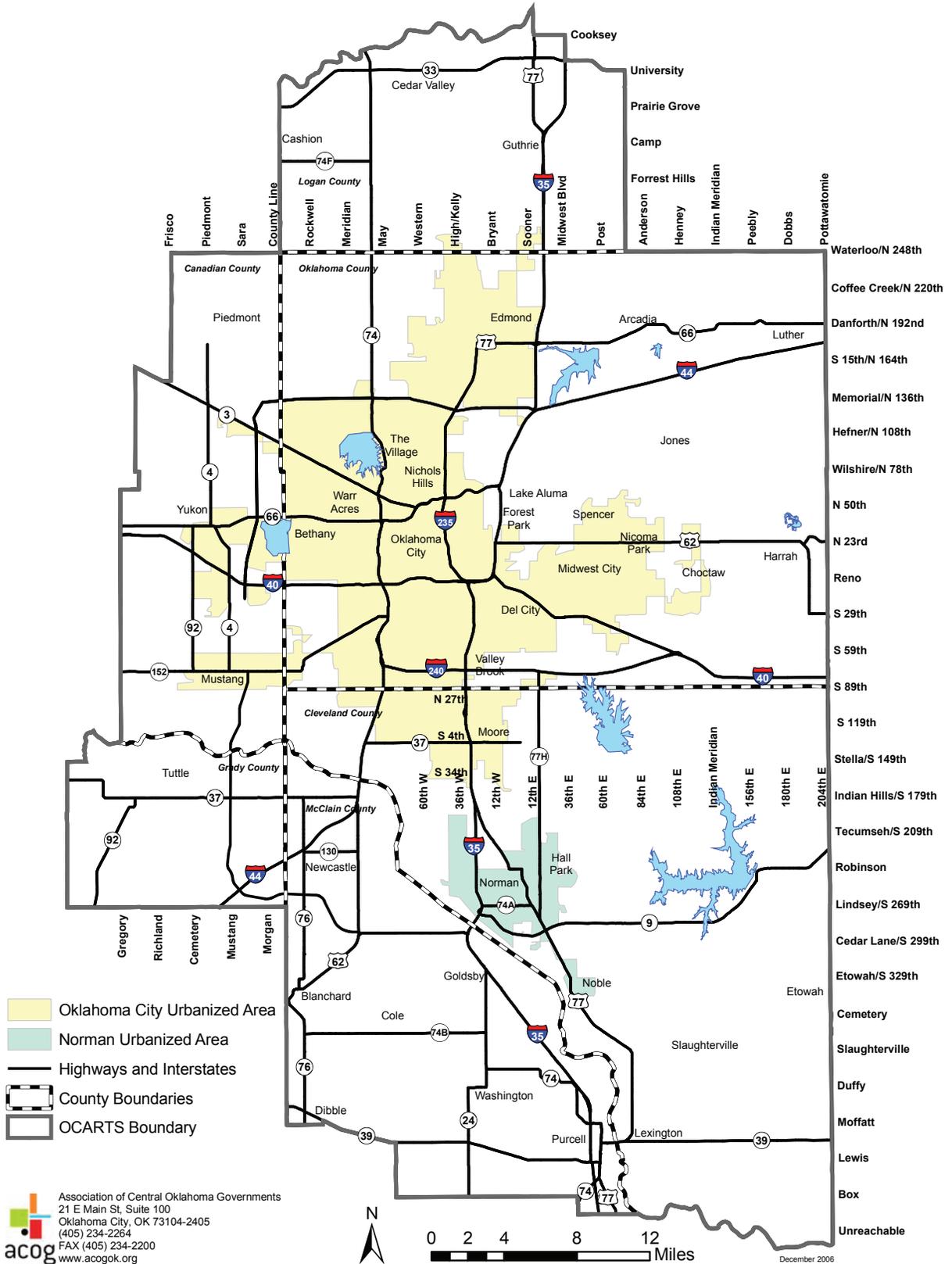
The brochure entitled *Planning for 2030: Oklahoma City Area Regional Transportation Study* and the *Technical Supplement* to the Plan Report are companion pieces to this document. The Plan brochure was developed to provide an overview of both the development process and final 2030 Plan. As its name implies, the *Technical Supplement* to the Plan Report provides more detailed information on technical aspects of the planning process including transportation modeling techniques and Intermodal Element analysis. This report, as well as the long range plans developed for the Tulsa and Lawton metropolitan areas, is included by reference in the 2005-2030 *Oklahoma Statewide Intermodal Transportation Plan*, which was adopted by the Oklahoma Transportation Commission in December 2005.

## Organization of the Transportation Planning Process

Nationwide, regional transportation planning in urban areas with 50,000 or more people is accomplished by the metropolitan planning organizations designated by the nation's governors. In Central Oklahoma, the Association of Central Oklahoma Governments (ACOG) serves as the MPO for the OCARTS area. The OCARTS area includes two urbanized areas, as delineated by the U.S. Census Bureau following the 2000 Census. These are the Oklahoma City Urbanized Area and the Norman Urbanized Area, as shown in Figure 2. Because the Oklahoma City Urbanized Area has a population of more than 200,000 residents, it is also designated a Transportation Management Area (TMA) by the Federal Highway and Federal Transit Administrations. This TMA designation requires the MPO conduct a comprehensive, coordinated and continuing long range transportation planning process that includes a plan for managing current and future congestion. TMAs are also provided project selection authority, in consultation with the state, for certain federal funding categories.

The OCARTS area transportation planning process is based upon a Memorandum of Understanding (MOU) among the Oklahoma Department of Transportation (ODOT), the Central Oklahoma Transportation and Parking Authority (COTPA), and ACOG; with a separate MOU between the University of Oklahoma, which operates Cleveland Area Rapid Transit (CART), and ACOG. The agreements establish the responsibility for transportation policy, plan selection, and development of programs for plan implementation with the Intermodal Transportation Policy Committee (ITPC). Decisions of the ITPC are endorsed by the ACOG Board of Directors. The ITPC is composed of an elected official from each member entity located within the transportation management area. Also included on the ITPC are representatives of local, state and federal transportation agencies serving Central Oklahoma, including ODOT; the Oklahoma Transportation Commission; COTPA; the Oklahoma City Airport Trust; the Oklahoma Transportation Authority; and the Federal Transit, Highway and Aviation Administrations.

**Figure 2:  
OCARTS Area**



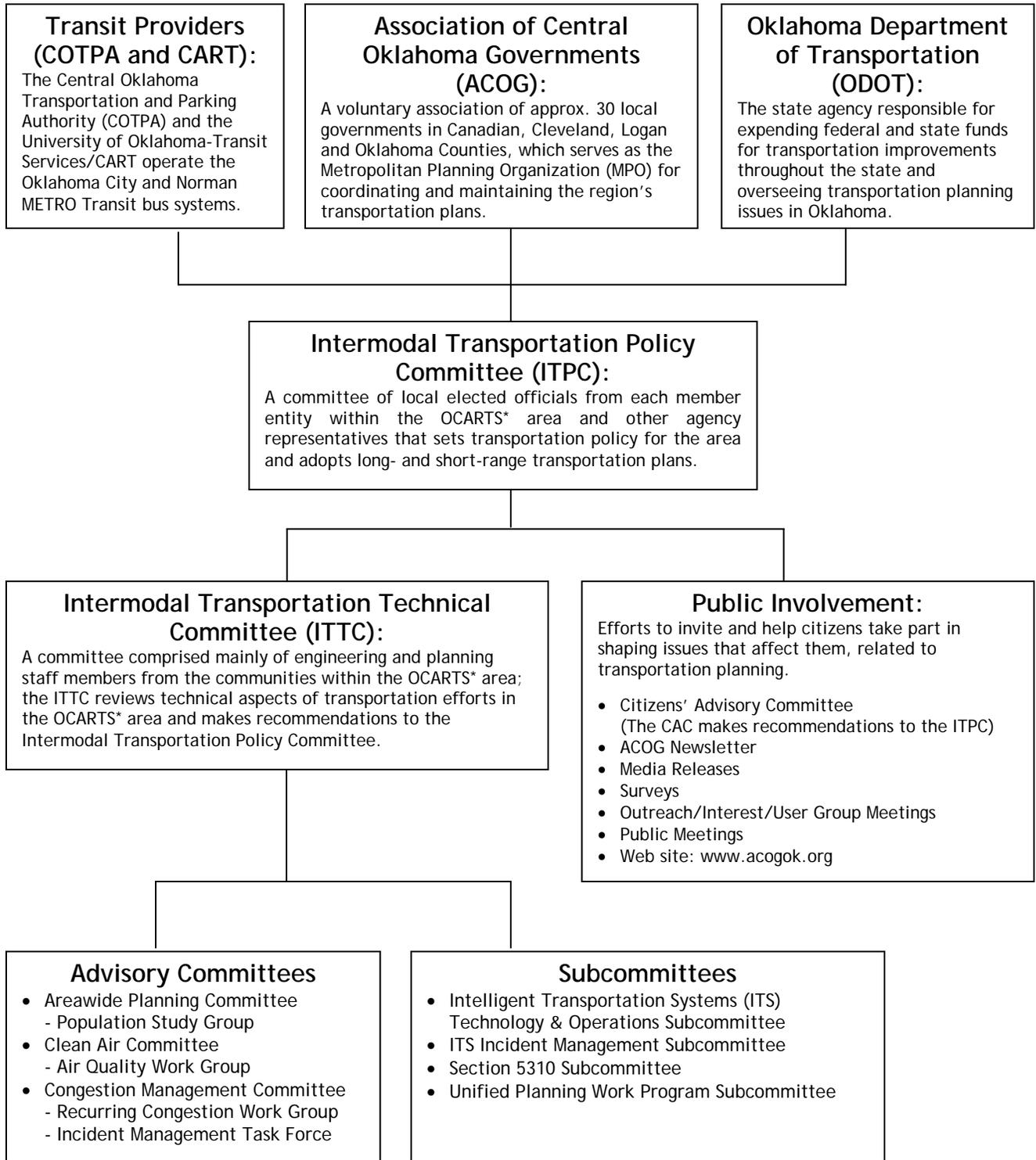

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The ITPC is supported by various advisory committees, including the Intermodal Transportation Technical Committee (ITTC) and the Citizens Advisory Committee. The ITTC meets monthly to provide recommendations to the Policy Committee on technical aspects of the transportation planning process. The ITTC membership is composed primarily of member local government staffs that have expertise in planning and engineering, and representatives of local, state and federal transportation agencies as described above. The CAC membership was updated and it reconvened in November 2004 to review and provide recommendations on the *2030 OCARTS Plan* throughout the plan development process. Representatives of all transportation modes, minority and elderly populations, persons with disabilities, businesses, local governments, environmental/public interest groups, and private citizens were included on the CAC. The recommendations of both the ITTC and the CAC are provided directly to the Policy Committee for its consideration in making policy decisions for the region.

The Transportation Planning & Data Services Division of the Association of Central Oklahoma Governments is responsible for the day-to-day planning and administrative tasks necessary to sustain the regional transportation planning process. ACOG coordinates the preparation of an annual unified planning work program (UPWP) and provides staff support for the policy, technical and advisory committees in their review of transportation plans and programs. Regular committee meetings are conducted at the ACOG offices to provide a forum for communication and decision making. Figure 3 summarizes the committee structure and general organization of the transportation planning process in OCARTS area.

**Figure 3:  
OCARTS Organization**



\* The Oklahoma City Area Regional Transportation Study (OCARTS) area includes all of Oklahoma and Cleveland Counties and portions of Canadian, Logan, Grady and McClain Counties that are urbanized or are expected to be urbanized within the next 20 years.

## OCARTS Area Geography

In 1980, the OCARTS study area was comprised of Oklahoma County and a portion of Canadian and Cleveland Counties. Ten years later as the region’s population and travel increased, the OCARTS area was expanded to include portions of Grady, Logan and McClain Counties. In 2002, the ITPC approved further expansion of the OCARTS area to the south adding the remainder of Cleveland County and an additional portion of McClain County creating its current configuration (shown in Figure 2). The OCARTS boundary is reviewed after each decennial Census in order to ensure that all portions of the Oklahoma City Metropolitan Area that are linked to the OCARTS economy and transportation system are included in future transportation planning efforts.

Within these six counties, and listed in Table 1, are the cities that comprise the OCARTS metropolitan area. The largest of the 40 cities is Oklahoma City, the state’s capital and one of Oklahoma’s major metropolitan cities. Surrounding the junctures of three interstate highways (I-35, I-40 and I-44), Oklahoma City encompasses about 621 square miles or about one-third of the OCARTS area, which totals 2,094 square miles.

**Table 1:  
Entities Located Wholly or Partially Within the OCARTS Area**

<i>Canadian County</i>	Oklahoma County
Mustang	<i>Arcadia</i>
Oklahoma City (part)	Bethany
<i>Piedmont</i>	Choctaw
Yukon	Del City
Cleveland County	Edmond
<i>Etowah</i>	Forest Park
<i>Lexington</i>	<i>Harrah</i>
Moore	<i>Jones City</i>
Noble	Lake Aluma
Norman	<i>Luther</i>
Oklahoma City (part)	Midwest City
<i>Slaughterville</i>	Nichols Hills
<i>Grady County</i>	Nicoma Park
<i>Tuttle</i>	Oklahoma City (part)
Logan County	Smith Village
<i>Cedar Valley</i>	Spencer
<i>Guthrie</i>	The Village
<i>McClain County</i>	Valley Brook
<i>Blanchard</i>	Warr Acres
<i>Cole</i>	Woodlawn Park
<i>Dibble</i>	
<i>Goldsby</i>	
<i>Newcastle</i>	
<i>Purcell</i>	
<i>Washington</i>	

*Italics indicates entities located outside the Oklahoma City and Norman Urbanized Area (UZA) boundaries. Unincorporated portions of Cleveland, Logan, and Oklahoma Counties are within the UZA.*

## Previous Transportation Plans for Central Oklahoma

The local governments in Central Oklahoma have been engaged in regional transportation planning over the past four decades. The transportation planning process initiated by the Oklahoma Department of Transportation in 1965 resulted in adoption of the first long range transportation plan for Central Oklahoma in 1968, known as the *1985 OCARTS Plan*. This plan was updated in 1976 and 1988 to reflect regional changes in land use and socioeconomic forecasts.

Under the requirements of ISTEA<sup>1</sup>, TEA-21, and now SAFETEA-LU, metropolitan transportation plans are to be updated every five years for areas that are in attainment of federal air quality standards. SAFETEA-LU changed the plan update cycle from every three to every four years for non-attainment areas. The *2020 OCARTS Plan* (adopted March 1995), was replaced by the *2025 OCARTS Plan* (adopted September 2000). This *2030 OCARTS Plan*, adopted August 18, 2005, replaces the *2025 OCARTS Plan*.

## Organization of the 2030 OCARTS Plan Report

The ensuing parts of this report provide additional information about the transportation and demographic characteristics of the transportation planning area and the planning process that culminated in adoption of this Plan. Included are:

- the public involvement process for the 2030 Plan
- goals and policies for the Plan
- socioeconomic and demographic characteristics of the OCARTS area
- current and forecasted travel characteristics for the OCARTS area
- description of each plan alternate considered
- estimated costs and projected revenues for implementing the adopted plan
- special planning requirements—major metropolitan investments, congestion management, and enhancement program activities
- description of Intelligent Transportation Systems plan for the OCARTS area
- glossary of transportation planning terms
- additional reports related to development of the 2030 OCARTS Plan
- summary of public comments received on the Draft Plan Summary

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<sup>1</sup> The Intermodal Surface Transportation Efficiency Act (ISTEA) was signed into law on December 18, 1991, and was effective for a six-year period (federal fiscal years 1992 through 1997). ISTEA resulted in broad changes to how transportation decisions are made by emphasizing diversity and balance of modes and preservation of existing systems over construction of new facilities.



## PART 2

# PUBLIC INVOLVEMENT, GOALS AND POLICIES

### The OCARTS Public Involvement Process

Essential to the transportation planning process, public involvement is the link between the MPO and the citizens of the Central Oklahoma region. As a part of developing the 2030 OCARTS Plan, the MPO incorporated a proactive approach, designed to provide citizens with complete information, timely public notice, full access to key decisions, and early and continued involvement in the process. The OCARTS Public Involvement Process (PIP) was approved after a 45-day public review and comment period. The PIP schedule included a description of public involvement opportunities related to the development of the long range plan, the short range transportation improvement program, and other ongoing public involvement efforts.

A press release including the proposed plan development schedule was posted on the ACOG Web site and provided to local media outlets. In addition, an article on the proposed plan schedule was published in *Central Oklahoma Perspective*, ACOG's monthly newsletter. Copies of the schedule were made available through the metropolitan library system, and mailed to advocacy groups and minority organizations throughout the region.

Based on the adopted public involvement schedule, the MPO conducted the following activities to ensure broad public input in the development of the 2030 OCARTS Plan:

- **Transportation Survey** - The 2030 OCARTS Transportation Survey and a media release were distributed in September 2004 to all print, radio and television media outlets in the OCARTS area. *The Daily Oklahoman* printed the full survey and a feature article on the front-page of the September 25, 2004, Metro Section, which is distributed to eight counties in Central Oklahoma. An article also appeared in the October 12, 2004 *Journal Record*. The survey was included as a special inset in the September 2004 issue of ACOG's newsletter, *Central Oklahoma Perspective*, distributed to the members of the newly formed 2030 OCARTS Plan Citizens Advisory Committee (CAC), and the Intermodal Transportation Technical and Policy Committees. It was mailed to over 100 individuals included in the Transportation Users Group mailing list, which includes representatives of neighborhoods, minority populations, chambers of commerce, various transportation modes, and special interests such as environmental concerns, aging issues, and mobility for persons with disabilities. The survey was included on the ACOG Web site, [www.acogok.org](http://www.acogok.org). Participants could complete the survey online or print a hard copy and mail or fax it to ACOG.

The purpose of the survey was to determine citizen priorities related to regional transportation goals, funding options, and multimodal methods to reduce congestion, as well as to provide an opportunity for any other comments about transportation in Central Oklahoma. A total of 532 surveys were received, which included responses from citizens who live or work within 24 communities located inside the OCARTS area. In addition to providing an instrument for public input, the survey responses provided an additional tool to develop draft goals and policies for the Plan.

- ***Citizens Advisory Committee*** - The 2030 OCARTS Plan Citizens Advisory Committee (CAC), formed in September 2004, serves as a recommending body to the Intermodal Transportation Policy Committee. The CAC includes a total of 39 voting members and 10 alternates, supported by representatives of 19 federal, state, and local agencies serving as non-voting members for technical assistance/resource support to the committee.

Representatives of all transportation modes, minority and elderly populations, persons with disabilities, businesses, local governments, environmental/public interest groups, and private citizens are included on the CAC. The CAC reviewed and provided recommendations on regional transportation goals and policies for the 2030 OCARTS Plan, alternate street/highway networks, strategies for intermodal enhancement within OCARTS, and recommended a street/highway network for adoption as part of the final plan for 2030.

- ***Trails Workshop*** - In December 2004, ACOG hosted a Trails Workshop attended by local government staffs and several members of the Citizens Advisory Committee. The meeting was intended to ensure that all existing and planned multi-use trails within the OCARTS area were accurately mapped, and to obtain input on "extended vision" routes that could improve future trail connections throughout the metro area.
- **2030 OCARTS Plan Open Houses** - ACOG hosted two Open Houses in January 2005 to receive citizen input on the transportation future of Central Oklahoma. The Open Houses were held at the Moore Community Center and the Springlake Metro Technology Center, and were conducted as informal come-and-go sessions where citizens could ask questions and obtain information on all transportation modes. These locations were selected since they are within a reasonable drive for most of area citizens, served by at least one transit route and accessible to persons with disabilities.

At the Open Houses, maps were displayed of the highway network, locations of existing bicycle and pedestrian facilities, major truck routes and rail lines, public airports, and transit routes. OCARTS

area socioeconomic data, draft goals and policies for the long range transportation plan and the results of the Transportation Survey, finalized in December, were also available for review. Additional comments from the public were accepted at the Open Houses both in writing and verbally. Again, a media release announcing the purpose, dates, times, and locations of the open houses was distributed to area newspapers, radio and television stations, posted on the ACOG Web site, and mailed to all of the minority and special interest representatives who received the PIP and Transportation Survey.

- **Subregional Meetings with Local Governments** - The members of the Citizens, Technical, and Policy<sup>2</sup> Committees learned about all public involvement activities and comments through their regular monthly meetings. In addition, representatives of OCARTS local governments participated in four special subregional meetings in February 2005. The meetings were used to evaluate the recommended street and highway recommendations of the previous 2025 OCARTS Plan, and to identify any changes to those recommendations that staff or elected officials from each of the OCARTS area communities wished to have evaluated in a future street and highway network. Recommended improvements were evaluated in terms of their ability to reduce projected traffic congestion, as well as the ability of the overall Plan to remain financially affordable when compared with projected transportation revenues during the planning period.
- **Draft Plan Summary for Public Review and Comment** - A Draft Summary of the 2030 OCARTS Plan was completed in July 2005. The draft summary was released for comment from July 14 through August 12, 2005. The document was distributed to all metro area libraries and placed on ACOG's Web site for review. To advertise the availability of the Draft Plan Summary, a media release was issued to all media outlets serving the Oklahoma City Metro area, and a special mailing was sent to those on the Transportation Users Group mailing list.

In addition to the 2030 OCARTS PIP, the MPO created and distributed a brochure designed to explain the planning process in everyday language. The *Citizen's Guide to Transportation Planning* explains the long range plan and gives suggestions as to how a citizen can be involved in the process. The brochure was produced in English, Spanish and Vietnamese, and was distributed throughout the OCARTS area in December of 2004.

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<sup>2</sup> Transportation plans and programs are developed, reviewed, and updated under the auspices of the Intermodal Transportation Technical and Policy Committees, who meet monthly at the MPO offices. Local government staff and elected officials comprise the membership of the committees, respectively.

## Goals and Policies

Improved mobility and quality of life within the urban area is the underlying intent embedded in the adopted goals and policies for the 2030 OCARTS Plan. Formulation of the following goals and policies was based on collected and analyzed survey information from various local citizens and groups, in addition to federal requirements. The following goals were used to guide the development of the long range plan, and were reviewed by the CAC, ITTC and adopted by the ITPC in January 2005.

### **Goal 1: Improve the quality of transportation services and the transportation system.**

*Policy:* The regional transportation system will provide and encourage choices among various modes for the movement of people and goods. The existing regional transportation system will be preserved and maintained by identifying and emphasizing corridors and facilities that enhance mobility and promote economic development.

### **Goal 2: Increase the efficiency of transportation services and the transportation system.**

*Policy:* Developing and maintaining an integrated, multimodal and intermodal regional transportation system will accomplish the efficient and cost effective movement of people and goods. In addition, convenient and efficient connection between modes and facilities will be emphasized, as well as the promotion of intermodal options for freight/goods movement. Various techniques will be utilized to maximize the capacity of the existing system. An objective, systematic method of assessing and prioritizing the region's transportation system needs based on efficient and cost effective mobility will be developed and implemented.

### **Goal 3: Provide a safe, secure and environmentally, economically and socially responsible transportation system.**

*Policy:* Improve the design, construction and maintenance of new and existing transportation facilities as a means of reducing accidents, injuries and fatalities. Utilize traffic safety techniques to mitigate problems in accident-prone areas. Promote environmental awareness and preservation in the development and maintenance of regional transportation facilities and services. Provide a transportation system accessible to the greatest number of people while emphasizing mobility options for the transportation disadvantaged. Improve personal mobility for system users by removing obstacles to full utilization of transportation facilities and services. Coordinate with appropriate public and private agencies to increase mobility opportunities for those who have limited transportation options.

**Goal 4: Maintain a financially realistic regional transportation planning process.**

*Policy:* Identify revenues available for the preservation and maintenance of existing transportation facilities and services and for the provision of additional facilities and services to meet transportation needs. Support efforts to develop new and innovative transportation funding mechanisms. Research and support mechanisms to promote maintenance and improvement to the region's transportation system.

**Goal 5: Improve communication, coordination and cooperation in developing transportation goals, policies and plans.**

*Policy:* Develop a cooperative plan process that emphasizes communication and coordination between affected parties in the development of the regional transportation system. Develop and implement public information/education programs for system users and transportation service providers. Promote private sector involvement and public-private partnerships. Proactively engage transportation partners, service providers and citizens in the development of the long range plan. Foster intergovernmental cooperation and improve coordination between state and local governments regarding regional transportation issues.



# **PART 3**

## **LAND USE AND SOCIOECONOMIC GROWTH TRENDS**

### **Planning Period**

The 2030 OCARTS Plan covers a 30-year planning period, from 2000 through 2030. Base year data related to population, employment, dwelling units, school enrollment, household income and land use was gathered to establish conditions in the OCARTS area in 2000. This base year data served as the foundation from which the 2030 socioeconomic and demographic forecasts were made. By projecting the type and geographic location of future growth, an assessment of the 2030 travel demand can be made. Improvement and maintenance projects can then be targeted to areas with the greatest need. This Part documents the process used to develop base year and forecast year demographic and socioeconomic data that was subsequently used to model the effects of future demand on the transportation network.

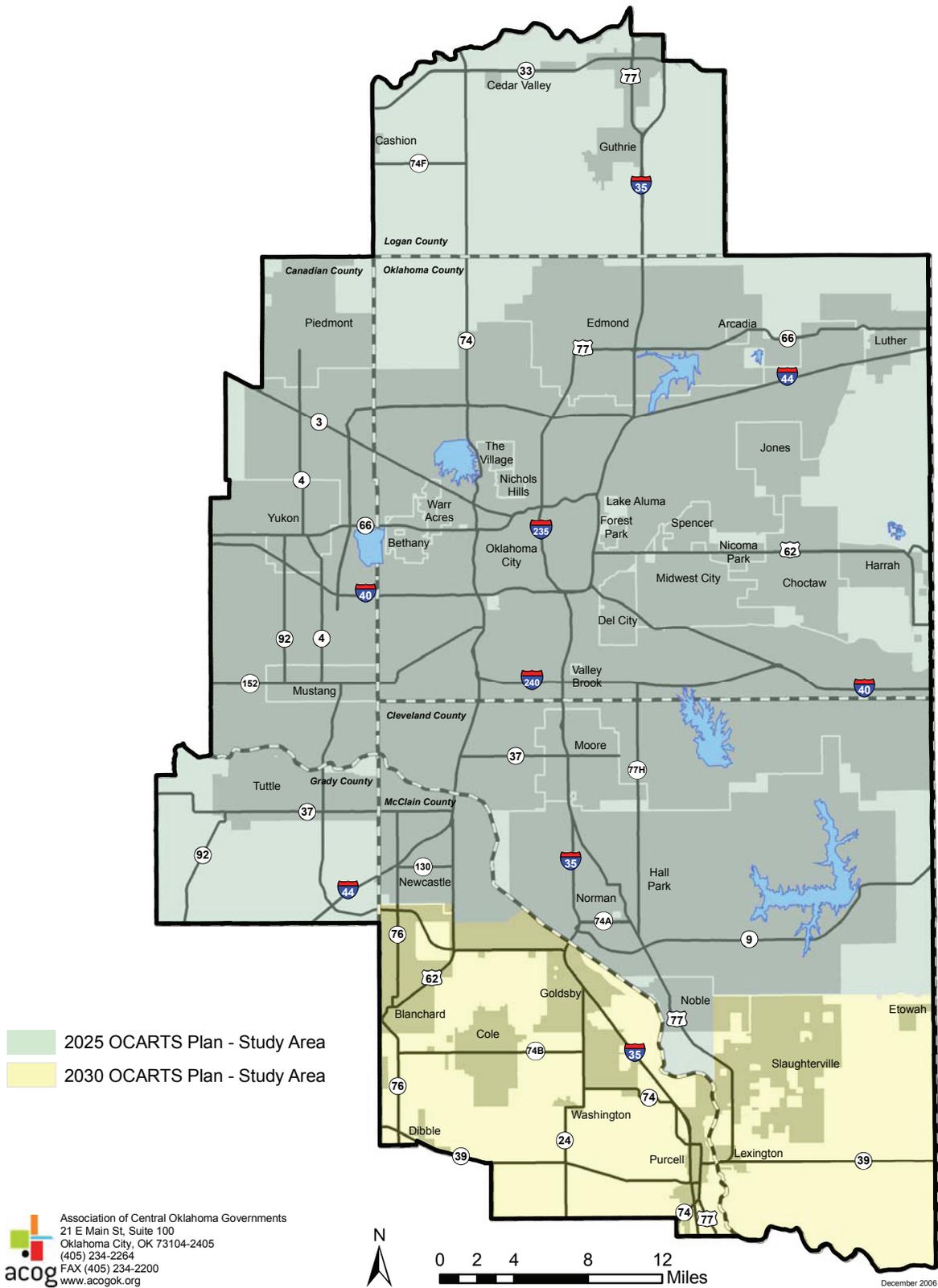
### **OCARTS Geography and Boundary Change**

Centrally located within the state and the nation, the OCARTS area is served by the crossroads of I-40 and I-35. Interstate 35 extends north and south from Canada to Mexico and has been designated as a High Priority Corridor for international trade. Interstate 40 extends nearly coast to coast from California on the west, to North Carolina on the east. Other major interstates, U.S. and state highways serving the OCARTS area include I-44, I-240, I-235, US-77, US-62, SH-3, SH-62, SH-66, SH-9, SH-74, SH-39, SH-4, SH-37 and SH-92. These major roadways, reflected in Figure 4, transport both people and freight and make up the backbone of the region's transportation system.

In February 2002, the Intermodal Transportation Policy Committee approved an expansion of the transportation study area to the south and southwest in Cleveland and McClain Counties. The current OCARTS area is 2,094 square miles, which is 395 square miles (25 percent) larger than the area used to develop the 2025 OCARTS Plan. The OCARTS expansion was predicated on a study by the MPO, using 2000 Census data, which evaluated population growth, density, and proximity and trips between the area of expansion and the OCARTS area. This change in physical geography is shown in Figure 5, and should be kept in mind when comparing statistics related to the 2030 OCARTS Plan with previous plans.



**Figure 5:  
OCARTS Area Expansion**



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## Subareas for Data Collection and Analysis

For the purpose of data collection and analysis, county or portions of counties are the largest geography utilized. Each county's area is divided into traffic districts, of which there are 52 within the OCARTS area. Traffic districts are created using significant natural and man-made features as boundaries. Each traffic district is divided into smaller subareas known as traffic analysis zones (TAZ). There are a total of 878 TAZs located within the transportation study area boundary, and 30 TAZs located just outside the boundary. The 30 external zones were utilized to determine the number of trips that enter or leave the study area from surrounding locations.

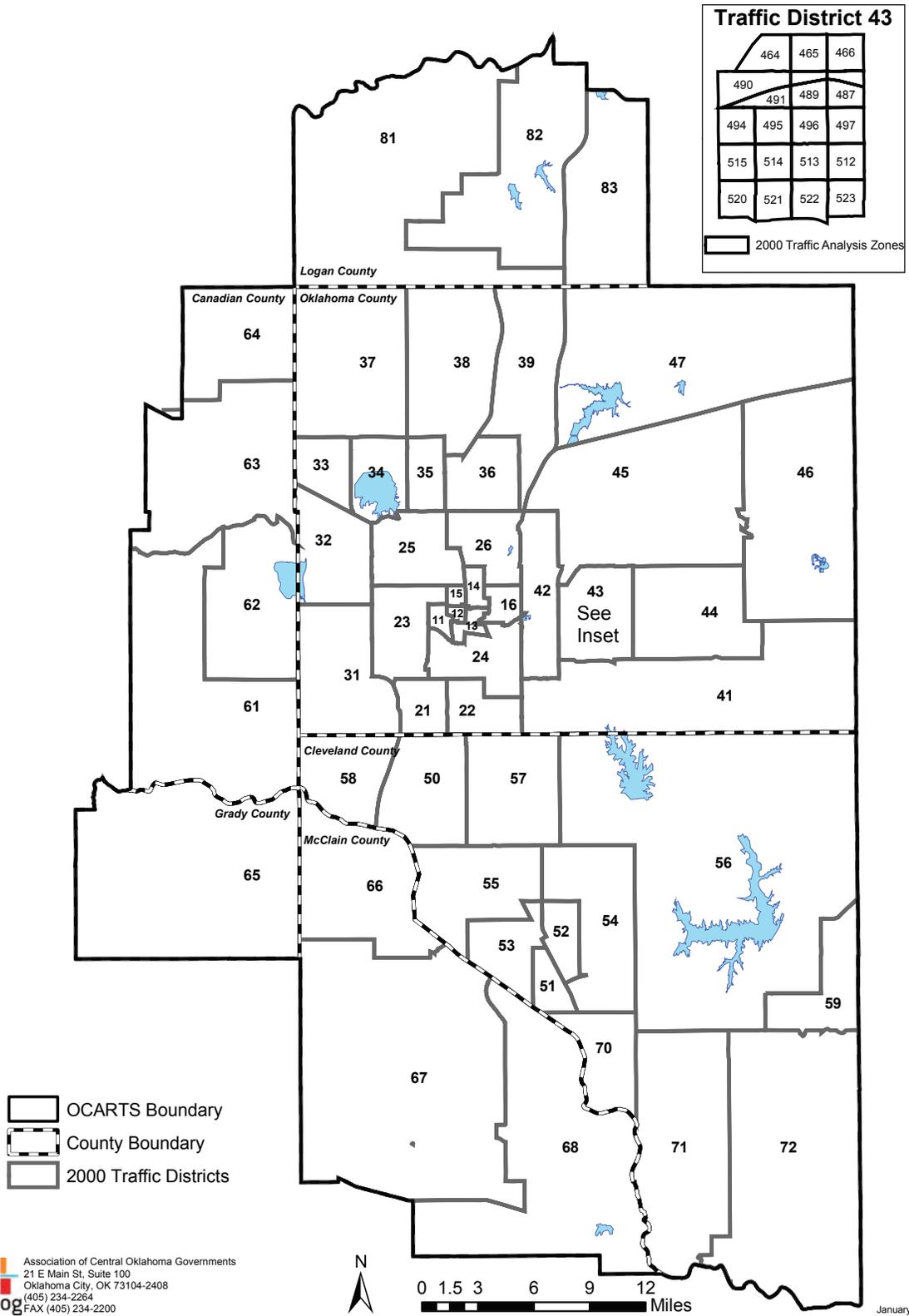
Each of the 878 internal TAZs is composed of U.S. Census Bureau block groups. Census block group data provides socioeconomic information for each of the study area's traffic analysis zones. Data at the traffic district, county or regional level may be created by combining TAZ data. Figure 6 illustrates the traffic districts within the OCARTS area.

## Growth Allocation Model

One of the primary undertakings during the plan development process was the calibration and use of a land use distribution model, known as the Growth Allocation Model (GAM). The GAM is a land use allocation model used to make predictions about future development in the OCARTS area based on historical trends and assumptions. The Growth Allocation Model is a modification of a similar model designed by Rice University for the Houston-Galveston Area Council of Governments. The Association of Central Oklahoma Governments first used this model to develop socioeconomic forecasts for the 2005 OCARTS Plan in the 1980s and, with a few refinements, used it again for preparing population and employment forecasts for the 2020, 2025 and 2030 OCARTS Plans. More detailed information about the Growth Allocation Model is provided in the *2030 OCARTS Plan Technical Supplement*.

The Growth Allocation Model requires significant land use and socioeconomic data collection. Inputs to the GAM include base year (2000) estimates and forecast year (2030) projections of land use, population, dwelling units, and employment within the transportation study area. The model takes regional estimates of population and employment growth and distributes it to the various geographic subareas within the OCARTS area based upon established trends and factors. The results of the GAM provide population and employment figures at the TAZ level for the plan year 2030. These figures, in combination with other information, are used in the transportation model to predict the quantity and type of trips that each subarea will generate and attract.

**Figure 6:  
Traffic Districts within the OCARTS Area**



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## Current and Planned Land Use

The MPO staff worked closely with local government staffs on the collection of base year land use within each OCARTS area entity. Local governments also provided information on future, planned land use based on locally adopted comprehensive plans, zoning ordinances and other sources reflective of local development trends. Base year land use information was collected using the eight land use categories listed in Table 2. All land in the 2000 base year was designated with a planned land use category, which is also listed in Table 2. Staff revised the previous land use information collected for the 2025 OCARTS Plan and incorporated new information due to the OCARTS boundary expansion using GIS software.

