



CONNECTED 2050

The Tulsa Regional
Transportation Plan

Developed by





©2022

Connected 2050: Tulsa, Oklahoma Regional Transportation Plan

Public Comment Period October 1-30, 2022

INCOG Transportation Technical Committee 09-21-2022

INCOG Transportation Policy Committee 09-28-2022

Adopted by INCOG Board of Directors 11-08-2022



CONTENTS



Introduction

The Transportation Planning Process.....	2
INCOG Transportation Study Area	3
Regional Demographics.....	5
Roadways Element.....	8
Active Transportation.....	11
Public Transportation	15
Coordinated Human Services Transportation	18
Freight Movement.....	22
Financial Planning	31
Emerging Issues: Future of Transportation.....	33
Public Involvement Process	37

Tables:

Table 1: Tulsa MSA Decennial Population.....	5
Table 2: Tulsa TMA Population and Employment Forecast.....	5
Table 3: INCOG Model Alternative Comparisons.....	10
Table 4: 2020 Port of Catoosa Tonnage Data.....	26
Table 5: Tulsa International Airport Summary Data.....	28
Table 6: 2050 Roadways System Characteristics and Maintenance Cost Estimates.....	31
Table 7: 2020-2050 Cost Estimates Summary in '000s.....	32
Table 8: 2020-2050 Revenue Estimates Summary in '000s.....	32

Figures:

Figure 1: Tulsa Transportation Management Area.....	4
Figure 2: Projected 2050 Employment per Square Mile.....	6
Figure 3: Projected 2050 Population per Square Mile.....	7
Figure 4: Fast Forward: Regional Transit System Plan (2011).....	16
Figure 5: Inbound and Outbound Freight Flow.....	23
Figure 6: National Freight Network (NHFN): Tulsa, OK.....	24
Figure 7: Tulsa Port of Catoosa Tonnage.....	27
Figure 8: Timeline of Smart Mobility Advancements.....	33
Figure 9: Anticipated Dates of Milestones and EV Infrastructure Deployments.....	35

Attachments:

Appendix A: Roadways Capacity Additions Map
Appendix B: List of Capital Improvements- Roadways
Appendix C: GO Plan – Bicycle/Pedestrian Improvements Map



Introduction

The Transportation Planning Process

The Indian Nations Council of Governments (INCOG) is a voluntary association of local governments and was designated by the governor as the area's Metropolitan Planning Organization (MPO). MPOs maintain the primary responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more residents. Additionally, federal regulations recognize metropolitan areas with a population of 200,000 or more as Transportation Management Areas (TMA), which places further requirements on the MPO for congestion mitigation and air quality, safety performance, and complete streets policies.

All TMA transportation plans and programs are based on a continuous, coordinated, and comprehensive planning process, conducted in cooperation with local and state governments and modal agencies. Representatives of each member community, principally elected officials, are appointed to INCOG's Board of Directors, which serves as a forum for cooperative decision-making on issues of regional significance, including transportation.

The transportation planning process involves both long-term transportation system objectives and short-term

implementation of projects. Long-term objectives are realized through the implementation of various cities' comprehensive plans such as the Major Street and Highway Plan, which represents the ultimate roadway development, and the Long-Range Transportation Plan, which identifies planned transportation improvements to be implemented within the next 20 to 25 years. Short-term projects are outlined in the Transportation Improvement Program, which identifies projects receiving federal funding assistance during the upcoming four years. All aspects of the process are overseen by the Transportation Policy Committee (TPC) and the Transportation Technical Committee (TTC). Committee members meet monthly and represent federal, state, tribal and local public agencies; state and local authorities; and various modal interests. The TTC, an advisory group to the TPC, provides technical expertise related to development of urban transportation plans and programs for the TMA. The TPC is an ongoing forum for policy development and adoption related to urban transportation planning, programming, and operation. Upon TPC approval, transportation plans and programs are forwarded to the INCOG Board of Directors for its approval and endorsement.

Federal Requirements for Metropolitan Transportation Plan

- Plans must be for a period not less than 20 years into the future.
- Plans must reflect the most recent assumptions for population, travel, land use, congestion, employment, and economic activity.
- Plans must be financially constrained, and revenue assumptions must be reasonable in that funds can be expected to be available during the time frame of the plan.
- Plans must conform to the Clean Air Act and its amendments, and to applicable State Implementation Plans for regional air quality.
- Plans must be developed through an open and inclusive process that ensures public input and seeks out and considers the needs of those traditionally under-served by existing transportation systems.

Federal Planning Factors

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for motorized and non-motorized users.
- Increase accessibility and mobility of people and for freight.
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
- Promote efficient system management and operation.
- Emphasize the preservation of the existing transportation system.
- Improve resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
- Enhance travel and tourism.

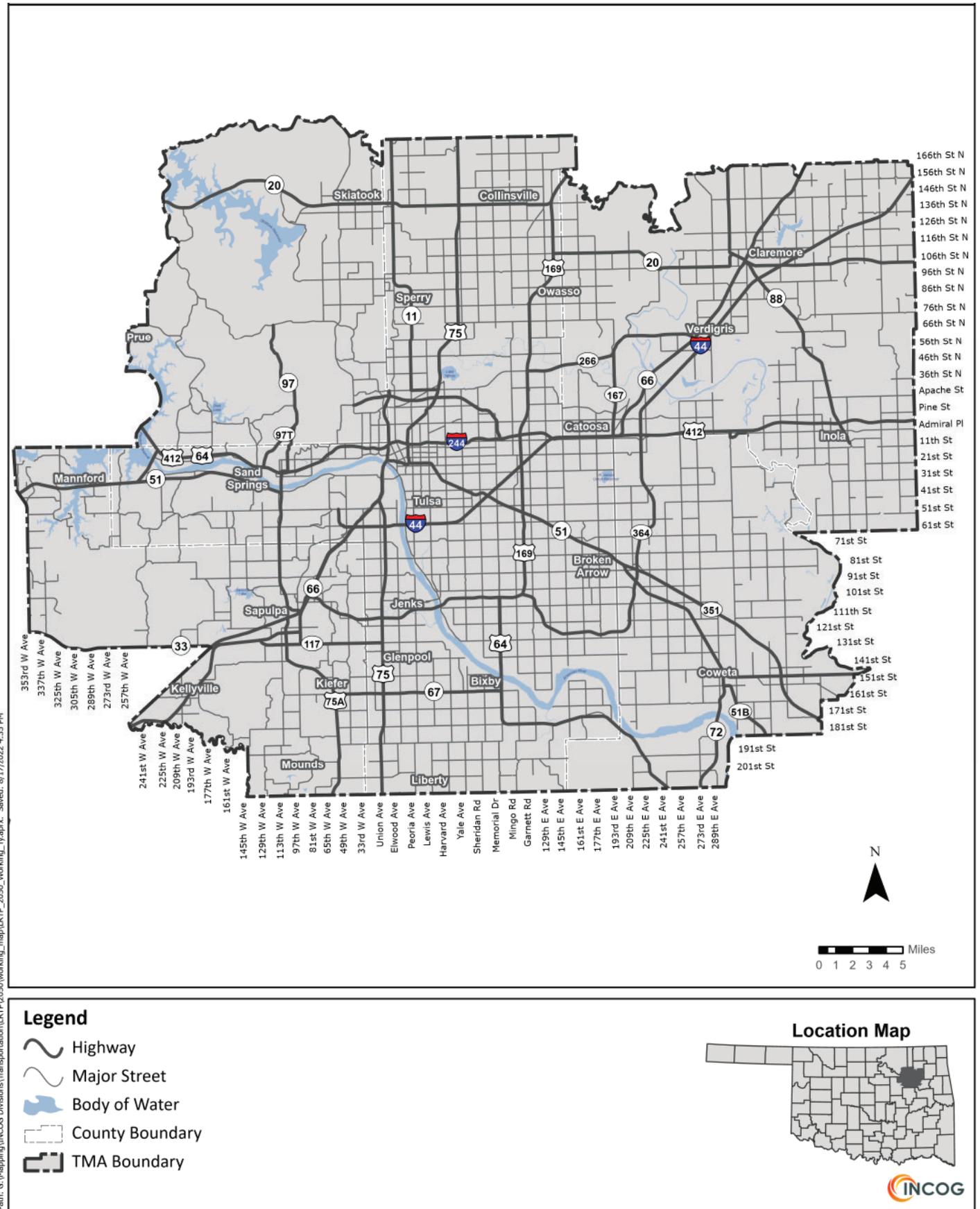
INCOG Transportation Study Area

The 1,694 square-mile Tulsa Transportation Management Area (TMA) is comprised of Tulsa County and portions of the adjacent counties of Creek, Osage, Rogers, and Wagoner. It is a part of the seven county Tulsa Metropolitan Statistical Area (MSA), which also includes Okmulgee and Pawnee Counties. The TMA is predominately urban, with nearly 85% of its population residing within the incorporated cities of Bixby, Broken Arrow, Catoosa, Claremore, Collinsville, Coweta, Fair Oaks, Glenpool, Jenks, Kiefer, Mounds, Owasso, Sand Springs, Sapulpa, Skiatook, Sperry, Verdigris and the core city, Tulsa.

As of 2020, the population of the Tulsa Metropolitan Statistical Area has increased to over one million for the first time. The 2020 base year demographics show the TMA population at 883,436, which accounts for 81% of the Tulsa MSA population. The Tulsa MSA is the 54th largest metropolitan area in the country and the City of Tulsa, is the 46th largest city in the country in terms of population.



Figure 1: Tulsa Transportation Management Area



Path: G:\Mapping\INCOG Divisions\Transportation\LRTP\2050\working_map\LRTP_2050_working_map_Tyaprx_Saved: 8/17/2022 4:35 PM

Tulsa Regional Demographics

The Tulsa Transportation Management Area population continued growth is similar to the seven-county MSA, that makes up the larger region that continues to affect the TMA in terms of population, employment, industry, workforce retention, regionally significant facilities for healthcare and recreation. The MSA population trends and each county growth is observed as below.