**Table 2:  
2030 OCARTS Plan Land Use Categories**

<b>Present Land Use Categories (2000 Base Year)</b>	
<b>Single-Family Residential</b> Single-Family (detached/attached), Duplex, Mobile Home (Includes large suburban acreages of 1 to 40 acres, and urban residential development at 2-12 units/acre)	<b>Industrial</b> Warehousing, Light Industrial, Moderate and Heavy Industrial, Transportation and Utilities, Mineral Extraction, Land Fill, Water/Sewage Treatment Plant
<b>Multi-Family Residential</b> 3 or more dwelling units per structure (Includes urban residential complexes at 13+ units/acre)	<b>Parks and Open Space</b> Open Space and Recreational Areas, Lakes and Waterways, Floodways
<b>Commercial/Mixed Use</b> Retail Commercial, Wholesale Commercial, Office in Commercial Setting, Malls	<b>Transportation Corridors</b> Railroad, Highway, Arterial Right-of-Way
<b>Office Center</b> Office, Public/Private; State Capitol Complex	<b>Institutional/Public</b> Schools, Hospitals, Colleges, Local Public Office Buildings, Other Institutional Uses
<b>Planned Land Use Categories (2030 Forecast Year)</b>	
<b>Agriculture/Farm</b> 10+acres/dwelling unit	<b>Office</b> Public or private sector office building
<b>Rural Residential</b> 5-10 acres dwelling/unit	<b>Institutional/Public</b> Institutional facilities such as schools and public buildings.
<b>Suburban Residential</b> 1-4 acres/dwelling unit	<b>Industrial</b>
<b>Single-Family Residential</b> 2-12 dwelling units/acre, Apartments, Townhouses, Condominiums	<b>Park, Open Space, Flood Plain</b>
<b>Multi-Family Residential</b> 13 or more units per acre	<b>Transportation - Roads/Railways</b>
<b>Commercial</b> Retail Commercial, Wholesale Commercial, Office, Malls	

## Growth Assumptions and Growth Factors

The growth assumptions describe the new growth to be allocated by the model. Once the GAM has determined the share of population growth for each zone, the GAM uses growth assumptions to determine the 'type' of growth the population represents. Using the assumptions of future residential densities, dwelling unit mix, occupancy rates, household size, units lost<sup>3</sup>, and group quarters<sup>4</sup> growth, the GAM distributes the growth among single and multi family population and group quarters population. The estimated growth in units is also distributed between single and multi family units.

The factors used by the residential GAM included perceived school district quality, median household income, historical residential trends, and existing residential densities. The influence of these factors on potential growth was determined by calibrating the GAM to reproduce the population growth between the 1990 and 2000 Census counts. Using a series of mathematical equations, each traffic analysis zone was assigned a percent attraction, which when summed with the other traffic districts, equals 100 percent of the county total.

Based on the shares of population, results of the growth assumptions, and available land, the GAM determines if each zone has the capacity to accept the dwelling units allocated by its attractiveness share. If the growth capacity is exceeded, the excess population is shifted to other zones belonging to the same entity within the district. If a district capacity is exceeded, the excess population is shifted to other zones belonging to the same entity within the same county. In instances where the capacity was exceeded within a district, the traffic district forecasts were modified or the residential density growth assumption was modified, if applicable, to a reasonable amount in order to accept the excess growth.

## OCARTS Population

Before running the GAM, it was necessary to establish population and employment control totals for 2030. The 2000 base year population totals for the OCARTS area and its counties, cities, traffic districts and traffic analysis zones were obtained from the 2000 Census. The Intermodal Transportation Policy Committee approved the base year population of 990,595 for the OCARTS area in December 2003. The Committee also approved the base year totals for each TAZ at that time.

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<sup>3</sup> Dwelling units removed from the housing inventory due to fire, demolition or natural disaster.

<sup>4</sup> The Census Bureau classifies all people not living in households as living in group quarters. There are two types of group quarters: institutional (for example, correctional facilities, nursing homes, and mental hospitals) and non-institutional (for example, college dormitories, military barracks, group homes, missions, and shelters).

The 2030 projections for the OCARTS area were developed from Woods & Poole<sup>5</sup> and Oklahoma Department of Commerce projections. The 2030 population control total of 1,335,036 for the OCARTS area was adopted by the ITPC in August 2004. This represents a projected 34.7 percent increase in population between 2000 and 2030, which equals an average annual growth of 1.16 percent.

Table 3 summarizes the base year and forecast year population for the OCARTS area in comparison with the Oklahoma City Metropolitan Statistical Area<sup>6</sup> and the State.

**Table 3:  
Population of OCARTS, MSA and State, 2000-2030**

Area	2000	2030 Projection	% Change
OCARTS Area	990,595	1,335,036	34.7
Oklahoma City MSA*	1,049,138	1,312,800	21.1
Oklahoma*	3,450,654	4,192,400	21.5

\*Source: Oklahoma Department of Commerce, Projections of Cities and Towns in Oklahoma, 2000-2030

## Dwelling Units

The 2000 Census provided the base year data for total dwelling units and total occupied dwelling units.

In order to determine the future number of dwelling units, the GAM analyzed the potential for residential growth in each district. Key factors determining traffic district growth included the amount of available land, planned land use, the relative attractiveness and the residential growth assumptions, as described below.

The residential growth assumptions were intended to provide overall guidance to the model for the allocation of future population and dwelling units. This guidance includes the amount and type (single or multi family) of dwelling unit growth represented by the forecasted population.

For example, if a zone is attractive for single family dwelling growth, based on the growth factor analysis, the model first determined if there was available land. If land was available, then the planned land use designations were considered. If the available land allowed single family development, then the growth is allocated to that zone. The amount of new dwelling units representing the growth was determined using the

<sup>5</sup> Woods & Poole Economics, Inc. is a private econometric research firm that specializes in long-term county economic and demographic projections.

<sup>6</sup> Metropolitan Statistical Areas (MSAs) are created by the US Census Bureau for analysis purposes. Typically, a MSA consists of a core area, such as a central city, along with the counties economically and socially connected to it. The 2000 Oklahoma City MSA included Oklahoma, Logan, Lincoln, Canadian, Cleveland, McClain and Grady Counties.

projected dwelling unit density, household size, and occupancy rate growth assumptions. The model works in a repetitive fashion utilizing the assumptions in mathematical equations to simulate land use development until all predicted population growth is allocated.

For the most part, 2030 growth assumptions were derived from linear regression of historical census data, previous OCARTS transportation plans, or from local government input including their existing comprehensive land use plans. The following residential growth assumptions were used to allocate the projected 2030 population throughout the OCARTS area.

- **Residential Density Assumption** - Residential densities, or numbers of dwelling units per acre, for future single family and multi family developments were prepared for each traffic district. The MPO staff first reviewed recent land use densities in order to characterize current development patterns. Then future residential land use categories and their recommended densities in local comprehensive plans were analyzed. These densities were used as the basis for the 2030 single family residential assumptions; therefore, the densities varied by entity. Future densities for suburban residential, rural residential, and agriculture/farm land use categories were assigned the highest density of development as defined by each category.
- **Housing Mix Assumption** - The housing mix assumption estimated the percent of future single family and multi family dwelling units that would be developed within each traffic district. After analyzing historical trends and projecting them to 2010, it was assumed that the mix ratio would remain constant over the remaining planning period. Some minor variations from current conditions were assumed at the traffic district level based on input from local entity staffs.
- **Occupancy Rate Assumption** - In order to forecast the number of total dwelling units in relation to the total population, a housing occupancy rate assumption was developed. Because not all dwelling units are occupied at any one point in time, population can only represent inhabited dwelling units. Therefore, occupied single and multi family dwelling unit rates were determined through linear regression of historical data and projected out to 2010. In some instances, rates were held constant at 2000 census levels or adjusted based on local knowledge. The resulting rate was assumed to remain constant over the remaining planning period. In traffic districts where multi-family units did not exist, the 2030 occupancy rate was assumed to be 91.5 percent.
- **Household Size Assumption** - National predictions about rates of change for future household size were reviewed before creating assumptions about household size in 2030 for the OCARTS area. Understanding that households cannot continuously shrink, and yet considering national trends, the OCARTS area household size assumption was calculated by analysis of historical census data and

projected to 2010. It was assumed that the resulting rate would remain constant over the remaining planning period. The trends were constrained to a +/- 10% change between the base and the forecast year.

- **Housing Units Lost Assumption** - The final residential growth assumption used to project the total number of dwelling units for input to the Growth Allocation Model was the number of units that was expected to be removed from the housing inventory due to fire, demolition or natural disaster. In most instances the GAM assumed that all lost units would be rebuilt unless the population was projected to become stagnant or the land use classification was expected to change before the forecast year (e.g., houses lost to the right-of-way for a new road).

As a result of the GAM allocation, the total dwelling units were forecasted to increase from 427,067 in 2000 to 575,735 in 2030 for a 34.8 percent increase over the planning period. The total occupied units were forecasted to increase by 34.4 percent from 390,444 in 2000 to 524,782 in 2030.

Table 4 reflects the base year and the forecast year population and dwelling units within the OCARTS area by entity as adopted by the MPO. Figures 7 and 8 display population density throughout the OCARTS area for 2000 and 2030, respectively.

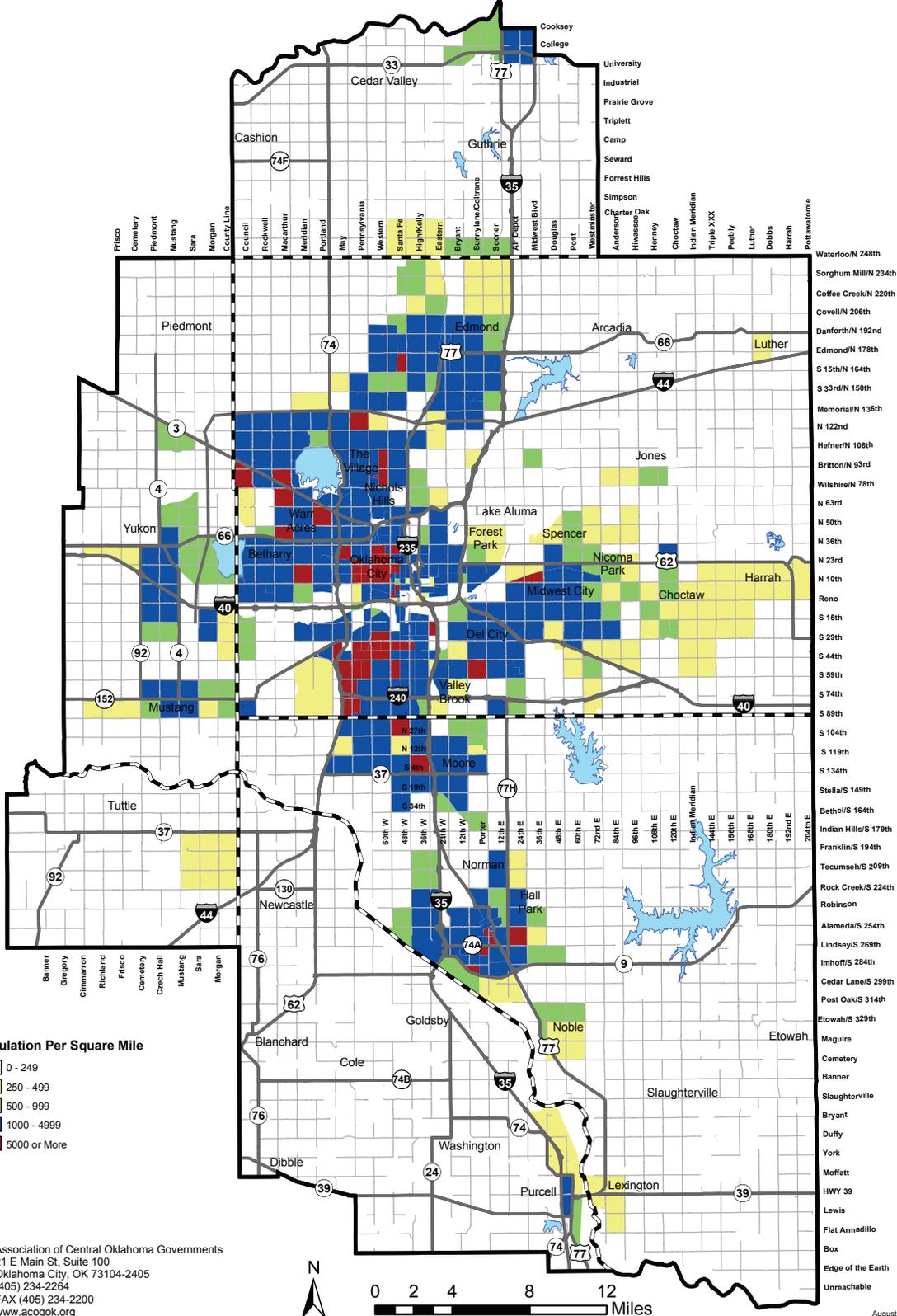
**Table 4:  
Dwelling Unit and Population Estimates by Entity, 2000 and 2030**

Entity	2000 Dwelling Units		2000 Total Population	2030 Dwelling Units		2030 Total Population
	Total	Occupied		Total	Occupied	
Arcadia	126	108	279	148	127	320
Bethany	8,874	8,161	20,307	9,262	8,461	21,310
Blanchard	1,175	1,083	2,814	1,881	1,738	4,490
Cashion	46	44	144	65	62	200
Cedar Valley	30	28	58	105	98	200
Choctaw	3,617	3,450	9,377	5,959	5,674	15,100
Cimarron City	0	0	0	0	0	0
Cole	183	169	473	254	234	650
Del City	9,725	9,045	22,128	10,830	10,087	24,340
Dibble	88	79	209	189	170	450
Edmond	26,380	25,256	68,315	40,859	38,918	104,700
Etowah	44	42	122	54	52	150
Forest Park	447	433	1,066	538	520	1,240
Goldsby	507	458	1,204	836	765	2,050
Guthrie	4,307	3,854	9,925	5,511	4,913	12,419
Hall Park	382	376	1,088	605	593	1,400
Harrah	1,859	1,736	4,719	2,676	2,504	6,500

**Table 4 (Cont.):  
Dwelling Unit and Population Estimates by Entity, 2000 and 2030**

Entity	2000 Dwelling Units		2000 Total Population	2030 Dwelling Units		2030 Total Population
	Total	Occupied		Total	Occupied	
Jones	986	914	2,517	1,242	1,113	2,930
Lake Aluma	41	40	97	48	47	110
Lexington	842	761	2,086	1,043	933	2,560
Luther	266	228	612	317	272	710
Midwest City	23,853	22,161	54,088	27,663	25,680	62,700
Moore	15,801	14,848	41,138	23,267	21,966	58,000
Mustang	4,930	4,721	13,156	7,956	7,542	20,500
Newcastle	2,071	1,977	5,434	3,483	3,330	9,090
Nichols Hills	1,858	1,729	4,056	1,936	1,763	4,126
Nicoma Park	1,089	943	2,415	1,226	1,058	2,656
Noble	2,134	1,956	5,260	2,849	2,610	6,700
Norman	41,547	38,834	95,694	60,767	56,666	140,316
Oklahoma City	228,127	204,414	506,080	299,142	266,412	665,296
Piedmont	1,191	1,153	3,397	3,368	3,217	9,350
Purcell	2,320	2,120	5,571	3,353	3,060	8,230
Slaughterville	1,419	1,279	3,609	1,908	1,723	4,850
Smith Village	20	19	40	20	19	40
Spencer	1,567	1,420	3,746	1,926	1,704	4,340
The Village	4,997	4,778	10,157	5,485	5,192	11,290
Tuttle	1,648	1,585	4,294	2,699	2,608	7,000
Valley Brook	337	298	817	383	328	900
Warr Acres	4,253	3,978	9,735	4,540	4,221	10,435
Washington	192	186	520	266	258	720
Woodlawn Park	77	75	161	81	79	170
Yukon	8,135	7,830	21,043	10,257	9,882	26,200
Canadian County	235	221	600	307	287	781
Cleveland County	3,828	3,307	11,748	4,943	4,363	15,000
Grady County	2,250	2,149	6,248	3,409	3,253	9,372
Logan County	5,697	5,225	14,461	9,158	8,422	22,925
McClain County	2,441	2,262	6,269	4,744	4,426	12,218
Oklahoma County	5,125	4,711	13,318	8,177	7,432	20,002
<b>OCARTS</b>	<b>427,067</b>	<b>390,444</b>	<b>990,595</b>	<b>575,735</b>	<b>524,782</b>	<b>1,335,036</b>

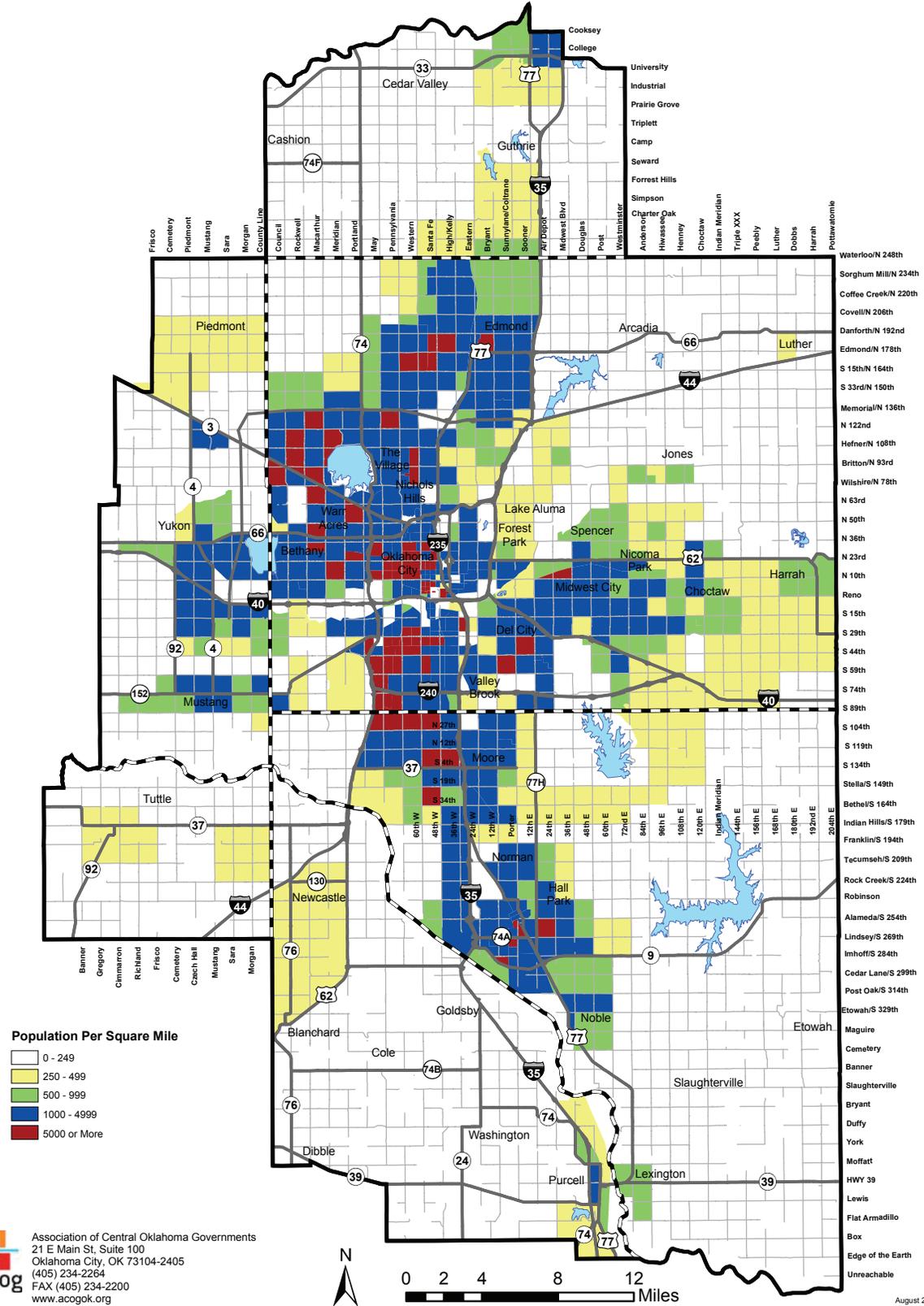
**Figure 7:  
2000 OCARTS Population Density**



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**Figure 8:  
2030 OCARTS Projected Population Density**



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## Employment

The Growth Allocation Model was also utilized to distribute the projected 2030 employment throughout the OCARTS area. New employment over the planning period was estimated by comparing base year conditions with 2030 employment projections.

The Year 2000 employment data was developed from Oklahoma Employment Security Commission (OESC) wage and salary employment records (Year 2000, second calendar quarter) and Census Transportation Planning Package (CTPP Year 2000, Part 2) self-employment counts. This information was supplemented with various phone directories, local newspapers and input from member entities to ensure employment was distributed throughout the region accurately. Employment records were sorted by SIC (Standard Industrial Classification) codes and categorized as either retail or non-retail for use in the modeling process. The CTPP Year 2000 data was also utilized to identify the number of self-employed individuals in the study area.

Employment in the OCARTS area is expected to reach 728,100 in the year 2030, which represents a 34.9 percent increase as compared to an employment total of 539,395 in 2000. The employment data includes both wage and salary data and self-employed workers. The Intermodal Transportation Policy Committee approved employment projections produced by ACOG for use in the 2030 OCARTS Plan on September 30, 2004. The projected growth in employment was allocated among those counties (or portions) included in the OCARTS area as shown in Table 5.

**Table 5:  
Employment Estimates By County, 2000 and 2030**

County	2000 Employees	2030 Employees
	Total	Total
Canadian (pt.)	20,013	26,376
Cleveland	74,569	92,102
Grady (pt.)	1,569	2,200
Logan (pt.)	6,476	9,800
McClain (pt.)	6,034	10,500
Oklahoma	430,483	565,174
<b>OCARTS</b>	<b>539,395</b>	<b>728,100</b>

## Employment Growth Factors and Allocation

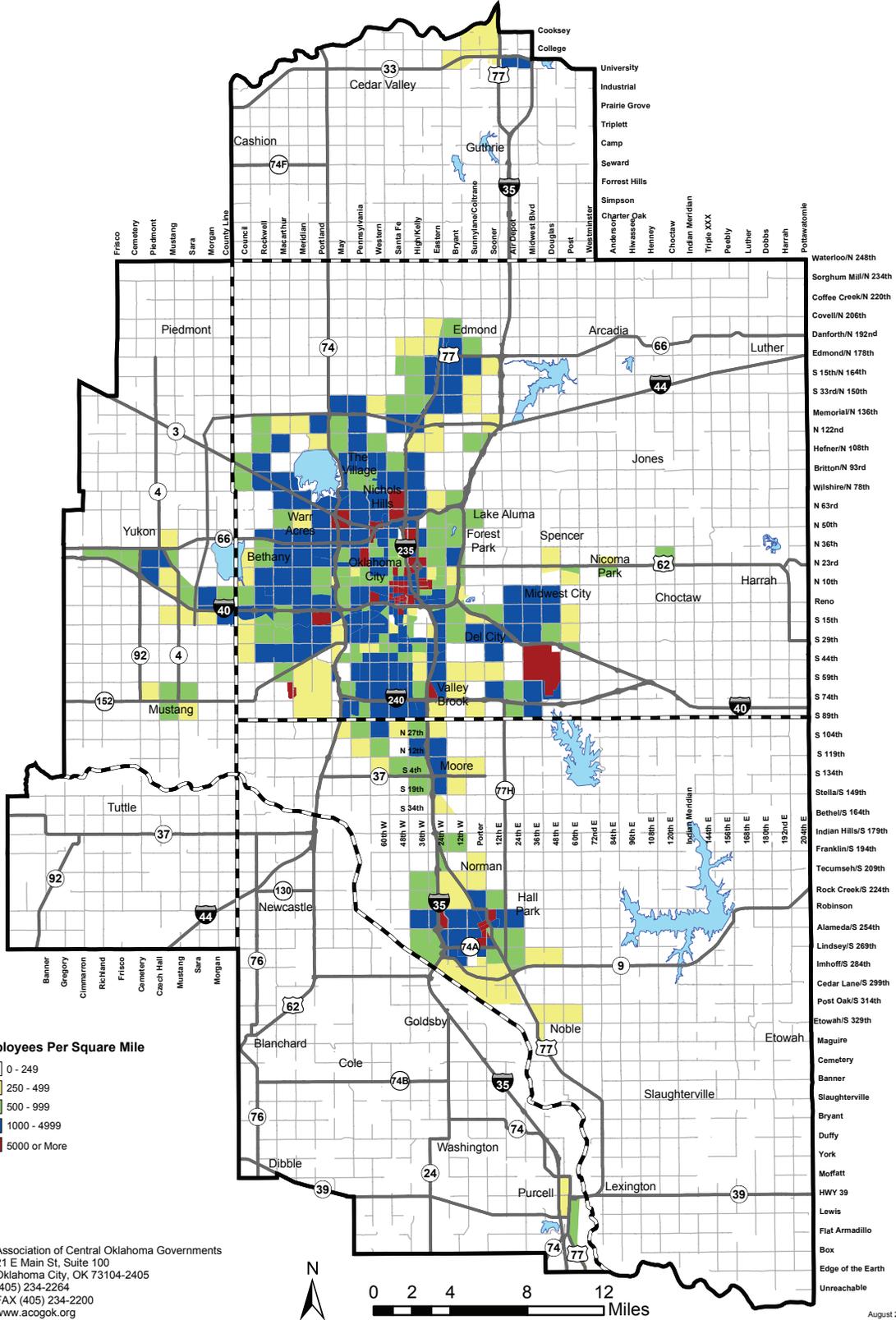
Using the approved 2030 employment control totals by city as constants, the GAM was run again to redistribute forecasted employment to the 52 traffic districts (TD) composing the OCARTS area. The resulting output was preliminary traffic district employment forecasts by place (city or local entity). Each TD's preliminary 2030 employment figure consisted of the base year 2000 employment already assigned to the traffic district plus the additional employment forecasted by the GAM for that specific TD in the year 2030.

As with the previous sets of 2030 employment forecasts, the preliminary traffic district by place employment figures were analyzed and adjusted accordingly after being compared and contrasted against various factors. Figures from past OCARTS plans, regression analysis trends of historical employment datasets, and the availability of planned commercial, office, industrial, and public land use by acre at the TD level were all examined and prompted some modifications to the preliminary TD employment counts.

Recent and anticipated employment developments at the local level were also tracked and factored into the preliminary TD employment figures. Articles from various local newspapers that detailed new employment developments in the OCARTS area since 2000 were collected and used to ensure that enough forecasted employment was assigned to certain traffic districts. Staffs from local governments were consulted to identify specific geographic areas where future employment development was expected, and such information was also incorporated into the preliminary TD employment totals.

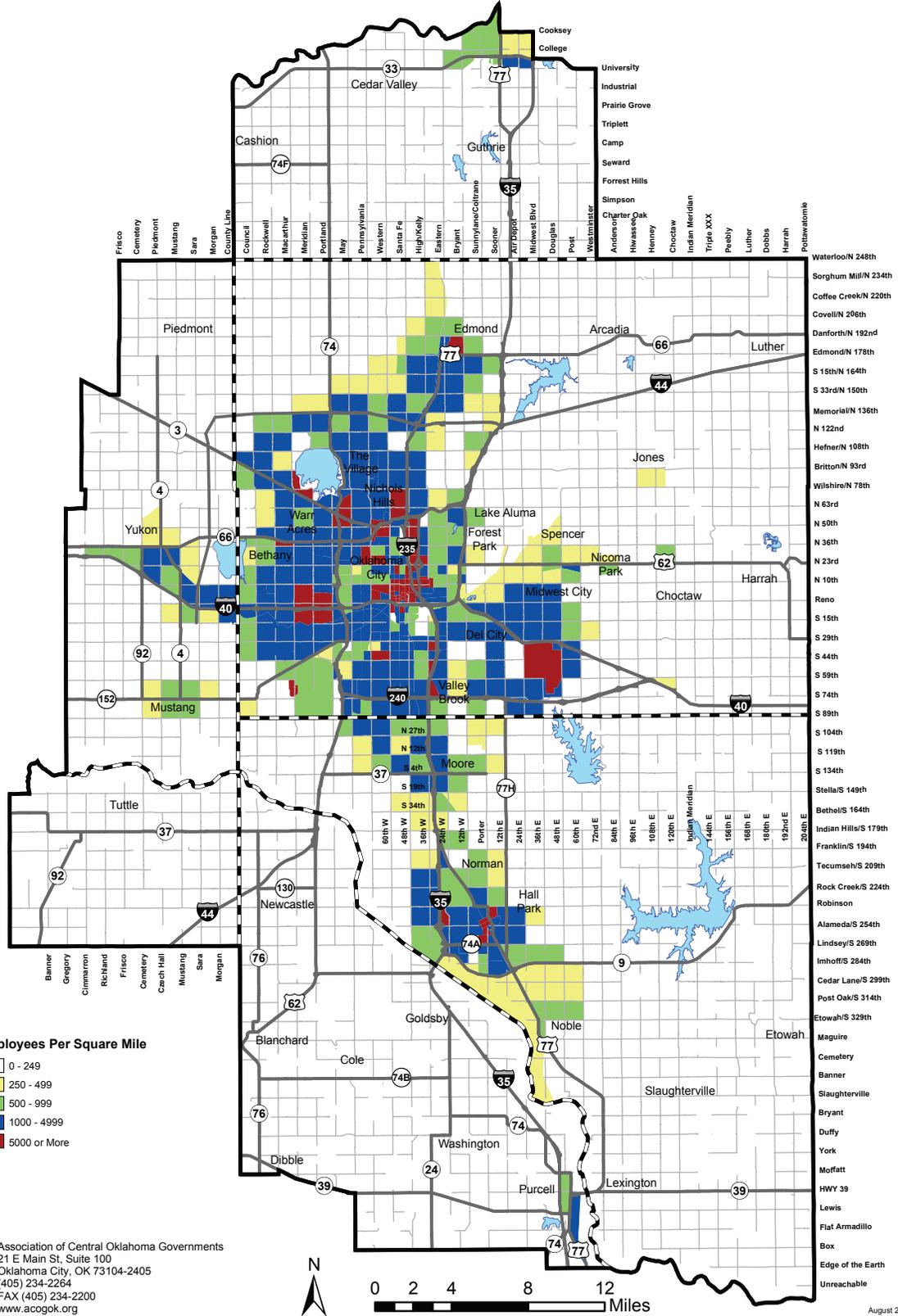
Figures 9 and 10 provide information on estimated base year and forecast year employment density within the OCARTS area.

**Figure 9:  
2000 OCARTS Employment Density**



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**Figure 10:  
2030 OCARTS Projected Employment Density**



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## School Enrollment

To obtain the 2000 base year enrollment data, the MPO staff used several sources, including the Oklahoma Department of Education, the Oklahoma State Department of Vocational and Technical Education, the Oklahoma State Regents for Higher Education, the National Center for Education Statistics, the Southwestern Bell Telephone Directory, various newspaper articles and telephone surveys. The school enrollment data was projected for four different categories of education, including public schools (pre-kindergarten through 12th grade), private schools (pre-kindergarten through 12th grade), vocational-technical schools and university and college education.

The methodologies used to project school enrollment to the year 2030 were based on the relationship between population growth and school enrollment and a historical analysis of this trend in the OCARTS area. Public school district projections were based upon the relationship between the established 2000 population throughout the OCARTS area and school enrollment figures obtained from the Oklahoma Department of Education. Projections for private and vocational-technical schools, and universities and colleges were developed using historical trend analysis of available enrollment data from 1990-2002. Adjustments were made for new schools that were currently planned or recently built, but not yet operational, or based on planned changes or enrollment maximums identified by school administrators. New school enrollments were included only if a known location of the school could be provided by the district. Comments from school district planning personnel were solicited and considered in the case of magnet or other specialty schools.

Generally, school enrollment is expected to increase in the OCARTS area at about the same rate as the population. As shown in Table 6, total school enrollment is estimated to increase 33.6 percent over the planning period from approximately 257,527 students in 2000 to more than 343,920 in 2030.

**Table 6:  
Estimated School Enrollment by Entity, 2000 and 2030**

Entity	2000			2030		
	Public PK-12	Private PK-12	Other*	Public PK-12	Private PK-12	Other*
Bethany	3,737	31	2,283	4,247	45	3,371
Blanchard	1,322	0	0	2,549	0	0
Choctaw	3,367	0	650	5,506	0	670
Del City	4,655	1,030	0	5,408	1,672	0
Dibble	532	0	0	773	0	0
Edmond	13,953	2,157	13,989	22,754	2,912	15,491
Forest Park	146	0	0	170	0	0
Guthrie	3,108	123	0	4,525	223	0
Harrah	2,309	33	0	3,271	0	0
Jones	1,027	0	0	1,615	0	0
Lexington	1,022	0	0	1,309	0	0
Luther	768	0	0	1,208	0	0
Midwest City	9,443	432	7,905	11,015	581	10,194
Moore	9,487	541	309	14,453	780	423
Mustang	4,602	0	0	7,611	0	0
Newcastle	1,051	0	0	1,775	0	0
Nichols Hills	0	298	0	0	384	0
Nicoma Park	1,220	0	0	1,995	0	0
Noble	2,727	0	0	4,097	0	0
Norman	14,188	1,138	25,553	19,497	1,647	29,737
Oklahoma City	70,263	6,236	25,832	86,090	9,018	35,779
Piedmont	1,431	0	0	3,311	0	0
Purcell	1,327	0	0	2,133	0	0
Spencer	639	218	0	733	433	0
The Village	601	864	0	664	1,408	0
Tuttle	1,227	0	0	2,134	0	0
Warr Acres	3,647	0	0	4,195	0	0
Washington	673	0	0	1,071	0	0
Yukon	5,538	481	0	7,645	657	0
Grady Co.	1,053	0	0	1,169	0	0
Oklahoma Co.	1,503	0	0	4,619	0	0
<b>OCARTS</b>	<b>167,424</b>	<b>13,582</b>	<b>76,521</b>	<b>228,462</b>	<b>19,808</b>	<b>95,650</b>

Table reflects only those communities that have at least one school.

\*Other - Colleges, Universities and Vocational-Technology Centers

## Median Household Income/Vehicle Ownership

The 2000 median household income by traffic analysis zone was extracted from the U.S. Census Bureau's Summary File 3 (SF-3) which was gathered at the block group level. Given that the census block group geography did not directly match the traffic analysis zones in the OCARTS area, some of the block group income data was interpolated to the traffic analysis zone level. A median household income dollar figure was available for each block group.

The 2030 median household income was not forecasted for the 2030 OCARTS Plan due to the difficulty of forecasting income data 30 years into the future. As a substitute for 2030 median household income, forecasted vehicle ownership per dwelling unit was used in the travel demand model for the Plan.

## Summary

The 2030 population and employment forecasts for the OCARTS area are intended to provide a picture of where people are expected to live and work in the future. These regional forecasts are distributed throughout the transportation study area to smaller geographical areas, known as traffic analysis zones. The amount and intensity of future development within each zone is dependant upon the presence of available land, the planned land use(s) for such land, and the likelihood it will attract new development, based on a variety of locally determined factors. Therefore, projected population and employment growth, along with anticipated school enrollment, provide an indicator of the number of trips each traffic zone is likely to generate and to attract in the forecast year. Such estimates of travel, discussed in the next Part, provide the basis for determining whether the current transportation system is adequate or whether additional improvements will be needed to accommodate the movement of people and goods over the next several decades.

## PART 4

# REGIONAL TRAVEL CHARACTERISTICS AND MODES

### General

Like most Americans, residents in Central Oklahoma rely heavily on the automobile as their main means of travel. All indications are that this affinity for private vehicles will continue in the future. The increased number of automobiles, vehicle registrations, and licensed drivers within the region over that past several decades is an indicator of greater traffic volumes and increased congestion.

Changes in lifestyles affect how often a person travels, the length of the trips and the destination of the journey. Between 1990 and 2000, the vehicle miles traveled (VMT) in Central Oklahoma increased at a rate faster than the population growth, with the VMT increasing 40 percent and the population increasing 16.4 percent. While it is expected that VMT will continue to grow at a pace faster than population, the trend is expected to taper off over the next 30 years. This is due, in part, to an anticipated stabilization in household size during the latter part of the planning period, which follows a pattern of shrinking household size over the past few decades.

As household size declines, the capacity for additional vehicle miles of travel in each household lessens. Population and employment are projected to increase 34.7 percent and 34.9 percent, respectively, between 2000 and 2030, and travel indicators for the OCARTS area project vehicle miles traveled will increase at a rate of 53.3 percent during the same period. Employment in the OCARTS area is also expected to increase. Projections for 2030 show a 34.9 percent increase from the employment totals in 2000.

Currently, a larger percentage of the OCARTS population participates in the workforce than ever before, and this is projected to continue. In 1990, 47.3 percent of the population ages 16 and over was employed, compared to 54.4 percent in 2000 and a projected 54.5 percent by the year 2030. The proportion of women ages 16 and over in this region that worked outside the home steadily increased from 53.6 percent in 1980 to 59.0 percent in 1990. In 2000 that trend seems to have leveled off as the proportion of women working outside the home was 58.4 percent. In addition, the federal Welfare-to Work legislation, enacted in 1996, aims to move people off the welfare rolls and into the workforce. The cumulative effect of these trends toward higher levels of employment translates into an increase in the total number of home-to-work trips. Many of these trips occur during peak travel periods of the day.

## Legislative Impacts on the Long Range Plan

The Federal-Aid Highway Act of 1956 set the stage for reliance on highway travel as the primary means of mobility and goods movement. This Act enhanced the road-building efforts of previous legislation and called for the completion of a 40,000-mile national system of interstate and defense highways.

In 1991, the Federal government substantially changed the requirements for statewide and metropolitan transportation planning, with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA). In 1998, the Transportation Equity Act for the 21st Century (TEA-21) was signed into law, authorizing highway, highway safety, transit and other surface transportation programs for the next six years. TEA-21, which was extended by Congress through June 2005, built on the initiatives established in ISTEA. TEA-21 combined the continuation and improvement of current programs with new initiatives to meet the challenges of improving safety as traffic continues to increase at record levels.

On August 10, 2005, the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) replaced TEA-21, covering federal fiscal years 2004-2009. SAFETEA-LU builds on the success of the two previous surface transportation laws, supplying the funds and refining the programmatic framework for investments needed to maintain and grow the nation's vital multimodal transportation infrastructure.

SAFETEA-LU addresses the many challenges facing our transportation system today - challenges such as improving safety and security, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment - as well as laying the groundwork for addressing future challenges. SAFETEA-LU focuses on transportation issues of national significance, while giving State and local transportation decision makers more flexibility for solving transportation problems in their communities.

The following sections provide a brief description of each of the modes that make up the fabric of Central Oklahoma's metropolitan transportation system. Modal characteristics and usage are included as well as a description of how all modes are interwoven and connected.

## Street and Highway Profile

In 2000, the street and highway system in the OCARTS area consisted of approximately 168 linear miles of interstates, freeways and expressways; 59 linear miles of turnpikes; and 1,825 linear miles of arterial streets. The remainder of the system consists of numerous miles of local and collector streets. Improvement and maintenance of these facilities generally fall under the jurisdiction of the Oklahoma Department of Transportation, the Oklahoma Turnpike Authority, and local city and county governments, respectively.

The street and highway system provides the foundation for all modes of transportation. In addition to serving automobile and truck traffic, the region's streets and highways provide the system on which public and private transit services are operated and provide access to the region's airports, trails, rail service, and trucking terminals. Safe and efficient operation of the metropolitan street and highway system therefore strengthens the productivity, safety and efficiency of all transportation modes.

In 2000, the OCARTS street and highway network carried approximately 26.7 million vehicle miles of travel (VMT) daily. Of that total, approximately 51 percent of the daily VMT was carried by arterials, which provide direct access to major business and residential areas, 47 percent was carried by the network's interstates and turnpikes, and 2 percent was carried on collector and local streets. In 2000, average daily VMT per person in the OCARTS area was 26.9 miles and the average daily household VMT was 66.12 miles.

Table 7 summarizes the base year number of miles and daily VMT for the state and the OCARTS area.

**Table 7:  
Mileage and VMT in the State and OCARTS, 2000**

Functional Classification	Linear Miles		Daily VMT (x1000)	
	State	OCARTS	State	OCARTS
Interstates	933	221	26,358	12,434
Other Freeways & Expressways	188		6,704	
Other Principal Arterials	3,368	291	28,760	6,060
Minor Arterials	4,828	670	24,337	7,590
Collectors	25,313	788	20,535	655
Local	78,242	5,202	19,214	Not Available
<b>Totals</b>	<b>112,872</b>	<b>7,172</b>	<b>125,908</b>	<b>26,739</b>

Sources: Oklahoma Department of Transportation, Planning and Research Division  
ACOG, 2000 Transportation Model

Based on the MPO's transportation modeling for 2000 and 2030, the daily vehicle miles of travel within the OCARTS area is estimated to increase by more than 53 percent to 40.9 million over the 30-year planning period. Vehicle hours of travel per day is expected to increase 54 percent, and total daily vehicle trips within the region is projected to increase approximately 36 percent.

Along with increased travel, come impacts to the overall performance of the street and highway system. These can include congestion, slower speeds, longer trip lengths and increased numbers of accidents. The goal of long range planning is to establish a cost-effective system of transportation improvements that will minimize the impacts of increased travel. Thus, the addition of street and highway capacity, intelligent transportation system (ITS) improvements, transportation system management and travel demand management techniques, and multimodal improvements called for by the 2030 OCARTS Plan are an attempt to improve the safety, security and efficiency of the transportation network. By accomplishing these goals, transportation improvements also make a contribution to improved air quality in the region.

Table 8 summarizes base year and anticipated forecast year travel demand, system performance and vehicle emissions associated with implementation of the 2030 OCARTS Plan.

**Table 8:  
Travel in the OCARTS Area, 2000-2030**

Characteristic	2000	2030	% Change
<b>Daily Transportation Demand</b>			
Vehicle Miles of Travel (thousands)	26,739	40,982	53.3
Vehicle Trips (thousands)	3,144	4,298	36.7
Vehicle Hours of Travel (thousands)	607.5	933.5	53.7
<b>System Performance</b>			
Average Speed (mph)	44	44	0.0
Average Daily Accidents	38	57	50.0
Average One-Way Trip Length (minutes)	11.6	13.0	12.1
<b>Environment</b>			
Daily Fuel Consumption (thousands of gallons)	1,565.9	2,539.5	62.2
Carbon Monoxide Emissions (tons/day)	942.9	506.9	-46.2
Hydrocarbons Emissions (tons/day)	52.4	15.6	-70.2
Nitrogen Oxide Emissions (tons/day)	80.1	13.6	-83.0

Source: ACOG 2000-2030 TRANPLAN Model

Part 3 provided information on land use and socioeconomic growth trends used for travel demand modeling. The total demand for travel is determined by matching travel characteristics to the forecasted population in the study area. Travel demand is then converted to actual trips by considering the distribution of population and land use activities that generate the demand. Distance, speed and traffic congestion are all factors used by the transportation model to determine the level of use of streets and highways.

Information on travel characteristics is commonly obtained through origin-destination surveys, which provide such data as where trips start, where they go, by what mode, for what purpose, and so forth. The following travel characteristics were used in the 2030 OCARTS Plan modeling process:

- ***Trip Purpose*** - This study utilized eight trip purposes, four of which were home based. Home-based trips either begin or end at the residence of the trip maker. Trips are also classified according to whether they begin and end completely within the study area, connect a location within the study area to a location outside the study area, or simply pass through the study area with both the origin and destination of the trip located beyond the study area limits.
- ***Trip Generation*** - Trip generation analysis is used to relate the number of trips to and from activities in the study area to the type and intensity of land use. Trips made for different purposes have different characteristics. For example, the number of trips attracted to a shopping center will be different from those attracted to an industrial park, even if the two occupy about the same amount of land. Trip generation analysis is concerned with two basic components within each traffic zone, the number of trips produced and the number of trips attracted. OCARTS area land use is utilized to estimate total trips, and trip productions must be equivalent to trip attractions.
- ***Special Generators*** - Special generators are land uses that are difficult to estimate in the trip generation and distribution model. Special generators contain a concentration of activities of such magnitude or unusual nature that special consideration is warranted in the trip generation analysis. Examples of special generators include major airports, stadiums, hospitals, universities, military bases and regional shopping centers. A total of 41 special generators were used in the 2000 model calibration.
- ***Trip Distribution*** - Trip distribution is the procedure used to determine where the trips produced in each traffic zone are attracted. The computer model distributes production trips based on the accessibility and land use patterns of the traffic zones, as well as the social and economic characteristics of the population, as described in the previous Part.

- **Traffic Assignment** - Traffic assignment is an iterative process used by the transportation model to assign all trips to the street and highway network with consideration of constraints such as street capacity, traffic volume and speed. The traffic assignment process is the final step in the process and is complete when no trip can be made by an alternate route without increasing the total travel time of all trips on the network.

## Transit Profile

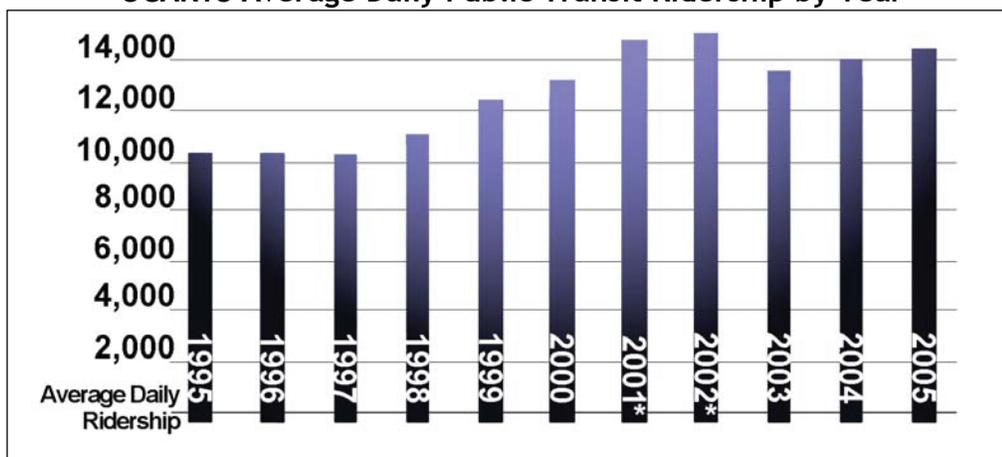
Both government and private businesses provide transit services in Central Oklahoma. Public transit operations include government funded and operated fixed-route and express bus service, including the Oklahoma Spirit and Eddy trolleybuses; demand-response services, primarily serving the elderly and citizens with disabilities; rural transit service; flexible route service to further Welfare-to-Work initiatives; rideshare programs; and Amtrak passenger rail service.

Private transit offerings in the area consist of taxis, commercial bus lines, shuttles and other privately owned and operated transportation systems. Transportation operated by private non-profit organizations that benefit the elderly and citizens with disabilities are eligible to receive federal transit funds to assist with vehicle purchases.

Public transit in the OCARTS area is provided by the Central Oklahoma Transportation and Parking Authority (COTPA) and the University of Oklahoma Transit Services, which operate bus services known as METRO Transit Oklahoma City and METRO Transit Norman, respectively. The Norman system is also known as CART (Cleveland Area Rapid Transit). COTPA was the lead agency in managing public transportation services for the OCARTS area until October 1, 2002. As a result of the 2000 census and revisions to the U.S. Census Bureau's criteria for determining urban and rural territories, Norman was designated a separate urbanized area from the Oklahoma City urbanized area. Both COTPA and CART receive urbanized area formula funds from the Federal Transit Administration (FTA) and bear responsibility for planning and operating transit services in conjunction with regional planning efforts conducted by ACOG.

After a decline in ridership due to service cuts in the mid-1990s, recent trends demonstrate that METRO Transit's ridership is increasing. Historically, within the region, transit ridership has accounted for approximately one-half of one percent (0.5%) of the total trips. Since total vehicle trips are also increasing, the relationship between total trips and transit trips over the planning period is expected to remain constant at approximately 0.5 percent. A dedicated funding source for additional public transit, bus or rail, would be necessary to project increased services and ridership in the future. Figure 11 below shows the OCARTS area bus ridership over the past ten years.

**Figure 11:  
OCARTS Average Daily Public Transit Ridership by Year**



Source: COTPA and CART ridership figures.

\*In 2001 and 2002, the Oklahoma City Public Schools utilized METRO Transit as transport for students, adding approximately 2,000 riders to the daily average. In January 2003, Oklahoma City Public Schools ceased utilizing METRO Transit’s services.

In April 2001, COTPA completed and approved a Long Range Transit Plan (LRTP)<sup>7</sup>. The LRTP seeks to create a transit system that will be an active partner in meeting the mobility needs of the citizens of Central Oklahoma. Since the adoption of its long range plan, COTPA has completed many of its short term goals and continues make progress on others. For example, COTPA and the cities of Edmond and Midwest City have partnered to extend service in those communities, METRO Transit has worked to enhance its public image and marketing efforts and ADA accessibility has been increased with the acquisition of new buses that are wheelchair equipped. One of the most significant accomplishments was the construction of a new downtown transit center at NW 5<sup>th</sup> and Hudson, which opened in May 2003. The new center features 17 bus bays, covered outdoor seating, a climate controlled indoor waiting area, and staff for maintenance, customer service and security.

COTPA completed a Fixed Guideway Study<sup>8</sup> in 2006 that considered the feasibility of light rail and several other transit technologies for the region as an alternative to automobile travel. Briefly, the findings of the study recommended enhancing the current bus system to serve a larger portion of the OCARTS area population as well as increasing the frequency of its current service; connecting Norman, Midwest City and Edmond via commuter rail transit (CRT); serving the northwest and west areas of the region with bus rapid transit (BRT); and enhancing travel in the core of Oklahoma City with a circulating streetcar/light rail system. In addition, the study provided a preliminary phasing plan for the various technologies through the year 2030, and recommended development of a new downtown intermodal transportation center near the intersection of the Union Pacific

<sup>7</sup> COTPA Long Range Plan, Multi Systems, March 2001.

<sup>8</sup> Fixed Guideway Study, Carter Burgess, July 2006.

and BNSF railroads to provide a centrally located hub for transfers between bus, BRT, CRT and the streetcar circulator. The projected capital cost for the overall system was estimated at \$389.2 million.

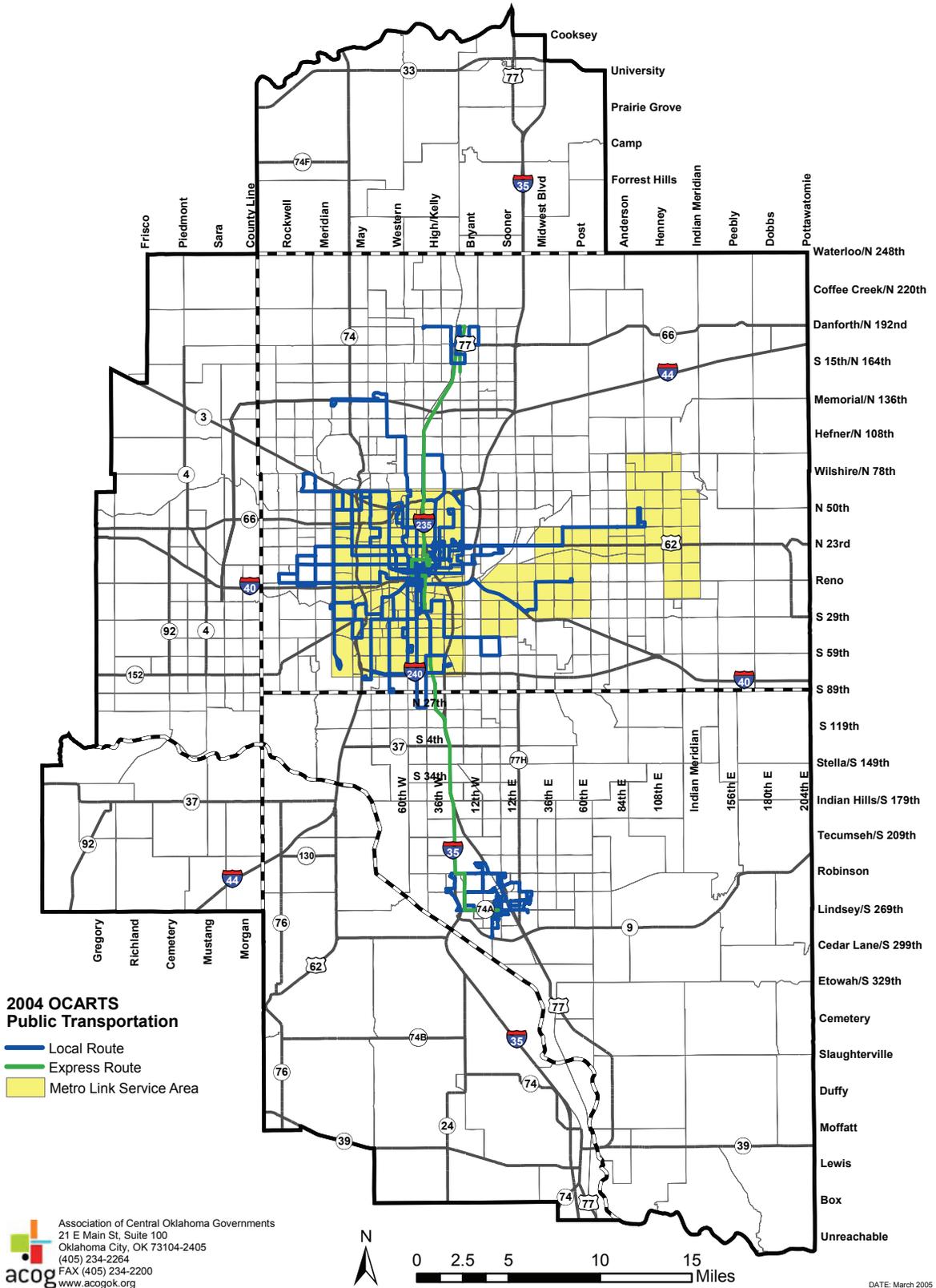
If public transit in the Central Oklahoma region is to move beyond the technology currently utilized, a lengthy development and implementation process is required by the Federal Transit Administration (FTA). The Systems Planning Phase of the Fixed Guideway Study mentioned above is the first step of that process. An Alternatives Analysis will need to be performed to select the preferred alternative and operations and maintenance costs will have to be developed. Preliminary engineering, FTA review of potential impacts, and FTA concurrence will need to occur before final design of the system can be completed and federal funding approved. Even with a strong level of commitment from the local governments of Central Oklahoma, the process could take ten years or more to complete. Locally, the region would need to provide matching funds for the capital costs of the system and establish a continuing funding source for its maintenance and operation.

A summary of the current transit services, public and private, provided throughout the OCARTS area is provided below.

#### **METRO Transit Fixed Route Bus Service**

The Oklahoma City METRO Transit system includes approximately 24 local routes, three trolleybus routes in Edmond, three trolleybus routes in downtown Oklahoma City and two express routes serving Edmond, Norman, and Oklahoma City. The Norman METRO Transit system includes eight local routes in and around the University of Oklahoma campus and the City of Norman and an express route to and from Oklahoma City. In 2005, the average weekday ridership for both systems was approximately 14,209 passengers. The METRO Transit fixed and express routes are reflected in Figure 12.

**Figure 12:  
METRO Transit Routes and Service Areas**



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or <http://www.acogok.org/mapdisclaimer.asp>

### **METRO-Link Flexible Routes**

To further national Welfare-to-Work objectives, COTPA initiated flexible route services in November 1999. Services are provided by a local private transportation provider under contract with COTPA and include:

- demand-response vans that are lift equipped, serving approximately 50 square miles in eastern Oklahoma County when city buses are not in service, and
- extended service hours (evenings and Sundays) to current fixed routes within a portion of Oklahoma City (roughly bounded by NW 63<sup>rd</sup> Street, I-240, Meridian Avenue and I-35).

The services are designed to address unmet transit needs in the region and to help individuals reach jobs, childcare, and training opportunities when routine bus service is not available.

### **Rideshare (Vanpool and Carpool) Services**

The Rideshare program, managed by COTPA, provides computerized matching of applicants based on geographical locations of residence and work. In FY 1999, COTPA completed a Rideshare Feasibility Study, which compared various operating and financing options, and identified major employment centers to which rideshare services might be targeted.

### **Rural Transportation Services**

In addition to the transit services provided by COTPA and CART, Delta Public Transit in McClain County and the Logan County Historical Society in Guthrie provide transit services under the Federal Transit Administration (FTA) Section 5311 program, which assists non-urbanized areas provide rural public transportation. The Transit Programs Division of the Oklahoma Department of Transportation (ODOT) administers the Section 5311 program in Oklahoma, which is responsible for providing an equitable distribution of program funds throughout the State to approximately 20 rural transit systems. The Section 5311 funds are used for capital equipment, administration, and operation. Rural transit providers are eligible for reimbursement of 80 percent of capital and administrative costs, 50 percent of their net operating deficits, and 90 percent of capital expenses associated with compliance with the Americans with Disabilities Act (ADA).

### **Services for the Elderly and Persons with Disabilities**

The Oklahoma Department of Human Services, Aging Services Division, administers a program established by Section 5310 of the Federal Transit Act that provides assistance to private, non-profit organizations to purchase vehicles to transport their elderly and disabled clients. Transportation is provided to work, medical appointments, shopping, recreation and other everyday needs.

## **Additional Transit Services for Elderly and Disabled Citizens**

In addition to the services described above, COTPA coordinates with several local social service agencies and private taxi companies to provide unique programs to meet the needs of elderly and disabled citizens in compliance with the Americans with Disabilities Act (ADA). These include the following:

- **METRO-Lift** service for mobility-impaired persons began as a part of the Oklahoma City System in January 1982. The service was expanded in 1992 in response to U.S. Department of Transportation regulations to provide public transportation for persons whose disabilities may prevent them from using the local fixed route bus system. The Oklahoma City System METRO Lift fleet includes 21 wheelchair lift-equipped paratransit vehicles and five supervisors' vehicles that are capable of providing paratransit service. Service areas include Zone 1, a zone  $\frac{3}{4}$  mile of either side of the local routes, and Zone 2, the remaining portions of Oklahoma City (service for Zone 2 is provided on the basis of space and time availability). The fare for this service is \$2.50 within Zone 1 and \$5.00 for Zone 2.

The CART system offers METRO Lift transportation to individuals who are unable to ride the fixed route service. Service is provided with 10 wheelchair equipped paratransit vehicles. The fare for this service is \$1.00 within the primary service area ( $\frac{3}{4}$  mile on either side of local routes), and \$2.50 for the remaining portions of Norman.

- **STEP (Supplemental Transportation for Elderly and Disabled Persons) Grocery Shopping Shuttle** is a contracted, donation-based shopping shuttle service underwritten by the Areawide Aging Agency and COTPA and primarily operated by the Salvation Army, the Community Action Agency, and Harrah Senior Citizens, Inc. STEP provides free, fixed route service throughout the Oklahoma City metropolitan area for citizens 60 years of age and older. Participants are picked up at their residences, senior citizen centers, or congregate meal sites, taken to designated local grocery stores for shopping, and returned to their homes.
- **Congregate Meals Program** is a donation-based transportation service for persons 60 years of age and older. The Areawide Aging Agency and COTPA provide funding, while the services are contracted with providers such as the Salvation Army, the Community Action Agency and Harrah Senior Citizens, Inc. The program provides two-way transportation from participants' residences to fifteen meal sites located throughout Oklahoma County.
- **Share-A-Fare** provides low cost taxi service for disabled persons and persons at least 60 years of age. This service operates 24 hours a day, seven days a week, in conjunction with the local taxi companies who provide curb-to-curb service for residents in Bethany, Del City, Edmond, Midwest City, Moore, Nichols Hills, Oklahoma City, and

The Village. COTPA subsidizes 10 percent, the participating communities contribute another 30 percent, with the participants paying the remaining 60 percent of the taxi fare.

- **Interim** is a free, temporary, demand-responsive taxi service for persons who are disabled or at least 60 years of age, who are unable to secure transportation from any other source. This service is available within designated areas of the Oklahoma City metropolitan area. COTPA administers the program, which is financed in part by the Areawide Aging Agency.
- **Discount Bus Pass Program** offers half-fare bus service to disabled persons or persons at least 60 years of age. Monthly passes are available. Patrons can access this service with a METRO Transit identification card or a Medicare card.
- **Daily Living Centers** are nonprofit geriatric day care centers that provide nutrition, nurse monitoring, therapeutic programs and physical and occupational therapy. Free door-to-door transportation is available for elderly and disabled persons, which is funded by the Daily Living Centers and COTPA.
- **Social Service Transportation** is a taxi service for emergency or medically related transportation needs of homeless and/or low income individuals. It is operated through a contract with a local taxi company and underwritten by the City of Oklahoma City and COTPA. The service is available to selected homeless shelters and social service agencies.
- **Senior Companion Program** is a door-to-door, donation-based transportation service in which the volunteer companion is picked up at their residence, delivered to the residence of the individual being served, picked up four hours later, and then returned to their home.
- **Retired Senior Volunteer Program (RSVP)** is a donation-based transportation program that utilizes approximately 40 senior volunteers monthly who use their own vehicles to transport frail or elderly persons to medical appointments.

### **Amtrak Passenger Rail Service**

Passenger rail serving the OCARTS area is provided by Amtrak, which returned to the State of Oklahoma in June 1999 after nearly two decades of absence. Known as the Heartland Flyer, interstate passenger rail is provided daily between Oklahoma City and Fort Worth, Texas, with intermediate stops in Norman, Purcell, Pauls Valley, Ardmore, and Gainesville, Texas. Ridership for the Heartland Flyer totaled 66,968 in FFY 2005.

The Oklahoma Department of Transportation updated a High Speed Passenger Rail Feasibility Study<sup>9</sup> in 2002. The study recommended that the Heartland Flyer service be extended north to Newton, Kansas to augment the current service to Ft. Worth. The study also concluded that further expansion of the Heartland Flyer to Denver, Colorado should be considered along with the incremental development of passenger rail service between Oklahoma City and Tulsa. In 2005, Amtrak began bus service between Tulsa and Oklahoma City via its Thruway Motorcoach service.

Most transportation funding issues were settled with the passage of SAFETEA-LU. However, funding for Amtrak is not part of the reauthorization measure and must be set in the annual transportation appropriations process. Federal proposals may change the way Amtrak is funded in the future, which could include providing federal matching grants to states for rail infrastructure improvements, giving states the responsibility of operating the lines and allowing other operators to compete with Amtrak.

In 2005, the State of Oklahoma approved nearly \$2 million in the 2006 fiscal year for the continued operation of the Heartland Flyer. Amtrak funding is included beyond FY 2006 in House Bill 1078, subject to revenue growth for the State. The future of Amtrak service in the OCARTS area in its current or expanded form is dependent upon continued funding at the state and federal levels.

### **Private Transit Services**

In the Oklahoma City metropolitan area, public transportation services are supplemented by several private taxicab operations. Although approximately ten taxi services are located in Oklahoma City, the primary operator is under the management of Yellow Cab Company. Shuttle service to and from Will Rogers World Airport throughout the metro area and other parts of the state is provided by Airport Express, which also contracts with COTPA to provide the METRO-Link service in eastern Oklahoma County.

Four private companies also provide intercity and interstate bus service within Central Oklahoma. Greyhound provides the most widespread service throughout the state and beyond, with Oklahoma City serving as the connection for several routes. Jefferson Lines; Texas, New Mexico & Oklahoma Coaches; and Trailways Continental provide more limited service between Central Oklahoma and other parts of the state and central United States.

## **Bicycle and Pedestrian Facilities Profile**

Bicycle and pedestrian facilities offer an alternative means of travel that provide users direct routes to recreational and non-recreational destinations. As an added bonus, such facilities promote healthy lifestyles and often enhance an area's desirability for tourism and economic

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<sup>9</sup> High Speed Passenger Rail Feasibility Study, Carter Burgess, January 2002.

development. Similar to street and highway planning, these networks require coordinated planning among multiple jurisdictions, and should be linked to transit stops, schools, parks, and retail and medical centers to provide a useful transportation alternative. Bicyclists carry the same rights and responsibilities as motor vehicle drivers and are legal on nearly all public roadways in Oklahoma.

Beginning with the Intermodal Surface Transportation Efficiency Act of 1991, metropolitan areas have been encouraged to develop regional trails networks through coordinated planning and implementation among jurisdictions. In recent years, bicycle and pedestrian facilities have become more prevalent in the OCARTS area. Master trails plans and bicycle facilities plans for Choctaw, Edmond, Norman, and Oklahoma City were adopted during the 1990s and reflected in the 2025 OCARTS Plan. Since then, the cities of Guthrie, Harrah, and Moore have developed master trails plans. These plans evaluate existing facilities and conditions, identify areas where trails are needed or desired, describe design guidelines, list possible funding sources, and recommend an implementation plan for each city's trails. Other cities throughout the region are interested in trail development and several have constructed trails in their communities with local, state, federal, and private funding.

Federal surface transportation legislation provides several funding sources that include bicycle and pedestrian improvements as eligible activities for federal-aid assistance. The primary federal funding source for such improvements is the Surface Transportation Program (STP), including the STP Enhancement set-aside required of each state. Other federal funding categories, such as the National Highway System and Bridge Rehabilitation/Reconstruction Programs, also permit construction of bicycle and pedestrian facilities in conjunction with eligible highway and bridge improvements. The Recreational Trails Program (RTP) funds the development of motorized and non-motorized trails using revenues paid into the Highway Trust Fund from fees on non-highway recreational fuel and camping equipment. Several OCARTS communities have used these funds for the development of recreational trails in their communities.

- **Sidewalk Facilities** - Sidewalks throughout the OCARTS area have traditionally been built at the local level, often as a requirement of developers. Although gaining in popularity, over the years sidewalk construction has wavered among and even within cities, which has resulted in a piecemeal provision of sidewalks throughout the region. Currently, ten communities in Central Oklahoma require that sidewalks be constructed as part of the land development or building permit process, and many communities have been constructing sidewalks with local funds or in conjunction with roadway projects that utilize a combination of federal and local funds.

Two unique pedestrian tunnel systems exist within Oklahoma City—one in downtown Oklahoma City and the other at the State Capitol office complex. The downtown system, known as the Metro Concourse, is

bounded by NW 4th Street on the north, E.K. Gaylord Avenue on the east, Sheridan Avenue on the south, and Hudson Avenue on the west. The Capitol system connects the Will Rogers, Sequoyah, Hodge and Conners state office buildings and adjacent parking areas. A separate tunnel connects the State Capitol with parking to its east. In total, the Capitol system includes five tunnels with just over 19,000 square feet of area.

- Bicycle Facilities** - As of February 2005, there were nearly 198 miles of existing bicycle facilities and 429 miles of planned bicycle facilities in the region. Planned facilities are defined as those included in an adopted trails master plan or resolution of the local governing body, plus individual trails with a funding commitment. The existing and proposed bicycle facilities are reflected in Table 8. A vision for an integrated, long range regional bicycle network was developed by local government leaders in Central Oklahoma as a part of the 2030 Plan process, and is shown in the next Part.

A more detailed description of the OCARTS bicycle and pedestrian facilities can be found in the 2030 OCARTS Plan Intermodal Element Component (IME), a separate report available from ACOG.<sup>10</sup>

**Table 8:  
Existing and Planned Bicycle Facilities, 2005**

City	Existing Miles	Planned Miles	Total
Choctaw	2.14	39.12	41.26
Del City	2.15	1.61	3.76
Edmond	3.60	127.00	130.60
Hall Park	1.25	0.63	1.88
Harrah	1.73	6.49	8.22
Logan County	0.00	7.26	7.26
Midwest City	7.99	0.00	7.99
Moore	1.91	32.08	33.99
Mustang	1.64	0.00	1.64
Newcastle	0.00	2.52	2.52
Nichols Hills	0.49	1.39	1.88
Noble	0.36	0.00	0.36
Norman	99.98	47.83	147.81
Oklahoma City	71.85	138.71	210.56
Piedmont	0.55	0.00	0.55
Purcell	0.88	0.00	0.88
Warr Acres	0.00	1.62	1.62
Yukon	0.52	0.00	0.52
<b>Total</b>	<b>197.84</b>	<b>428.59</b>	<b>626.43</b>

Facilities include multi-use and bicycle facility miles as of February 2005. Statistics for the City of Norman include approximately 94.9 miles of on-street bicycle facilities.

<sup>10</sup> FYE 2005 UPWP Report - Task 2.01, Subtask 4d, *2030 OCARTS Plan Intermodal Element Component*, ACOG, May 2005.

## Freight/Goods Movement Profile

In addition to providing increased opportunities for the movement of people, an integrated transportation system must also accommodate the efficient movement of goods and freight. Goods movement is generally accomplished through the shipment of products by truck, rail, water and air, or a combination of two or more of these modes. The IME discusses freight movement within the OCARTS area by mode of transportation. Movement of goods and freight serves as the lifeline of an area's economy and affects its ability to expand. The maintenance of an interconnected transportation system is therefore essential. A sound street and highway network provides access to the warehouses, transfer stations, terminals, ports, and airports required to deliver and transfer goods throughout each metropolitan area and the nation.

Currently, the OCARTS area includes approximately 367 trucking companies, two Class I and two Class III rail lines, four rail terminals and seven public airports. These intermodal facilities are shown in Figure 13 on page 63. There are no navigable ports within the OCARTS area. The majority of the goods and freight transported in the OCARTS region is moved by trucks, rail lines move the next largest portion, and the remaining portion is transported by air. Goods moved by air are expected to increase significantly within the 25 year planning horizon, but will continue to carry only a minor portion of the freight tonnage in and out of the area. Truck traffic currently dominates the inbound and outbound, as well as intra freight movement. In relation to total street and highway traffic volume in the OCARTS area, truck traffic represents approximately nine percent.

**Table 9:  
OCARTS Area 2000 and 2030 Freight Movement by Mode**

Mode	2000 Tonnage	2000 Percent by Mode	Projected 2030 Tonnage	2030 Percent by Mode	2000 - 2030 Growth
<b>Inbound Freight</b>					
Truck	27,118,034	88.3%	47,277,011	88.6%	74.3%
Rail	3,551,861	11.6%	5,940,363	11.1%	67.2%
Air	27,879	0.1%	119,594	0.2%	329.0%
<b>Total</b>	<b>30,697,774</b>	<b>100.0%</b>	<b>53,336,968</b>	<b>100.0%</b>	<b>73.7%</b>
<b>Outbound Freight</b>					
Truck	15,525,861	95.2%	30,006,031	94.4%	93.3%
Rail	758,939	4.7%	1,607,610	5.1%	11.8%
Air	24,007	0.2%	184,367	0.6%	668.0%
<b>Total</b>	<b>16,308,807</b>	<b>100.0%</b>	<b>31,798,008</b>	<b>100.0%</b>	<b>95.0%</b>

Source: Reebie Associates, September and December 2004, and ACOG December 2004.

## **Trucking**

Trucking is the predominant method of freight/goods transport in the OCARTS region. Trucks transported more than 88 percent of inbound freight and 95 percent of outbound freight in the OCARTS region in 2000. In addition, trucks transported more than 99 percent of intraregional and over 88 percent of through freight<sup>11</sup>. Motor carriers rely on OCARTS area interstates, highways, and arterials to access key locations. The Oklahoma Department of Transportation consistently takes into account the anticipated effects of trucks in their design. In order to accommodate and guide commercial vehicle traffic along certain corridors, some OCARTS member entities have designated truck routes.

## **Rail**

Two Class I rail lines serve the OCARTS area - BNSF and Union Pacific (UP). Class I railroad companies represent rail lines operated by large-scale railroad corporations, serving the nationwide market. BNSF is operating on the most extensive network of tracks, totaling 157 miles (109 miles owned and an additional 48 miles leased); UP on the other hand is operating on a total of about 48 miles of tracks (30 miles owned and 18 miles leased) within the study area.

Also called Short Lines, Class III railroads represent small-scale rail lines, which are usually locally operated, and function only within a single state or a few contiguous states. Three Class III railroads operate within the OCARTS area - Southern Kansas & Oklahoma (SK&O), Arkansas Oklahoma Railroad Company (AOK), and Stillwater Central Railroad (SLWC). The railroad companies have taken up operations on multiple miles of state owned tracks, based on a long-term lease and operating agreement with ODOT.

Four rail terminals are located within the OCARTS area: two of them owned by BNSF, another located on the Stockyard grounds, and one terminal serving the GM Assembly Plant (GM ceased production at this plant in 2006). These facilities and the rail tracks are also shown in Figure 13. Only one of these rail yards (the BNSF facility located on South Eastern Avenue) is crane-equipped and capable of transferring freight between truck and rail.