Table 1: Tulsa MSA Decennial Population

County	1980	1990	2000	2010	2020
Creek	59,016	60,915	67,367	69,967	71,754
Okmulgee	39,169	36,490	39,685	40,069	36,706
Osage	39,327	41,645	44,437	47,472	45,818
Pawnee	15,310	15,575	16,612	16,577	15,553
Rogers	46,436	55,170	70,641	86,905	95,240
Tulsa	470,593	503,341	563,299	603,403	669,279
Wagoner	41,801	47,883	57,491	73,085	80,981
Total	711,652	761,019	859,532	937,478	1,015,333

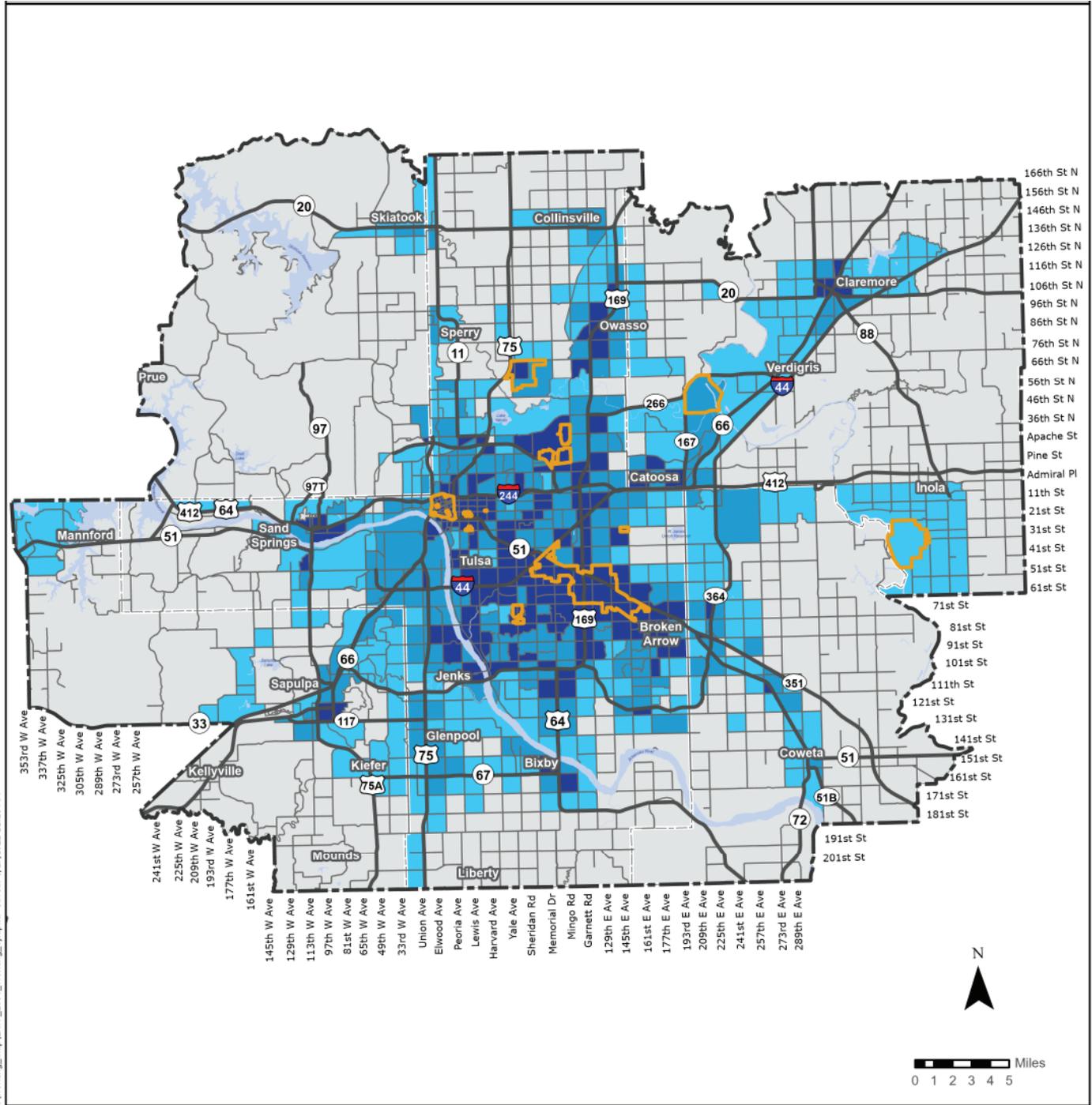
Table 2: Tulsa TMA Population and Employment Forecast

Geography	Population 2020	Population 2050	% Change 2020 to 2050	Employment 2019	Employment 2050	% Change 2020 to 2050
Creek County (TMA Portion)	49,343	58,691	18.9%	17,929	21,326	18.9%
Osage County (TMA Portion)	25,376	29,265	15.3%	4,385	5,057	15.3%
Rogers County (TMA Portion)	77,320	102,316	32.3%	31,033	41,065	32.3%
Tulsa County	669,279	926,316	38.4%	405,674	561,473	38.4%
Wagoner County (TMA Portion)	62,118	104,772	68.7%	8,391	14,153	68.7%
Total	883,436	1,221,360	38.3%	467,412	643,074	37.6%

Key Demographic Changes observed based on 2020 Census:

- Median age has increased to 37.2 years in 2020 for the MSA, an increase of 2.1 years from 36.5 in year 2010.
- Population of 19 years or younger decreased to 27% in 2020 from 28.3% in 2010 .
- Population of people over 65 years or older increased to 15.5% in 2020 from 12.8% in 2010.
- City of Tulsa, core city of the TMA, continued to increase. It increased to 413,066 in 2020 from 391,906 in 2010, a 5.4% increase.
- Census showed 91% of workers commute to work by car, 9.2% carpool and 0.4% use public transportation as a means of transportation to work.
- The regional one-way commute time to work, for the MSA, is 21.9 minutes.

Figure 2: Projected 2050 Employment per Square Mile



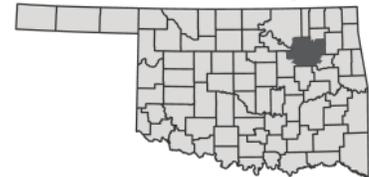
Legend

Employment per Square Mile

- 0 to 50.9 (Lowest 25%)
- 51 to 406.2
- 406.3 to 1,568
- Over 1,568 (Highest 25%)

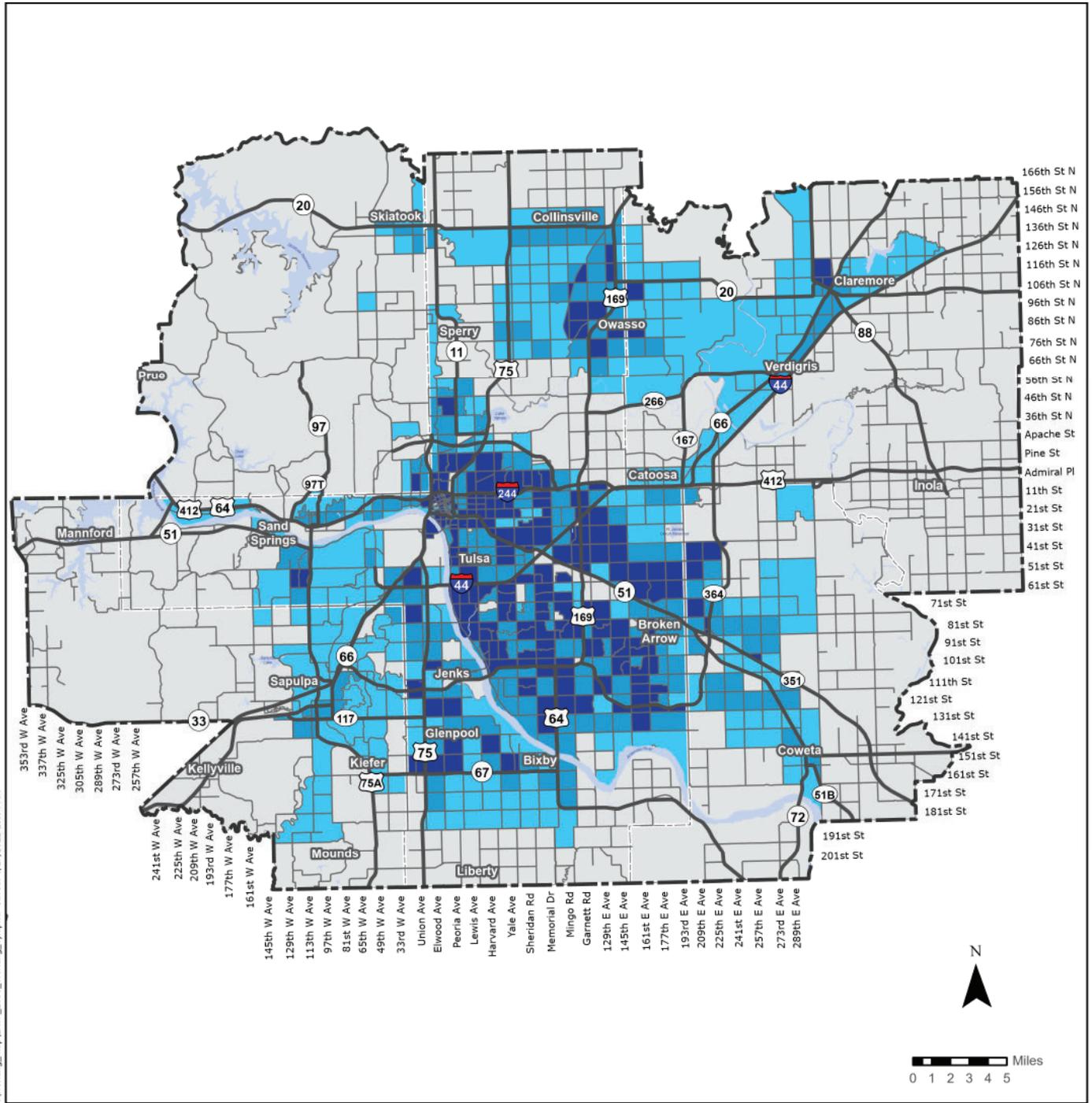
Major Employment Centers

Location Map



Path: c:\Mapping\INCOG Divisions\Transportation\LRTP\2050\working_map\LRTP_2050_Working_Tyaprx_Saved: 8/17/2022 11:15 AM

Figure 3: Projected 2050 Population per Square Mile



Path: c:\Mapping\INCOG Divisions\Transportation\L RTP\2050\working_map\L RTP_2050_Working_Ty.aprx. Saved: 8/17/2022 10:54 AM

Legend

Population per Square Mile

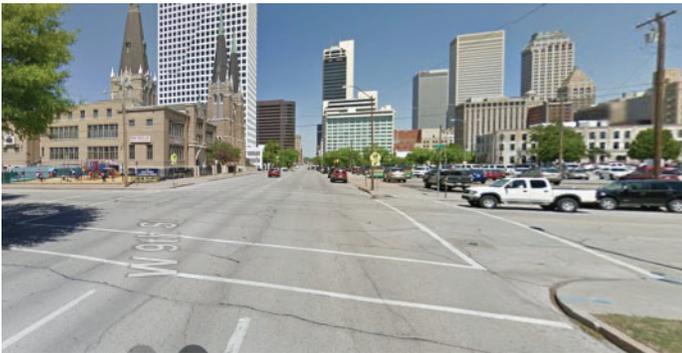
- 0 to 268.2 (Lowest 25%)
- 268.3 to 1,341.8
- 1,341.9 to 3,393.4
- Over 3,393.4 (Highest 25%)

Location Map





Roadways Element



The regional roadway system is primarily comprised of expressways and arterial streets on a roughly 1-mile grid system. The roadway system is well served by Interstate highways (I-244 and I-44) and National Highway System routes (US-75, US-169, US-64, US-412, SH-51 and SH-266), as well as numerous other state and federal highways in the region. The regional system also is integrated into urban tollways, such as the Creek Turnpike (SH-364), and other connecting toll facilities, Turner Turnpike (I-44), Will Rogers Turnpike (I-44), Muskogee Turnpike (SH-351), and the new Gilcrease Turnpike (SH-344).

The existing and committed roadways system includes approximately **895 lane-miles of expressways, 469 lane miles of turnpikes, 6,503 lane miles of arterials** and other regionally significant streets, and numerous miles of

local streets. Reflecting both the Tulsa regional economy and the national economy; major expressway traffic counts in recent years, affected by the COVID pandemic time (2019-21), have not changed in a significant manner, when compared to the previous decade.

Regional Transportation Computer Model

Geographic Information Systems (GIS) are extensively used to geocode both the base year employment by place of work for 2020, and population based on the Census 2020 at a transportation zonal level. Oklahoma Department of Commerce projections for the future year by each county are used as control totals and adjusted based on recently observed growth to obtain target projections. Each subdivided region is further analyzed for infrastructure availability and opportunities for growth, based on access, land use and services. Floodplains and other undevelopable areas are screened out and growth is allocated by zone, based on trends and most recently available data.

Roadways and automobiles continue to dominate the travel in Tulsa TMA. Ensuring safety and mobility is recognized as a cornerstone for the regional transportation in the future.

Regional Goals for Roadways

The 2050 Roadways Plan identifies goals as below:

- Partner with state and local public agencies, public trusts, and tribal entities in the region to achieve set objectives to ensure safe and efficient transportation for all people and goods.
- Support Oklahoma Department of Transportation, and other state and local agencies under mutual agreements and partnership.
- Actively work with the Tulsa Ports of Catoosa and Inola, Tulsa International Airport Authority, Metropolitan Tulsa Transit Authority, and public and private freight entities to advance regional connectivity, and economic competitiveness.
- Support the regional planning process to advance the goals set by the Tulsa Regional Chamber of Commerce along with all other affiliated organizations.
- Develop and advance regional Intelligent Transportation System (ITS) Architecture, deployment, and innovative transportation strategies.
- Develop, adapt, and implement regional complete streets policy.

The 2050 Roadways Plan identifies specific set of actions as below:

Safety and Security

- Develop and implement mitigation measures to reduce traffic crashes
- Develop management strategies for incident related congestion involving various stakeholders including first responders
- Develop plans to improve safety with respect to active transportation users

Roadways Maintenance

- Achieve and maintain sufficiency rating of adequate or higher per ODOT standards on all NHS routes in the region
- Secure funding to sufficiently maintain area roadways to adequate rating that are deemed regionally significant per the Long-Range Transportation Plan
- Achieve regional pavement condition index of 70 on arterials roadways and seek funding solutions to enhance roadway maintenance

Freight Network

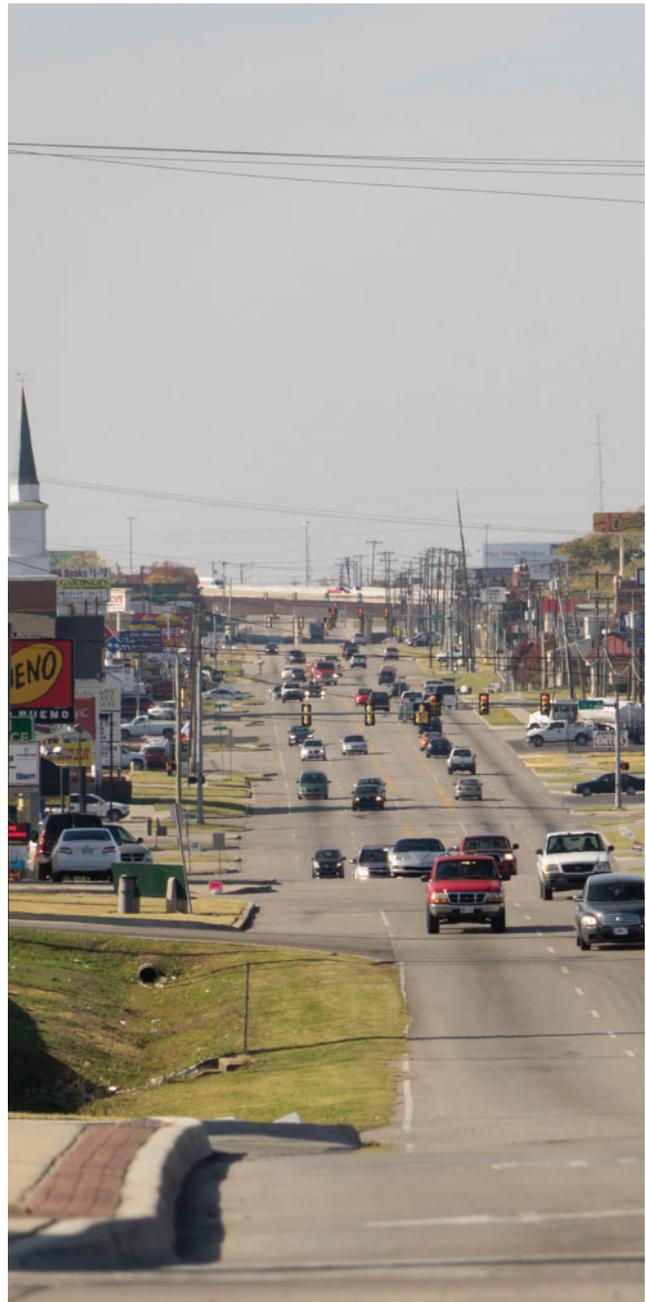
- Improve access to freight terminals through intermodal connectors
- Advance intermodal transportation activity based on economic development needs and goals
- Collaborate with ODOT on their statewide freight plan

Bridges & Bottlenecks

- Eliminate structurally deficient bridges on state, county, and local roadways in the Tulsa Transportation Management Area
- Improve access across the region with additional river crossings
- Pursue safer railroad crossings via grade separation where possible and feasible
- Identify congested bottlenecks in the region, including highway to highway interchanges and heavily congested corridors to seek solutions including developing new flyover and interchanges to facilitate traffic, reduce delay and increase reliability of the system

Intelligent Transportation Systems

- Update and advance ITS strategy based on implementable actions to provide sufficient information to motorists and agencies
- Implement systems based on regional architecture to provide implementing agencies sufficient tools to advance the usage of ITS with respect to travel monitoring
- Provide real time data access to the motoring public



Financial Feasibility & Coordination

- Coordinate implementation activities to ensure timely completion of committed projects with all implementing agencies
- Develop a financially feasible plan of action related to each project across the transportation system to maintain the system that is built to endure during its life cycle, considering all costs associated with the system maintenance and management

Quick facts: 2020 Roadways Vs. 2050 Roadways Plan

The table below illustrates lane-miles, vehicle-miles traveled, and associated vehicle-hours in the Tulsa TMA region for base year 2020 and forecast year 2050.

Table 3: INCOG Model Alternative Comparisons

Roadway Alternative	Years	Years	Years
Roadway Network	2020	2020	2050
Demographic Data	2020	2050	2050
Lane Miles			
Expressway	809	809	895
Turnpike	338	338	469
Arterials & Parkways	4,889	4,899	6,503
Total	6,046	6,046	7,867
Travel			
Vehicles Miles/Day	32,207,744	40,869,581	42,437,839
Vehicles Hours/Day	941,490	1,316,814	1,255,951
Average Speed (MPH)	34.21	31.04	33.79

Several regionally significant roadways, especially the arterials in the Urbanized Area, are funded for improvements using local funding mechanisms combined with the Surface Transportation Block Grant Program (STBGP) funds. Several of these funded projects are in various stages at the time that the 2050 Plan development is underway and slated for implementation. A list of funded projects is included in the current four-year Transportation Improvement Program (TIP), for the years 2022-2026. The TIP is revised every two years in synchronization with the Oklahoma Department of Transportation Statewide Transportation Improvement Program (STIP).





Active Transportation



To provide and sustain active transportation infrastructure for all users is an integral element of all transportation activities, which includes planning, funding, and implementation through programming.

Building a connected network of bicycle and walking facilities helps the Tulsa region achieve long range transportation goals.

- Implementing safer, comfortable, and accessible routes will increase mode share for all active transportation.
- Improving connectivity where possible with separation from automobile traffic in high-volume, high-speed locations will increase safety.
- Linking neighborhoods to destinations will improve access to destinations.
- The provision and use of active transportation infrastructure will increase economic viability of the region through tourism and development by attracting and retaining workforce the region depends on.

- The region benefits through national recognition, with the Bicycle Friendly Community, University, and Businesses designation from the League of American Bicyclists.

In 2014, the Indian Nations Council of Governments (INCOG) and its member jurisdictions made a commitment to change the mode share of travel in the region by overcoming challenges to active transportation with smart and safe design and implementation of facilities. The bicycle and pedestrian master plan, the GO Plan, was developed and adopted to advance the initial footprint as laid out from the earlier Tulsa Regional Trails Master Plan (1999). This plan sought to create a bicycle network that connects major destinations in the region. These destinations include significant employment centers, downtown business districts, schools and universities, and the existing trails system. Pedestrian improvements were addressed through recommendations in a community-chosen focus area in each jurisdiction and through design approaches to typical pedestrian challenges in the region.

Existing Conditions

The region's extensive trails system forms the backbone of existing bicycle infrastructure in and around Tulsa. These trails are built to take advantage of previously existing and now abandoned rail corridors, and other naturally appealing corridors such as the Arkansas River shoreline, and the urban turnpike system that lends itself to developing long distance, separated connections between cities and towns. They are used both for transportation and for recreation and are an attractive amenity for residents, visitors and prospective residents, and businesses.



Sixty-four new miles of bike lanes and sixty-five new miles of new sidewalks have been constructed regionally within the first five years of adoption of the GO Plan in 2015, averaging twelve new lane-miles of bike and sidewalk facilities each year. The City of Tulsa has implemented several on-street bicycle lanes and best practices are still under development as each facility is unique. Regionally, on-street bicycle facilities with dedicated right of way are limited. Development of multi-use trails, on-street bicycle infrastructure and sidewalk connectivity are not uniform across all jurisdictions.

Due to the growing implementation of on-street bicycle infrastructure and improved pedestrian safety countermeasures nationwide, FHWA, NHTSA, NACTO and other research and policy organizations have published updated proven design standards to make roads safer. In addition, technological innovations have created micro-mobility options in the City of Tulsa and are expanding to other cities within the INCOG region. These new forms of transportation are becoming a permanent part of public right-of-way. As a part of an update to the GO Plan, several best practices for implementation of alternative transportation to the communities will be explored.

Usage of bicycles for commuting to work across the Tulsa region is limited. Residents of the Tulsa region still do not use a bicycle for several reasons. In 2015, when asked what they liked best about biking in the region, a large majority, 88 percent, of survey respondents cited exercise and health benefits. Many also cited the trails system as a major amenity and the opportunity to spend time with family and friends. However, 55% of respondents noted that a lack of comfort with sharing the road with automobiles prevents them from bicycling more. A number also cited the lack of bike-friendly roads or trails near their home as a barrier. Respondents said that education and enforcement programs designed to improve driver-bicyclist interaction would increase bicycling in the region. The expansion of the trail network and safe access to the regional network is a priority across the region for all local public agencies.

In the summer of 2021, the ETC Institute conducted a regional scientific transportation survey for INCOG.¹ The respondents indicated overall results concluded 74% were very willing or somewhat willing to improve sidewalk and other pedestrian facilities, and 56.4% surveyed were very willing or somewhat willing to improve bike facilities.

Several trails, side-paths and other pedestrian connections are under construction or reconstructed, and/or updated. The GO Plan Trails and On-street facilities map is attached to the Connected 2050 plan in the Appendix of Maps.

Stakeholder Priorities

The 2015 GO Plan process included public involvement through focus groups and stakeholder meetings. An inventory of local comprehensive plans, policies, requirements, and the identification and assessment of existing facilities was also conducted. Several key recommendations originated from the public outreach effort, and they are listed as follows in order of priority:

1. Ridership/Usage

Acquiring adequate data is a priority to design facilities that accommodate all citizens, apply for funding for projects, and identify potential opportunities for incremental change.

2. Safety

Improving safety for citizens should be done by addressing the presence of wide lanes and associated safety hazards, educating law enforcement in each community on cyclist and pedestrian laws, and communities implementing a policy like “Vision Zero” that gets policy makers involved.

3. Equity

Designing infrastructure in a way that makes bike and pedestrian modes of transportation a viable choice for those that may not be able to drive, do not have access to a private automobile and/or that reside in areas that are identified as areas of persistent poverty and/or historically disadvantaged communities.

4. Connectivity

Connect people by working with transit and other micro-transit solutions to create “last-mile” connections, multi-modal options, and implement well designed safe crossings near schools, intersections, and destinations with high pedestrian counts.