## **Air Freight and Airport Access**

In Oklahoma, airfreight shipments accounted for 11 percent of the value of outbound shipments in 1997 (three percent by air carrier and eight percent by airmail). Statewide, while air carrier shipments and airmail combined for 11 percent of the value of outbound freight, they represented only two tenths of a percent of outbound freight when measured by weight. However, air cargo is suited to goods with a high time value, such as perishables, electronic parts, apparel, shoes, printed material, and pharmaceuticals. Because of time advantages, shippers are willing to pay

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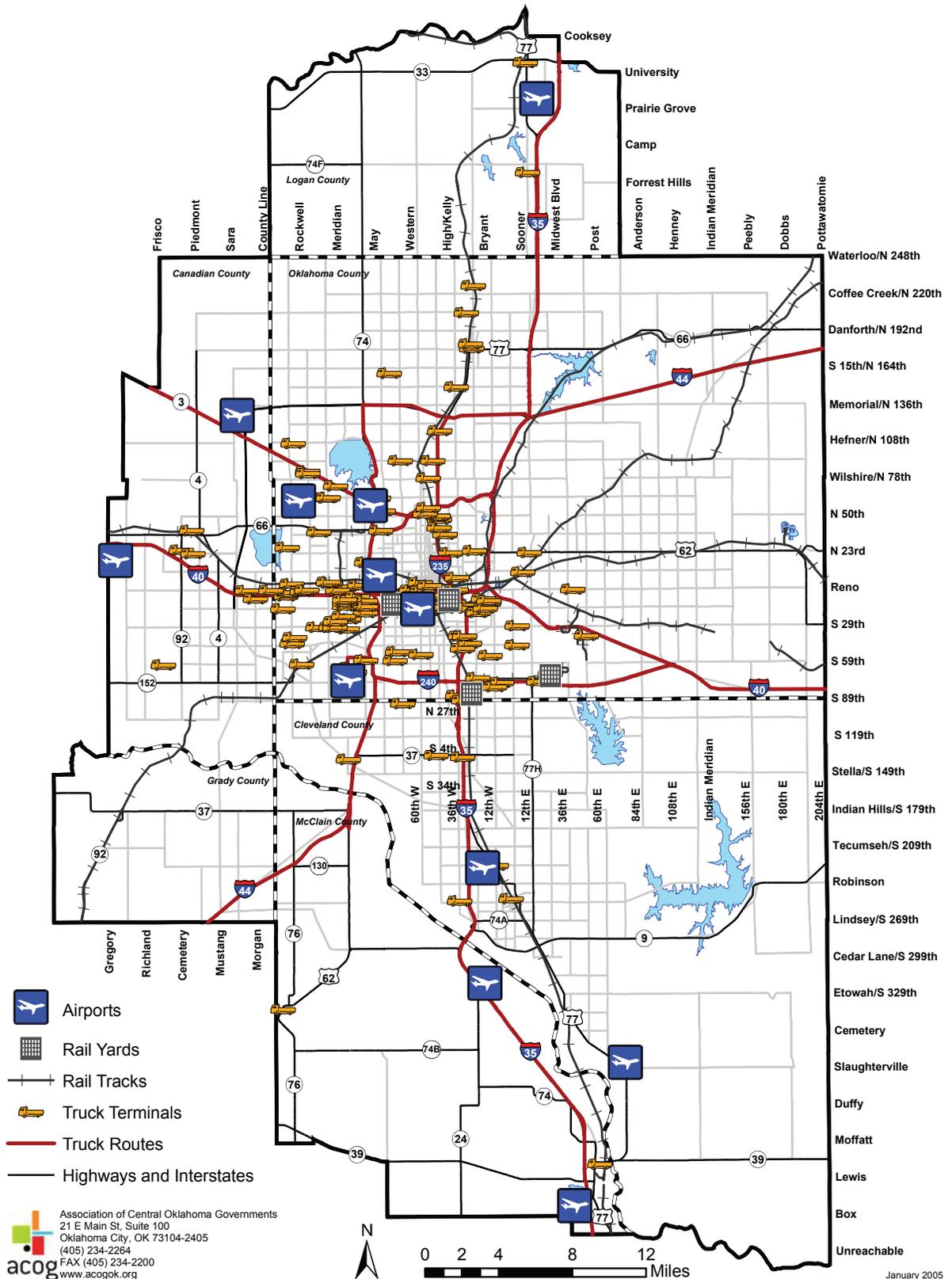
<sup>11</sup> Reebie Associates, January 2000.

higher transportation costs to deliver goods in days versus weeks. Air cargo is therefore less sensitive to cost and used to ensure highly reliable and rapid delivery.

The focus of the long range transportation plan, in relation to air travel by passengers and cargo, is to address improvements which will enhance airport access by other modes, i.e. streets and highways, transit, rail, etc., through the year 2030. The 2030 OCARTS Plan is not intended to address airport operations, development, or future land use plans within the individual airport properties. These issues are handled through separate airport master plans. The seven publicly owned and publicly used OCARTS area airports include Will Rogers World Airport, Wiley Post Airport, Clarence E. Page Airport, Max Westheimer Airport, Guthrie-Edmond Regional Airport, David Jay Perry Airport, and Purcell Municipal Airport.

Will Rogers World Airport is connected to the National Highway System (NHS) via Meridian Avenue and Airport Road, which serves as an intermodal connector. The NHS includes the Interstate Highway System, as well as other roads important to the nation's economy, defense and mobility.

**Figure 13:  
Intermodal Facilities**





# **PART 5 INTERMODAL RECOMMENDATIONS AND ALTERNATE STREET AND HIGHWAY NETWORKS**

## **Development of Intermodal Recommendations**

As described in the previous Part, the transportation system for Central Oklahoma includes several modes of transportation to accommodate the movement of both goods and people. These include the street and highway network; freight movement by truck, rail and air; as well as alternative forms of personal transportation such as transit, walking and bicycling. Throughout the 2030 OCARTS Plan development process, a series of alternates was developed and evaluated to determine the ability of each to meet the region's projected travel needs through the year 2030.

In addition to developing the street and highway network for the long range transportation plan, ACOG staff prepared the Intermodal Element (IME) of the 2030 OCARTS Plan. Intermodal recommendations were based upon input from many sources including the transportation survey results and comments received at the Open House and Subarea meetings, as described in Part 2 of this document. Freight recommendations were also based on comments received from OCARTS freight stakeholders. A summary of the IME issues and recommendations, as presented to the ACOG transportation committees in March 2005, is included in this Part. The recommendations are general in nature rather than project specific. Information on estimated funding sources and estimated costs for each mode are provided later in this report.

The recommendations of the Intermodal Element were developed with the understanding that they would be coupled with the selected street and highway network to form the 2030 OCARTS Plan. This Part also includes a summary description of each of the alternate street and highway networks which were evaluated during the planning process.

## **Passenger Transit**

### **Transit Issues**

OCARTS area citizens indicated a desire for more, in the way of quality and quantity of, public transportation options. Park-and-ride lots, bus stops closer to home and employment locations, express routes that provide direct and relatively speedy transport from neighborhood to workplace, and more frequent service are among the suggestions for improvement to the current system.

Results of the transportation survey described in Part 2 indicate that citizens consider additional or improved bus service—by means of additional routes, more frequent service, and longer service hours—a top priority for enhancing mobility in the OCARTS area. Connecting to available transit services is a problem for some Central Oklahoma residents. Lack of

continuous sidewalks, absence of bicycle trails, and/or the scarcity of bus shelters to protect riders from the weather pose problems for some potential bus riders.

Transportation system users noted a preference for a stronger focus on public transportation services for those with special needs. Survey responses as well as public meeting feedback said that additional transit services for seniors, persons with disabilities, and low income households were important.

Information about transit services, including route schedules at bus stops and keeping route information current on the METRO Transit Web site and flyers, was a concern of transit users. Increased education of public transit choices was also recommended. Safety and security are priorities for area public transit users and patrons of Amtrak. Survey respondents indicated that they would be more inclined to use public transit if they were assured of safe buses, well lit transit shelters, security at the Amtrak terminal, and reasonable cautionary arrangements at park-and-ride lots.

### Transit Recommendations

Since the adoption of its Long Range Plan in 2001, COTPA has completed many of the short term strategies recommended by the plan and continues make progress on others.

The vision and goals that guided development of COTPA's long range plan included the following:

*Vision Statement:* METRO Transit is a significant partner in meeting the transportation needs of the greater Oklahoma City area.

- *Goal: Access and Mobility* - Provide a range of mobility options to serve the Greater Oklahoma City Area.
- *Goal: Market* - Deliver innovative services that are responsive to the market needs of the community and service that places the customer first.
- *Goal: Image* - Offer services with a cohesive, positive and energetic image with readily available information.
- *Goal: Quality* - Deliver services that are reliable, on time, safe, clean, and friendly.
- *Goal: Economic Development* - Be an active partner in promoting the economic growth of the greater Oklahoma City metropolitan area.
- *Goal: Financial* - Provide services that efficiently use financial resources and are responsive to the funders of the service.

Over the past five years, METRO Transit has increased its marketing efforts and worked to enhance its public image, has expanded partnerships with the neighboring communities of Edmond and Midwest City, and has increased its usefulness to those with disabilities through the purchase of additional wheelchair accessible vehicles. Two of the most notable accomplishments of the Plan's short-term strategies are the construction of the new transit center at NW 5<sup>th</sup> Street and Hudson Avenue in downtown

Oklahoma City and the completion of the Systems Planning phase of a Fixed Guideway Study<sup>12</sup> in early 2006. The study was prepared by Carter and Burgess for COTPA, under the direction of a steering committee of community leaders. A summary of the findings and recommendations of the initial phase of the Fixed Guideway Study is included in Part 4 of this report.

Additional recommendations of COTPA's Long Range Transit Plan are still being pursued, which include:

- Work to secure a more stable, dedicated transit funding source
- Increase the number of hours of transit service and the frequency of service
- Encourage local governments to furnish adequate matching funds for the operation of transit service
- Maintain the Oklahoma Spirit trolleybuses in downtown Oklahoma City and between downtown and the I-40/Meridian hotel area as called for by the Metropolitan Area Projects (MAPS) program
- Increase transportation options for commuting to and from Will Rogers World Airport and other public airports in the region

In 2003, a study was conducted to identify the unmet needs for transportation that exist throughout the Norman area. The *Transportation Needs Assessment Study*<sup>13</sup> addressed these needs and developed possible transportation solutions to create additional mobility options for the residents of Norman. A summary of the recommendations for transit service are listed below:

- Increase frequency of bus service
- Provide service between downtown Norman and the University of Oklahoma campus
- Develop a transit route to serve east Norman
- Address the needs of the elderly and disabled population; consider subsidized cab service
- Increase coordination between CART and Norman area social service agencies
- Create demand responsive service for rural areas in eastern and northern Norman
- Create a park-and-ride lot in northern Norman for commuter route to Oklahoma City
- Replace loop fixed routes with linear fixed routes

As mentioned earlier in the report, Delta Public Transit in McClain County, and First Capital Trolley in Logan County provide an important service to

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<sup>12</sup> The study reviewed conclusions of the 1992 Fixed Guideway Study for the Oklahoma City Urban Area to determine the feasibility of light rail, bus rapid transit (BRT), high-occupancy vehicle (HOV) lanes, or other appropriate technologies for such major transportation corridors.

<sup>13</sup> Transportation Needs Assessment Study: A Study of Transit Need for Norman, Oklahoma, KA Associates, June 2003.

transit patrons in the more rural parts of the OCARTS area. These services, along with transportation assistance for elderly and disabled citizens (provided by non-profit organizations operating under the FTA Section 5310 program) should continue to receive support in the OCARTS area planning and funding process.

Additionally, COTPA has built a business relationship with several other local governments in the OCARTS area, and services have been provided primarily through contract arrangements. This structure could continue, or other options may be pursued to create a transit system that addresses a broader geography in its administrative, financial and service delivery structure.

Other actions that should be considered in relation to transit service in the OCARTS area are listed below:

- Continue State acquisition of abandoned rail right-of-way for possible future use for commuter, tourism, or economic development purposes.
- Pursue efforts to expand passenger rail service within Oklahoma, including the development of local recreation/excursion routes and Amtrak service linking Oklahoma City with other cities and states.
- Encourage local governments to improve coordination between land use development and transit planning, with particular attention to airports, pedestrian access, bikeways, convenient bus stop locations, transit shelters, park-and-ride lots, access for elderly and disabled, transit oriented development, and an efficient network of streets for vehicular circulation throughout the service area.
- Encourage local governments to install sidewalks adjacent to fixed bus routes.
- Continue to promote regional clean air goals by providing alternatives to single occupant motor vehicles, including a vastly expanded offering of express bus routes, rideshare opportunities, reduced or free bus fare on Clean Air Alert Days, and purchase of clean-fueled buses.
- Continue compliance and documentation of compliance, with Title VI of the Civil Rights Act of 1964 and the 1997 U.S. Department of Transportation Order on Environmental Justice. These requirements ban discrimination on the basis of race, color, or national origin under any program receiving federal aid; and require federally funded programs to identify and address disproportionately high adverse effects of such programs on minority and low-income populations.
- Continue compliance with other federal requirements such as the 1990 Americans with Disabilities Act (ADA). The ADA states that an individual with a disability, solely by reason of his or her disability, cannot be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.
- Enhance marketing of new and existing transit services to expand ridership.
- Encourage the continued financing of passenger rail in the OCARTS area.

## Bike and Pedestrian Trails

### Trails Issues

In its capacity as the Metropolitan Planning Organization for the OCARTS area, ACOG sought input from various stakeholders for the development of the 2030 OCARTS Plan. For development of the trails component of the Plan, input was gathered from local government staffs and elected officials, as well as from area citizens through the regional transportation survey, the public open houses and the Citizens Advisory Committee (CAC), as described in Part 2.

Survey respondents and CAC members indicated that additional bicycle lanes and paths are important to individuals who want an array of transportation options, and indicated the importance of connecting communities through continuous trails development without regard for municipal boundaries. Participants in the Trails Workshop for the 2030 OCARTS Plan recommended several continuous east-west and north-south corridors to link bicycle facilities throughout the region.

Survey respondents and others indicated that a multi-use trail system was, on the whole, a plus for the region. Demarcation, signage and safety warnings were noted as tools that can help make trail facilities safer and more useful for a variety of individuals, including bicyclists, walkers and children in route to school.

Furthermore, recent actions by several cities and economic development groups in the region have asserted that the presence of a trails network is an asset to the quality of life in the region. A regional trails network promotes healthy lifestyles, local tourism and opportunities for quality economic development.

Citizen input from several sources indicated a concern for safe crosswalks and additional sidewalks. Most of the people who answered the survey said that they favored local government requirements for developers to construct sidewalks in conjunction with new residential and commercial developments. Less than a third of the survey participants favored using public funds for sidewalk construction in existing residential and commercial areas devoid of such facilities.

### Bicycle Recommendations

- Encourage municipalities to adopt ordinances providing for the implementation of safe bicycle facilities within communities that meet minimum design standards as provided by AASHTO<sup>14</sup>.
- Encourage connection of bicycle facilities between municipalities throughout the region, as well as linking neighborhoods with popular destinations, such as schools, employment centers, retail

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<sup>14</sup> Guide to the Development of Bicycle Facilities, American Association of State Highway Transportation Officials (AASHTO), 1999.

establishments, tourist attractions, medical facilities and outdoor recreation areas (i.e. parks and lakes).

- Encourage cooperation and coordination among cities, state agencies and the private sector, when developing trails plans or connections between cities in the region.
- Continue to regularly update the OCARTS area bicycle database containing existing and planned facilities.
- Encourage public awareness, education and safety relating to bicycles. Various forms of media could be used to increase public awareness, education, and acceptance of bicycle traffic. Encourage communities and bicycle groups to provide information through the local school systems on bicycle safety and etiquette. Similar bicycle awareness curriculum could be provided as part of drivers' education classes or defensive driving courses, as well as an education program for bicyclists.
- Promote bicycle facilities by encouraging Bike-to-Work days and encourage employers and businesses to provide bicycle support facilities (secure bike parking and showers) for employees who bicycle to work.
- Evaluate potential connections between transit routes, park-and-ride lots, pedestrian ways, and existing and planned bike routes for opportunities to improve connections among transportation modes.
- Explore opportunities for preservation/construction of bicycle facilities within floodways, greenways, public open spaces, utility rights-of-way, abandoned railroad rights-of-way, and school land.
- Encourage cities and the Oklahoma Department of Transportation to include wider shoulders and wider pavement or lanes for bicycles when constructing and improving arterial streets, highways, and bridges.
- Encourage local governments to pursue a variety of funding sources to plan and implement bicycle facilities including federal, state, local, and private funds.
- Encourage cities and the Oklahoma Department of Transportation to develop on-street bicycle facilities, where appropriate, improved with signage, pavement symbols, and actuated signals as a cost-effective alternative to off-street facilities.

Figure 14 illustrates the regional bicycle system recommended by local government officials during the Trails Workshops described in Part 2, and includes all existing, planned and extended vision trails.<sup>15</sup>

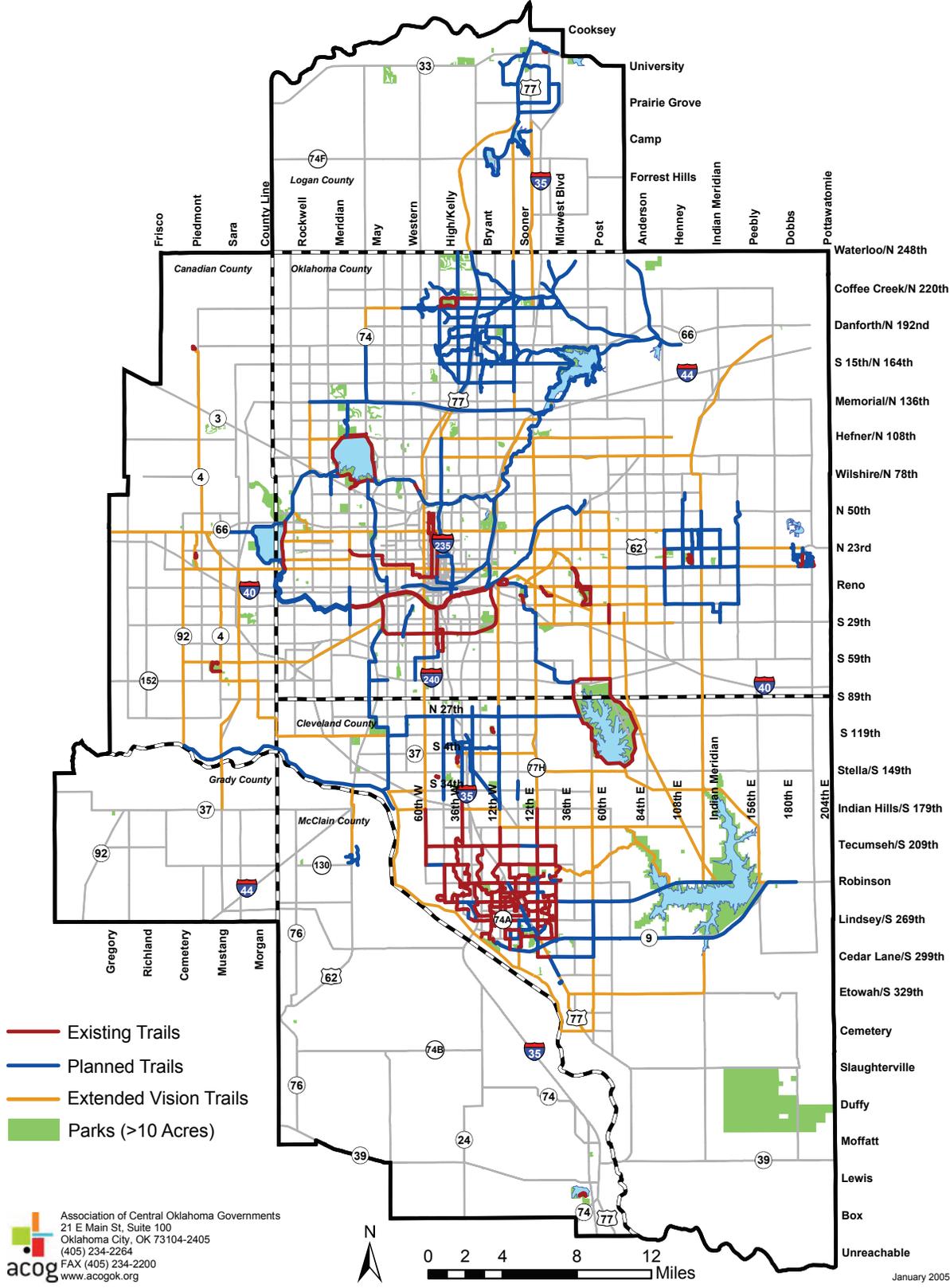
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<sup>15</sup> Planned trails are those included in a locally adopted trails master plan and/or have received a funding commitment for construction. Extended vision trails are locally suggested, non-binding routes that, due to lack of formal action by a governing body and/or sufficient funds, are beyond the scope of the 2030 OCARTS Plan.

## Pedestrian Recommendations

- Encourage local municipalities to adopt and enforce ordinances requiring sidewalk construction in conjunction with new residential and commercial development and redevelopment along adjacent arterial, collector, and neighborhood streets. All such sidewalks must be in conformance with the Americans with Disabilities Act (ADA).
- Explore opportunities for preservation/construction of pedestrian pathways within floodways, greenways, public open spaces, utility rights-of-way, abandoned railroad rights-of-way, and school land.
- Link pedestrian systems with transit stop locations, nearby schools, and retail centers. The transit stops should include such amenities as bus shelters or benches for pedestrians.
- Encourage local governments to pursue a variety of funding sources to plan, implement, and maintain sidewalks using federal, state, local and private revenues. Communities should include sidewalks in conjunction with federal aid street improvement projects, as appropriate.

**Figure 14:  
Existing, Planned and Extended Vision Bicycle Facilities**



Map Disclaimer Applies. See the report Table of Contents or <http://www.acogok.org/mapdisclaimer.asp>

## Intermodal Freight

### Truck Freight Issues

The 2030 OCARTS Transportation Survey, the public Open Houses and Freight Stakeholders meetings revealed the following truck freight issues and concerns.

*Design Improvements and Elimination of Safety Hazards* - Insufficient turning radii, insufficient queuing length at off-ramps and intersections, and numerous other trucking safety hazards need to be considered when design improvements are undertaken to accommodate trucking needs. Trucking safety is of utmost importance to enforcement agencies and to members of the trucking industry.

*Congestion and Construction Delays* - As congestion steadily grows on the region's streets and highways, costs to consumers and businesses caused by delays also increases. Overall daily travel is forecasted to increase by 53 percent within the OCARTS area by the year 2030. This increased traffic, which will include growth in truck traffic, will contribute to increased congestion on the region's major highways.

When construction projects are undertaken sequentially on the same roadway, the smooth flow of traffic is impeded. The motor carrier industry endorses concurrent and concise scheduling of highway construction projects, to the extent possible.

*Increase of Network Capacity and Use of Intelligent Transportation Systems* - The continued reliance on adding lanes as a means of congestion relief is financially and physically impractical; however, capacity improvements are possible by managing the existing system more efficiently through the use of intelligent transportation systems (ITS) technologies.

ITS technologies, such as dynamic message signs, are helpful to trucking companies. This is especially true for the smaller companies, who might not have the capital to install costly geographic positioning systems (GPS) and onboard guidance systems on their fleet vehicles. Some packaged traffic information is already available through ITS technologies; real time information is of importance to the trucking companies.

*Increased Truck Traffic* - Truck freight is operating at capacity. Motor carrier industry representatives are concerned about accommodating the anticipated doubling in tonnage over the next 30 years.

The trucking industry is facing an important issue of its own - the hiring and retention of drivers. In 2005, nationwide there were more than 100,000 open positions for truck drivers. The industry is changing some of its business practices, such as the increased use of distribution warehouses, consequently reducing the number of direct-to-the-customer deliveries to about 20 percent. As a result, drivers have shorter routes and more down-time. This change to shorter distances has occurred over the last 25

years, when about 80 percent of all deliveries were still made directly to the customer.

In light of the expected future growth of freight movement along the I-35 International Trade Corridor, and along I-40, the rerouting of through-traffic, and other mitigation efforts, will become even more important. Overall, the OCARTS area needs to preserve the existing system through improved maintenance and better intermodal connectivity.

*Truck Rerouting* - Considering the large amount of truck through-freight, the trucking industry suggested that rerouting through truck traffic would result in better traffic conditions than creating separate truck lanes. This would be especially beneficial to the affected communities, when hazardous material can be routed around populated areas, rather than through population centers.

*Diverting Truck Freight onto Rail* - An interest in diverting long haul truck freight onto rail, especially dry bulk commodities, was expressed by the trucking industry as well, thus freeing up additional roadway capacity. The key to such operations lies with increased partnerships and better intermodal connections.

*Use of Triple-Trailers, Pavement and Bridges* - At this time, only a few states (including Oklahoma) allow the use of double trailer rigs. The trucking industry is currently considering the effects of using three-trailer, six-axle vehicles, capable of carrying up to 90,000 pounds. The rationale is to be able to "take one out of every nine vehicles" off the roadway. This would in turn free up capacity and may be less strenuous on the road pavement, which is affected by the number of trucks, as well as the weight of vehicles. The life-span of bridges, however, is affected differently than the pavement and reacts to the number of trucks, total weight, axle weight, axle distance, and other factors. The impact of the proposed type of truck on pavement as well as bridges will therefore require further study.

The condition of bridges, especially load postings affecting the weight of truck shipments, negatively impact truck movements in Oklahoma. Statewide, there are well over 100 bridges with posted weight limits.

### **Truck Freight Recommendations**

- Efforts to improve commercial vehicle routes should be made in conjunction with highway construction or reconstruction projects. Within the metropolitan area, this could include identification of opportunities to build or designate special purpose lanes for truck traffic. For local facilities, such improvements could include wider turning radii, greater pavement strength and improved access management. Design improvements to eliminate safety hazards should be a high priority.

- The MPO should work with the State, local jurisdictions, and the appropriate private stakeholders to study and coordinate potential future rerouting of through-traffic around the core metropolitan area.
- To manage and operate the existing transportation system more efficiently, travel demand management (TDM) measures and intelligent transportation systems (ITS) technologies should be applied. Special consideration should be given to technologies concerned with commercial vehicle operations, which allow a more efficient use of resources and an overall increase in motor carrier safety.
- Encourage ODOT to continue deployment of dynamic message signs along major thoroughfares to provide real time traffic, as well as advanced traveler information regarding detours, alternate routes, etc.
- ODOT, in coordination with local jurisdictions, should examine and inventory the system of designated truck routes, which include certain major and minor arterials within OCARTS.
- The ODOT-administered Pavement Management System should monitor designated commercial vehicle routes, including frequent traffic counts and pavement distress from truck traffic. This information should be supplemented with surveys of local trucking firms and used for early diagnosis of problem areas to increase the operational life of truck routes.
- Support ODOT's efforts to closely monitor the condition of bridges within the OCARTS area; and encourage the Department to frequently update public information on bridge conditions, in order to minimize negative impacts for truck freight movements.
- ODOT and the MPO should closely coordinate their efforts of routine freight data collection as well as freight modeling.
- Encourage ODOT to move scale house facilities to the borders of the state to maximize efficiency of enforcement activities.
- Encourage the appropriate agencies to coordinate a public education campaign that informs the motoring public about how passenger vehicles and trucks can safely share the road.
- Encourage BNSF, the owners of the Flynn Yard in Oklahoma City that previously provided a site for truck-to-rail transition, to preserve the existing intermodal infrastructure to allow for a reactivation of intermodal activities when needed.

### Rail Freight Issues

The following sections contain rail freight issues and concerns that should be considered when making improvements to the existing transportation network. Most of these issues were brought up by respondents to the 2030 OCARTS Transportation Survey, attendees at the Open Houses and during Freight Stakeholders meetings.

*Diverting Truck Freight onto Rail* - As stated under the Truck Freight Issues, an interest in diverting long haul truck freight onto rail, especially dry bulk commodities, was expressed by the trucking industry, thus freeing up additional roadway capacity. The key to such operations lies in increased partnerships and better intermodal connections.

*Improving Rail Service and Intermodal Connectivity* - Track and rail yard construction and maintenance are the responsibility of the railroad company owning the facility. Private investments are market driven, and ODOT investments into state owned rail infrastructure is limited by the amount of special funds available.

*Preservation of Rights-of-Way* - In order to preserve rights-of-way, ODOT continues to maintain tracks, which it bought during an earlier period of abandonments. Most of these tracks are leased to Class III railroad companies, which can take advantage of tax incentives for the improvement of the rail infrastructure. ODOT is not anticipating another wave of abandonments of railroad tracks, like the ones that have occurred in the past.

*Interstate Rail and Rail Freight Growth* - Rail supporters have stated a need for additional interstate rail options to transport raw materials and finished products between key locations in Oklahoma and neighboring states. Nationally, freight trains are running near capacity on the majority of tracks. However, some of these tracks are shared with passenger trains, which impacts capacity.

*Safety* - Overall, rail safety in the United States has improved over the last 30 years, with a reduction in rail related deaths and rail accidents. However, over 300 at-grade railroad crossings still exist within the OCARTS area. This points to the need for additional grade-separated crossings and other safety improvements at railroad intersections with urban arterials and highways. Other rail safety issues include security of rail cargo and the transport of chemicals and hazardous materials through heavily populated urban areas.

### **Rail Freight Recommendations**

- Transportation planning efforts and industrial development should include provisions for rail access to industrial areas and improved coordination with the street and highway network to enhance intermodal freight movement.
- Strengthen coordination with street and highway construction to ensure adequate grade separations between rail and highway modes to enhance public safety.
- The ODOT Rail Division should continue working with communities through the Federal Aid Railroad Surface Improvement Corridor Safety Program to review railroad crossings for safety concerns, upgrade key crossings with mast arms, lights and/or other safety features, and eliminate unnecessary or poorly functioning crossings.
- Operating railroads and the ODOT Rail Division should regularly monitor the condition of the railroad tracks to identify and repair broken rails, fractures and fissures, which would otherwise render the rail unfit for normal operation.

- Ensure that emergency responders have timely access to hazardous materials information.<sup>16</sup>
- Consider improving the capacity of existing rail yards and the implementation of more extensive intermodal rail facilities to allow the OCARTS region to better tap into the forecasted increase in rail freight. ODOT and the MPO should continue coordination with private stakeholders to implement and expand intermodal facilities serving the OCARTS area.
- Encourage ODOT to continue its involvement in monitoring and preserving certain components of the rail system. Such public support, coupled with private investment, should spur increased utilization of rail facilities to accommodate growing freight movements, and reduce congestion, air pollution, and pavement wear.
- Data on rail freight, tonnage, freight traffic, and rail line conditions should be collected routinely to monitor the effectiveness of the local rail system, assist in preservation of rail corridors, program safety improvements, and guide preventive maintenance efforts.
- Encourage ODOT and private railroad companies to explore all available options to expand rail capacity.

### **Air Freight Issues**

The following sections contain air freight issues and concerns that should be considered when making improvements to the existing transportation network. Several of these issues resulted from the 2030 OCARTS Transportation Survey, the Open Houses and/or the Freight Stakeholders meetings.

*Congestion on Airport Access Roads* - In the OCARTS area, air-truck transportation is the only intermodal aspect of air freight movements. Accessibility of airports via the existing street and highway network and the future connectivity to other modes of transportation is therefore vital.

Unless improvements to the street and highway network are undertaken, overall growth in traffic volumes projected for the year 2030 will cause significant delays. Due to the airports' dependency on the street network, transportation to and from airports will experience the full effect of this projected congestion. In addition, the airport access roadways will be forced to keep up with the expected inbound and outbound air freight growth of over 400 percent throughout the forecast period.

*Trends in Air Freight Transportation* - A significant increase in air freight is projected. Just-in-time management, as well as an increase in e-commerce volume is factored into this development.

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<sup>16</sup> As recommended in the "Federal Railroad Administration Action Plan for Addressing Critical Railroad Safety Issues," released by the U.S. DOT Federal Railroad Administration on May 16, 2005.

Time-definite trucking competes directly with air freight, offering reliability and only slightly lower delivery speeds at a fraction of the transportation cost. Higher security stock inventories and safety concerns also have an impact on air freight logistics.

*Airport Growth* - The existing storage facilities at Will Rogers World Airport are scheduled for expansion as outlined in the current airport master plan, thus increasing the airport's freight handling capacities.

Although the OCARTS area does not have a major hub airport, the region has the distinct advantage of having sufficient rights-of-way and airport property to allow for the expansion of airport operations, as well as the expansion of runways for a new generation of airplanes.

*Intermodal Connectivity* - Considering the commodities transported and delivery schedules desired, air-truck transportation is expected to continue to be the main aspect of intermodal air freight.

*Increase of Network Capacity and Use of Intelligent Transportation Systems* - Physical solutions to increase the capacity of the street network that provides access to the airport are limited, so intelligent transportation system (ITS) technologies should continue to be explored as a way to operate the existing system more efficiently.

*Transportation Planning Coordination* - The Federal Aviation Administration has asked for increased coordination of transportation planning between the top 100 airports in the nation and the MPOs monitoring the regions' street and highway networks. Will Rogers World Airport in Oklahoma City is among the top 100.

### **Air Freight Recommendations**

- Continue close coordination of airport planning and transportation planning efforts to ensure enhanced airport operations, as well as optimal use of the street and highway network accessing the airport facilities.
- Planning efforts should include coordination with street and highway construction to ensure adequate access to and from the airport facilities, in light of recent and projected increases in air freight.
- Consider implementing travel demand management (TDM) strategies and intelligent transportation system (ITS) technologies to increase the capacity of the street and highway network providing access to the airport.
- Encourage the Oklahoma City Department of Airports and the management at Will Rogers World Airport to preserve the available land for future expansion of airport operations.

## Intermodal Freight Issues

Nationally, there has been a dramatic increase in containerization. However, the OCARTS area seems a less likely candidate for this trend, due to limitations in its intermodal facilities.

The nationwide use of "railroaders," which are semitrailers specially designed to travel both on highways and on rails, is increasing dramatically as well. The OCARTS area does not have a yard capable of handling the railroaders. Another industry trend is the use of "micro containers." These containers are small enough to be lifted off trains even outside of specially designed intermodal facilities. One truck can carry 20 of these small containers, which in turn would provide ease of goods movement and could promote intermodalism. Additionally, a trend exists towards freight transportation in "mega-sized container ships." However, shipments feeding certain capable northeastern ports might bypass the OCARTS area.

Oklahoma City's only intermodal, crane-equipped yard ceased operations in 2005. The intermodal portion of the Flynn Yard (located at 8401 S. Eastern Ave., Oklahoma City) closed due to economic reasons. Its business moved to Texas, which in turn likely increased truck traffic on northbound I-35 coming into the OCARTS area. The closing of this intermodal portion of the yard also eliminated an important intermodal transportation option that was available to businesses in the area.

## Intermodal Freight Recommendations

- Develop intermodal facilities and connections to enhance and integrate the area freight movement with the remainder of the regional transportation system.
- Increase the transportation system efficiency through the application of demand management techniques and intelligent technology. Focus intelligent transportation system (ITS) applications on commercial vehicle operations, traveler information systems, and incident management.

## Airport Access Issues

The following airport access concerns and issues have been identified as a part of the long range plan process:

*Information for Airport Area Travelers* - There is a lack of sufficient signage or other media warnings to provide traveler information regarding expected delays on airport access roads.

*Access and Connection to Airports* - Area citizens see the need for more bus and shuttle service to Will Rogers World Airport, as well as accommodations for the transportation of persons with disabilities. Shuttle service connections from various cities within the metropolitan area to Will Rogers World Airport are also desired.

*Expanded Service, Additional Congestion* - At the time of Plan adoption, Will Rogers World Airport was undergoing an expansion project to meet long term aircraft and passenger capacity requirements. Guthrie-Edmond Regional Airport also plans to extend their runway to accommodate larger aircraft in the future. The growing number of operations, enplanements, and deplanements has been factored into the projected growth of traffic volumes. Between 2005 and 2030, an increase in air freight and other aviation functions is expected to cause a significant increase in traffic volumes on roadways accessing public airports in the OCARTS area. Airport access roads will require continued attention in light of this expected growth.

### **Airport Access Recommendations**

The following intermodal recommendations for airport access within the OCARTS area are based on previous OCARTS Plan recommendations, the Transportation Survey results and Open House meeting comments.

- Improve signalization and signage on roadways, which provide access to airports.
- Use dynamic message signs and other technologies to provide traveler information about delays on airport access roads.
- Post information on available transit services at airports, websites, etc.
- Monitor the ridership and continue to support the bus service provided by the Central Oklahoma Transportation and Parking Authority (COTPA) to Will Rogers World Airport.
- Encourage COTPA to increase the frequency of bus and shuttle service to Will Rogers World Airport and to provide for the transportation of persons with disabilities.
- Study the need and feasibility of expanding bus and/or shuttle services to directly connect various cities within the metropolitan area with Will Rogers World Airport.
- Provide facilities for pedestrians at airports, to include sidewalks, ramps, bus shelters, etc.
- Enhance access to Will Rogers World Airport by decreasing congestion on surrounding streets as recommended by the street and highway element of the long range plan.
- Continue to monitor airport access road congestion levels, and program additional improvements as appropriate.
- Encourage employer-sponsored rideshare programs for airport and other employees based on or around the airport.