5. Livability

Create livable areas by increasing land use diversity and density, make the right-of-way attractive to other uses, and seek to mitigate minimum parking requirements.

6. Public Health

Encourage active lifestyles by designing infrastructure to be user-friendly for bike/pedestrian uses, work with the Tulsa Health Department to educate the public on the link between the built environment and public health.

Funding

A combination of federal, state, and local funding opportunities is available for local public agencies, and community-based organizations such as the River Parks Authority and This Machine. These federal, state, and local funding opportunities include:

1. Transportation Alternatives Program (TAP)
2. Surface Transportation Block Grant Program (STBGP)
3. Congestion Mitigation and Air Quality Improvement Program (CMAQ)
4. Carbon Reduction Program (CRP)
5. Federal discretionary grant programs
6. Local public agency voter approved funding
7. Non-profit foundations and other community-based organizations



¹ https://etcinstitute.com/communityplanning/transportation/incog_tulsa_regional/

Strategies to Advance Active Transportation Use

The INCOG GO Plan 2.0 continues to address bicycle, pedestrian, and non-infrastructure strategies in more detail. Below is a summary of these strategies.

Bicycle Strategy

- Update the GO Plan to streamline implementation strategy
- Develop a list of gaps and needs to improve connectivity among residents and facilities, both existing and planned
- Connect major regional destinations, such as downtowns of small and large cities in the region, including planned uses with existing network of trails
- Develop facilities to suit the needs of commuters, with adequate signage, trailheads, tree canopy and safe amenities
- The planned bicycle network for the Tulsa region provides for an 800-mile system of on-street facilities and routes, 165 miles of side paths and 408 miles of off-street trails.
- Advance and develop better design guidance and standards for local roadways, as identified in the GO Plan. Update the GO Plan with evidence-based best practices from previous experiences
- Prioritize bicycle facilities by refining the criteria developed for the GO Plan periodically

Pedestrian Strategy

- Provide a safe, equitable, and connected network of

pedestrian facilities for the entire Tulsa region.

- Continue to develop and prioritize sidewalk gaps in the region.
- Develop concept designs, best practices to address typical challenging pedestrian scenarios, and policy recommendations.
- Develop standards for side-paths and trails for pedestrian uses along with ADA recommendations for implementation across the region.

Non-infrastructure Strategies

- Identify and address inequities in modal transportation funding and implementation.
- Develop strategies to address community-wide equitable distribution of federal funding to meet the needs of all transportation users.
- Identify education opportunities and develop outreach methods and means to promote safe use of active transportation including micro-transportation use.
- Encourage a strong culture that celebrates walking and bicycling through promoting partnerships developed with active non-profits in the region.
- Evaluate needs based on observed data on walking and bicycling to help plan for these modes as safe and viable transportation options.
- Bicycle and pedestrian planners should approach improving the use of active transportation modes through a “five Es” approach: Equity & Accessibility, Engineering, Education Encouragement, and Evaluation & Planning





Public Transportation

Public transportation in Tulsa TMA is addressed largely by the Metropolitan Tulsa Transit Authority. Other rural transit service providers, Pelivan Transit, KiBois Transit and Cimmaron Transit provide connections to and from rural parts of Tulsa TMA into the core metropolitan area. Other services that are available in the TMA include privately-funded network companies, and services from other non-profit organizations, and healthcare or senior community services. Funding streams largely define availability and access to these services.

The Metropolitan Tulsa Transit Authority (MTTA) was created in 1968 and operates bus services for the region, as well as some of the region's paratransit services. MTTA provides 1.3 million trips on its fixed-route system and 68,000 paratransit (Lift) trips that are door-to-door, annually. At present, there are no fixed-guideway transportation systems in the region.

INCOG has engaged the public and studied alternative public transportation solutions and created a community vision to help achieve regional diversity in transportation modes. One such initiative, the Regional Transit System Plan (RTSP), the Fast Forward Plan, instituted a comprehensive, long-range plan for future transit corridors to help meet the region's transportation needs over the next 25 years. The plan defines corridor priorities for the region and defines policy needs for feasible development. Throughout the study, the RTSP was centered on a data-driven approach that is supported by a robust planning process which enabled the region to be well positioned for potential future federal spending and discretionary grant funding.

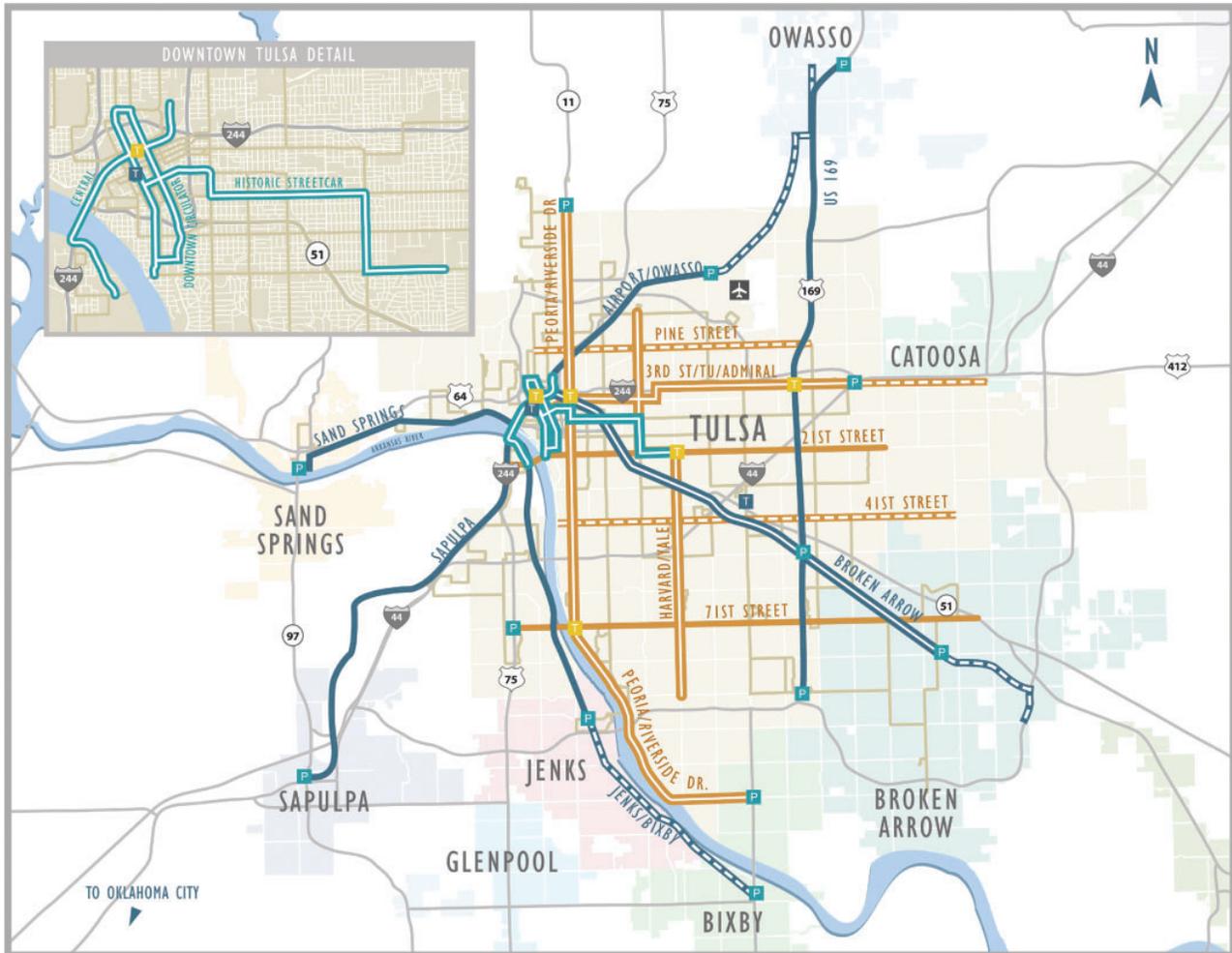
The City of Tulsa voters approved a local tax package to support Bus Rapid Transit investments based on the RTSP recommendations, for both capital and operational funding for Bus Rapid Transit projects, including the Peoria Bus Rapid Transit line. Bus Rapid Transit is a premium fixed-route bus service which provides faster and more reliable travel times than the existing services as well as limited stops and shorter wait times at each station. This project was completed and began operations in the Winter of 2019. The second BRT is planned to travel East-West, on a combination of 11th and 21st streets, including much of Route 66. This project is in design and expected to be operational by early 2025.



Regional Transit Corridors

The RTSP established three Transit Market Groups to discern the relative difference in high-capacity transit need among corridors with like characteristics. Transit Market Groups were defined as: Circulator, Commuter, and Urban Corridors. The Fast Forward plan provides a detailed description and methods used to prioritize these corridors.

Figure 4: Fast Forward: Regional Transit System Plan (2011)



The development of public transportation is to recognize the changing needs of public, based on aging of population, pandemic-induced travel changes, priorities of administration for various local public agencies, and availability of technology and innovation. The fast forward plan should be updated periodically based on the following factors that influence the demand and availability of publicly-funded transit systems in the Tulsa TMA:

- Needs of existing riders to be able to safely ride transportation
- Availability of technology to reduce barriers to access and use public transport
- Demonstrated leadership to implement new trunk systems such as the Route-66 Bus Rapid Transit system and sustain existing Peoria BRT
- Providing last-mile connectivity to fixed transit services
- Evolving flexible routes and services using micro-transit or transit network services
- Arriving at diverse ridership population to sustain interest and funding for transit such as providing public transportation for high school students, community college students, and rural connections
- Promoting public transportation to sufficiently address fluctuating fuel prices for all people in the Tulsa Metropolitan Area

- Build public transportation hubs around the region to provide park-and-ride services and expand to new major employment locations within and outside the metropolitan region
- Seamless integration of technology and bringing technology use to within reach of all users of public transit
- Successful integration of on-demand short trip ridership utilizing Uber and Lyft type of services with longer trip needs of public
- Single payment options to bridge gaps between public transportation and other providers of services such as the regional bikeshare, This Machine
- Need for better transit availability to adequately address air quality needs and concerns for the region
- Availability of funding and shared resources among local public agencies
- Development and availability of mobility-as-a-service
- Capital needs and availability of funding to equip, modernize the fleet, and support infrastructure such as a new transit maintenance facility
- Fueling needs and changing fuel options to shift to electric and hydrogen
- Additional regional funding mechanism to support new transit initiatives
- Changes to current governing structure to expand the current public transportation availability throughout the Tulsa Metropolitan region

Aligned with the Fast Forward RTSP guidance, MTTA is implementing many changes as the agency expands its services and presence as the regional public transit provider for the Tulsa Metropolitan Area. The agency is actively developing its on-demand, micro-transit service with a pilot deployment planned for spring 2023 and a full deployment of Nightline & Sunday on-demand service planned for summer of 2023. Though the initial launch will focus on improving Nightline and Sunday service with on-demand, MTTA is also evaluating its daytime service, exploring other opportunities to implement micro-transit service.

In addition to new service models, MTTA is expanding its electric bus fleet with four currently in fixed-route service and another seven slated for delivery. By 2025, MTTA will

have no diesel fixed-route buses in the fleet- 90% CNG (possibly from renewable sources) and 10% electric- and looks to have the first hydrogen-fueled bus in the State of Oklahoma. These changes coincide with a need for new facilities as the agency has outgrown its present home and must modernize its own facilities to maintain and expand the quality of public transit service it provides for the next 40 years.





Coordinated Human Services Transportation



The Tulsa Regional Coordinated Transportation Plan addresses human service transportation needs including a broad range of transportation service options designed to meet the needs of a variety of populations. Choices range from the public transit fixed-route system, specialized dial-a-ride van programs, taxi vouchers, to volunteer drivers. The array of services often results in multiple, underutilized vehicles, inefficiently operated. At the same time there are often large numbers of people unable to access transportation services when and where they need them. Coordination of transportation program services, appropriately implemented, reduces individual inefficiencies, and encourages sharing of existing community resources. In communities where coordination is a priority, all citizens benefit from having more transportation choices through expanded service, lower costs, and easier access.

In 2005 SAFETEA-LU, the federal transportation reauthorization act, required the establishment of a locally developed Coordinated Public Transit-Human Services Transportation Plan for three FTA human services transportation programs. Federal legislation required that to receive program funding from targeted assistance for elderly and disabled transportation, the grantees must certify that approved projects were derived from the coordinated plan developed through a process that includes representatives of the public as well as private, and non-profit transportation and human services providers.

The Infrastructure Investments and Jobs Act (IIJA) also known as the Bipartisan Infrastructure Law (BIL) continued these requirements for the administration of Federal Transit Administration funded Section 5310 funds to address enhanced Mobility of Seniors and Individuals with Disabilities Program. For distribution of any funds under Section 5310, projects selected should be included in the coordinated public transit-human services transportation plan, developed, and approved through participation of seniors, people with disabilities, representatives of public, private, and non-profit transportation and human service providers, and other members of the public, and services coordinated with other transit providers.

The 2020 Coordinated Plan was developed with ongoing participation by representatives from public, private and agency transportation providers, Departments of Human and Social Services, Departments of Health, Mental Health, Rehabilitation Services Employment, Education, Area Agency on Aging, faith-based organizations, and private, non-profit organizations such as the United Way. The plan is an integral part of the

Tulsa Regional Transportation Plan, 2050 Connected Plan update.

The regional coordinated Plan includes following key components:

- A comprehensive assessment of existing transportation services and service coordination
- An assessment of unmet transportation needs
- Strategies to address and improve the identified transportation needs
- Project implementation priorities
- A competitive selection process for project selection

The Coordinated Plan is also recognized as a tool for increasing communication between human service agencies and transportation providers and a tool for human service agencies and transportation providers to identify coordination opportunities.

The action plan developed through the coordinated planning process identified the following needs:

- List all the transit providers in the Tulsa TMA
- Inventory service, equipment, and facilities available
- Assess service gaps, equipment, and facilities needs

Strategies and Actions

The plan identified following actions as a part of the implementation strategy.

A) Improve Safety and Accessibility

- Develop, implement, and keep updated a Pedestrian Master Plan to assess sidewalks, safe routes to transit, and elimination of barriers.

- Incorporate FHWA guidelines for new streets and highways that are accessible for aging and disabled populations.
- Improve facilities and amenities at regional stops and transfer stations.
- Implement policies and programs that address safety concerns at bus stops, transfer stations and on board, especially at night.
- Encourage provision of Travel Hosts to assist people making transfers, persons with disabilities, users needing door-to-door service, visitors, or those with other transit concerns.
- Create and implement an emergency/disaster plan and an inclement weather plan that addresses the need of those without personal transportation.

B) Increased Mobility

- Increase transit frequency to allow users to make health care and other appointments, look for employment, and chain trips for both paratransit and fixed-route service
- Increase service area to connect neighboring communities outside Tulsa Metro Area
- Improve and expand the Mobility Management Center – one scheduling and dispatching center for all trips
- Community-based van program (provide accessible vans to non-profit organization – for their use if they also transport elderly and disabled
- Integrate providers to increase sharing of vehicles, drivers, passengers





- Joint Service Planning: reduce overlapping, fill in underserved gaps
 - Coordinate with private sector: joint scheduling and sharing of vehicles
 - On-line ride reservation system and companion call-in center
 - Assist users to plan trips with multiple stops and chain trips
 - Projects that utilize technology to share ride demand data between agencies and non-profits while maintaining rider privacy
 - Allow coordinated trip scheduling and billing among and between school districts, transit agencies, and human service agencies
 - Utilize technology to connect providers to transportation system dispatch
 - Hire drivers to be shared among providers
 - Help small transportation providers with developing quality programs
 - Provide training classes or expand existing programs for new and existing operators, staff, and travel hosts including sensitivity for affected populations
 - Simplify the ability for riders to use multiple systems (such as universal pass/smart card), instead of using different vehicles for different purposes
 - Allow bulk purchase of vehicles and equipment
 - Provide maintenance for all vehicles in pool
 - Extend and expand transit service to evenings and to holidays and Sundays
 - Increase transit service area to include schools, hospitals, daycare centers, senior facilities, and employment centers not currently served by transit.
 - Implement regional connection services covering rural areas, job centers, and disadvantaged communities
 - Increase human service agencies capacity for scheduled services
 - Provide first and last-mile services connecting riders to their origin and destination
- C) Develop Awareness**
- Educate transit providers and human service agencies about the benefits of coordination.
 - Provide human service agencies with travel information resources or tools and help caseworkers and other appropriate agency representatives understand lowest cost transportation options for their clients.
 - Add transit links to human service 211 hotline.
 - Encourage projects that engage community members or other partners in spreading the word about available mobility options.
 - Develop innovative marketing and information partnerships and strategies that alleviate the “stigma” of riding transit and illustrate available services.
 - Add transit/mobility center links to sites for services provided to elderly, low-income, and people with disabilities.
 - Create transit options brochure and website that is user-friendly and details options available to potential customers for printing.
 - Expand exposure of regional fixed-routes and ride share programs to policy makers, funders, and “untapped” markets.

D) Increase Funding

- Develop funding strategy that includes a dedicated funding source for public transportation and allows expansion of the fixed-route and paratransit services.
- Allow mixing of funding so agencies aren't restricted to serving specific target populations or specific destination types.
- Share resources – vehicles, maintenance – to make more effective use of funds available
- Diversify and expand funding sources by partnering with the

private sector (both for-profit and non-profit).

- Create innovative sources of local match funding including partnerships with local businesses and foundations to help federal grant applicants.
- Pursue additional state and federal discretionary funding sources

E) Improve Efficiency

- Increase service efficiency to decrease delayed pick-ups.
- Develop a unified policy that allows all providers to accept transit users

regardless of their individual eligibility (ADA, Medicaid and other programs).

- Agree upon common fare structure for all agencies represented in the vehicle pool.
- Decrease lead-time needed in scheduling for paratransit service.
- Increase the ability of school districts and churches to be part of the community transportation provider pool.





Freight Movement

Freight transportation plays an integral role in the economy. It is defined as the movement of raw materials to manufacturers for production, then the movement of manufactured goods to businesses and consumers. Over 800 million tons of freight are transported throughout Oklahoma annually. The movement of goods impacts quality of life, economic vitality, safety, congestion, and air quality. Freight planning is an important part of the Long Range Transportation Plan (LRTP).

Due to the increasing size and complexity of urban areas, intra-regional goods movements have outpaced goods movement between regions. According to the Federal Highway Administration, the freight transportation system relies on a variety of modes to support domestic and international supply chains. Trucks carry the majority of freight in the continental United States, both by tonnage and value. Pipelines carry the second largest tonnage, although this mode involves only specific liquid and gaseous commodities.

The Fixing Americas Surface Transportation (FAST) Act and its successor, the Infrastructure, Investment and Jobs Act (IIJA), provided the basis for states and metropolitan areas to examine and address freight transportation issues in the context of metropolitan Long Range Transportation Plans. The Connected 2050 Long Range Transportation Plan (LRTP) Freight Transportation Element highlights the multimodal aspects of the infrastructure that facilitates freight movement in the region, including two internal water-ports, an international airport, two Class I railroads, several short-line railroads, and trucking. These strategic regional facilities are well connected to one another and to the National Highway System (NHS)².

Development Process

The freight planning involved collection of data-related to the four modes of moving goods in the Tulsa area, including truck, rail, water, and air transportation. Data acquisitions and data collection efforts provided information that was used in developing the freight element.

The Connected 2050 regional transportation plan, freight transportation element, examines the importance of the freight and goods movement and highlights the freight flow changes in the region. The major data source for this analysis is the Freight Analysis Framework (FAF). FAF is a partnership between Bureau of Transportation Statistics (BTS) and Federal Highway Administration (FHWA)³. It integrates data from several sources to create a picture of freight movement among states and major metropolitan areas by all modes of transportation.

According to FAF data, Texas is Oklahoma's foremost trading partner, but other states receiving significant freight from Oklahoma include Kansas, Missouri, Arkansas, and Louisiana. Surrounding states received the majority of Oklahoma's outbound freight commodities in 2020 but noticeable increases to other regions of the US are forecasted for 2050. Texas, Kansas, Colorado, and Wyoming represent the majority of inbound freight coming into Oklahoma. Again, the surrounding states are the major freight partners for Oklahoma and the Tulsa Metropolitan Area, but future projections show an increase in inbound freight from California and several other states around the country.

²The National Highway System (NHS) consists of the Interstate Highway System, plus selected other US and state highways, links, and connections that serve the major population centers, ports, airports, public transportation facilities, intermodal transportation facilities, and major travel destinations. The NHS network of significant highways was approved by congress in 1995.

³Freight Analysis Framework https://ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm

INCOG and ODOT are responsible for designating public roads for the critical national freight corridors in accordance with section 11114 of Infrastructure, Investment and Jobs (IIJA) Act. This is achieved based on the designated National Highway Freight Network (NHFN) by FHWA. The freight corridors and NHFN are important as the National Highway Freight Program (NHFP) provides formula funds to the States to improve the efficient movement of freight on the NHFN. The map below shows the NHFN network and proposed freight corridors in Tulsa TMA. It also includes locations such as Tulsa International Airport, Port of Catoosa that process significant freight.