### **Street and Highway Element**

Five alternate street and highway networks were developed in the 2030 OCARTS Plan process. These networks depict the major roads in the region. (Local and neighborhood streets are typically under the care of local governments and are not included in the regional plan network.) They illustrate different street and highway networks that were tested to meet the transportation needs of Central Oklahoma residents, employees, and

businesses in the year 2030. Each network was analyzed to determine how it would serve the needs of the OCARTS region in the year 2030 with a projected population of nearly 1.34 million, and forecasted employment of approximately 728,000 individuals working in the region. Characteristics of the transportation network in the year 2000 have been used as a baseline, and these are included below for a reference point.

Based on the analysis, the Alternate Four-B network was adopted by the MPO as the 2030 OCARTS Plan Street and Highway Network. Following is a description of the base year network and the alternate street and highway networks.

### **2000 Base Year Network**

The 2000 Base Year Network included all regional streets and roads as they existed in 2000. The base year model was developed to mimic driver behavior on the road system using year 2000 network characteristics and land uses. Once satisfactory calibration to real world data was achieved, improvements to the transportation network or land uses could be changed to reflect future developments.

### **Alternate One - Present Plus Committed Network**

Alternate One, the present plus committed network, included all existing streets and roads, and those for which funding was committed through October 2005. This was a “bare bones” approach, which would allow the region to complete projects currently underway, but virtually all remaining street and highway funds until the year 2030 would be used to maintain the present system. This scenario was tested with the projected 2030 traffic volumes. The results indicated this alternate would have been relatively inexpensive in terms of money, but costs would be born by the user in terms of more congestion, longer travel times and more vehicle emissions that would affect air quality.

### **Alternate Two - 2025 OCARTS Plan Network**

Alternate Two, the 2025 OCARTS Plan network, included the present plus committed network plus the expansion of the street and highway network as indicated in the 2025 OCARTS Plan. It also included consideration of intelligent transportation systems (ITS), travel demand management (TDM), and traffic system management (TSM) improvements on specified congestion corridors. The ITS, TDM, and TSM strategies include techniques such as traffic signal coordination, changeable message signs, improved bus service, and incident management/alternate routes.

In addition to substantial maintenance work, the network called for the widening of several interstates and section line roads. Also included in the 2025 OCARTS Plan was the construction/continuation of an outer loop highway in the southwest part of the region. In the 2025 Plan, this facility was defined as a tollway.

### **Alternate Three - Revised 2025 OCARTS Plan Network**

Alternate Three included the present plus committed network (Alternate One), all street and highway projects in the 2025 OCARTS Plan (Alternate Two), as well as the following projects:

Approved 2025 OCARTS Plan Amendments:

- SH-9 from 168<sup>th</sup> Ave. E. to Cleveland/Pottawatomie County line. Widen from 2 to 4 lanes.
- SH-74 (Portland) from Waterloo Rd. (NW 248<sup>th</sup> St.) to Memorial Rd. (NW 136<sup>th</sup> St.). Widen from 2 to 4 lanes.
- Kelly Ave. from Waterloo Rd. (N. 248<sup>th</sup>) to Coffee Creek Rd. (N. 220<sup>th</sup>). Widen from 2 to 4 lane divided.

Oklahoma City General Obligation Bond Projects:

- NE 122<sup>nd</sup> St. from Broadway Extension to Kelley Ave. Widen from 2 to 4 lanes.
- Morgan Rd. from SW 15<sup>th</sup> St. to SW 29<sup>th</sup> St. Widen from 2 to 4 lanes.
- SW 29<sup>th</sup> St. from MacArthur Ave. to Meridian Ave. Widen from 2 to 4 lanes.
- Hefner Rd. (N. 108<sup>th</sup>) from County Line Rd. to Council Rd. Widen from 2 to 4 lanes.
- Wilshire Blvd. (N. 78<sup>th</sup>) from Northwest Expressway to Rockwell Ave. Widen from 2 to 4 lanes.
- Britton Rd. (N. 93<sup>rd</sup>) from County Line Rd. to Council Rd. Widen from 2 to 4 lanes.
- SW 15<sup>th</sup> St. from Morgan Rd. to County Line Rd. Widen from 2 to 4 lanes.

### **Alternate Four-A - Revised 2025 OCARTS Plan as Modified by Local Governments**

Alternate Four-A included all improvements reflected in Alternate Three. Additionally, it included the following improvements suggested for inclusion in the 2030 Plan by local governments:

- US-77 from Etowah Rd. (S. 329<sup>th</sup>) to Purcell east city limits. Widen from 2 to 4 lanes.
- Covell Rd. (N. 206<sup>th</sup>) from Pennsylvania Ave. to Western Ave. Widen from 2 to 4 lanes.
- SH-74 from I-35 to 5.50 miles south of I-35 (250<sup>th</sup>). Widen from 2 to 4 lanes.
- Broadway Ave. from Waterloo Rd. (N. 248<sup>th</sup>) to Coffee Creek Rd. (N. 220<sup>th</sup>). Widen from 2 to 4 lanes.
- Lindsey St. from 24 Ave. E. (Air Depot) to 36<sup>th</sup> Ave. E. (Midwest Blvd.). Widen from 2 to 4 lanes.
- Waterloo Rd. (N. 248<sup>th</sup>) from Kelley Ave. to I-35. Widen from 2 to 4 lanes.
- Main St. from Carter Rd. to 12<sup>th</sup> Ave. E. (Sooner). Widen from 2 to 4 lanes.

- 12<sup>th</sup> Ave. E. (Sooner) from SH-9 to Cedar Lane Rd. (S. 299<sup>th</sup>). Widen from 2 to 4 lanes.
- Rock Creek Rd. (S. 224<sup>th</sup>) from 36<sup>th</sup> Ave. W. (Kelley Ave) to 24<sup>th</sup> Ave. W. (Eastern Ave). Widen from 2 to 4 lanes.
- Rock Creek Rd. (S. 224<sup>th</sup>) from Grandview Ave. (0.5 miles west of 36<sup>th</sup> Ave. W.) to 36<sup>th</sup> Ave. W. (Kelley Ave.). Widen from 2 to 4 lanes.
- Mustang Rd. from Wagner Rd. (N. 50<sup>th</sup>) to SH-66. Widen from 2 to 4 lanes.
- N. 23<sup>rd</sup> St./Vandament Ave. from Mustang Rd. to Sara Rd. Widen from 2 to 4 lanes.
- Sara Rd. from S. 15<sup>th</sup> St. to S. 74<sup>th</sup> St. Widen from 2 to 4 lanes.
- S. 29<sup>th</sup> St. from Sooner Rd. to I-40. Widen from 4 to 5 lanes.
- SH-9 from 24<sup>th</sup> Ave. E. (Eastern Ave) to 12<sup>th</sup> Ave. E. (Sooner Rd). Widen from 4 to 6 lanes.
- S. 15<sup>th</sup> St. from I-40 to Sooner Rd. Widen from 4 to 5 lanes.
- Reno Ave. from Air Depot Blvd. to Douglas Blvd. Widen from 4 to 5 lanes.
- MacArthur Blvd. from Wilshire (N. 78<sup>th</sup>) to N. 36<sup>th</sup> St. Widen from 4 to 5 lanes.

Alternate Four-A also included the following projects recommended for more modest improvements than those shown in the 2025 Plan:

- Reno Ave. from Bryant Ave. to Air Depot Blvd. Change from planned 6 to 5 lanes.
- 84<sup>th</sup> Ave. E. (Anderson Rd.) from Bethel (S. 164<sup>th</sup>) to Franklin Rd. (S. 194<sup>th</sup>). Change from planned 4 to 2 lanes.
- 120<sup>th</sup> Ave. E. (Choctaw Rd.) from Stella Rd. (S. 149<sup>th</sup>) to Alameda St. (S. 254<sup>th</sup>). Change from planned 4 to 2 lanes.
- Franklin Rd. (S. 194<sup>th</sup>) from 24<sup>th</sup> Ave. W. (Eastern Ave.) to 48<sup>th</sup> Ave. W. (Douglas Ave.). Change from planned 4 to 2 lanes.
- Alameda St. (S. 254<sup>th</sup>) from 0.5 miles W. of 36<sup>th</sup> Ave. E. (Midwest Blvd.) to 120<sup>th</sup> Ave. E. (Choctaw Rd.). Change from planned 4 to 2 lanes.
- MacArthur Blvd. from S. 104<sup>th</sup> St. to S. 119<sup>th</sup> St. Change from planned 4 to 2 lanes.
- Robinson Ave. from Main St. to Sheridan Ave. Change from planned 4 to 2 lanes.
- Sheridan Ave. from E.K. Gaylord to Lincoln Blvd. Change from planned 4 to 2 lanes.

#### **Alternate Four-B - 2030 OCARTS Plan Network**

Alternate Four-B was approved as the 2030 OCARTS Plan street and highway network. It includes all improvements listed in Alternate Four-A with the following additions:

- I-35 from Waterloo Rd. (N. 248<sup>th</sup>) to SH-66. Widen from 4 to 6 lanes.
- I-40 from Choctaw Rd. to Pottawatomie Rd. Widen from 4 to 6 lanes.
- Indian Hills Rd. (S. 179<sup>th</sup>) from 48<sup>th</sup> Ave. W. (Santa Fe) to 36<sup>th</sup> Ave. W. (Kelley). Widen from 2 to 4 lanes.

- Franklin Rd. (S. 194<sup>th</sup>) from 48<sup>th</sup> Ave. W. (Santa Fe) to I-35 Frontage Rd. Widen from 2 to 4 lanes.
- I-35 from SH-9 West Interchange to SH-74/Goldsby Exit. Widen from 4 to 6 lanes.

## Analysis of the Alternate Networks

### Evaluation of the Streets and Highway Networks

Table 10 provides a summary of the travel conditions projected for each alternate street and highway network in the year 2030, as compared to 2000 base year conditions. Evaluation factors included each network's ability to meet projected daily transportation demand; network performance in terms of congestion, speed, and daily accidents; projected vehicle emissions; and estimated costs to implement each alternate.

### Other Evaluation Measures

In addition to the factors reflected in Table 10, the alternate street and highway networks were evaluated in terms of their projected 2030 corridor congestion levels, based on a volume-to-capacity ratio, and their cost effectiveness, based on a benefit-cost ratio. The combined intermodal element recommendations and street and highway network alternates were also evaluated based on a number of potential economic, environmental and social impacts, including an environmental justice analysis of the potential impacts to low income and minority populations. A brief description of each of these evaluation measures is provided below.

#### ▪ 2030 Corridor Congestion

As part of the process of comparing the alternate street and highway networks for the 2030 OCARTS Plan, cutlines were used to evaluate the potential corridor congestion levels in subareas for each alternate. Cutlines are imaginary lines drawn perpendicular to the flow of traffic across major traffic corridors such as I-35, Northwest Expressway or Broadway Extension. A total of 40 cutlines were used in the evaluation of the 2030 OCARTS Plan.

In order to determine the corridor congestion levels for cutlines, the volume-to-capacity (V/C) ratio method was applied. By using a computer simulation model, 24-hour traffic volumes were projected for OCARTS area streets and highways in the year 2030. Further, the 24-hour capacities, based on level of service E, for the streets and highways were developed based on the *Highway Capacity Manual*, and in consultation with ODOT staff. The projected volumes were then divided by the capacities to derive the cutline V/C ratios.

**Table 10:  
Population and Transportation Statistics in the OCARTS Area 2000-2030**

	2000 Base Year	2030 OCARTS Area Projections				
		Alternate One	Alternate Two	Alternate Three	Alternate Four-A	Alternate Four-B
<b>Demographic Data</b>						
Population	990,595	1,335,036	1,335,036	1,335,036	1,335,036	1,335,036
Employment	539,395	728,100	728,100	728,100	728,100	728,100
<b>Daily Transportation Demand</b>						
Vehicle Miles of Travel (thousands)	26,739.0	41,208.0	41,141.0	40,850.0	41,022.0	40,983.0
Vehicle Hours of Travel (thousands)	607.5	1,009.9	949.5	941.2	943.9	933.5
Vehicle Trips (thousands)	3,144.0	4,298.0	4,298.0	4,298.0	4,298.0	4,298.0
Transit Ridership (thousands)*	15.1	21.5	21.5	21.5	21.5	21.5
<b>System Performance</b>						
Average Overall Speed (mph)	44	41	43	43	43	44
Average Freeway Speed (mph)	48	43	46	46	46	47
Average Arterial Speed (mph)	41	38	40	41	40	40
Daily Accidents	38	58	57	57	58	57
<b>Environment</b>						
Daily Fuel Consumption (thousand gallons)	1,565.9	2,553.5	2,549.3	2,531.3	2,541.9	2,539.5
Carbon Monoxide Emissions (tons/day)	942.9	499.4	507.1	503.2	505.7	506.9
Hydrocarbon Emissions (tons/day)	52.4	16.1	15.7	15.7	15.7	15.6
Nitrogen Oxide Emissions (tons/day)	80.1	13.5	13.6	13.5	13.6	13.6
<b>Total Estimated Plan Costs**</b>						
Street & Highway Capital (mil.)	-	\$555.7	\$3,550.7	\$3,629.1	\$3,718.2	\$3,835.6
Street & Highway Maintenance (mil.)	-	\$992.3	\$968.0	\$982.7	\$984.4	\$978.0
Transit (mil.)	-	\$661.8	\$661.8	\$661.8	\$661.8	\$661.8
Bicycle & Pedestrian (mil.)	-	\$98.5	\$98.5	\$98.5	\$98.5	\$98.5
<b>Total (mil.)</b>	-	<b>\$2,308.3</b>	<b>\$5,279.0</b>	<b>\$5,372.1</b>	<b>\$5,462.9</b>	<b>\$5,573.9</b>

Sources: U.S. Census Bureau; Environmental Protection Agency, Mobile 6.2; Association of Central Oklahoma Governments

\* Transit Ridership is based on average weekday ridership information.

\*\*All costs are estimated in 2000 Dollars.

The potential 2030 congestion level for each cutline was determined by comparing the corridor's traffic-carrying capacity at Level of Service (LOS) E<sup>17</sup> with its projected 2030 traffic volume. A volume-to-capacity (V/C) ratio was derived for each cutline location by dividing the projected traffic volume by the corridor's capacity. Under this method, the higher the V/C ratio, the greater the congestion. A V/C ratio of 1.00 means that the traffic volume and the capacity of the facility are equal. Three V/C ratio ranges were used to evaluate the alternate street and highway networks: satisfactory (V/C ratios less than or equal to 0.69), moderate (V/C ratios between 0.70 and 1.00) and severe (V/C ratios of greater than 1.00). Information on OCARTS area cutline locations and cutline V/C ratios is included in the 2030 OCARTS Plan Technical Supplement.

- **Cost Effectiveness**

In order to measure the cost-effectiveness of these different transportation scenarios, the MPO staff conducted a benefit/cost analysis. The benefit/cost (B/C) ratio is a standard measure of cost-effectiveness recommended by the Federal Highway Administration (FHWA). FHWA's suggested method primarily focuses on the value of travel time savings by persons using the transportation network.

Benefits were calculated in terms of savings in user costs that the alternate would generate. The savings in user costs were calculated based on travel time savings and savings in operating and maintenance cost for a vehicle.

Costs for each alternate network were calculated in terms of capital costs and road user costs. Capital costs included construction, structures, maintenance, and right-of-way costs for the street and highway networks. Road user costs included average costs for operating and maintaining a vehicle, and "value-of-time" which quantifies the cost of the time that a person spends on the road.

The B/C ratio analysis compared each network alternate to the previous most beneficial alternate to determine whether the benefit derived per dollar invested is less than, or greater than, the benefit derived from the previous alternate. If the value of the B/C ratio was 1.0 or greater, then the new alternate was considered a better investment than the previous alternate. Therefore, if the B/C ratio is greater than 1.0—based on value of travel time savings to persons using the transportation network—the alternate network can reasonably be considered cost-effective.

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<sup>17</sup>Level of Service (LOS) is used to describe the quality of travel on a roadway, generally in terms of speed, freedom to maneuver, traffic interruption, delays, convenience and safety. Six categories of LOS are used, ranging from LOS A (best) to LOS F (worst).

Therefore, focusing on value of time savings to persons using the network, Alternate Four-B provided the most benefits for each dollar spent, when compared to the other alternates. The results of the analysis are presented in Table 11.

**Table 11:  
Benefit/Cost Ratio Comparison of Alternates**

Alternates being compared	B/C Ratio
Alternate One compared to Alternate Two	1.24
Alternate Two compared to Alternate Three	3.62
Alternate Three compared to Alternate Four-A	2.84
Alternate Four-A compared to Alternate Four-B	4.91

- **Potential Environmental, Social and Economic Impacts**

An evaluation of anticipated environmental, social and economic impacts was conducted for each of the 2030 OCARTS Plan alternates. The following tables represent potential impacts for each alternate as presented to the Intermodal Transportation Policy Committee in May 2005.

The environmental concerns that may be affected include air quality, parks/open spaces, endangered species, floodplains, water quality, hazardous waste and super fund sites, leaking underground storage tanks and noise sensitive sites. Social impacts of transportation projects can affect archaeological sites, tribal lands, national historical sites/districts and safety. The possible economic impacts that were examined include residential and business displacements, environmental justice issues, (as described below) and the total construction and maintenance cost of each alternate.

This information is very general in nature and is not intended to be an exhaustive list, since the data and potential impacts were evaluated at the regional level. The specific impacts of individual projects (highway, transit, trails, etc.) will be evaluated in greater detail as part of the planning process prior to construction, as appropriate. More detailed information on potential plan impacts is available in a separate report<sup>18</sup> from ACOG.

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<sup>18</sup> FYE 2005 UPWP Report - Task 1.01, Subtask 7a, *Evaluation of Social, Economic and Environmental Impacts of the 2030 OCARTS Plan*, ACOG, July 2005.

- **Environmental Justice Analysis**

Federal law requires that metropolitan transportation plans be consistent with Title VI of the Civil Rights Act of 1964 and the related Executive Order 12898 on Environmental Justice. These requirements are intended to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income, and to ensure that transportation projects do not have a disproportionately negative impact on minority or low-income populations.

There are three fundamental environmental justice principles that are applicable to federally funded transportation plans and programs:

- To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by low-income and minority populations.

Using 2000 U.S. Census Bureau data, at the traffic analysis zone (TAZ) level, the recommended transportation improvements included in the 2030 OCARTS Plan were evaluated using population characteristics describing minority areas, median household income, population density, and individuals over the age of 65. Census minority groups include Black, Asian, American Indian and other (individuals of Hispanic origin or multi-racial groups). The average OCARTS area minority population was approximately 24 percent in the year 2000. The OCARTS area median household income for the year 2000 was \$40,932; and as a point of comparison, the Census Bureau defined the poverty level for a family of four to be \$17,029. In 2000, the OCARTS area population density averaged 1,555 persons per square mile. Less than 25 percent of the population in the majority of traffic analysis zones is over the age of 65; those with high percentages of elderly persons are scattered throughout the OCARTS area.

The environmental justice analysis evaluated the Plan's impact on the above population groups by examining each group's:

- distance and accessibility to existing and planned trails within the region
- distance to the nearest transit routes
- proximity to proposed street and highway capacity improvements
- average travel time for all trip purposes

For minority areas and median household income, the 20 highest and 20 lowest TAZs were examined. In the case of population density and the over 65 population, only the 20 highest TAZs were examined. Using these extremes (the 20 highest and/or lowest) allowed for a balanced review of the data, and provided a large enough sample for meaningful results. In all cases, only zones with a population over 100 were utilized.

Using the above-described methodology revealed that OCARTS area traffic analysis zones with the highest concentrations of low-income and minority populations will be equally or better served by the 2030 OCARTS Plan recommendations in terms of their proximity to trails, transit, and street and highway improvements. Anticipated travel time changes for these groups between the 2000 base year and the 2030 forecast year are expected to be negligible. Overall, the average travel time within the OCARTS area is expected to improve by 5 seconds (from 26 minutes and 20 seconds to 26 minutes and 15 seconds), and forecasted areas of reduction are spread throughout the region. The central portion, which contains most of the high minority and low-income TAZs, and the very southern portion of the OCARTS area will see the least improvement. However, the average travel times for these zones are forecasted to be at or below the average travel time for the region. A more detailed explanation of the Environmental Justice analysis is available in a separate report from ACOG<sup>19</sup>.

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<sup>19</sup> FYE 2005 UPWP Report - Task 1.01, Subtask 7b, *Analysis of 2030 OCARTS Plan Environmental Justice*, ACOG, July 2005.

**Table 12:  
Potential Environmental Impacts of the 2030 OCARTS Plan Alternates**

Environmental Impacts	Alternate One Street and Highway plus Intermodal Element	Alternate Two Street and Highway plus Intermodal Element	Alternate Three Street and Highway plus Intermodal Element	Alternate Four-A Street and Highway plus Intermodal Element	Alternate Four-B Street and Highway plus Intermodal Element
<b>Air Quality (Daily Totals)</b> <ul style="list-style-type: none"> <li>• Carbon Monoxide (CO)</li> <li>• Volatile Organic Compounds Hydrocarbons (VOC HC)</li> <li>• Nitrogen Oxides (NOx)</li> </ul>	<b>Winter Months:</b> CO - 499 tons (443 tons < in 2000)  <b>Summer Months:</b> VOC HC - 16 tons (36 tons < in 2000) NOx - 13 tons (67 tons < in 2000)	<b>Winter Months:</b> CO - 507 tons (436 tons < in 2000)  <b>Summer Months:</b> VOC HC - 16 tons (37 tons < in 2000) NOx - 14 tons (67 tons < in 2000)	<b>Winter Months:</b> CO - 503 tons (440 tons < in 2000)  <b>Summer Months:</b> VOC HC - 16 tons (37 tons < in 2000) NOx - 14 tons (67 tons < in 2000)	<b>Winter Months:</b> CO - 506 tons (437 tons < in 2000)  <b>Summer Months:</b> VOC HC - 16 tons (37 tons < in 2000) NOx - 14 tons (67 tons < in 2000)	<b>Winter Months:</b> CO - 507 tons (436 tons < in 2000)  <b>Summer Months:</b> VOC HC - 16 tons (37 tons < in 2000) NOx - 14 tons (67 tons < in 2000)
<b>Parks and Recreational Areas</b>	There will be minimal effects from bike or pedestrian paths on the natural environment; increased costs to handle additional stormwater runoff may develop; minor accommodations may be necessary for specific projects.				
<b>Wildlife, and Endangered Species</b>	There are seven endangered or threatened species in the OCARTS area; a portion of the South Canadian River, between McClain and Cleveland counties, has been designated a critical habitat by the Fish and Wildlife Service; the exact habitat of threatened avian species is unpredictable from year to year due to their migratory nature; minor accommodations may be necessary for specific projects.				
<b>Flood Plains</b>	Street widening and construction projects across or near Cottonwood Creek, North Fork Walnut Creek, Deep Fork, Cimarron, Little, North or South Canadian Rivers or other major flood prone areas will incur increased construction costs; minor accommodations may be necessary for specific projects.				
<b>Water Quality: Surface and Aquifers</b>	Street widening and construction projects will incur increased costs to protect surface and underground water resources from stormwater runoff and construction activities (EPA NPDES, Oklahoma's CSGWPP, and other Source Water Protection Programs); minor accommodations may be necessary for specific projects.				
<b>Hazardous Waste and Superfund Sites</b>	There are 130 hazardous waste sites (some of which may require remediation) and 4 superfund sites within the OCARTS area; planning and design of street widening/construction projects will require special attention; minor accommodations may be necessary for specific projects.				
<b>Leaking Underground Storage Tanks</b>	There are approximately 198 open investigations of suspected or confirmed leaking underground storage tanks in the OCARTS area; removal of tanks and remediation could delay progress on intersection improvements or street widening projects; minor accommodations may be necessary for specific projects.				
<b>Noise Sensitive Areas/Sites</b>	There are 2,292 noise sensitive locations, (e.g., day care centers, schools, colleges, nursing homes, hospitals) within the OCARTS area; street widening and construction projects could also increase noise levels for residential areas and accommodations may be necessary for specific projects.				

**Table 13:  
Potential Social Impacts of the 2030 OCARTS Plan Alternates**

Social Impacts	Alternate One Street and Highway plus Intermodal Element	Alternate Two Street and Highway plus Intermodal Element	Alternate Three Street and Highway plus Intermodal Element	Alternate Four-A Street and Highway plus Intermodal Element	Alternate Four-B Street and Highway plus Intermodal Element
Archaeological Sites	There are approximately 812 archaeological sites within the OCARTS area; minor accommodations may be necessary for specific projects; no anticipated impact.				
Tribal Lands	There is little federal tribal trust land in the OCARTS area; mostly located in the eastern parts of Oklahoma and Cleveland counties; the BIA and individual tribes must be contacted to determine exact locations; no anticipated impact.				
National Historical Sites and Districts	There are 111 sites and 28 districts in the OCARTS area that are listed on the National Park Service's National Register of Historic Places; minor accommodations may be necessary for specific projects; no anticipated impact.				
Safety (Annual Accidents Predicted)	Fatalities - 145 Injuries - 21, 301	Fatalities - 145 Injuries - 20,761	Fatalities - 144 Injuries - 20,712	Fatalities - 144 Injuries - 21,013	Fatalities - 144 Injuries - 20,833

**Table 14:  
Potential Economic Impacts of the 2030 OCARTS Plan Alternates**

Economic Impacts	Alternate One Street and Highway plus Intermodal Element	Alternate Two Street and Highway plus Intermodal Element	Alternate Three Street and Highway plus Intermodal Element	Alternate Four-A Street and Highway plus Intermodal Element	Alternate Four-B Street and Highway plus Intermodal Element
Residential and Employment Displacements	Approximately 73 residential and 119 business displacements are anticipated.				
Neighborhoods Low Income and Traditionally Underserved Groups	Acquisition of rights-of-way and/or proximity of improvements may negatively impact low income groups; accommodations may be necessary for specific projects.				
Bike/Ped Trails	\$98.5 Million	\$98.5 Million	\$98.5 Million	\$98.5 Million	\$98.5 Million
Transit	\$661.8 Million	\$661.8 Million	\$661.8 Million	\$661.8 Million	\$661.8 Million
Highway Network*	<u>\$1,548.0 Million</u>	<u>\$4,518.7 Million</u>	<u>\$4,611.8 Million</u>	<u>\$4,702.6 Million</u>	<u>\$4,813.6 Million</u>
Total Cost	\$2,308.3 Million	\$5,279.0 Million	\$5,372.1 Million	\$5,462.9 Million	\$5,573.9 Million

Note: Estimates do not account for any possible displacements resulting from any possible alignment of the southwest outer loop.

\* Includes estimated construction & maintenance costs.

## The Adopted Plan

The Alternate Four-B street and highway network was integrated into the previously presented intermodal element and adopted by the Intermodal Transportation Policy Committee on August 18, 2005 as the **2030 OCARTS Plan**. Figure 15 presents the planned 2030 street and highway network for the OCARTS area.

**Figure 15:  
2030 OCARTS Plan**

(11X17 fold out color map)



# PART 6

## FINANCIAL STRATEGY FOR IMPLEMENTING THE 2030 OCARTS PLAN

### General

Federal surface transportation law requires all long range transportation plans for metropolitan areas to be financially constrained. The financial strategy must ensure that total expected costs for planned projects do not exceed reasonably projected revenues and must, therefore, accomplish the following:

- demonstrate how the long range plan can be implemented
- indicate resources from public and private sources that are reasonably expected to be made available for plan completion
- recommend innovative financing techniques required to finance needed projects and programs

The financial strategy must also reflect the fundamental importance of the maintenance and preservation of the existing system. The purpose of this Part is to define the estimated long-term maintenance and construction costs associated with all 2030 Plan projects and to demonstrate that anticipated revenues are sufficient to fund both. The financial strategy presented in the following sections provides a balance between anticipated costs and anticipated revenues. More detailed information about the financial element of the long range plan is available in a separate report from ACOG<sup>20</sup>.

### Anticipated Revenues for the 2030 OCARTS Plan

In total, the revenues projected to be available for implementation and maintenance of the 2030 OCARTS Plan were approximately \$5.9 billion. The Policy Committee approved this revenue estimate in May 2005 for use in evaluating the financial feasibility of the Plan. For financial planning purposes, it is assumed that the total projected revenues will be distributed among street and highway improvements (which incorporates improvements to enhance goods movements via truck, rail, and access to area airports), transit capital and services, and bicycle and pedestrian improvements.

The following funding categories were used to develop the total revenue projection for the 2030 OCARTS Plan. An annual funding average was determined for each category and projected over the 30-year planning period (2000-2030).

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<sup>20</sup> FYE 2005 UPWP Report - Task 2.01, Subtask 9a,b, *Financial Element of the 2030 OCARTS Plan*, ACOG, February 2006.

## Federal Revenue Sources<sup>21</sup>

- *Highways - Federal Highway Administration:*
  - Interstate Maintenance (IM)
  - National Highway System (NHS)
  - Bridge Replacement and Rehabilitation (BR)
  - Surface Transportation Program (STP)
    - (Includes STP Safety, STP Enhancement and STP Urbanized Area funds)
  - Minimum Guarantee (MG)
  - Congestion Mitigation/Air Quality (CMAQ)
  - Competitive Funding Sources (ITS, TCSP, NCPD, Demonstration funds)<sup>22</sup>
  - Discretionary Earmarks
- *Transit - Federal Transit Administration:*
  - Sec. 5307 - Formula Funds for Urbanized Areas
    - (Capital and planning funds for METRO Transit Oklahoma City and capital, planning and operating funds for METRO Transit Norman)
  - Sec. 5309 - Discretionary Capital Program
  - Sec. 5310 - Elderly and Persons with Disabilities Program
  - Sec. 5311 - Non-Urbanized Area Formula Program
  - Jobs Access and Reverse Commute (JARC)

## State Revenue Sources

- *Highways:*
  - State Highway Operating and Maintenance Funds
  - Industrial Access Program
  - Lake Access Program
  - Capital Improvements Program (CIP)
  - Oklahoma Turnpike Authority (OTA)
- *Transit:*
  - Public Transit Revolving Fund

## Local Revenue Sources

- *Highways:*
  - General Fund (as budgeted by local governments)
  - Street and Alley Fund
  - General Obligation Bonds (dedicated for street and bridge improvements)
  - Dedicated Sales Tax (earmarked for street and bridge improvements)
  - Contributions by Developers (improvements to arterial street network)
  - State Funds Returned Directly to Counties for Roads (fuel taxes, gross production taxes and motor vehicle collections)
  - State Funds Returned Directly to Cities and Towns (admission fees, alcoholic beverage taxes, gas excise taxes & motor vehicle collections)
- *Transit:*
  - Oklahoma City General Fund Subsidy
  - Funds from Cities and Universities served by transit
  - Farebox and Ticket Revenues
  - Donations and other revenues

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<sup>21</sup> Reflects funding categories of the Transportation Equity Act for the 21st Century (TEA-21).

<sup>22</sup> ITS - Intelligent Transportation Systems, TCSP - Transportation, Community and System Preservation, NCPD - National Corridor Planning and Development.

Table 15 provides a summary of the federal, state, and local revenue sources used to develop the 2030 OCARTS Plan revenue estimate and the 30-year projection of funds estimated for each funding category.

**Table 15:  
Estimated Revenue for Implementation of the 2030 OCARTS Plan**

STREETS AND HIGHWAYS, BICYCLE & PEDESTRIAN MODES:	Estimated 30-Year Total
<p><b>Federal Sources (Plus Matching Funds):</b>  Federal-aid Funds  (Includes IM, NHS, BR, STP, STP Enhancement, STP-UZA, CMAQ and MG funds)  Federal Discretionary Earmarks (1999 - 2005)  (Includes Demonstration, HPP / I-40 earmarks, ITS, NCPD and other discretionary funds)  Future Federal Discretionary Earmarks  (Assumes \$2.5 mil./yr. for 2006-2030, \$180 mil. for I-40 Crosstown Relocation, and \$34,500,000 to implement ITS Deployment Plan)  GARVEE Bond Debt Service*</p> <p><b>State Sources:</b>  State Highway Maintenance, Industrial Access and Lake Access Funds  Capital Improvements Program Funds (Through 2004)  Oklahoma Transportation Authority (Equals estimated turnpike costs)  CIP Bond Debt Service**</p> <p><b>State Assessed Taxes and Fees:</b>  State Taxes and Fees Distributed Directly to Counties  (Includes gasoline, diesel &amp; special fuel taxes; gross production taxes; and motor vehicles collections including County Road and Bridge Improvement funds)  State Taxes and Fees Distributed Directly to Cities and Towns  (Includes gasoline excise tax, motor vehicle collections)</p> <p><b>Local Sources:</b>  (Includes funds for transportation improvements from: general fund, street and alley fund, developer contributions, bond issues and local sales tax revenues)</p> <p style="text-align: right;"><b>Subtotal</b></p>	<p>\$2,077,081,401</p> <p>\$206,865,882</p> <p>\$274,500,000</p> <p>(\$13,300,000)</p> <p>\$165,608,160</p> <p>\$109,247,122</p> <p>\$518,660,609</p> <p>(\$101,311,081)</p> <p>\$613,544,400</p> <p>\$285,858,840</p> <p>\$1,101,569,010</p> <p><b>\$5,238,324,343</b></p>
<b>TRANSIT MODE:</b>	
<p><b>Federal Sources:</b>  (Includes FTA Sec. 5307, Sec. 5309, JARC, Sec. 5310, Sec. 5311 and CMAQ)</p> <p><b>State Sources:</b>  (Transit Revolving Funds for COTPA, CART, First Capital Trolley and Delta Public Transit)</p> <p><b>Local Sources:</b>  (Includes municipal, county, university and private funds for urban and rural operators)</p> <p style="text-align: right;"><b>Subtotal</b></p>	<p>\$232,847,310</p> <p>\$21,453,570</p> <p>\$407,532,930</p> <p><b>\$661,833,810</b></p>
<b>TOTAL ESTIMATED REVENUES FOR 2030 OCARTS PLAN</b>	<b>\$5,900,158,153</b>

\* Approximately \$40 million in GARVEE bond funds will be spent within the OCARTS area and will be repaid with Federal funds. Therefore, the GARVEE revenues are not reflected in the total revenues above. The debt service on these bonds will also be repaid with Federal funds.

\*\* Debt service on CIP bonds are based on OCARTS area CIP-funded projects only. Debt service will be repaid with State funds and includes payments between 2000 to 2015.

Based on the estimated funding distribution, by mode, the following breakdown of the total projected revenues was developed for planning purposes:

**Table 16:  
Estimated 30-Year Projected Revenue**

Mode	Percent	Total Revenues
Streets and Highways	87.1%	\$5,138,324,343
Transit	11.2%	\$661,833,810
Bicycle, Pedestrian	1.7%	\$100,000,000
<b>Total</b>	<b>100.0%</b>	<b>\$5,900,158,153</b>

## Estimated Costs for Street/Highway and Intermodal Elements

### Costs for Street and Highway Alternates

As part of the development of the 2030 OCARTS Plan alternates, the MPO developed, and the ITPC approved in April and May 2005, cost estimates for each street and highway scenario developed. The cost estimates are based on unit costs derived primarily from the *2003 State Highway System Needs Assessment Study and Sufficiency Rating Report*, prepared by the Oklahoma Department of Transportation. However, unit costs for maintenance of streets under the jurisdiction of local entities (non-state highway facilities) were developed with local entity input and based on recent maintenance costs. Unit costs were adjusted to year 2000 dollars - the base year of the 2030 OCARTS Plan. (Revenue estimates were based on year 2000 characteristics as well.)

The *Needs Assessment Report* and local input were used to develop unit costs for construction, maintenance, and right-of-way acquisition. Table 17 below lists the unit costs per lane mile used to calculate the total costs for the 2030 OCARTS Plan (street and highway) alternates. The cost estimates for new construction include grading, drainage, base, surface, structures, sod, signing, utilities, and engineering. Maintenance costs are for a 2-inch overlay, assuming a useful life of 10 years. Therefore, it was assumed that existing facilities would require maintenance a total of three times over the 30-year planning period (2000-2030). The cost for right-of-way acquisition was considered separately.