Figure 5: Inbound and Outbound Freight Flow

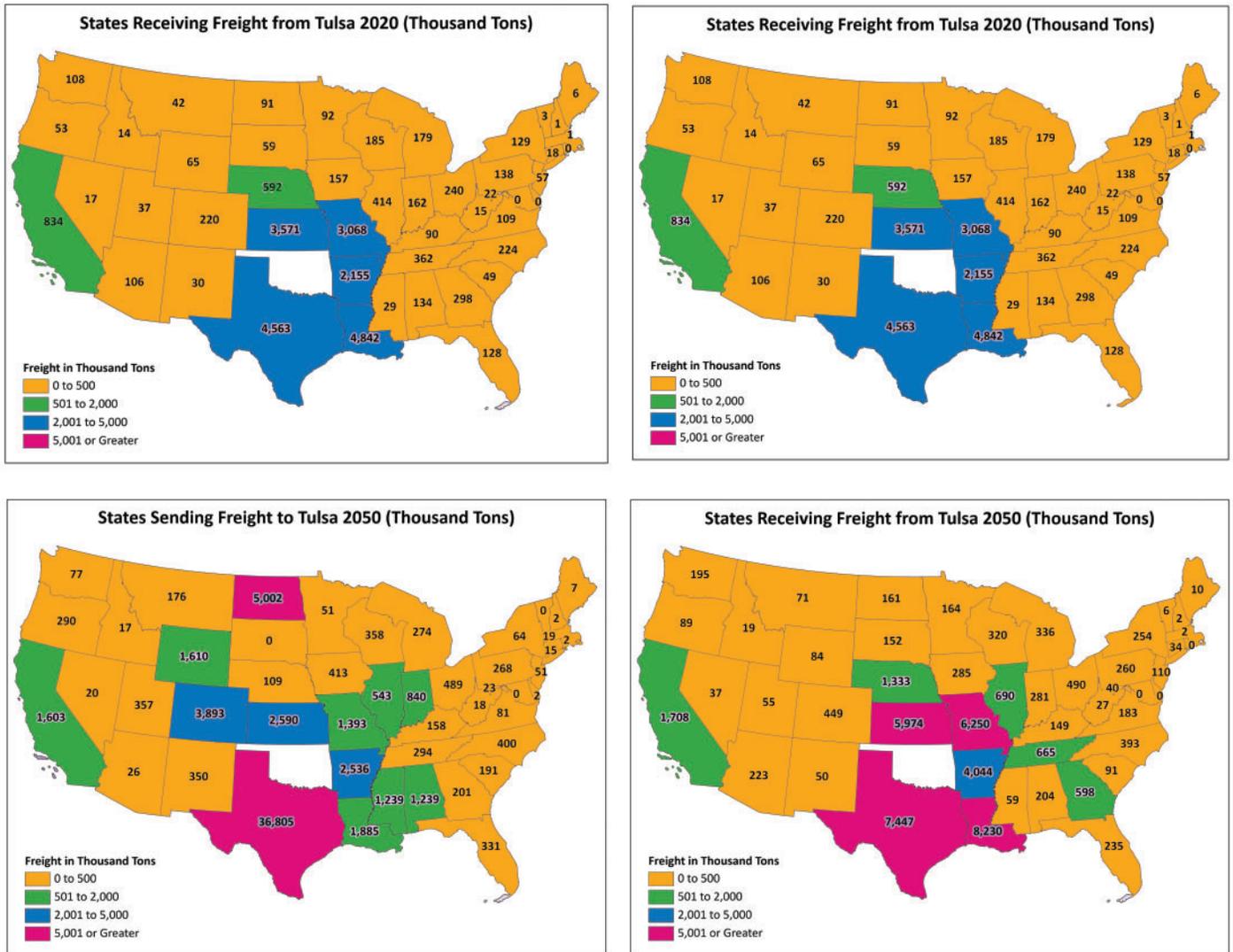
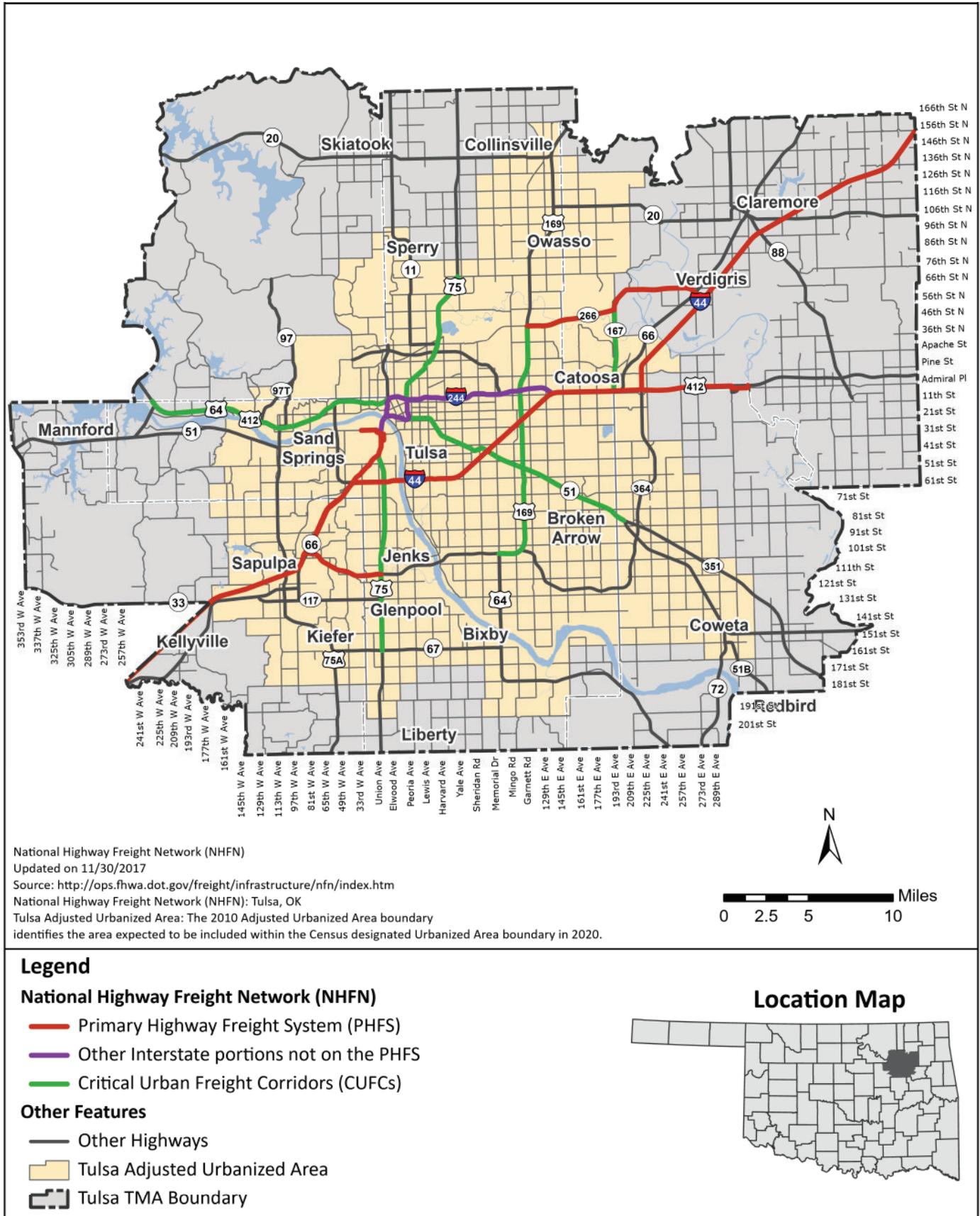


Figure 6: National Freight Network (NHFN): Tulsa, OK



Rail Corridors

Tulsa, Oklahoma's second largest city, became attractive to railroad companies when a Federal Post Office was opened and there was a huge influx of goods and money from ranchers and farmers. The railroad had a profound impact on the development of the city which can still be seen today with streets running parallel and perpendicular to the Frisco railroad tracks.

Today Rail Transportation in the Tulsa area is provided by two Class-I carriers and five short-line carriers. The Class-I carriers are Union Pacific (UP) and Burlington Northern Santa Fe Railway Company (BNSF). Together, they operate on approximately 200 miles of track in the area. The five short lines that operate in the Tulsa Region are the Southern Kansas and Oklahoma Railroad (SKO), Tulsa-Sapulpa Union Railroad (TSU), Sand Springs Railroad (SS), Port of Catoosa (PC) and Stillwater Central. The short lines operate on approximately 66 miles of track within the area. The two major commodities transported by the railroads in Oklahoma are coal and grain and most of the freight movement within the state is between the Oklahoma City and the Tulsa areas.

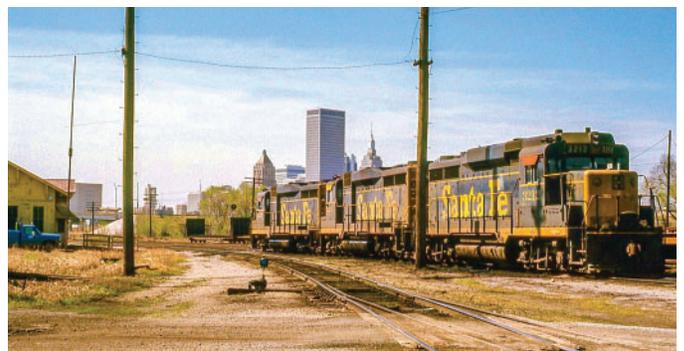
The Burlington Northern Santa Fe Railroad (BNSF) has the largest rail yard in the area, located southwest of downtown Tulsa. Access to the BNSF yard is from US-75. Approximately 5,400 tons of freight and 160 rail cars are operated daily, originating and terminating in the Tulsa area. The trains generally run east-west, and destinations vary greatly, with bulk industrial products being the primary cargo. BNSF provides rail access to the Port of Catoosa and the manufacturing plants near the Tulsa International Airport. BNSF operates on about 150 miles of track in the Tulsa region.

The Union Pacific runs between Muskogee and Tulsa. Their warehouse is the former KATY yard near 51st Street South and Mingo. The Union Pacific Railroad operates on about 40 miles of track at 2 train yards in the Tulsa area. The UP processes 4 trains per day, including support operations for the UP regional terminal facility in Muskogee, Oklahoma.

The short-line railroads serve primarily as the connection between shippers and Class I rail carriers. The Sand Springs Railroad is owned by Omnitrax. It operates service between downtown Tulsa and Sand Springs with thirty-two miles of track connecting freight cars daily with the Burlington Northern Santa Fe Railroad, Union Pacific Railroad, and the South Kansas Oklahoma Railroad (SKO). Their covered storage facility is multimodal and is 68,000 square feet.

The South Kansas and Oklahoma Railroad is a segment of the former Santa Fe line to Kansas City. The trains run north out of Owasso and south to Tulsa connecting with BNSF and UP. It also serves the Port of Catoosa daily via an 8-mile track that goes from Owasso to the Port. The Tulsa-Sapulpa Union Railroad is primarily a switch carrier between Class I carriers (BNSF and UP) and customers located on TSU railway. It serves the Metropolitan area, running from Sapulpa to West Tulsa to Jenks on a total of 23 miles of track. It is considered one of Oklahoma's oldest and smallest operating railroads. In January 2001, TSU became operator of Union Pacific Railroad (UP) track connecting Tulsa and Jenks and connecting with the Burlington Northern Santa Fe (BNSF) railroad at Sapulpa.

Stillwater Central operates a 97-mile line between Sapulpa and Oklahoma City. In Sapulpa, it interchanges the cars to BNSF, which then distributes the cars accordingly. In cases where Stillwater Central interchanges cars with SKO, SKO carries the traffic across to Tulsa. The Port of Catoosa, five miles from Tulsa and the country's most frost-free inland port, has its own railroad. It has two switch engines and serves customers on 13 miles of rail track. The Port is also served directly by BNSF and SKO.



Water Transportation

The Tulsa Port of Catoosa is located at the head of the navigation channel for the McClellan-Kerr Arkansas River Navigation System (MKARNS). The 445-mile waterway links Oklahoma and the surrounding five-state area with ports on the U.S. inland waterway system, and foreign and domestic ports beyond, by way of New Orleans and the Gulf Intra-coastal Waterway. The Port is owned jointly by the City of Tulsa and Rogers County and operated through a public trust authority appointed by both governments.

The Port complex encompasses approximately 2,000-acre industrial park, offering fully developed sites for prospective industry, and a 500-acre terminal area for public and private barge handling operations. The port channel is 1.5 miles long, and the port facilities include two towboats for barge switching, liquid cargo loading and unloading docks, a grain handling facility, a dry cargo wharf. In addition to the ports many cargo handling facilities it also has the ability to handle oversized and overweight project cargo. Port facilities handled more than two million tons of freight in 2020. Of this, 739,677 tons or approximately 36% was inbound, while 1,306,585 tons or 63% was outbound (Table 2). The port area also contains dry bulk storage compartments, sites for warehousing and fabrication, and other terminal operations within the 2,500-acre industrial complex. The Port's intermodal capabilities include barge switching

service, in-port rail operations, pipelines, and access to Class I rail service.

The Port is accessible from I-44 and US-169 via SH-266 (Port Road), and SH-167, and is located about eight miles northeast of Tulsa International Airport. In December 1979, the Port was designated as a duty-free port or Foreign Trade Zone No. 53. This designation covers an area of 52 acres, including an area that may be used by individual companies for construction of their foreign trade-zone facility. A foreign trade zone is an area considered outside the customs territory of the United States where foreign and domestic merchandise may be admitted for storage, exhibition, assembly, processing, manipulation, relabeling, sampling, or manufacturing, duty-free and without quota, while being processed for the consumer market. Payment of customs duties on foreign goods is not required unless the merchandise enters customs territory for domestic consumption.

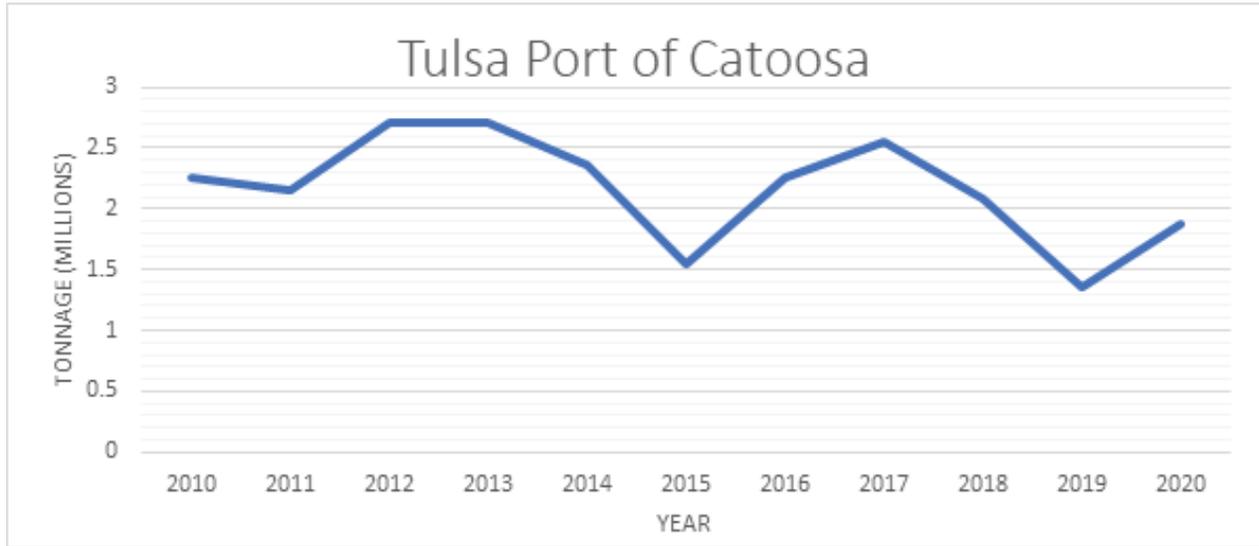
The number of businesses located at the Port also continues to grow, and now stands at 70+. The port is involved in an ongoing marketing program offering prime industrial sites for lease or sale in the adjacent Riverview Business Park. Port officials are predicting that total tonnage transported, and the variety of industries located at the Port will continue to grow into the future.

Table 4: 2020 Port of Catoosa Tonnage Data

Tonnage Report - 2020	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Inbound Tons/Barges													
Total Tons	31,163	45,811	79,607	99,415	59,143	79,593	45,379	43,621	78,330	38,782	66,768	72,065	739,677
Total Barges	21	30	52	65	39	68	39	29	51	25	49	46	514
Outbound Tons/Barges													
Total Tons	115,098	92,419	110,371	143,714	123,421	156,656	112,708	106,369	107,991	58,003	77,730	102,105	1,306,585
Total Barges	66	50	66	70	72	91	66	61	51	27	41	66	727
Total Inbound/Outbound													
Total Tons	146,261	138,230	189,978	243,129	182,564	236,249	158,087	149,990	186,321	96,785	144,498	174,170	2,046,262
Total Barges	87	80	118	135	111	159	105	90	102	52	90	112	1,241
Cumulative													
Total Tons	146,261	284,491	474,469	717,598	900,162	1,136,411	1,294,498	1,444,488	1,630,809	1,727,594	1,872,092	2,046,262	13,675,135
Total Barges	87	167	285	420	531	690	795	885	987	1,039	1,129	1,241	8,256
Cumulative (Jan 1971-present)													
Total Tons	86,124,184	86,262,414	86,452,392	86,695,521	86,878,085	87,114,334	87,272,421	87,422,411	87,608,732	87,705,517	87,850,015	88,024,185	1,045,410,211
Total Barges	52,207	52,287	52,405	52,540	52,651	52,810	52,915	53,005	53,107	53,179	53,249	53,361	633,716

Additionally, Oakley’s Port 33, a privately owned and operated port facility, is located at the eastern boundary of the TMA near the intersection of US-412 and the navigation channel. It consists of eight separate docks for simultaneous loading/unloading, two service boats, and capacity for several barges. The port has capacity for open bulk storage, including fertilizer and grain storage. The port’s primary outbound shipments consist of liquid bulk and agricultural products, as well as grain trucked-in from Enid, Oklahoma.

Figure 7: Tulsa Port of Catoosa Tonnage



acres just 10 minutes northeast of downtown. The airport complex is classified as a medium hub, primary commercial service airport by the FAA’s National Plan for Integrated Airport Systems (NPIAS). It presently covers 4,360 acres and operates with 3 runways, along with parallel and connecting taxiways that provide aircraft access to the airport terminal and other airport facilities. Air Carrier, General Aviation, Military, and Air Taxi aircraft utilize these runways.

Air Transportation

Tulsa Airports Improvement Trust (TAIT) administers, manages, and operates Tulsa International Airport and Tulsa Riverside Airport. TAIT’s mission is to provide a safe, efficient, self-supporting airport system for the citizens of the Tulsa metropolitan area and surrounding region.

The Tulsa International Airport (TIA) is owned by the City of Tulsa and operated by the Tulsa Airport Authority. Established in 1928 on a 390-acre tract, Tulsa International today encompasses more than 4,000

The airport’s air carrier terminal is currently set up to operate as many as 22 passenger loading gates, serving 10 passenger air carriers, and processing over three million passengers in 2019, including 1,504,284 enplanements and 1,549,244 deplanements. From 2012 to 2019, enplanements and deplanements have steadily increased. With the COVID-19 pandemic, air passenger volume decreased to 1,156,018 enplanements and 1,161,733 deplanements in 2021.

Table 5: Tulsa International Airport Summary Data
 Source: Tulsa International Airport Services Statistics

Activity	Calendar Year to Date 2019	Calendar Year to Date 2021	Percent Change from 2019-2021
Passenger			
Enplaned	1,504,284	1,156,018	-23.15%
Deplaned	1,549,244	1,160,733	-25.08%
Total Passengers	3,053,528	2,316,751	-24.11%
Cargo (pounds)			
Enplaned	60,804,099	57,257,156	-5.83%
Deplaned	68,565,742	63,651,804	-7.17%
Total Cargo	129,369,841	120,918,960	-6.50%

The airport facilities include passenger terminals serving the major air carriers, including American, Delta, Southwest, United Airlines, and regional commuter air carriers including Northwest AirlinK, American Eagle, Allegiant, Breeze, Comair, and Atlantic Southeast. The air cargo terminal facility is located directly south and east of the passenger terminal building. The air cargo terminal consists of a landside and an airside, where incoming and outgoing cargo is processed and loaded from trucks to aircraft and vice versa. The air cargo terminal is currently occupied by Airborne, Burlington, Emery, Federal Express, Martinaire, and United Parcel Service. In addition, some freight and mail, including US Postal Service mail, is transported on scheduled air carrier and commuter airlines serving the airport.

The Tulsa International Airport handled approximately 60,500 tons of cargo in 2021 including airmail, and airfreight, transported by airfreight carriers, and in the cargo-hold of passenger aircraft. This total included about 47% outbound and 53% inbound cargo. Total air cargo activity at Tulsa International Airport has decreased by about 6.5% from 2019 to 2021. Direct access to Tulsa International Airport is provided via SH-11/Gilcrease Expressway, which runs east west along the southwest corner of the air carrier terminal. Access is also provided from the north by SH-266 or Port Road. The airport is

accessible from I-244, and US-75 via SH-11/Gilcrease Expressway. In addition, the airport is accessible from several major north-south arterials in the area, including Memorial Drive, Sheridan Road, and Mingo Road.

The Burlington Northern Santa Fe Railway (BNSF) operates a line that runs east-west along the south edge of the airport. Another rail line operated by the South Kansas and Oklahoma Railroad (SK&O) is located north of the airport and veers in a northeasterly direction. A rail spur that branches out from the BNSF rail line provides rail access to the manufacturing plants adjacent to the airport. However, there is no direct rail connection with the airport terminal facility at this point. A general aviation airport in the area, Tulsa Riverside Airport is designated by the Federal Aviation Administration (FAA) as a reliever for Tulsa International Airport. This reliever is part of the Tulsa Airport Improvement Trust (TAIT) System and is located approximately 15 miles south and west of TIA near Jenks. This airport is equipped to handle potential excess capacity at Tulsa International Airport.

The current access to the airport is adequate and provided through a variety of roadways and streets from the south and east. However, as the airport grows and expands, design and engineering will be initiated as necessary to improve any traffic bottlenecks.

Issues and Actions

Since freight transportation is a means to various regional economic ends, changes to the regional economy, such as manufacturing and retail, directly impact freight transportation and vice versa. In addition, access to raw materials and markets are key factors in the location decision of most manufacturing and distribution companies. Building an efficient freight infrastructure will require coordination among the various modes of freight transportation. An efficient freight movement system would expand markets, increase opportunity, production, and competition. The major issues associated with freight transportation in the TMA can be grouped into five broad categories, including government regulations, safety, energy consumption, economic impact, and infrastructure development and maintenance. These issues have been evaluated, and the following actions are proposed.

Energy and Efficiency Issues

The current system for moving freight relies heavily on trucking, which is one of the least fuel-efficient modes. Trends in freight transportation (just-in-time, next day delivery, etc.), appear to suggest that trucking and airfreight will continue to grow. One prominent goal is to develop a Transportation System that ensures energy efficiency. To advance such a goal, the freight element of the LRTP identifies resources that foster the development of more efficient freight vehicles, better technology, or operational strategies that minimize the use of energy.

An energy-efficient goods movement plan should focus on the following actions.

- Encourage the use of less-polluting alternative sources of energy and their potential application in the goods movement process
- Support the development of more efficient freight vehicle technology and the use of energy-efficient alternatives such as double stacked railcars, longer trailers, electronic sorting and tracking of packages, freight consolidation techniques, satellite distribution centers, etc.
- Support the local emergency/hazardous materials management agency in identifying alternative routing options in the area, for transportation of potentially hazardous materials.

- Develop an Oversized Load Dispatch process to direct shippers to proper routes to accommodate necessary weight, height, and axel spacing
- Support efforts to maximize efficiency in the goods movement process, including handling and transporting goods to minimize air emissions and achieve air quality goals
- Identify truck stop locations within the Tulsa metropolitan area that can provide electrification and facilities to maximize energy utilization

Safety Issues

The goods-movement process is concerned with issues of safety. Freight movement involves safety at facilities, vehicle operational safety, and safety along the roadways. The safety issues associated with individual terminal facilities are the responsibility of terminal operators. However, drivers must be certified, and vehicles must pass safety inspections to operate on the roadways. Similarly, the local roadway network that interfaces with the regional and statewide highway network must meet the minimum design standards to maximize safety for vehicles and other road users. Therefore, the freight transportation plan for the region must address the issue of safety from the perspective of the driver, the vehicle, and the roadway.