**Table 17:  
Transportation Improvement Costs Per Lane Mile  
(2000 dollar value)**

Improvement Type	Interstates & Freeways	Others*
<b>Urban Area:</b>		
Reconstruction or widening on existing alignment, with access roads	\$3,590,800	N/A
Reconstruction or widening on existing alignment, no access roads	\$2,650,800	\$697,500
Construction on new alignment	\$2,755,300	\$668,700
Maintenance (roadways under ODOT jurisdiction)	\$93,590	\$70,500
Maintenance (roadways under local jurisdiction)	N/A	\$40,000
Bridges (if constructed separately) - <i>per square foot</i>	\$56	\$56
Right-of-way - <i>per acre</i>	\$245,700	\$204,700
<b>Rural Area:</b>		
Resurface on existing alignment and add shoulders (no addnl. lanes)	N/A	\$295,200
Reconstruction along existing alignment (add lanes)	\$1,316,000	\$557,000
New construction on new alignment	\$1,316,000	\$570,000
Parallel construction (add lanes; no improvement on existing lanes)	\$996,400	\$417,600
Parallel construction (add lanes; widen and resurface existing lanes)	N/A	\$391,200
Maintenance (roadways under ODOT jurisdiction)	\$65,800	\$43,240
Maintenance (roadways under local jurisdiction)	N/A	\$36,000
Bridges (if constructed separately) - <i>per square foot</i>	\$56	\$56
Right-of-way - <i>per acre</i>	\$163,800	\$98,700

\*Principal arterials, minor arterials, and collectors.

### **Intermodal Element**

#### *Costs for Urban and Rural Transit Services*

Historical costs of providing public transit in the OCARTS area were used as the basis for developing the revenue projection for the transit element of the 2030 OCARTS Plan. Information was gathered from the Federal Transit Administration; the Central Oklahoma Transportation and Parking Authority (COTPA), which operates METRO Transit Oklahoma City; the University of Oklahoma, which operates METRO Transit Norman/CART; and the Transit Programs Division of ODOT to arrive at an annual funding level. The annual average for each funding category was projected over the plan period for total estimated 30-year transit revenues of \$661 million. Over this same period, the estimated transit costs are assumed to equal the estimated revenues. Because federal law requires financial constraint for metropolitan transportation plans, it is also assumed that transit services will remain relatively constant. This is based on the region's history of somewhat flat transit funding (and service) levels, even though the demand for transit services within the region exceeds the availability and affordability of the supply. A new dedicated revenue source for transit

would have to be reasonably available in order to project transit growth beyond current levels. The COTPA Board of Trustees adopted the *COTPA Long Range Transit Plan* in April 2001, which includes potential new revenue sources for achieving the medium and long-term recommendations of the plan for improving transit services within the metro area.

*Trucking, Rail, and Airport Access*

Costs for improved goods movement (trucking, rail access) and improved access to area airports, which are provided through the street and highway network, are reflected in the costs of the street and highway alternates. Costs related to the upkeep and improvements of rail tracks are the responsibility of the owning entity.

*Bicycle and Pedestrian Facilities*

In estimating the total cost for developing the 429 miles of planned bicycle facilities included in the 2030 OCARTS Plan, costs included in locally adopted trails master plans were utilized and estimated unit costs, based on those plans, were applied to the trails that lacked formal cost estimates at the local level. Table 18 lists the unit costs per mile, by facility type, that were utilized.

**Table 18:  
Estimated Unit Costs for Bicycle Facilities in the OCARTS Area**

Bicycle Facility Type	Cost/Mile
BL - Bike Lane	\$300,000
BPE - Bike Path Exclusive to Bicycles	\$225,000
BPS - Bike Path Shared with Pedestrians	\$225,000
SH - Bike Route using Roadway Shoulder	\$110,000
SOR- Signed-On-Road Bike Route	\$130,000
STR-Share the Road Bike Route	\$15,000

Note: Figures are based on unit costs reflected in the trails plans adopted by Edmond, Moore and Oklahoma City and adjusted to year 2000 dollars.

In total, a cost of nearly \$98.5 million was estimated to implement all bicycle facilities planned by OCARTS area local governments at the time of Plan adoption. This figure does not include maintenance costs associated with existing bicycle facilities. Typical maintenance cost for a one-mile paved trail, is approximately \$8,600, and resurfacing of an asphalt trail on a ten year cycle is estimated to cost between \$50,000-\$60,000/mile<sup>23</sup>. Trail maintenance will be performed by local jurisdictions using local public and/or private funds.

<sup>23</sup> LandPlan Consultants, Inc., 1999.

Table 19 lists the estimated costs for implementing the planned bicycle facilities included in the 2030 OCARTS Plan.

**Table 19:  
Estimated Total Costs for Implementing  
Planned Bicycle Facilities in the OCARTS Area**

Entity	Estimated Cost
Choctaw	\$10,983,600
Edmond	\$24,575,813
Guthrie	\$5,024,250
Harrah	\$1,460,250
Moore	\$4,913,300
Norman	\$6,295,100
Oklahoma City	\$41,836,242
All Other Entities	\$3,381,750
<b>Estimated Total</b>	<b>\$98,470,305</b>

### **Pedestrian Facilities**

All OCARTS area local governments are encouraged to provide wheelchair accessible sidewalks that connect residential, commercial areas and public areas, such as parks and schools. This will enhance pedestrian movement as an alternative to driving and improve access to bus stops. However, a specific sidewalk plan, with associated costs, is not a part of this plan.

### **Total Estimated Costs for the 2030 OCARTS Plan**

The Alternate Four-B Street and Highway Network, as described in the previous Part, was adopted by the MPO for inclusion in the 2030 OCARTS Plan. This network included improvements to increase safety, capacity, and access to benefit the movement of both people and goods. Additionally, the Intermodal Element recommendations and estimated costs for transit services and trails improvements over the 30-year planning period were adopted as part of the region's long range transportation plan. The estimated costs, by mode, for the adopted 2030 OCARTS Plan are presented below.

**Table 20:  
Total Estimated Costs for the 2030 OCARTS Plan**

Functional Classification	Linear Miles	Lane Miles	COST (in thousands)					Total
			Const.	Maint.	R.O.W.	Major Interchgs.	Non-Trad'l Imprv'ts <sup>d</sup>	
<b>HIGHWAY ELEMENT:</b>								
Turnpikes <sup>a</sup>	80.00	320.00	424,961	84,036	6,164	7,000		522,161
Interstate & Freeway <sup>b</sup>	173.33	1,005.72	1,154,580	202,825	84,000	<sup>c</sup> 245,969	18,995	1,706,329
Principal Arterials	456.90	1,863.87	330,216	225,228	132,039		17,745	705,228
Minor Arterials	1,424.84	4,154.91	905,705	402,282	388,238		3,630	1,699,855
Collectors	219.47	602.47	76,266	63,641	40,146			180,053
<b>Subtotal</b>	<b>2,354.53</b>	<b>7,946.97</b>	<b>\$2,891,728</b>	<b>\$978,012</b>	<b>\$650,587</b>	<b>\$252,969</b>	<b>\$40,330</b>	<b>\$4,813,625</b>
<b>INTERMODAL ELEMENT:</b>								
Transit								661,834
Bicycle	429							98,470
<b>Subtotal</b>								<b>\$760,304</b>
<b>TOTAL PLAN COST:</b>								<b>\$5,573,929</b>

Notes: Street and highway construction cost figures include bridges and other structures. Maintenance costs are for a 2-inch asphalt-concrete overlay every 10 years over the planning period (2000-2030).

<sup>a</sup>Southwest Outer Loop was considered a toll facility for planning purposes only. Turnpike construction and maintenance cost figures were based on the Outer Loop Corridor MIS (updated to 2000 dollars) and information provided by OTA.

<sup>b</sup>Construction (\$289 million) and ROW acquisition (\$71 million) for the I-40 Crosstown realignment project was based on information provided by ODOT.

<sup>c</sup>Major Interchanges include I-240/I-35, I-44/I-235 (project also includes widening of I-235 from N. 63rd St. to N. 36th St. from 4 to 6 lanes; Widening of Santa Fe from N. 50th St. to N. 63rd St.), Broadway Extn./Memorial Rd., I-40/Morgan Rd., and I-35/Shields Blvd.

<sup>d</sup>The non-traditional improvements in the aggregate are expected to cost approximately \$40 million, and they will be implemented for the most part on freeways and principal arterials. Non-traditional improvements include the deployment of intelligent transportation systems (ITS), travel demand management (TDM), and traffic system management (TSM) techniques.

## Funding Strategy for the Adopted Plan

The following table provides a summary of the estimated costs of the 2030 OCARTS Plan and the revenues projected to be available for implementation of the Plan. This information demonstrates that the Plan is financially feasible since the projected revenues estimated to be available to implement each mode exceed the estimated costs of implementing the proposed improvements.

**Table 21:  
Anticipated Revenues and Estimated Costs  
for Financially Feasible 2030 OCARTS Plan**

Mode	Percent	Estimated 30-Year Total Revenues	Estimated 30-Year Total Costs	Difference
Streets & Highways	87.1%	\$5,138,324,343	\$4,813,625,000	\$324,699,343
Transit (Urban & Rural)	11.2%	\$661,833,810	\$661,833,810	\$0
Bicycle & Pedestrian	1.7%	\$100,000,000	\$98,470,305	\$1,529,695
<b>Estimated Totals for 2030 OCARTS Plan</b>	<b>100.0%</b>	<b>\$5,900,158,153</b>	<b>\$5,573,929,115</b>	<b>\$326,229,038</b>



## **PART 7 OTHER PLAN ISSUES**

### **Major Investment Studies**

The Intermodal Surface Transportation Efficiency Act of 1991 and subsequent guidance published jointly by the Federal Highway Administration and Federal Transit Administration required a major metropolitan investment study (MIS) for major transportation investments involving federal funds to ensure the evaluation of multimodal strategies within multiple corridors. MIS results could then be incorporated into a Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS) in accordance with the National Environmental Policy Act (NEPA) requirements of the Environmental Protection Agency.

However, TEA-21 removed the MIS requirement as a separate process. In order to reduce duplication of effort, new regulations streamlined the relationship between investment studies and the NEPA requirements. The following studies were begun under the MIS process and impact the 2030 OCARTS Plan.

#### **I-40 Crosstown Bridge MIS/DEIS**

The I-40 Crosstown Expressway MIS/DEIS was initiated by the Oklahoma Department of Transportation (ODOT) in October 1995. This MIS evaluated several alignments for the relocation of the elevated portion of I-40 in downtown Oklahoma City between I-235 and Meridian Avenue based on their potential environmental, social and economic impacts; constructability; and total costs. The MIS recommended an alignment several blocks south of the current structure in the Burlington Northern Santa Fe railroad corridor. The MIS also recommended the removal of the existing elevated structure and construction of an at-grade boulevard in its place. The preferred alignment recommended by the MIS/DEIS was further evaluated in the FEIS, and submitted by ODOT to FHWA in November 2001. On May 1, 2002, the Federal Highway Administration issued a Record of Decision (ROD) approving the preferred alignment for the I-40 Crosstown Expressway relocation. This approval constituted FHWA's acceptance of the project location and concepts described in the FEIS, which included a list of mitigation measures. Right-of-way acquisition and final engineering design for the project are underway. The 2030 OCARTS Plan street and highway Alternates Two, Three, Four-A and Four-B were modeled based on the approved realignment of I-40 described in the FEIS.

#### **Southwest Outer Loop MIS**

An Outer Loop MIS was begun in February 1998. This study was jointly sponsored by ODOT, ACOG and the Oklahoma Turnpike Authority (OTA), and was initiated at the request of several communities within the OCARTS area. ODOT agreed to serve as the lead agency. The purpose of the Outer Loop MIS was to determine if an outer loop highway encircling the metro

area, and/or other transportation strategies, would reduce future anticipated congestion on existing highways. (The northwest leg of the outer loop was developed as the Kilpatrick Turnpike, constructed by the OTA.)

Early in 1999, the scope of the study for the highway alternates was narrowed to focus on the southwest portion of the region—where projected travel demand on the arterial network was the greatest, and the analysis came to be known as the Southwest Outer Loop Study.

Numerous highway corridors were evaluated and eventually narrowed to an alignment within the corridor shown in the 2030 OCARTS Plan Street and Highway Network (See Figure 15). This corridor was used for traffic modeling and financial feasibility purposes in the development of the Plan. Although the outer loop was assumed to be a toll facility for planning purposes, this was not intended to preclude consideration of other funding methods.

Subsequent to the adoption of the 2030 OCARTS Plan, an updated final report<sup>24</sup> on the Outer Loop MIS was completed by the study consultant and presented to the sponsoring agencies. An environmental impact study (EIS), in conformance with federal guidelines, will be necessary to establish a final alignment within the corridor reflected in the 2030 Plan. An EIS is intended to reduce conflicts with existing and planned development, as well as reduce environmental impacts, and it must be completed prior to the purchase of right-of-way. As of the date of this report, a funding source and lead agency has not been identified to proceed to the EIS phase.

## Congestion Management

Congestion is an imbalance between traffic flow and roadway capacity that causes increased travel time and cost. Federal law requires that Metropolitan Planning Organizations for urbanized areas over 200,000 population develop a congestion management process (CMP) to provide information on roadway performance and alternative strategies to alleviate congestion and enhance mobility.

### Short Range Congestion Management

ACOG uses three measurement tools to monitor congestion in the OCARTS area: volume-to-capacity ratio, intersection accident rate, and travel time data. Based on historical data, 14 corridors have been identified as having recurring congestion problems.

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<sup>24</sup> Outer Loop Corridor Major Investment Study for the Oklahoma City Metropolitan Area, Final Document, Cobb Engineering Co., October 2006.

The corridors are listed below and identified by number in Figure 16.

1. I-235/Broadway Extension — I-40 to ½ mile north of Memorial Rd. (OKC)
2. US-77/Broadway — ½ mile south of S. 33<sup>rd</sup> St. to Edmond Rd. (Edmond)
3. Shields Blvd. — I-40 to I-35 (OKC)
4. Northwest Expressway/SH-3 — Council Rd. to Classen Blvd. (OKC)
5. 39<sup>th</sup> Expressway/SH-66 — Council Rd. to Lake Hefner Parkway/SH-74 (Bethany, Warr Acres, OKC)
6. I-44 & Lake Hefner Parkway/SH-74 — I-240 to Northwest Expressway (OKC)
7. I-44 — Lake Hefner Parkway/SH-74 to Pennsylvania Ave. (OKC)
8. I-40 West — Council Rd. to I-35 (OKC)
9. I-40 East — I-35 to Douglas (OKC)
10. Main St. — 36<sup>th</sup> Ave. W. to Porter Ave. (Norman)
11. Boyd St. — Berry Rd. to Classen Blvd. (Norman)
12. Lindsey St./SH-74A — I-35 to 12<sup>th</sup> Ave. SE (Norman)
13. SH-9 — I-35 to John Saxon Blvd. (Norman)
14. I-35 — I-40 (OKC) to SH-9 (Norman)

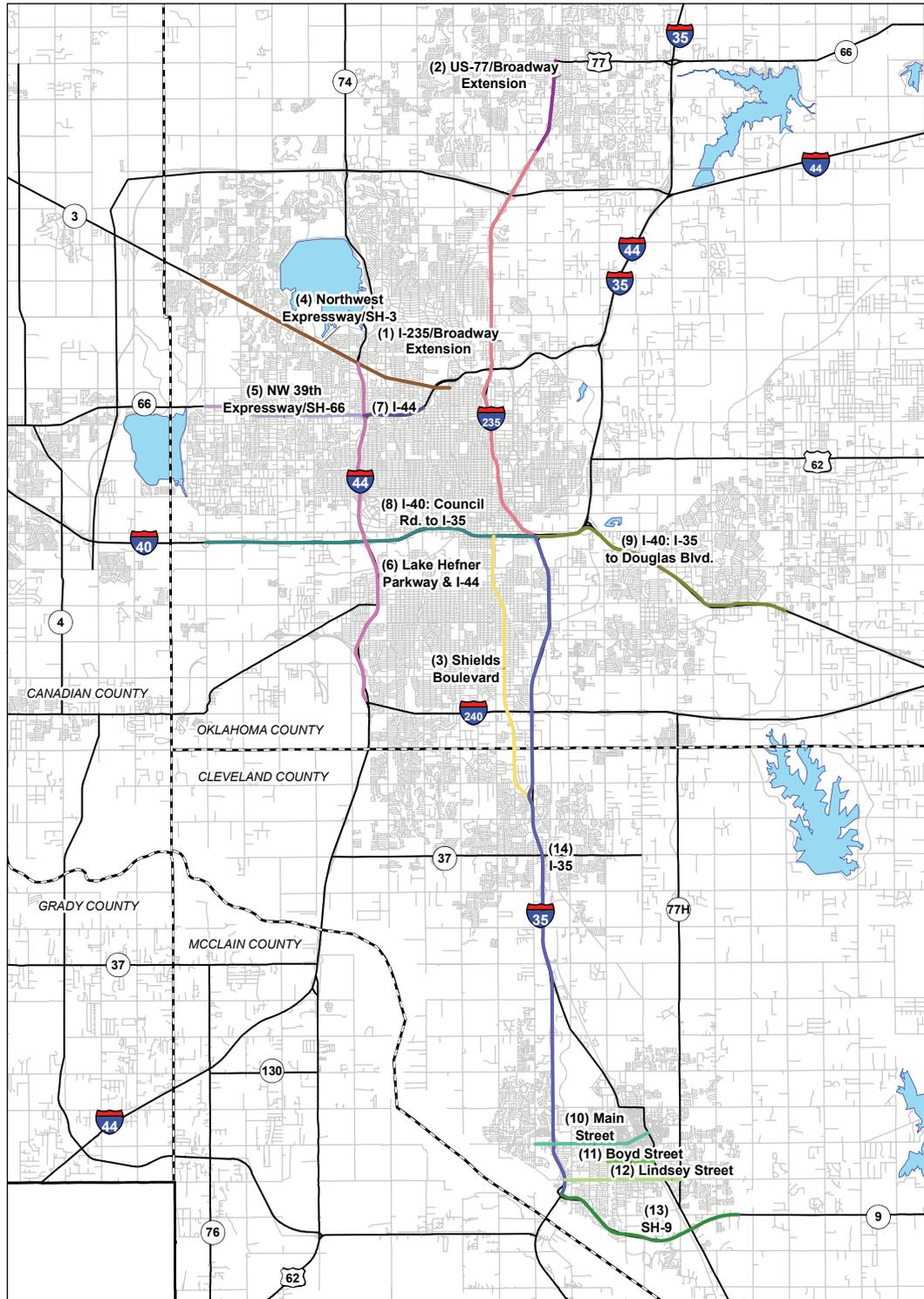
### Long Range Congestion Management

Based on modeling results for the 2030 OCARTS Plan, most of the 14 recurring congestion corridors listed above are expected to operate more efficiently in the future. This is due in part to planned intersection and interchange improvements and roadway widenings within these corridors. Anticipated use of new technologies such as close circuit television cameras and dynamic message signs also contribute to improved performance on some of these arterial and freeway corridors.

However, several of the corridors continue to show moderate levels of congestion despite the recommended Plan improvements and **small portions** of the following corridors even show severe congestion forecasts for the year 2030:

- I-235/Broadway Extension
- US-77/Broadway Extension
- I-40 East (I-35 to Douglas Blvd.)
- Northwest Expressway/SH-3
- Lindsey St./SH-74A
- I-35
- I-44

**Figure 16:  
Recurring Congestion Corridors in the OCARTS Area**



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## Intelligent Transportation Systems

Intelligent transportation systems (ITS) is the application of information technology to transportation to make travel safer, promote a strong and growing economy through better mobility, and enhance and protect environmental quality. SAFETEA-LU continues to encourage the research, development and use of ITS technologies and continues to push for the integration of ITS initiatives into the overall metropolitan transportation planning process.

In 1999, ODOT and ACOG conducted an ITS Early Deployment Plan (EDP) study to improve the understanding of traffic incidents<sup>25</sup> and recurring traffic congestion within the OCARTS region. The ITS EDP provides a framework for using technology to enhance the OCARTS area transportation system and outlines short, medium, and long-term projects to address transportation problems and opportunities within the region. The EDP has since been updated with an OCARTS Area ITS Implementation Plan, which documents the revised and updated short and long-term ITS projects to be undertaken in the metropolitan area. The OCARTS Area ITS Implementation Plan was developed in coordination with ODOT and was finalized in 2004.

Following the 2001 adoption of the federal ITS rules, the following compliance related activities were undertaken within the OCARTS area:

- *2001 Definition of the OCARTS Area ITS Integration Strategy* - The OCARTS area ITS EDP study serves as the region's ITS Integration Strategy, which provides the needed overall guidance for the deployment of integrated ITS infrastructure and ensures conformity to the National ITS Architecture and applicable standards.
- *2003 Development of the OCARTS Area Regional ITS Architecture* - The ITS architecture was drafted cooperatively with regional ITS stakeholders and since then, has been continuously updated to provide regional ITS architecture conceptual designs and operational procedures, along with roles and responsibilities of participating agencies.
- *Systems Engineering Analysis and Project Implementation process* - This process will guide future ITS deployment through identification of detailed project objectives, analysis of alternate systems and technology options, applicable standards and testing procedures, along with the description of anticipated personnel and budget resources.

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<sup>25</sup> An incident is a crash, natural disaster, workzone activity, special event or other emergency road user occurrence that adversely affects or impedes the normal flow of traffic.

Building on the EDP Incident Management and Alternate Route Plans, the OCARTS area ITS stakeholders also accomplished the following incident management related activities:

- *2002 Development of the OCARTS area Incident Management Memorandum of Understanding* - The memorandum of understanding brings together the region's law enforcement, first response and transportation management agencies and also provides an update to the OCARTS area alternate routes.
- *2003 Enactment of Oklahoma's Quick Clearance Law* - The new law enhances existing incident management efforts by addressing and enabling the speedy removal of disabled vehicles and spilled cargo in non-injury accidents.
- *2004 Finalization of the OCARTS area ITS Implementation Plan* - The ITS Implementation Plan documents revised short- and long-term ITS projects and updates the EDP initiatives with newer technologies and associated cost savings.
- *2004 Development of the OCARTS area Incident Management Guide* - The guide was cooperatively developed with local first response agencies and other stakeholders and is aimed at improving the regional traffic incident management efforts through providing a comprehensive look at current practices, along with an extensive list of recommendations.

The regional incident management and ITS related efforts are in addition to and complimentary of the ITS initiatives undertaken by ODOT. The OCARTS area benefits tremendously from ODOT owned ITS infrastructure, deployed incrementally over the last few years within the OCARTS area. Close cooperation with local stakeholders and ODOT will continue.

## Enhancement Program Activities

The federal Transportation Enhancement Program is funded from 10 percent of the Surface Transportation Program (STP) funds allocated to the State of Oklahoma. The program, which began in the early 1990s, dedicates funding to transportation-related community amenities.

Enhancement activities are intended to expand the availability of alternate modes of travel, preserve/renovate historic transportation facilities and structures, and creatively integrate transportation facilities into their surrounding communities and the natural environment. Transportation enhancement activities must be related to the intermodal transportation system by function, proximity, or impact, and includes such improvements as the development of bicycle and pedestrian facilities, conversion of abandoned railroad right-of-way to other transportation uses, landscaping (of transportation routes), renovation and reuse of historic transportation-related buildings, and feasibility studies to accomplish such activities.

The Special Projects Branch of the Oklahoma Department of Transportation (ODOT) administers the federal program, which totaled approximately \$12 million annually for the State of Oklahoma under TEA-21. In 1998, the Oklahoma Transportation Commission (OTC) approved a minimum annual dedicated funding of \$7 million for five broad categories of ODOT-sponsored enhancement projects. The remaining enhancement funds are made available for competitive application by federal and state agencies and tribal, county and local governments. ODOT utilizes a committee representing diverse transportation, preservation and environmental interests to review and recommend applications for funding to the OTC.

Since the inception of the Enhancement Program, numerous OCARTS area enhancement project phases have been completed or are under design or construction. The following projects were approved for funding from the Transportation Enhancement Program since the last Plan update in 2000:

- Walk Downtown Blanchard, Blanchard
- Del City Trail Extension - Ray Trent Park, Del City
- Mitch Park/Coffee Creek Trail, Edmond
- Harrah Trail System, Harrah
- Harrah Community Trail Project, Phase 2, Harrah
- Little River Commuter Trail, Moore
- Downtown Streetscape and Pedestrian Improvements, Norman
- Legacy Trail North Extension, Norman
- Capitol-Medical Pedestrian/Bicycle Facility, Oklahoma City
- Experience Stockyard City, Oklahoma City
- Hefner/Overholser Trail, Oklahoma City
- Katy Trail, Oklahoma City
- Lightning Creek Trail, Oklahoma City
- NE 6<sup>th</sup> Street Centennial Gateway Project, Oklahoma City
- NE 23<sup>rd</sup> Street Streetscape Project, Oklahoma City
- North Canadian River Central Greenway Trail Link, Oklahoma City
- Will Rogers World Airport Landscape Corridor, Phase 1, Oklahoma City Airport Trust
- Will Rogers World Airport Landscape Corridor, Phase 4, Oklahoma City Airport Trust
- Tuttle Pedestrian and Bicycle Trail, Tuttle
- SH-66/Main Street Sidewalk Replacement, Yukon
- Bicycle and Pedestrian Facilities - Chisholm Trail Park and Freedom Trail Park, Yukon

SAFETEA-LU continues the Transportation Enhancement Program and will contribute to the implementation of additional trails, landscaping, and other transportation enhancements within the OCARTS area.

## Air Quality

As of the publication of this report, Central Oklahoma is an air quality attainment region for all federally regulated criteria pollutants. Central Oklahoma has not always enjoyed full attainment status. Exceedances of both ozone and carbon monoxide have occurred in the past. The region regained its designation as an attainment area in 1990, after being classified as non-attainment for carbon monoxide since 1984.

In order to help maintain the region's attainment status, the MPO conducts an air quality public education program to promote discretionary, proactive pollution reducing activities. The campaign targets the two pollutants of primary concern in the region, both by-products of traditional fuel source vehicle engines—summertime ozone and wintertime carbon monoxide (CO). The Clean Air Alert Day program, along with billboards, radio and television spots, and a dedicated Web site are utilized to encourage area residents to refuel at night, trip-chain, and ride the bus on alert days in order to reduce the level of pollution that could transpire. In the summertime, reduction of lawn mower use from gasoline-powered engines on alert days is also encouraged.

The Clean Air Alert Day Program was established in 1992 to provide citizens and employers with the information necessary to help keep the region in compliance with federal air quality standards. A team of meteorologists and air quality specialists at the Oklahoma Department of Environmental Quality monitors weather conditions and notifies the public and media the day before conditions are expected to foster elevated levels of ozone, carbon monoxide, or particulate matter. The next day is then declared a Clean Air Alert Day, and citizens are urged to do their part.

A non-attainment designation by the Environmental Protection Agency (EPA) would have many negative economic, health and quality of life impacts on the region. Non-attainment status would force the region to undertake several federally mandated actions that would result in an increased financial burden for local residents, businesses, and government. Such action would also create industrial emission caps that would adversely affect the region's ability to attract new industries, and would dampen economic development efforts. The region's transportation plan and transportation improvement programs would also have to undergo a conformity evaluation before new roadway projects could receive federal funds in order to ensure that planned improvements will not negatively impact the future air quality of the region. The air quality public education program is a pre-emptive action intended to maintain air quality and avoid the negative consequences of non-attainment status.

In addition to the air quality public education program and Clean Air Alert Days, the MPO coordinates the Clean Cities Alternative Fuels Program. Central Oklahoma was designated a Clean Cities region by the U.S. Department of Energy (DOE) in May 1996. Clean Cities is a locally

based, industry and government partnership sponsored by the DOE. Its mission is to advance the economic, environmental, and energy security goals of the United States by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption in the transportation sector. In Central Oklahoma, ACOG, the Oklahoma Department of Commerce and the DOE support Clean Cities.

In December 2002, ACOG notified the EPA of its intent to participate in a proactive air quality strategy called the 8-Hour Ozone Early Action Compact (EAC). The EAC is a Memorandum of Agreement between ACOG, representing the local governments within the OCARTS area, the Oklahoma Department of Environmental Quality and the U.S. Environmental Protection Agency. The purpose of the EAC is to develop and implement a Clean Air Action Plan (CAAP) that will reduce ground-level ozone concentrations in the Central Oklahoma area to comply with the 8-hour ozone standard by December 31, 2007, and maintain the standard beyond that date.<sup>26</sup> The EAC provides participants the flexibility to select emission reduction measures and programs that are best suited to local needs and circumstances for reaching attainment of national air quality standards.

## Eligibility for Federal-Aid Highway Funds

Federal law requires each state in consultation with the metropolitan areas, to cooperatively develop and maintain a functional classification of streets and roads, including identification of routes on the National Highway System<sup>27</sup>. The federal functional classification system<sup>28</sup> is approved by the Federal Highway Administration and is used to determine eligible routes for federal-aid assistance, as well as to provide a planning tool for needs assessments, establishment of jurisdictional (urban/rural) responsibilities, design criteria, and other planning activities.

With the exception of bridge improvements, the expenditure of federal-aid funds in metropolitan areas is restricted to locations that are functionally classified as rural major collectors, urban collectors, arterials, freeways or interstates. In order to maintain the integrity and safety of the overall transportation system, certain federal funding categories permit the replacement or rehabilitation of any bridge, regardless of its functional classification. In conformance with federal law, bridge improvements on any public road may be accomplished using eligible federal-aid funding categories regardless of functional classification or location on the OCARTS street and highway network.

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<sup>26</sup> Additional information about the EAC and the CAAP is contained in FYE 2004 UPWP Report - Task 2.06, Subtask 1, *Air Quality Planning*, ACOG, December 2004.

<sup>27</sup> The National Highway System (NHS) includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The NHS was developed by the Department of Transportation (DOT) in cooperation with the states, local officials, and MPOs.

<sup>28</sup> The 2000 Oklahoma City Urban Area Functional Classification System was approved by the Federal Highway Administration, Oklahoma Division Office, on November 7, 2002.

The 2030 OCARTS Plan street and highway network identifies routes that are the most regionally significant in terms of traffic demand. Not all streets located within Central Oklahoma are included on the OCARTS network. Additionally, not all streets included in the OCARTS network are a part of the federal functional classification system described above.

Street and highway improvements involving new construction, reconstruction, rehabilitation, resurfacing or widening must be included on both the 2030 OCARTS Plan network and the federal functional classification plan in order to be eligible for federal-aid funding. Locations of federal-aid safety improvements<sup>29</sup>, such as traffic signals, school zone signals, or traffic signs, must be a part of the federal functional classification system, but sometimes are not included on the OCARTS street and highway network if they have lower traffic volumes.

## Plan Amendment Process

The 2030 OCARTS Plan was developed based on 30-year projections of population, housing, employment, land use and other socioeconomic factors. Change in each of these areas is inevitable, and must be addressed through periodic update of the Plan. Changes in revenue forecasts and cost assumptions also are an integral part of the update process.

The 2030 OCARTS Plan was prepared in accordance with state and federal requirements. Current federal law requires that long range transportation plans for air quality attainment areas be prepared every five years. In order to accommodate policy changes that may arise before the five-year period is complete, the Intermodal Transportation Policy Committee may consider amendments to the Plan, following a public hearing regarding the proposed change.

Upon resolution of its governing body, an amendment request may be made by any OCARTS area city or county, the Oklahoma Department of Transportation, the transit authorities, or the MPO. Public input is sought on each requested amendment, and the Policy Committee receives a recommendation from the Intermodal Transportation Technical Committee and the Citizens Advisory Committee prior to final action. Amendments to the Plan are also forwarded to ODOT for inclusion in the Statewide Intermodal Transportation Plan.

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<sup>29</sup> Safety improvements include traffic control signalization, pavement marking, commuter carpooling and vanpooling, or installation of traffic signs, traffic lights, guardrails, impact attenuators, concrete barrier end treatments, breakaway utility poles, or priority control systems for emergency vehicles at signalized intersections.

# PART 8

## STAGING OF STREET AND HIGHWAY IMPROVEMENTS

### General

Prior to the adoption of the 2030 OCARTS Plan, the MPO identified the staging of planned street and highway improvements into long and short-range components. For the purpose of this process, short-range projects were defined as those expected to be funded between 2006 and 2014, while long range projects were estimated to be funded between 2015 and 2030.

The staging of projects identified in the previous (2025) OCARTS Plan was used as a basis for the 2030 Plan. Short-range projects identified in the former plan but not yet funded, were still considered to be a short-range priority. Other projects were evaluated and identified as long or short range based on local priorities and budgeting considerations.

It should be recognized that because local, state and federal priorities may change over time, the staging of improvements reflected in this document is not binding but is meant to serve as a guide for plan implementation. The estimated staging allowed a financial evaluation of the distribution of estimated plan costs over the planning period, as well as an evaluation of the location of planned improvements in relation to identified congested corridors.

All federal-aid funded network improvements are implemented through the transportation improvement program or TIP, which is a four-year listing of projects (under SAFETEA-LU), consistent with the 2030 OCARTS Plan, that will be construction ready. A new TIP is prepared every year.

### Projects Covered

The street and highway projects listed on the next several pages are a part of the 2030 OCARTS Plan. Included are projects recommended for implementation under the previous plan, plus new projects identified based on input from the public, local governments, and staff of the Oklahoma Department of Transportation and Federal Highway Administration.

Table 22 reflects 59 projects included in the 2030 OCARTS Plan that were funded between 2000 and 2005. These projects reflect a total cost of approximately \$520 million, or 11 percent of the total estimated Plan costs. Table 23 lists projects funded, but not completed by December 31, 2005. The locations of all improvements funded or completed by December 31, 2005 are reflected in Figure 17.

Table 24 includes a total of 178 projects. Of this total, 74 projects were recommended for short-term implementation, or funding by 2014, and 104 long-term projects were recommended for implementation between 2015 and 2030. An analysis of the estimated costs for right-of-way, construction, and maintenance of these street and highway projects, including those implemented between 2000 and 2005, reveals that approximately 40 percent of the total Plan costs are included in the short-range component, while approximately 60 percent of the total costs are reflected in the long range component. Figure 18 reflects the locations of all 178 recommended Plan improvements remaining to be implemented through 2030.

**Table 22:  
Street and Highway Network Improvements - Completed Between January 2000 and December 2005**

Improvement Location	From	To	Improvement	Length (miles)	City
Air Depot Blvd.	N. 23rd St. (US-62)	N. 10th St.	2 to 4	0.90	MWC
Air Depot Blvd. (24th Ave. E.)	S. 224th St. (Rock Creek Rd.)	S. 239th St. (Robinson St.)	2 to 4	1.00	Norman
Broadway Ave.	S. 134th St. (S. 4th St.)	S. 149th St. (S. 19th St.)	3 to 4	1.00	Moore
Broadway Ext.	0.1 mile N. of N. 122nd St.	0.6 miles S. of N. 108th St.	4 to 8	1.60	OKC
Broadway Ext.	0.6 miles S. of N. 108th St.	0.25 miles N. of N. 63rd St.	4 to 6	2.15	OKC
Chautauqua Ave.	Timberdell Rd.	SH-9	2 to 4	1.00	Norman
Classen Blvd.	S. 269th St. (Lindsey St.)	Constitution St.	2 to 3	1.05	Norman
Council Rd.	N. 122nd St.	N. 108th St. (Hefner Rd.)	2 to 4	1.00	OKC
Douglas Blvd.	½ mile N. of S. 15th St.	S. 29th St.	4 to 5	1.50	MWC
Eastern Ave.	0.3 mile N. of N. 192nd St.	N. 192nd St. (Danforth Rd.)	2 to 4	0.30	Edmond
Eastern Ave.	S. 15th St.	S. 29th St.	2 to 4	1.00	OKC
Eastern Ave.	S. 29th St.	S. 44th St.	2 to 4	1.00	OKC
Harrah Rd. (SH-270)	N. 23rd St.	S. 29th St.	2 to 4	4.00	Oklahoma County
H.E. Bailey Spur	SH-9	H.E. Bailey Turnpike (I-44)	New 4	8.20	Grady/McClain
I-35	S. 66th St.	S. 104th St.	4 to 6	2.50	OKC/Moore
I-35	US-77	S. 209th St. (Tecumseh Rd.)	4 to 5	1.73	Norman
John Kilpatrick Turnpike	S. 15th St.	Portland Ave.	New 4	14.00	OKC
Kelley Ave. (36th Ave. W.)	S. 209th St. (Tecumseh)	S. 239th St. (Robinson St.)	2 to 3	2.00	Norman
May Ave.	S. 64th St.	S. 80th St.	4 to 5	1.00	OKC
Mustang Rd.	Rock Creek	SH-37	2 to 4	1.00	Tuttle
Post Rd.	S. 15th St.	S. 29th St.	2 to 4	1.00	MWC
Reno Ave.	Czech Hall Rd.	Mustang Rd.	2 to 4	1.00	OKC
Reno Ave.	Mustang Rd.	Sara Rd.	2 to 4	1.00	OKC
Reno Ave.	Sara Rd.	Morgan Rd.	2 to 4	1.00	OKC
Reno Ave.	Sooner Rd.	Air Depot Blvd.	4 to 5	1.00	MWC
Rockwell Ave.	N. 136th St. (Memorial Rd.)	N. 122nd St.	2 to 4	1.00	OKC
Santa Fe Ave.	N. 192nd St. (Danforth Rd.)	½ miles S. of N. 192nd St.	2 to 4	0.50	Edmond
Santa Fe Ave.	N. 164th St.	Kilpatrick Turnpike	2 to 5	2.50	OKC
Santa Fe Ave.	S. 119th St. (N. 12th St.)	N. 1st St.	3 to 4	0.75	Moore

**Table 22 (Cont.):  
Street and Highway Network Improvements - Completed Between January 2000 and December 2005**

Improvement Location	From	To	Improvement	Length (miles)	City
SH-4 (new alignment)	SH-37	SH-152	New 4	7.15	OKC/Mustang/Tuttle
SH-9	US-62	I-35	2 to 4	6.00	McClain County
SH-92 (Cemetery Rd.)	N. 10th St.	I-40	2 to 4	0.45	Yukon
SH-152	County Line Rd.	Council Rd.	New 4	2.40	OKC
Sooner Rd.	N. 10th St.	½ mile N. of N. 10th St.	2 to 4	0.50	MWC
Sooner Rd.	S. 15th St.	I-40	4 to 5	0.30	MWC
Sunnylane Rd. (Porter Ave.)	S. 239th St. (Robinson St.)	S. 224th St. (Rock Creek Rd.)	2 to 4	1.00	Norman
Sunnylane Rd. (Porter Ave.)	Nantucket Blvd.	S. 209th St. (Tecumseh Rd.)	2 to 3	0.31	Norman
Telephone Rd.	S. 149th St. (S. 19th St.)	S. 164th St. (S. 34th St.)	2 to 4	1.00	Moore
US-62	Junction of SH-9 and US-62	3.5 miles N. of junction	2 to 4	3.50	Newcastle
US-77 (Flood Ave.)	S. 194th St. (Franklin Rd.)	S. 239th St. (Robinson St.)	2 to 5	3.00	Norman
Western Ave.	½ mile N. of N. 178th St.	N. 178th St. (Edmond Rd.)	2 to 4	0.50	Edmond
Western Ave.	N. 136th St.	N. 150th St.	2 to 4	1.00	OKC
N. 192nd St. (Danforth Rd.)	Bryant Ave.	Chowning Ave.	4 to 5	0.50	Edmond
N. 192nd St. (Danforth Rd.)	Santa Fe Ave.	Kelly Ave.	2 to 4	1.00	Edmond
N. 164th St. (S. 15th St.)	Western Ave.	Santa Fe Ave.	2 to 4	1.00	OKC/Edmond
N. 150th St. (S. 33rd St.)	Bryant Ave.	Coltrane	3 to 4	1.00	Edmond
N. 108th St. (Hefner Rd.)	Council Rd.	Rockwell Ave.	2 to 4	1.00	OKC
N. 23rd St. (Vandament Ave.)	Czech Hall Rd. (Cornwell Dr.)	SH-92 (Garth Brooks Blvd.)	2 to 4	1.00	Yukon
N. 10th St.	Pennsylvania Ave.	Classen Blvd.	2 to 4	1.00	OKC
S. 15th St.	W. of Sara Rd.	Morgan Rd.	2 to 4	1.20	OKC
S. 209th St. (Tecumseh Rd.)	MacDonnell Dr.	Bryant Ave. (12th Ave. W.)	2 to 4	0.54	Norman
S. 209th St. (Tecumseh Rd.)	US-77	MacDonnell Dr.	2 to 4	0.66	Norman
S. 209th St. (Tecumseh Rd.)	Western Ave. (60th Ave. W.)	I-35	2 to 4	2.50	Norman
S. 224th St. (Rock Creek Rd.)	Santa Fe Ave. (48th Ave. W.)	Grandview Dr.	2 to 4	0.50	Norman
S. 224th St. (Rock Creek Rd.)	Stubbeman Ave.	Sunnylane Rd. (Porter Ave.)	2 to 4	0.50	Norman
S. 224th St. (Rock Creek Rd.)	Wildwood Ln.	Sooner Rd. (12th Ave. E.)	2 to 3	0.50	Norman
S. 239th St. (Robinson St.)	48th Ave. W	Brookhaven Blvd.	2 to 4	0.80	Norman
S. 239th St. (Robinson St.)	Northcliff	24th Ave. E	2 to 4	1.00	Norman
S. 254th St. (Alameda St.)	Andover Dr.	Ridge Lake Blvd.	2 to 5	1.76	Norman

**Table 23:  
Street and Highway Network Improvements - Funded, But Not Completed Prior to December 31, 2005**

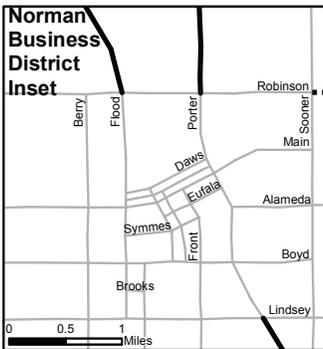
Improvement Location	From	To	Improvement	Length (miles)	City
SH-152	Council Rd.	MacArthur Blvd.	New 4	1.30	OKC
Telephone Rd.	S. 134th St. (S. 4th St.)	S. 149th St. (S. 19th St.)	3 to 4	1.00	Moore
S. 149th St. (S. 19th St.)	Santa Fe Ave.	Telephone Rd.	2 to 4	1.00	Moore
MacArthur Blvd	N. 50th	N. 63rd	4 to 5	1.00	Warr Acres
Eastern	S. 44th	I-240	2 to 4	2.00	OKC/Valley Brook
Broadway Ext.	N. 63rd St.	0.37 miles N. of N. 63rd St.	4 to 6	0.37	OKC

**Figure 17:  
Street and Highway Projects Funded Between 2000-2005**



**2030 OCARTS Plan  
Road Network**

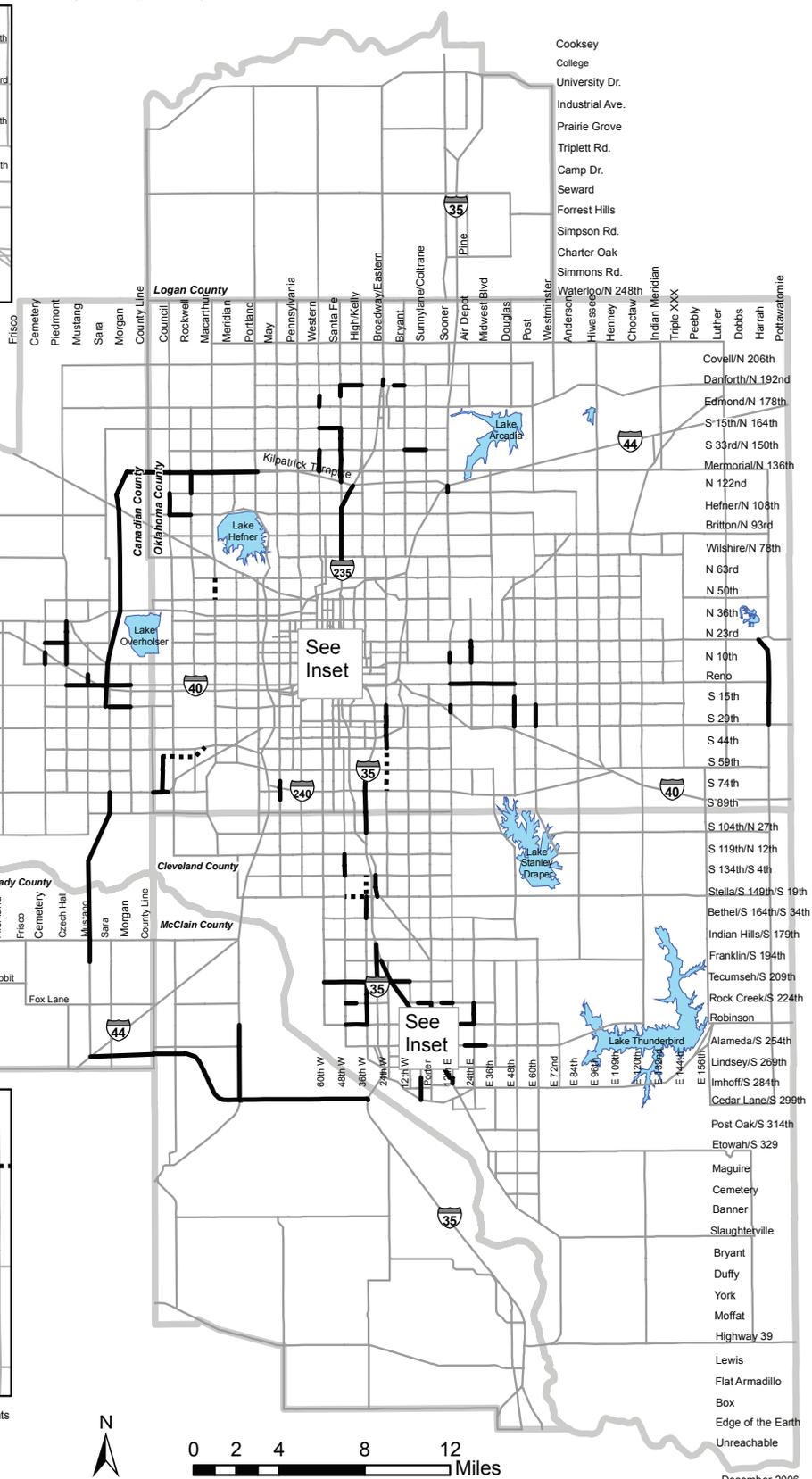
- Projects - completed between 2000 and 2005
- .... Projects - funded between 2000 and 2005, but not completed by 12/31/2005



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**Table 24:  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
Air Depot Blvd.	N. 206th St. (Covell Rd.)	N. 178th St. (Edmond Rd.)	2 to 4	2.00	L	Edmond
Air Depot Blvd.	N. 50th St.	N. 36th St.	2 to 4	1.00	L	OKC
Air Depot Blvd. (24th Ave. E.)	S. 239th St. (Robinson St.)	S. 269th St. (Lindsey St.)	2 to 4	2.00	L	Norman
Air Depot Blvd. (24th Ave. E.)	S. 269th St. (Lindsey St.)	SH-9	2 to 4	1.00	S	Norman
Anderson Rd.	N. 23rd St.	S. 164th St.	2 to 4	13.00	L	NP, CH, MWC, OKC, CLC, NO
Broadway Ave.	N. 248th St. (Waterloo Rd.)	N. 220th St. (Coffee Creek Rd.)	2 to 4	2.00	L	Edmond
Broadway Ave.	S. 149th St. (S. 19th St.)	Bryant Ave.	3 to 4	2.00	L	Moore
Broadway Ave.	Bryant Ave.	S. 179th St. (Indian Hills Rd)	3 to 4	0.50	L	Cleveland Co.
Bryant Ave.	N. 220th St. (Coffee Creek)	0.5 mile N. of N. 192nd St. (Danforth)	2 to 4	1.50	L	Edmond
Bryant Ave.	N. 136th St. (Memorial Rd.)	N. 78th St.	2 to 4	4.00	L	OKC
Bryant Ave.	N. 36th St.	N. 10th St.	2 to 4	2.00	L	OKC, Del City
Bryant Ave.	S. 15th St.	S. 44th St.	2 to 4	2.00	S	OKC, Del City
Bryant Ave.	I-240	S. 104th St.	2 to 4	2.00	L	OKC
Bryant Ave.	S. 104th St.	0.5 mile S. of S. 104th St.	2 to 4	0.50	S	OKC
Bryant Ave.	0.5 mile S. of S. 104th St.	S. 134th St. (S. 4th St.)	2 to 4	1.50	L	Moore
Bryant Ave.	S. 134th St. (S. 4th St.)	S. 149th St. (S. 19th St.)	2 to 4	1.00	S	Moore
Bryant Ave. (12th Ave. W.)	S. 209th St. (Tecumseh Rd.)	S. 224th St. (Rock Creek Rd.)	2 to 4	1.00	S	Norman
Choctaw Rd.	N. 23rd St.	S. 149th St.	2 to 4	12.00	L	Choctaw, OKC
Classen Blvd.	N. 4th St.	S. 5th St.	4 to 6	0.90	S	OKC
Coltrane Rd.	N. 206th St. (Covell Rd.)	N. 178th St. (2nd St.)	2 to 4	2.00	S	Edmond
Coltrane Rd.	N. 178th St. (2nd St.)	N. 136th St. (Memorial Rd.)	2 to 4	3.00	L	Edmond, OKC
Council Rd.	N. 136th St. (Memorial Rd.)	N. 122nd St.	2 to 4	1.00	S	OKC
Council Rd.	S. 44th St.	S. 74th St.	2 to 4	2.00	L	OKC
Czech Hall Rd.	Northwest Expressway	Main St. ( <i>Yukon</i> )	2 to 4	7.33	L	OKC, Yukon
Czech Hall Rd.	N. 10th St.	Reno Ave.	2 to 4	1.00	L	OKC
Douglas Blvd.	Spencer Jones Rd.	N. 23rd St.	2 to 4	2.75	L	Spencer
Douglas Blvd.	N. 23rd St.	½ mile N. of S. 15th St.	4 to 5	2.50	S	Midwest City

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

**Table 24 (Cont.):  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
Douglas Blvd.	S. 29th St.	I-240	4 to 5	3.00	S	OKC
Douglas Blvd. (48th Ave. E.)	S. 194th St. (Franklin Rd.)	SH-9	2 to 4	6.00	L	Norman
Eastern Ave.	N. 220th St. (Coffee Creek Rd.)	N. 206th St. (Covell Rd.)	2 to 4	1.00	L	Edmond
Eastern Ave.	N. 206th St. (Covell Rd.)	0.3 mile N. of N. 192nd St.	2 to 4	0.70	S	Edmond
Eastern Ave.	S. 44th St.	S. 104th St.	2 to 4	4.00	S	OKC, Moore
Front Ave.	Eufaula St.	Duffy St.	2 to 4	0.36	S	Norman
Grand Blvd. S.	I-35	Reno Ave.	2 to 4	3.35	L	OKC
Grand Blvd. S.	Shields Blvd.	High St.	2 to 4	0.70	L	OKC
Harrah Rd. (SH-270)	S. 29th St.	I-40	2 to 4	3.75	L	Harrah, OKC, Oklahoma Co.
Hogback Rd.	N. 78th St. (Wilshire Blvd.)	Turner Turnpike (I-44)	2 to 4	7.00	L	Jones, OKC
I-235	N. 63rd St.	N. 36th St.	4 to 6	1.43	S	OKC
I-240	I-35	I-40	4 to 6	11.45	L	OKC
I-35	SH-66	Waterloo Rd.	4 to 6	5.00	L	Edmond, Oklahoma Co.
I-35	I-44	N. 23rd St.	4 to 6	3.25	S	OKC
I-35 (South)	S. 209th St. (Tecumseh Rd.)	Canadian River	4 to 6	6.00	S	Norman
I-35 (South)	SH-9 West Interchange	SH-74/Goldsby Exit	4 to 6	2.40	L	Goldsby
I-40 Boulevard (new)	Western Ave.	Shields Blvd.	New 6	3.94	L	OKC
I-40 Crosstown (Realignment)	Agnew Ave.	I-235	New 10	3.96	L	OKC
I-40	Midwest Blvd.	Pottawatomie Rd.	4 to 6	7.20	L	OKC
I-44	I-240	SH-37	4 to 6	7.50	L	OKC, Newcastle
Jenkins Ave.	Lindsey St.	Constitution St.	2 to 4	0.90	L	Norman
Kelley Ave.	N. 136th St. (Memorial Rd.)	I-44	2 to 4	5.00	S	OKC
Kelley Ave.	N. 23rd St.	N. 13th St.	2 to 4	0.75	S	OKC
Kelley Ave. (36th Ave. W.)	S. 179th St. (Indian Hills Rd.)	S. 209th St. (Tecumseh)	2 to 4	2.00	L	Norman
Kelly Ave.	N. 248th St. (Waterloo Rd.)	N. 220th St. (Coffee Creek Rd.)	2 to 4	2.00	S	Edmond
Kelly Ave.	N. 220th St. (Coffee Creek Rd.)	N. 192nd St. (Danforth Rd.)	2 to 4	2.00	L	Edmond
MacArthur Blvd.	N. 150th St.	Kilpatrick Turnpike	2 to 4	1.06	L	OKC

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

**Table 24 (Cont.):  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
MacArthur Blvd.	N. 78th St.	N. 36th St.	4 to 5	3.00	S	Warr Acres
MacArthur Blvd. Realignment	S. 74th St.	S. 89th St.	New 4	1.00	S	OKC
MacArthur Blvd. Realignment	S. 89th St.	S. 104th St.	New 4	1.00	L	OKC
Main St. ( <i>Norman</i> )	Carter Ave.	Sooner Rd. (12 Ave. E.)	2 to 4	0.50	S	Norman
May Ave.	N. 178th St.	N. 164th St.	2 to 4	1.00	L	OKC
May Ave.	N. 164th St.	N. 150th St.	2 to 4	1.00	S	OKC
Midwest Blvd.	N. 136th St. (Memorial Rd.)	N. 36th St.	2 to 4	7.00	S	OKC, Spencer
Midwest Blvd.	N. 36th St.	N. 23rd St. (US-62)	2 to 4	1.00	L	Spencer
Morgan Rd.	S. 15th St.	S. 29th St.	2 to 4	1.00	S	OKC
Mustang Rd.	N. 50th St. (Wagner Rd.)	SH-66	2 to 4	1.00	L	Yukon
Mustang Rd.	N. 10th St.	I-40	2 to 4	0.50	S	OKC
Mustang Rd. (new SH-4)	SH-37	I-44	2 to 4	6.00	S	Grady Co.
Peebly Rd.	S. 89th St.	S. 149th St.	2 to 4	4.00	L	OKC
Pennsylvania Ave.	N. 178th St.	N. 150th St.	2 to 4	2.00	S	OKC
Portland Ave.	N. 248th St. (Waterloo Rd.)	N. 206th St. (Covell Rd.)	2 to 5	3.00	S	Oklahoma Co.
Portland Ave.	N. 206th St. (Covell Rd.)	N. 136th St. (Memorial Rd.)	2 to 4	5.00	S	Oklahoma Co., OKC
Portland Ave.	S. 59th St.	S. 104th St.	2 to 4	3.20	L	OKC
Post Rd.	SH-66	N. 122nd St.	2 to 4	4.00	L	Edmond, OKC
Post Rd.	N. 36th St.	S. 15th St.	2 to 4	4.00	L	MWC, Spencer, Nicoma Park
Post Rd.	S. 29th St.	S. 89th St.	2 to 4	4.00	L	OKC
Reno Ave.	County Line Rd.	May Ave.	4 to 6	6.00	L	OKC
Reno Ave.	Grand Blvd.	I-40	4 to 6	0.15	L	OKC
Reno Ave.	Bryant Blvd.	Sooner Rd.	4 to 5	2.00	S	Del City, Midwest City
Reno Ave.	Douglas Blvd.	Anderson Rd.	4 to 5	3.00	L	Midwest City
Reno Ave.	Anderson Rd.	Choctaw Rd.	2 to 4	3.00	L	Midwest City, Choctaw
Robinson Ave.	S. 36th St.	S. 44th St.	2 to 4	0.50	L	OKC
Santa Fe Ave.	N. 220th St. (Coffee Creek Rd.)	N. 192nd St. (Danforth Rd.)	2 to 4	2.00	L	Edmond

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

**Table 24 (Cont.):  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
Santa Fe Ave.	S. 44th St.	0.5 mile N. of S. 59th St.	2 to 4	0.50	L	OKC
Santa Fe Ave.	0.5 mile N. of S. 59th St.	S. 59th St.	2 to 4	0.50	S	OKC
Santa Fe Ave.	S. 134th St. (S. 4th)	S. 164th St. (S. 34th St.)	2 to 4	2.00	S	Moore, OKC
Santa Fe Ave. (48th Ave. W.)	S. 164th St. (S. 34th St.)	S. 239th St. (Robinson St.)	2 to 4	5.00	L	Norman, OKC
Sara Rd.	S. 15th St.	S. 74th St.	2 to 4	4.00	L	OKC
SH-152	Council Rd.	MacArthur Ave.	New 4	2.50	S	OKC
SH-4 (Ranchwood)	Main St. ( <i>Yukon</i> )	N. 23rd St. (Vandament Ave.)	2 to 4	1.25	L	Yukon
SH-4 (Mustang Rd.)	N. 23rd St. (Vandament Ave.)	N. 10th St.	2 to 4	1.00	S	Yukon
SH-9	Eastern Ave. (24th Ave. W.)	Sooner Rd. (12th Ave. E.)	4 to 6	4.00	S	Norman
SH-9	Air Depot Blvd. (24th Ave. E.)	Luther Rd. (168th Ave. E.)	2 to 4	12.45	L	Norman
SH-9	Luther Rd. (168th Ave. E.)	Pottawatomie Rd.	2 to 4	3.00	S	Norman, Cleveland Co.
SH-74	I-35	5.5 miles S. of I-35 (S. 250th St.)	2 to 4	5.50	L	Goldsby
Sooner Rd.	N. 220th St. (Coffee Creek Rd.)	N. 192nd St. (Danforth Rd.)	2 to 4	2.00	L	Edmond
Sooner Rd.	I-35	N. 63rd St.	2 to 4	4.25	L	OKC
Sooner Rd.	N. 63rd St.	S. 179th St. (Indian Hills Rd.)	4 to 6	16.95	L	OKC, OC, DC, Moore, CLC
Sooner Rd. (12th Ave. E.)	S. 179th St. (Indian Hills Rd.)	Classen Ave.	4 to 6	6.00	L	Norman
Sooner Rd. (12th Ave. E.)	SH-9	S. 299th St. (Cedar Lane Rd.)	2 to 4	0.45	S	Norman
Spencer Jones Rd.	Douglas Blvd.	N. 93rd St.	2 to 4	4.00	L	Spencer, Jones, OKC
Sunnylane Rd.	S. 74th St.	S. 179th St. (Indian Hills Rd.)	2 to 4	7.00	L	Moore, OKC, Cleveland Co.
Sunnylane Rd. (Porter Ave.)	S. 179th St. (Indian Hills Rd.)	S. 209th St. (Tecumseh Rd.)	2 to 4	2.00	L	Norman
Sunnylane Rd. (Porter Ave.)	S. 209th St. (Tecumseh)	S. 239th St. (Robinson)	2 to 4	2.00	S	Norman
US-62	Blanchard East City Limits	OCARTS Boundary	2 to 4	1.50	L	Blanchard
US-77 (Guthrie)	SH-33	Industrial Ave.	2 to 4	1.70	L	Guthrie
US-77	S. 329th St. (Etowah Rd.)	Purcell E. City Limits	2 to 4	11.50	L	Noble, CLC, SL, LE, Purcell
West Outer Loop	I-40	I-35	New 4	20.00	L	OKC, Moore, Norman
Western Ave.	N. 220th St. (Coffee Creek Rd.)	½ mile N. of N. 206th St.	2 to 4	0.50	S	Edmond
Western Ave.	½ mile N. of N. 206th St.	½ mile N. of N. 178th St.	2 to 4	2.00	L	Edmond, OKC

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

**Table 24 (Cont.):  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
Western Ave.	N. 178th St. (Edmond Rd.)	N. 150th St.	2 to 4	2.00	S	OKC
Western Ave.	N. 36th St.	N. 23rd St.	2 to 4	1.00	L	OKC
Western Ave.	S. 134th St.	S. 179th St. (Indian Hills Rd.)	2 to 4	3.00	S	Moore
Western Ave. (60th Ave. W.)	S. 179th St. (Indian Hills Rd.)	S. 209th St. (Tecumseh Rd.)	2 to 4	2.00	S	Norman
Westminster Rd.	N. 23rd St. (US-62)	S. 29th St.	2 to 4	4.00	L	Nicoma Park, Choctaw, MWC
N. 248th St. (Waterloo Rd.)	Kelly Ave.	I-35	2 to 4	4.50	L	Oklahoma Co., Logan Co.
N. 220th St. (Coffee Creek Rd.)	Western Ave.	Sooner Rd.	2 to 4	6.00	L	Oklahoma Co., Edmond
N. 206th St. (Covell Rd.)	Pennsylvania Ave.	Air Depot Rd.	2 to 4	8.00	S	Edmond
N. 206th St. (Covell Rd.)	Air Depot Rd.	Douglas Blvd.	2 to 4	2.00	L	Edmond
N. 192nd St. (Danforth Rd.)	Western Ave.	0.5 mile W. of Santa Fe Ave.	2 to 4	0.50	S	OKC
N. 192nd St. (Danforth Rd.)	0.5 mile E. of Bryant Ave.	Air Depot Blvd.	2 to 4	2.50	L	Edmond
N. 178th St.	Portland Ave.	Western Ave.	2 to 4	3.00	S	OKC
N. 178th St.	Western Ave.	Santa Fe Ave.	4 to 5	1.00	S	OKC, Edmond
N. 164th St.	May Ave.	Western Ave.	2 to 4	2.00	L	OKC
N. 150th St.	MacArthur Ave.	Western Ave.	2 to 4	5.00	S	OKC
N. 150th St.	Western Ave.	Kelley Ave.	2 to 4	2.00	S	OKC, Edmond
N. 150th St.	Coltrane	I-35	2 to 4	1.00	S	Edmond
N. 136th St. (Memorial Rd.)	I-35	Midwest Blvd.	2 to 4	2.00	L	OKC
N. 122nd St.	Council Rd.	Rockwell Ave.	2 to 4	1.00	S	OKC
N. 122nd St.	Broadway Extension	Kelley Ave.	2 to 4	0.50	S	OKC
N. 122nd St.	Midwest Blvd.	Post Rd.	2 to 4	2.00	L	OKC
N. 108th St.	Oklahoma County Line	Council Rd.	2 to 4	1.00	S	OKC
N. 108th St.	Broadway Extension	Sooner Rd.	2 to 4	5.00	L	OKC
N. 93rd St. (Britton Rd.)	Oklahoma County Line	Council Rd.	2 to 4	1.00	S	OKC
N. 93rd St. (Britton Rd.)	May Ave.	Pennsylvania Ave.	3 to 4	1.00	L	The Village
N. 93rd St.	I-35	Indian Meridian Rd.	2 to 4	11.50	L	OKC, Jones
N. 78th St. (Wilshire Rd.)	Rockwell Ave.	Northwest Expressway	2 to 4	0.75	S	OKC

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

**Table 24 (Cont.):  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
N. 78th St. (Wilshire Rd.)	Broadway Extension	Sooner Rd.	2 to 4	5.00	S	OKC
N. 63rd St.	Eastern Ave.	0.5 mile W. of Bryant Ave.	2 to 4	0.50	S	OKC
N. 63rd St.	Sooner Rd.	Spencer Jones Rd.	2 to 4	3.72	L	OKC
N. 50th St.	Council Rd.	MacArthur Blvd.	2 to 4	2.00	L	OKC, Bethany, Warr Acres
N. 50th St.	I-35	Sooner Rd.	2 to 4	2.00	L	OKC, Oklahoma Co.
N. 39th Expressway	Czech Hall Rd.	Rockwell Ave.	4 to 6	6.18	L	Yukon, OKC, Bethany
N. 36th St.	Council Rd.	Rockwell Ave.	2 to 4	1.00	S	Bethany
N. 36th St.	Bryant Ave.	0.5 mile W. of Sooner Rd.	2 to 4	1.50	L	Forest Park, OKC
N. 36th St.	Spencer Jones Rd.	Post Rd.	2 to 4	1.50	L	Spencer
N. 23rd St.	Mustang Rd.	Sara Rd.	2 to 4	1.00	L	Yukon
N. 23rd St.	I-35	Air Depot Blvd.	4 to 6	3.35	L	OKC, Midwest City
N. 23rd St.	Air Depot Blvd.	Douglas Blvd.	5 to 6	2.00	L	Midwest City
N. 10th St.	Cemetery Rd.	Mustang Rd.	2 to 4	2.00	S	Yukon
N. 10th St.	Mustang Rd.	Sara Rd.	2 to 4	1.00	L	OKC
N. 10th St.	Post Rd.	0.5 mile W. of Hiwassee Rd.	2 to 4	2.50	L	Midwest City, Choctaw
S. 15th St.	Morgan Rd.	Oklahoma County Line	2 to 4	1.00	S	OKC
S. 15th St.	MacArthur Ave.	Meridian Ave.	New 4	1.00	S	OKC
S. 15th St.	I-40	Sooner Rd.	4 to 5	0.50	S	Del City
S. 15th St.	0.5 mile E. of Post Rd.	Anderson Rd.	2 to 4	1.40	L	Midwest City
S. 29th St.	MacArthur Ave.	Meridian Ave.	2 to 4	1.00	S	OKC
S. 29th St.	Sooner Rd.	I-40	4 to 5	0.75	L	OKC
S. 29th St.	Post Rd.	Anderson Rd.	2 to 5	2.00	L	OKC, Midwest City
S. 29th St.	Anderson Rd.	Harrah Rd.	2 to 4	9.00	L	OKC, OK Co, Choctaw, Harrah
S. 54th St.	MacArthur Blvd.	Portland Ave.	2 to 4	2.00	S	OKC
S. 59th St.	Douglas Blvd.	Choctaw Rd.	2 to 4	6.00	L	OKC
S. 74th St.	Council Rd.	MacArthur Blvd.	2 to 4	2.00	S	OKC

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

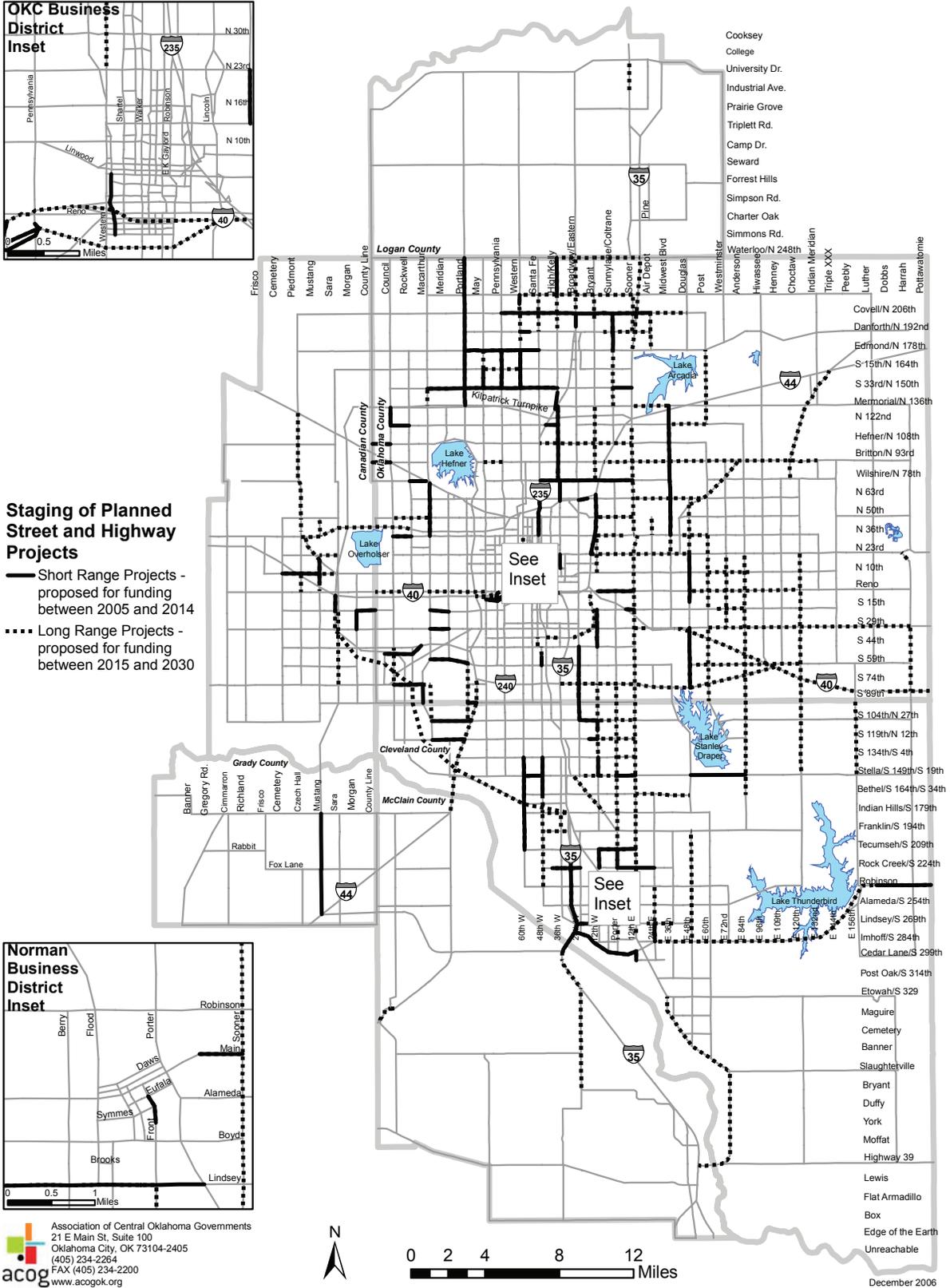
**Table 24 (Cont.):  
Proposed Staging of 2030 OCARTS Plan Street and Highway Network Improvements**

Improvement Location	From	To	Proposed Improve. (Lanes)	Length (miles)	Proposed* Staging	Entity**
S. 89th St.	Portland Ave.	I-44	2 to 4	0.45	S	OKC
S. 104th St.	MacArthur Blvd.	I-44	2 to 4	2.10	S	OKC
S. 104th St. (N. 27th St.)	Eastern Ave.	Bryant Ave.	2 to 4	1.00	S	Moore
S. 104th St. (N. 27th St.)	Bryant Ave.	Sooner Rd.	2 to 4	2.00	L	OKC
S. 119th St.	MacArthur Ave.	I-44	2 to 4	1.80	S	OKC
S. 119th St. (N. 12th St.)	0.5 mile E. of Eastern Ave.	Bryant Ave.	2 to 4	0.50	S	Moore
S. 119th St.	Bryant Ave.	Sooner Rd.	2 to 4	2.00	L	Moore, OKC
S. 134th St.	Sunnylane Rd.	Sooner Rd.	2 to 4	1.00	L	OKC
S. 149th St.	Western Ave.	Santa Fe Ave.	2 to 4	1.00	S	OKC
S. 149th St. (S. 19th St.)	Eastern Ave.	Sunnylane Rd.	2 to 4	2.00	L	Moore
S. 149th St.	Sunnylane Rd.	Sooner Rd.	2 to 4	1.00	S	OKC
S. 149th St.	Douglas Blvd.	Anderson Rd.	2 to 4	3.00	S	OKC
S. 164th St.	Sooner Rd.	Douglas Blvd.	2 to 4	3.00	L	Moore, OKC
S. 179th St. (Indian Hills Rd.)	Santa Fe Ave. (48th Ave. W.)	I-35	2 to 4	1.40	L	Norman
S. 194th St. (Franklin Rd.)	Santa Fe Ave. (48th Ave. W.)	I-35 Frontage Rd	2 to 4	1.50	L	Norman
S. 209th St. (Tecumseh Rd.)	Bryant Ave. (12th Ave. W.)	Sunnylane Rd. (Porter Ave.)	2 to 4	1.00	S	Norman
S. 209th St. (Tecumseh Rd.)	Sunnylane Rd. (Porter Ave.)	Sooner Rd. (12th Ave. E.)	New 4	1.00	S	Norman
S. 224th St. (Rock Creek Rd.)	0.5 mile W. of Kelly (36th Ave. W.)	Eastern Ave. (24th Ave. W.)	2 to 4	1.50	S	Norman
S. 224th St. (Rock Creek Rd.)	Sunnylane Rd. (Porter Ave.)	Air Depot Blvd. (24th Ave. E.)	2 to 4	2.00	S	Norman
S. 269th St. (Lindsey St.)	I-35	Berry Rd.	3 to 5	1.08	S	Norman
S. 269th St. (Lindsey St.)	Berry Rd.	Jenkins Ave.	2 to 3	1.00	S	Norman
S. 269th St. (Lindsey St.)	Jenkins Ave.	Classen	2 to 4	0.60	S	Norman
S. 269th St. (Lindsey St.)	0.5 mile E. of Sooner (12th Ave. E.)	Midwest Blvd. (36th Ave. E.)	2 to 4	1.50	L	Norman

\* S = Short Range Project (proposed between 2006 and 2014); L = Long Range Project (proposed between 2015 and 2030)

\*\* Entity Abbreviations: BE - Bethany, CH - Choctaw, CLC - Cleveland County, DC - Del City, HA - Harrah, JO - Jones, LE - Lexington, MWC - Midwest City, MO - Moore, NO - Norman, NOB - Noble, NP - Nicoma Park, OC - Oklahoma County, OKC - Oklahoma City, PU - Purcell, SL - Slaughterville, SP - Spencer, WA - Warr Acres

**Figure 18:  
Staging of Planned Street and Highway Projects**



Map Disclaimer Applies. See the report Table of Contents or <http://www.acogok.org/mapdisclaimer.asp>

# GLOSSARY

## Transportation Terms

**Access, limited (or controlled access)** - In transportation, to have entry and exit limited to predetermined points, as with interstates, freeways and rapid transit.

**Arterial street** - A major thoroughfare used primarily for through traffic rather than for access to abutting land, characterized by high vehicular capacity and continuity of movement.

**Average Daily Traffic (ADT)** - The average number of vehicles that pass a specified point during a 24-hour period.

**Base Year** - The year to which the major portion of the data gathered in a (transportation) study or survey relates. The base year is also the first year of a planning or forecast period.

**Benefit/cost analysis** - An analytical technique that compares the costs and benefits (measured in monetary terms) of proposed programs or actions. Alternative actions are compared to allow selection of one or more that yields the greatest net benefits or benefit/cost ratio.

**Bikeway** - Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

**Bicycle Path (Bike Path)** - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the roadway right-of-way or within an independent right-of-way.

**Bicycle Lane (Bike Lane)** - A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

**Capital costs** - Nonrecurring or infrequently recurring costs of long-term assets such as land, structures, bridges, roadways, and vehicles (such as publicly owned and operated transit vehicles).

**CART** - Cleveland Area Rapid Transit, transit operator of the Norman bus system.

**Citizens Advisory Committee (CAC)** - An advisory committee to the ITPC comprised of citizens and representatives of organizations with an interest in transportation (all modes) and a broad range of community issues including neighborhoods, business, the environment, improved mobility for elderly and persons with disabilities, and so forth.

**Congestion Management Process (CMP)** - A systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs.

**Corridor** - A broad geographical band that follows a general directional flow or connects major sources of trips. It may contain a number of streets and highways.

**Council of Governments (COG)** - A voluntary consortium of local government representatives, from contiguous communities, meeting on a regular basis and formed to cooperate on common planning and to solve common development problems of their area. In Central Oklahoma, the Association of Central Oklahoma Governments (ACOG) serves as the COG representing the communities within Oklahoma, Cleveland, Canadian, and Logan Counties.

**Count (or traffic count)** - In transportation, a process that tallies a particular movement of people or vehicles past a given point during a stated time period. It may be a directional or a two-way value and is also known as a traffic count.

**COTPA** - Central Oklahoma Transportation and Parking Authority; the transit operator of the METRO Transit bus system in Oklahoma City and surrounding communities.

**Cutline** - An imaginary line drawn perpendicular to the flow of traffic to measure congestion in a subarea. Cutlines are generally drawn across major traffic corridors such as I-35 or Broadway Extension.

**Department of Transportation (DOT)** - On the federal level, the U.S. DOT is a cabinet-level federal agency responsible for the planning, safety, and system and technology development of national transportation, including highways, public transit, aircraft, and ports. On the state level, the Oklahoma Department of Transportation (ODOT) oversees planning, design, and construction of transportation improvements statewide under the direction of the Secretary and Director of Transportation.

**Endangered or Threatened Species** - Animal and plant species which have been identified for special protection under the Endangered Species Act of 1973.

**Environmental Justice (EJ)** - A 1994 Presidential Executive Order implemented by the U.S. Department of Transportation that requires agencies receiving federal transportation dollars to identify and address any disproportionately high or adverse human health or environmental impacts of their programs, policies and activities on minority and low-income populations.

**Environmental Protection Agency (EPA)** - A federal agency whose responsibilities include development and enforcement of national air quality emission standards and support of anti-pollution activities by state and local governments.

**Federal Highway Administration (FHWA)** - A component of the U.S. Department of Transportation, established to ensure development of an effective national road and highway transportation system. It assists states and local governments in constructing highways and roads.

**Federal Transit Administration (FTA)** - A component of the U.S. Department of Transportation, delegated by the Secretary of Transportation to administer public transit programs as described by federal law.

**Financially constrained or fiscal constraint** - Demonstrating that projects can be implemented using current and/or reasonably available revenues, by source, while the entire transportation system is being adequately operated and maintained.

**Forecasting** - The process of estimating future conditions, magnitudes and patterns within the urban area, such as future population, demographic characteristics and travel demand.

**Forecast (or horizon) year** - The terminal year for a projection. Usually designates the year in the future for which the improvements embraced in the transportation plan are to be designed.

**Goal** - A broad statement of direction in which planning or action is aimed; a general value statement representing an ideal end that the community or area wishes to attain.

**Grade separated crossing** - A crossing where the intersecting facilities (road, rail, etc.) are separated vertically by the provision of a crossing structure such as a bridge or tunnel.

**HOV Lane** - A high occupancy vehicle lane. A lane of traffic that is delineated for use by transit buses or passenger vehicles carrying more than one occupant.

**Home-based trip** - A trip that has either its origin or destination at the traveler's residence.

**Incident** - A crash, natural disaster, workzone activity, special event or other emergency road user occurrence that adversely affects or impedes the normal flow of traffic.

**Intelligent Transportation System (ITS)** - The application of electronics, photonics, communications or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

**Intermodal** - The interaction of various modes of transportation, particularly as it relates to connections, choices, coordination and cooperation.

**Intermodal Transportation Policy Committee (ITPC)** - An OCARTS area committee composed of an elected official from each member entity and representatives of local, state, and federal transportation agencies. This committee is responsible for transportation policies, plan review and adoption, and development of programs for plan implementation.

**Intermodal Transportation Technical Committee (ITTC)** - An advisory committee to the ITPC composed of technical representatives from each OCARTS entity and representatives of transportation agencies, including staff persons knowledgeable in engineering, planning, and administration. Transportation policies, plans and programs are presented to the ITTC for a recommendation prior to consideration by the ITPC.

**Land use** - The purpose for which land or the structure on the land is being used; for example, residential, commercial, light industry, etc.

**Level of Service (LOS)** - A set of characteristics that indicate the quality and quantity of transportation service provided. For highway systems, a qualitative rating of the effectiveness of a roadway in serving traffic in terms of operating conditions. The *Highway Capacity Manual* identifies operating conditions ranging from A, for best operation (low volume, high speed), to F, for worst conditions.

**Link** - A section of a transportation system network defined by intersection points (nodes) at each end. A link connects two nodes, and may be one way or two way.

**Major Investment Study (MIS)** - A tool for developing strategies for transportation projects identified as needing major investments and involving federal funds. A separate MIS for major investments is no longer required under federal law.

**Metropolitan Statistical Area (MSA)** - As designated by the U.S. Office of Management and Budget and defined by the U.S. Bureau of the Census, an MSA consists of the central county or counties containing a city or an urbanized area with a population of at least 50,000 and the adjacent or outlying counties that have close economic and social relationships with the central counties, with a total metropolitan population of at least 100,000.

**Metropolitan planning area** -The geographic area determined by agreement between the metropolitan planning organization (MPO) for the area and the governor, in which the metropolitan transportation planning process is carried out. Synonymous with transportation study area and, in Central Oklahoma, the OCARTS area.

**Metropolitan Planning Organization (MPO)** - The policy board of an organization created and designated by the governor to carry out the metropolitan transportation planning process. In Central Oklahoma, ACOG serves as the MPO.

**Metropolitan transportation plan** - The official multimodal transportation plan covering a period of no less than 20 years that is developed, adopted, and updated by the MPO through the metropolitan transportation planning process, also known as the Long Range Plan (LRP).

**Metropolitan transportation planning process** - The federally required planning process for urbanized areas that is aimed at developing programs to meet a region's transportation needs by analyzing the existing system and preparing plans and studies in a comprehensive, continuing, and cooperative manner. It results in several documents including a unified planning work program (UPWP), a long range regional transportation plan (LRP), and a transportation improvement program (TIP).

**Mode** - A means of transporting people or goods which includes automobiles, transit (i.e. buses, carpooling, HOV lanes, fixed guideway), bicycling, walking, air travel, railroads, waterways, pipelines and trucking.

**Multimodal** - Refers to all types of transportation.

**Non-home based trip** - A trip that has neither its origin nor its destination at a residence.

**OCARTS** - Oklahoma City Area Regional Transportation Study; OCARTS refers to a geographical area within Central Oklahoma (for transportation planning) which includes all of the currently urbanized area plus the surrounding area which is anticipated to become urbanized over the next 20 years. The OCARTS area encompasses all of Oklahoma and Cleveland Counties and portions of Canadian, Grady, Logan and McClain Counties.

**OCARTS network** - The configuration of major streets and highways that constitutes the regional street and highway transportation system, and used for transportation modeling purposes.

**Regional ITS architecture** - A regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects or groups of projects.

**Right-of-way (ROW)** - A general term denoting land, property, or interest therein, usually in a strip acquired for or devoted to transportation purposes.

**SAFETEA-LU** - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. The Act was signed into law on August 10, 2005. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period FFY 2004 - FFY 2009.

**Traffic Analysis Zone (TAZ)** - A geographic area, ranging in size from a few blocks to a few square miles, comprised of several Census blocks and used for data collection, analysis and traffic modeling purposes.

**Transportation Demand Management (TDM)** - Tools designed to maximize the people-moving capability of the transportation system by increasing the number of people in each vehicle or by influencing the time of, or need to travel. To accomplish these demand-side changes, TDM programs must rely on incentives or disincentives to make the shifts in behavior attractive. The term TDM encompasses both alternatives to driving alone and the techniques or supporting strategies that encourage the use of these modes. Specific TDM strategies are reliant on public support, employer-based support, telecommunications, land use policies and/or public policy such as pricing and other regulation.

**Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21)** - TEA-21 was signed into law on June 9, 1998, to provide federal funds for surface transportation for the 6-year period FFY 1998 - FFY 2003. New focus areas included safety, environmental quality, and ITS research and development. Congress extended TEA-21 several times after FFY 2003 until it was replaced by SAFETEA-LU in August 2005.

**Transportation Improvement Program (TIP)** - A staged, multi-year program of projects developed and formally adopted by an MPO as part of the metropolitan transportation planning process that is consistent with the metropolitan transportation plan, and required for projects to be eligible for Federal funding.

**Transportation Management Area (TMA)** - A metropolitan planning area with an urbanized area population over 200,000, as defined by the Bureau of the Census.

**Transportation System Management (TSM)** - That part of the urban transportation planning process undertaken to improve the efficiency of the existing transportation system. The intent is to make better use of the existing transportation system by using short-term, low capital transportation improvements that generally cost less and can be implemented more quickly than large, capital intensive options.

**Trip** - A one-way movement of a person or vehicle between two points for a specific purpose; sometimes called a one-way trip to distinguish it from a round trip.

**Trip purpose** - The primary reason for making a trip; for example, work, shopping, medical appointment, recreation.

**Urbanized area** - A geographic area with a population of 50,000 or more, as designated by the Bureau of the Census.

**Vehicle Hours of Travel (VHT)** - A measurement of the total hours traveled by all vehicles in an area for a specified time period. It is calculated by multiplying the number of vehicles times the number of hours traveled in a given area or on a given highway during the time period.

**Vehicle Miles of Travel (VMT)** - A measurement of the total miles traveled by all vehicles in an area for a specified time period. It is calculated by multiplying the number of vehicles times the number of miles traveled in a given area or on a given highway during the time period. In transit, the number of vehicle miles operated on a given route or line or network during a specified time period.

**Volume** - In transportation, the number of units (passengers or vehicles) that pass a point on a transportation facility during a specified interval of time, usually one hour.

**Volume-to-Capacity Ratio (V/C Ratio)** - A measure of the congestion level of streets and highways which compares the vehicular carrying capacity of a roadway with the actual volume of vehicles which travel the roadway, within a specified period of time.



## Acronyms and Abbreviations

AASHTO	American Association of State Highway Transportation Officials
ACOG	Association of Central Oklahoma Governments
ADA	Americans with Disabilities Act of 1990
ADT	Average Daily Traffic
B/C	Benefit to Cost
CAC	Citizens Advisory Committee
CART	Cleveland Area Rapid Transit
CMP	Congestion Management Process
COTPA	Central Oklahoma Transportation and Parking Authority
DEIS	Draft Environmental Impact Statement
EDP	Early Deployment Plan
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GAM	Growth Allocation Model
GIS	Geographic Information Systems
HOV	High Occupancy Vehicle
IME	Intermodal Element
ITPC	Intermodal Transportation Policy Committee
ITS	Intelligent Transportation System
ITTC	Intermodal Transportation Technical Committee
LOS	Level of Service
MIS	Major Investment Study
MPO	Metropolitan Planning Organization

MSA	Metropolitan Statistical Area
NEPA	National Environmental Policy Act
OCARTS	Oklahoma City Area Regional Transportation Study
ODOT	Oklahoma Department of Transportation
OTA	Oklahoma Turnpike Authority
PIP	Public Involvement Process
ROW	Right-of-Way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.
STIP	Statewide Transportation Improvement Program
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TMA	Transportation Management Area
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TSM	Transportation Systems Management
UZA	Urbanized Area
V/C	Volume to Capacity
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles of Travel

# APPENDICES



# Appendix A:

## Related Reports on the Development of the 2030 OCARTS Plan

FYE 2006 UPWP Report - Task 1.01, Subtask 1, *Year 2030 Growth Allocation Model Documentation*, ACOG, September 2006.

FYE 2006 UPWP Report - Task 2.01, Subtask 7b, *2030 OCARTS Plan Technical Report*, ACOG, September 2006.

FYE 2006 UPWP Report - Task 2.01, Subtask 10, *COTPA Regional Fixed Guideway Study Report*, Carter-Burgess, August 2006.

FYE 2006 UPWP Report - Task 3.01, Subtask 8, *2030 OCARTS Plan Brochure*, ACOG, September 2006.

FYE 2005 UPWP Report - Task 1.01, Subtask 2, *Year 2030 Employment Density Assumptions - Growth Allocation Model*, ACOG, September 2005.

FYE 2005 UPWP Report - Task 1.01, Subtask 7a, *Evaluation of Social/Economic/Environmental Impacts of 2030 OCARTS Plan*, ACOG, July 2005.

FYE 2005 UPWP Report - Task 1.01, Subtask 7b, *Environmental Justice Analysis of 2030 OCARTS Plan*, ACOG, July 2005.

FYE 2005 UPWP Report - Task 2.01, Subtask 4d, *Intermodal Element for 2030 OCARTS Plan*, ACOG, March 2005.

FYE 2005 UPWP Report - Task 2.01, Subtask 8, *Benefit/Cost Analysis for 2030 OCARTS Plan Alternate Street and Highway Network*, ACOG, September 2005.

FYE 2005 UPWP Report - Task 2.01, Subtask 9a,b, *Financial Element of 2030 OCARTS Plan - Estimated Costs and Anticipated Revenues*, ACOG, February 2006.

FYE 2005 UPWP Report - Task 3.01, Subtask 4, *Public Involvement for 2030 OCARTS Plan*, ACOG, September 2005.

FYE 2004 UPWP Report - Task 1.01, Subtask 1b, *Year 2000 Employment by Traffic Zone*, ACOG, September 2004.

FYE 2004 UPWP Report - Task 1.01, Subtask 1c, *Growth Allocation Model (GAM): Residential Calibration*, ACOG, January 2005.

FYE 2004 UPWP Report - Task 1.01, Subtask 3a, *Year 2000-2030 Residential Growth Assumptions*, ACOG, March 2005.

FYE 2004 UPWP Report - Task 1.01, Subtask 4a, *Year 2030 Population Control Totals: Region, County, Entity and Traffic District*, ACOG, September 2004.

FYE 2004 UPWP Report - Task 1.01, Subtask 4b, *Year 2030 Population and Dwelling Units by Traffic Zone*, ACOG, November 2004.

FYE 2004 UPWP Report - Task 1.01, Subtask 5a, *Year 2030 Employment Control Totals: County, City and Traffic District Levels*, ACOG, November 2004.

FYE 2004 UPWP Report - Task 1.01, Subtask 5b, *Year 2030 Employment by Traffic Zone*, ACOG, April 2005.

FYE 2004 UPWP Report - Task 1.01, Subtask 6, *Year 2000 Median Household Income*, ACOG, September 2004.

FYE 2004 UPWP Report - Task 1.01, Subtask 9, *Year 2030 School Enrollment by Traffic Zone*, ACOG, October 2004.

FYE 2001 UPWP Report - Task 2.01, Subtask 13, *Summary of COTPA Long Range Transit Plan*, MultiSystems; Fish, Doran & Associates; and The NorthStar Group, April 2001.

## Appendix B:

### Public Comments on the Draft Plan Summary

*A Draft Summary of the 2030 OCARTS Plan* was completed in July 2005. The Draft Summary was available for public review and comment from July 14 through August 12, 2005. The document was distributed to all metro area libraries and placed on ACOG's Web site for review. To advertise the availability of the Draft Plan Summary, a media release was issued to all media outlets serving the Oklahoma City Metro area and an article was included in ACOG's monthly newsletter. A copy of the news release and announcement of the availability of the Draft Summary was also mailed to approximately 100 individuals included in the Transportation Users Group mailing list, which includes representatives of neighborhoods, minority populations, chambers of commerce, various transportation modes, and special interests such as environmental concerns, aging issues, and mobility for persons with disabilities.

The purpose of the Draft Plan Summary was to provide information to the citizens and local governments of Central Oklahoma about the process used to develop the plan. It provided a tool to facilitate discussion about the various street and highway alternates under consideration to present the intermodal element recommendations for transit, trails and freight movement, and to seek final comments so that the Plan could be finalized. The following table gives a summary of the comments received and the written response the MPO provided to each commenter.

Comments Received During Public Review Period	Summary of MPO Response
<p>Citizen - Mustang</p> <p><i>"I am resident of Mustang in Canadian Co. I strongly urge the committee to look at ways to increase the availability of public transportation from the suburban areas of OKC such as Mustang, Yukon, Edmond, Moore, Norman, MWC, etc."</i></p>	<p>Recommendations regarding public transit can be found in the Recommendations &amp; Impacts section of the Draft Plan Summary, page 21. Additional information is in the Intermodal Element, page 25.</p>
<p>Citizen - Oklahoma City, Oklahoma County</p> <p><i>"I liked the fact that they were promoting more bike and walking paths. Sidewalks were another big issue with city codes mandating them in future additions. This will help neighborhoods and allow low cost transportation for those who can and will bike or walk to work or shop."</i></p>	<p>Recommendation regarding bicycle and pedestrian facilities can be found in the Recommendations &amp; Impacts section of the Draft Plan Summary, page 23. Additional information is in the Intermodal Element, page 45.</p>
<p>Senior Citizen - Yukon</p> <p><i>"As a senior citizen in central Oklahoma, I would like to make a pitch for consideration of rail travel within the region and state, as well as connecting with national service (in adjoining states). Roads and bridges are important, but not to the exclusion of other forms of travel."</i></p>	<p>Recommendations regarding passenger transit can be found in the Intermodal Trends section and the Recommendations &amp; Impacts section of the Draft Plan Summary, pages 13 and 21 respectively. The text explains that COTPA's Fixed Guideway Transit Study is currently underway and is analyzing the feasibility of various types and locations of enhanced passenger public transit in the OKC metro area.</p> <p>Recommendations regarding intermodal freight movement can be found in the Recommendations and Impacts section of the Draft Plan Summary, page 24. The recommendations encourage additional highway to rail transitions as well as intermodal freight connections.</p>

Comments Received During Public Review Period	Summary of MPO Response
<p data-bbox="285 321 870 359">Citizen - Oklahoma City, Oklahoma County</p> <p data-bbox="285 394 548 426"><i>Transit Comments:</i></p> <ul data-bbox="285 432 886 1394" style="list-style-type: none"> <li data-bbox="285 432 886 604">• <i>Match bus schedules to printed ones - Commenter had to wait 45 min. at downtown transit center because there was no indication the schedule had changed.</i></li> <li data-bbox="285 611 824 678">• <i>Air conditioning on buses should be serviced so that it works.</i></li> <li data-bbox="285 684 862 856">• <i>Bus stops should be developed to include protection from the weather, trash receptacles, benches, clearly marked locations, and information on buses that travel the line.</i></li> <li data-bbox="285 863 849 961">• <i>Downtown transit center needs to be washed and have defined smoking areas.</i></li> <li data-bbox="285 968 881 1108">• <i>Unclear if there are safety measures in place at transit center to deal with unpredictable behavior (lots of homeless).</i></li> <li data-bbox="285 1115 886 1213">• <i>Trains are suggested as a possible mode of public transit from outlying areas such as Edmond or Norman.</i></li> <li data-bbox="285 1220 886 1394">• <i>Buses have no place to put a stroller or bike. It would be a wonderful option to take the bus and then use alternate transportation, such as a bike, from that destination.</i></li> </ul> <p data-bbox="285 1434 805 1570"><i>Sidewalks Comments: Commenter concerned that there are either no sidewalks or dilapidated sidewalks in the City.</i></p>	<p data-bbox="919 394 1438 462">Transit comments will be provided to COTPA for review and action.</p> <p data-bbox="919 499 1466 852">Again, recommendations regarding passenger transit can be found in the Recommendations &amp; Impacts section of the Draft Plan Summary, page 21, including information on COTPA's ongoing Regional Fixed Guideway Transit Study and recommendations for improved pedestrian access to transit stops, convenient bus stop locations and transit shelters.</p> <p data-bbox="919 890 1471 1062">Recommendations regarding bicycle and pedestrian facilities are included in the Draft Plan Summary, pages 23-24, and the Intermodal Element, pages 58-59.</p> <p data-bbox="919 1100 1466 1243">Bicycle racks have been installed on CART buses in Norman and will soon be installed on buses in the METRO Transit OKC bus fleet.</p> <p data-bbox="919 1434 1446 1677">DPS and IME recommendations are for local municipalities to adopt and enforce ordinances requiring sidewalk construction in conformance with the Americans with Disabilities Act, with priority given to locations that are served by bus routes.</p>

Comments Received During Public Review Period	Summary of MPO Response
<p>Citizen - Oklahoma City, Oklahoma County</p> <ul style="list-style-type: none"> <li><i>Comments question the multi-modal nature of the plan voicing concern that too much emphasis is placed on the highway/roads aspect of the plan. More attention should be given to transit (bus, rail, etc.).</i></li> <li><i>Comments cite the lack of sidewalks or marked pedestrian crosswalks along the Northwest Expressway from Classen Boulevard to Rockwell Avenue.</i></li> <li><i>Concern about the Interstate 40 relocation project and the potential decrease in the connectivity across modes, specifically with rail.</i></li> </ul>	<p>The street and highway network will continue to be the backbone of the region’s transportation system. It provides connections to rail, truck and airport terminals, as well as the means for bus transit services. The IME and DPS provide numerous recommendations for improving alternative modes of transportation within the region, which can only be implemented by local governments or local transportation agencies, such as METRO Transit. Federal regulations require that the plan be based on realistic funding levels for each mode of transportation. Historically federal, state and local governments have provided the greatest investment into the street and highway systems of metropolitan areas. It is reasonable to assume continuation of this trend, while promoting greater use and investment in other modes. While the majority of projected funding suggested by the plan is connected to improvements to the street/highway network, it should be noted that the percent of funding projected for other modes has increased over the past five years, since the 2025 OCARTS Plan.</p> <p>The 2030 Draft Plan Summary and Intermodal Element recommend that local municipalities adopt and enforce ordinances requiring sidewalk construction in conformance with the Americans with Disabilities Act, with priority given to locations that are served by bus routes.</p> <p>The Interstate 40 relocation plan was adopted by ODOT and approved by the Federal Highway Administration after consideration of many alternatives and several public input opportunities. There are currently two active rail lines in use to the south of Union Station. As part of the I-40 relocation, one line (UP) will remain in use, with room for a second line to be installed in the future if passenger rail activities return to Union Station. The other line (BNSF) will be removed and trains diverted to another east-west track south of the Oklahoma River.</p>

Comments Received During Public Review Period	Summary of MPO Response
<p>Citizen - Oklahoma City, Oklahoma County (Cont.)</p> <ul style="list-style-type: none"> <li>• <i>Concern about the potential environmental harm the plan may produce and the lack of substantive energy conservation proposals in the plan.</i></li> <li>• <i>Lack of detailed list of bicycle and pedestrian improvements similar to street/highway network improvements.</i></li> </ul>	<p>Environmental impacts are a factor in the selection of a final street and highway alternate, page 11 of the DPS. Also, potential plan impacts are discussed in a general sense in the Potential Plan Impact section, page 49. More specific impact analysis will need to be done as projects are planned for construction. Under the Congestion Management portion of the DPS, page 56, the report discusses congestion reduction along the region's street &amp; highway network, increasing fuel efficiency, and reducing airborne pollutants associated with mobile sources. A more in depth Air Quality analysis will be included in the supporting technical document to the final plan.</p> <p>The IME report offers a list of OCARTS entities and the existing and planned miles of bicycle/pedestrian facilities for each, page 47. A map showing the location of existing and the proposed location of planned trails in the OCARTS area is included on page 48 of the IME and page 16 of the DPS.</p>
<p>Oklahoma Turnpike Authority</p> <ul style="list-style-type: none"> <li>• <i>Concerned about the identification of the Southwest Outer Loop as a toll facility in the 2030 Plan &amp; the related implication that OTA (versus ODOT or other entities) will construct the facility.</i></li> <li>• <i>Requests information regarding the basis of the projected increase in vehicle miles of travel outpacing the population growth rate.</i></li> <li>• <i>Comments that OTA is committed to maintaining the toll facilities currently constructed in the OCARTS area.</i></li> </ul>	<p>Given the financial constraint requirement of the Plan, the existence of the Kilpatrick Turnpike in the northwest part of the region and proposed limited access to a facility to relieve and bypass anticipated Interstate 35 congestion, it was assumed that a toll facility would be the most likely funding mechanism in which the Southwest Outer Loop could be constructed. This does not preclude other methods of financing from being considered.</p> <p>Due to the majority of population growth projected on the periphery and work related activities being more centrally located, the vehicle miles traveled are projected to rise at a faster rate than the population growth rate.</p>

Comments Received During Public Review Period	Summary of MPO Response
<p data-bbox="155 296 493 365">Citizen - Oklahoma City, Oklahoma County</p> <p data-bbox="155 394 581 957"><i>“The intermodal transportation plan outlined here includes bicycle/walking facilities that are useful for recreation only. A genuine intermodal plan would include facilities that allowed citizens to decrease car trips. People would be able to walk or ride to work, post offices, libraries, schools, or some shopping trips. Isolated bike or walking paths which are not part of a network of bicycle/walking facilities are not truly ‘intermodal.’</i></p> <p data-bbox="155 993 581 1451"><i>Oklahoma City has experienced an increasing number of ozone alerts over the past few years. This plan makes no provision to enhance public or alternative transportation and thus improve the air quality in Oklahoma City. A recent news story stressed the possible negative economic consequences of ozone pollution for Oklahoma City.”</i></p>	<p data-bbox="600 394 1328 919">Recommendations regarding bicycle and pedestrian facilities can be found in the Recommendations &amp; Impacts section of the Draft Plan, page 23. A map of existing and planned trails is located on page 16. Several of the existing and planned trails link residential areas with schools. Additional information is in the Intermodal Element, including a list of OCARTS entities and the existing and planned miles of bicycle/pedestrian facilities for each, page 47. It should also be noted that local governments can, and often do, include sidewalk construction as a part of federally funded adjacent street improvements. The decision to adopt sidewalk ordinances and/or to develop a trails system rests with the local units of government.</p> <p data-bbox="600 993 1328 1167">Recommendations regarding passenger transit can be found in the Recommendations &amp; Impacts section of the Draft Plan Summary, page 21, including information on COTPA’s ongoing COTPA Fixed Guideway Transit Study.</p>

Comments Received During Public Review Period	Summary of MPO Response
<p data-bbox="289 296 626 365">Citizen - Oklahoma City, Oklahoma County</p> <p data-bbox="289 401 716 997"><i>"I am very concerned that the draft plan does not consider light rail as an option for transit in the area. Expansion of bus service is a poor substitute for developing light rail. Look at what has occurred in the greater Dallas area concerning the DART service. Light rail working in conjunction with buses is much more efficient and draws ridership from a broader spectrum of the community than using only buses. This plan is hardly visionary."</i></p>	<p data-bbox="735 401 1463 863">Recommendations regarding passenger transit can be found in the Recommendations &amp; Impacts section of the Draft Plan Summary, page 21, including information on COTPA's ongoing COTPA Fixed Guideway Transit Study. Once the Fixed Guideway Transit Study has been completed, COTPA will present its recommendations to ACOG for consideration in the 2030 OCARTS long range plan. Part 5 of the DPS, page 61, stresses that federal requirements are that the long range plan be financially realistic. At this time, there is no reasonably foreseeable funding source for the region to implement light rail service.</p>
<p data-bbox="289 1039 667 1144">Central Oklahoma Transportation and Parking Authority</p> <p data-bbox="289 1180 699 1360"><i>Requests the long range plan include a new policy regarding High Occupancy Vehicle (HOV) or High Occupancy/Toll (HOT) lanes.</i></p>	<p data-bbox="735 1180 1430 1360">At the completion of the Fixed Guideway Transit Study, described on page 13 of the Draft Plan Summary, COTPA is encouraged to bring any recommendations of the study to ACOG for consideration in the 2030 OCARTS long range plan.</p>



# Appendix C:

## Federal Planning Factors Considered in Developing the Metropolitan Transportation Plan

The following table lists planning factors to be considered by Metropolitan Planning Organizations in developing metropolitan transportation plans, as required by the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21). TEA-21 was in effect during the development of the 2030 OCARTS Plan, but was subsequently replaced by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) on August 10, 2005. The information provided below summarizes the consideration given to each TEA-21 planning factor and references relevant portions of this document.

Planning Factors	Consideration of Planning Factors In Long Range Plan (LRP)
<p><i>1. Economic Vitality</i></p> <p>Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.</p>	<p>The LRP is a part of the Oklahoma Statewide Intermodal Transportation Plan, which provides connectivity and compatibility with roadways adjacent to the metro area, including those on the National Highway System. The Plan reflects a coordinated effort with multiple jurisdictions to ensure a regional transportation system that serves the long-term needs of all customers—residents, businesses and commerce—at the local, regional, state and national level.</p> <p>The Plan includes recommendations for improved coordination among all modes of transportation for both people and goods, including streets and highways, transit, bicycle and pedestrian facilities, and freight movement by truck, rail and air. The goals of the Long Range Transit Plan, developed by COTPA, are included in the 2030 OCARTS Plan. The Plan also includes a long-term guide for expanding bicycle facilities throughout the region.</p> <p>The LRP addresses strategies for improved coordination between transportation and land use, congestion management, air quality and non-construction efforts such as transportation demand management (TDM) and traffic systems management (TSM). All of these impact the economic vitality and competitiveness of the region.</p> <p>2030 OCARTS Plan, Chapters 1, 4, 5, and 7.</p>

Planning Factors	Consideration of Planning Factors In Long Range Plan (LRP)
<p><i>2. Safety and Security</i></p> <p>Increase the safety and security of the transportation system for motorized and non-motorized users.</p>	<p>Safety improvements to the street and highway network are encouraged in the LRP and can be funded with a higher federal share on and off the OCARTS network. Traffic modeling for the horizon year 2030 considered future land use patterns, recommended by local governments, to ensure appropriate levels of service to address future traffic demand and safety. Improved roadway design can enhance safety through better access management, improved turning radii for large trucks, establishment of intermodal facilities, grade separation at railroad/highway crossings, etc. All of these factors are recommended in this Plan to improve safety.</p> <p>Safety and security while using transit facilities is a high priority of the Plan’s long range transit recommendations. User safety is a consideration in capital investments, route planning and provision of transit services.</p> <p>The LRP encourages sidewalks and bicycle facilities that are designed and sited to provide maximum safety for pedestrians and cyclists, with physical separation from vehicular traffic, where possible.</p> <p>2030 OCARTS Plan, Chapters 4, 5 and 7.</p>
<p><i>3. Accessibility and Mobility</i></p> <p>Increase the accessibility and mobility options available to people and freight.</p>	<p>An Intermodal Element (IME) to the 2030 OCARTS Plan was developed as part of the LRP. The IME addressed the transit system, intermodal freight movement in and through the region (truck, rail and air), bicycle and pedestrian trails, and access to area airports. Each mode was examined as to its existing conditions and service levels, preliminary recommendations for the future and estimated costs, and opportunities for expansion and interconnection with other modes, including the street and highway network. Local freight movement stakeholders reviewed the intermodal freight portion of the IME.</p>

Planning Factors	Consideration of Planning Factors In Long Range Plan (LRP)
<p><i>3. Accessibility and Mobility (Cont.)</i></p>	<p>In 2005, COTPA and the consulting firm of Carter-Burgess conducted the Systems Planning phase of a Fixed Guideway Study that examined possible locations and the cost effectiveness of several transit technologies within the OCARTS area for implementation by 2030. A final report was published in July 2006, and local leaders will determine the feasibility of pursuing the study recommendations to the Alternatives Analysis phase.</p> <p>The final IME recommendations are included in this Plan Report and are intended to enhance intermodalism, accessibility and mobility of people and goods.</p> <p>2030 OCARTS Plan, Chapters 4, 5, and 6.</p>
<p><i>4. Environmental and Energy Conservation</i></p> <p>Protect and enhance the environment, promote energy conservation, and improve the quality of life.</p>	<p>The LRP incorporates the region’s Congestion Management System, which is designed to minimize future traffic congestion and energy use. The region coordinates several programs to promote fuel conservation and improve air quality including Clean Air Alert Days, the Clean Cities Alternative Fuels Program, the Rideshare Program and improved public transportation. The LRP promotes multimodal travel by transit, bicycling and walking, which will reduce trips by private vehicles and conserve energy.</p> <p>Evaluation of the LRP alternatives included consideration of potential economic, environmental and social impacts associated with implementation of the plan. Evaluation of the alternates also focused on benefit-cost analysis, system performance, and capital and maintenance costs.</p> <p>2030 OCARTS Plan, Chapters 4, 5, 6 and 7.</p>
<p><i>5. Connectivity</i></p> <p>Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.</p>	<p>The Plan includes recommendations for improving coordination among all modes of transportation for both people and goods, including streets and highways, transit, bicycle and pedestrian facilities, and freight movement by truck, rail and air. The goals of the Long Range Transit Plan, developed by COTPA, are included in the 2030 OCARTS Plan. The Plan also includes a long-term guide for expanding bicycle facilities throughout the region.</p> <p>2030 OCARTS Plan, Chapters 4 and 5.</p>

Planning Factors	Consideration of Planning Factors In Long Range Plan (LRP)
<p><i>6. System Management</i></p> <p>Promote efficient system management and operation.</p>	<p>The LRP identifies the region’s current land use patterns coupled with continued growth as major factors influencing the region’s transportation needs. The Plan reflects a cooperative effort of local governments, the state, the transit operators and the MPO in evaluating travel demand based on projected development patterns.</p> <p>Although, local leaders offered suggestions for transportation improvements initially without regard to cost, those recommendations were narrowed based on need and financial feasibility to develop the adopted 2030 Plan.</p> <p>The LRP recommends that a substantial portion of the projected transportation revenues be used for maintenance and preservation of the existing transportation system. The plan includes multimodal recommendations aimed at improving efficient operation and management of all modes.</p> <p>2030 OCARTS Plan, Chapters 3, 4, 5, 6 and 8</p>
<p><i>7. System Preservation</i></p> <p>Emphasize the preservation of the existing transportation system</p>	<p>The LRP recommends that a substantial portion of the projected transportation revenues be used for maintenance and preservation of the existing transportation system.</p> <p>Congestion management strategies, intelligent transportation system (ITS) planning, transportation demand management (TDM), traffic systems management (TSM), increased intermodalism, and major investment studies are all part of the OCARTS planning process to achieve more efficient use of the existing transportation system.</p> <p>2030 OCARTS Plan, Chapters 5, 6, 7 and 8.</p>