- Identify the high accident locations involving freight movement in the region, including highways, railroads, railroad crossings, and waterways. Work with the local freight operators to identify and address safety-related issues on the road network and elsewhere



- In conjunction with ODOT, rail operators and local governments, develop and maintain an inventory of rail/highway crossings in the area, including at-grade and grade-separated crossings, and use the results to guide the prioritization and selection of potential projects
- Collect and maintain data related to truck accidents and truck safety on the region’s primary roadways
- Encourage the development and use of improved vehicle technologies to enhance safety, such as collision mitigations systems, and support a vehicle lifecycle tracking system and ongoing vehicle safety inspection programs for all modes
- Identify bottlenecks, missing links, safety hazards, and other needed components of the regional infrastructure

Economic Development Issues

Because the movement of freight is closely related to regional economic activity, changes in the economy are likely to affect the volume and pattern of regional goods distribution. Trends in regional production, manufacturing, and distribution will be closely monitored and characterized to get a better understanding of freight activity in the Tulsa area. As the region grows and expands economically, so will the need for freight service. Therefore, the goods movement planning process must support regional economic development activities.

- Work with local businesses, Chambers of Commerce, local governments, and authorities to identify freight related long-range and short-range transportation projects and encourage their funding and implementation
- Support the use of state and local economic development programs to develop regional transportation facilities, improving industrial areas and other freight activities that have the potential to strengthen the local economy
- Encourage public/private partnership ventures that provide leverage for local freight transportation projects

Physical Infrastructure Issues

The regional freight infrastructure consists of networks, vehicles, and terminal facilities. These include airports, port facilities, and roadways that are built, maintained, and operated by the public sector. A significant portion of the infrastructure belongs to the private sector, including airplanes, barges, towboats, trains, rail facilities, trucks, truck terminals, pipelines, etc. This difference in ownership may present some challenges when it comes to planning for future infrastructure needs. The focus of the freight element is on the infrastructure that are built, maintained, and operated by the public sector. Following are some actions that would facilitate the smooth flow of goods into and through the Tulsa region.

- Work with the Oklahoma Department of Transportation and other agencies to continue development and maintenance of the roadways and bridges in the area, including those that connect the manufacturing, storage, and distribution centers in the area to other market areas beyond the TMA. Most freight companies would support increased diesel tax if additional funds were to be used for road maintenance.
- Develop criteria to evaluate and monitor the performance of the freight movement infrastructure including roadways, railroads, airports, and other networks in the area.
- Investigate opportunities to improve the Mingo and Pine corridors, and US-75, US-169, and I-44 to facilitate freight movement within the TMA and between Tulsa and the surrounding metropolitan areas of Dallas/Ft. Worth, Texas; Kansas City and St. Louis, Missouri; Wichita, Kansas, and Northwest Arkansas.
- Support development of regional ITS applications, in compliance with national ITS architecture for truck facilities and operations in the TMA.
- Enhance the development of the Tulsa International Airport and the Port of Catoosa through implementation of planned physical infrastructure improvements, including additional air cargo facilities and improved landside access, and additional dock capacity at the Port of Catoosa for general cargo, dry bulk, and container cargo; support efforts to widen and deepen the Port of Catoosa water channel.



Financial Planning

The framework for the financial plan for the Connected 2050 is adopted from the Connected 2045 Plan update conducted in 2017. City, County, and State spending estimates are revised and updated. Cost of construction and maintenance has increased in more recent years due to increased cost of labor and inflation. The inflation measured year-over-year within the near term, may require adjustments to the cost estimates, if the trend continues during the five-year time period, before the next plan update takes place, due in 2027.

The financial plan is based on several assumptions:

- The roadways element will experience increased costs of maintenance and state-of-the-good-repair costs, overall.
- Cost of maintenance will only increase due to inflation and subject to labor availability

- Due to the increased cost share of maintenance, it will be the priority for the region to maintain roadways and upgrade the Pavement Condition Index, while bringing all the roadways into a state of good repair.
- Bridges and National Highway System maintenance costs will also increase as a percent of total cost of the plan, because of the increased focus on eliminating functionally obsolete and structurally deficient bridges across the board.
- Safety concerns tied to the goal of decreasing fatalities and serious injuries will also influence spending of roadway funding, thereby improving the safety of the overall system.

Table 6: 2050 Roadways System Characteristics and Maintenance Cost Estimates (In 2022 dollars)

Roadway Lane-Miles Category	2020 Lane-Miles	2050 Lane-Miles	Total Maintenance Cost (in '000s)
Expressways	809	895	\$712,000
Turnpikes	432	469	\$216,000
Arterials	5,806	6,503	\$2,093,10
Total Maintenance Costs			\$3,021,100

* All Maintenance Costs are Estimated to be based on Year of Expenditure

Table 7: 2020-2050 Cost Estimates Summary in '000s (In 2022 dollars)

Facility/Source	Operating and Maintenance Costs	Construction and Capital Costs	Total Costs	Percent of Total
Expressways	\$712,000	\$858,000	\$1,570,000	17.7%
Turnpikes	\$216,000	\$890,000	\$1,106,000	12.5%
Arterials	\$2,093,100	\$1,407,600	\$3,500,700	39.4%
Highway Interchanges	\$0	\$800,000	\$800,000	9.0%
Subtotal	\$3,021,100	\$3,955,600	\$6,976,700	78.6%
Percentage	42.5%	57.5%		
Public Transportation	\$651,000	\$240,000	\$891,000	10.1%
Dedicated Public Transportation	\$400,000	\$500,000	\$900,000	10.1%
Bicycle/Pedestrian Links	\$22,000	\$86,000	\$108,000	1.2%
Subtotal	\$1,073,000	\$826,000	\$1,899,000	21.4%
Total	\$4,094,100	\$4,781,600	\$8,875,700	100%
Percentage	46.1%	53.9%	100%	

Table 8: 2020-2050 Revenue Estimates Summary in '000s (In 2022 dollars)

Revenue Source	Estimated Revenue (in thousands)
Local	\$2,294,700
ODOT (state/federal)	\$3,156,700
Federal/Urbanized Area	\$750,000
OTA	\$890,000
Public Transportation (current system)	\$891,000
Dedicated Transit/City/Federal	\$900,000
Total	\$8,882,400



Emerging Issues: Future of Transportation

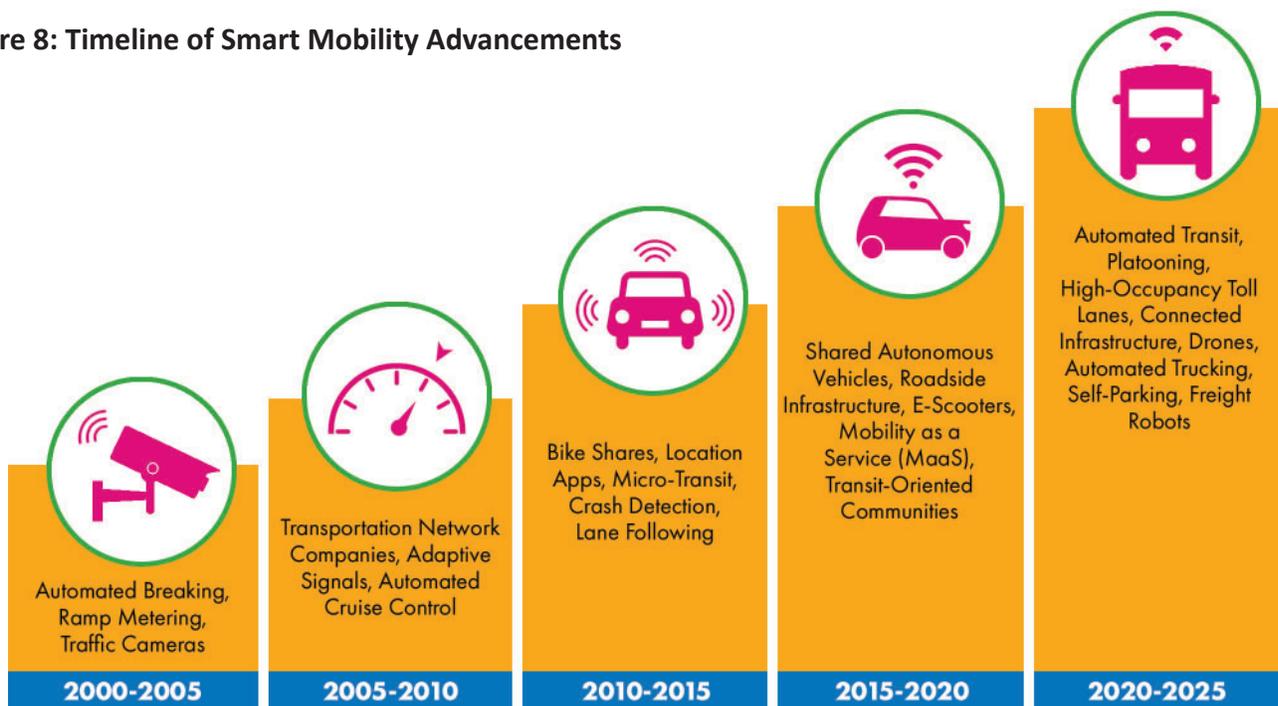
Transportation demand for moving people and goods is expected to grow significantly over the course of this plan period. A major transition process is expected in the transportation sector because of new and innovative technology, to address climate change expectations, and to meet population growth demand. It is expected that shared mobility, autonomous vehicles, and need for safety among other alternative transportation changes to various modes will be responsible for addressing the transportation market needs. However, single-occupancy vehicles will continue to dominate showing a high growth rate, regardless of other options. The Tulsa region is proactively seeking solutions to its challenges and is embracing mobility innovations.

Mobility Innovation Strategy

In 2018, the City of Tulsa convened a cross-disciplinary collective of engineers, academics, planners, advocates, non-profits, philanthropic organizations, and business leaders to develop a policy and technical action plan to lower barriers for emerging transportation technology in the City of Tulsa. The Urban Mobility Innovation Team developed a Mobility Innovation Strategy to harness smart mobility options that solve transportation challenges and establish the City as a leader for the field.

The City of Tulsa has created this strategy to expand mobility options for all by embracing innovations that build economic opportunity, environmental sustainability, and equity. These new components will enhance the city's networks and better connect Tulsans to jobs, healthcare, education, healthy foods, recreation, and more.

Figure 8: Timeline of Smart Mobility Advancements



With the continual rise of smart technology, the familiarity with and diversity of its options will continue to expand.

The Mobility Innovation Strategy highlighted five fundamental projects: a grocery store-mobility hub, a micro transit network powered by mobility on demand, a campus-based set of automated vehicle (AV) pilots, identifying new public-private-philanthropic partnerships, and an exciting Mobility Innovation Challenge. With these projects— coupled with next generation planning, policy, and pilots—Tulsa can become a hub of mobility innovation regionally and nationally, attracting talent, employers, and jobs that will transform transportation and our world.

The full report was released in March 2022 and can be found at: [tulsa-mobility-innovation-strategy-full-report.pdf](https://www.cityoftulsa.org/files/2022/03/tulsa-mobility-innovation-strategy-full-report.pdf) ([cityoftulsa.org](https://www.cityoftulsa.org))

Oklahoma National Electric Vehicle Infrastructure Plan (NEVI)

Using electricity from the grid to run vehicles costs less and reduces petroleum consumption and associated tailpipe emissions compared to conventional fuel. The State of Oklahoma has made great strides in not only expanding EV charging infrastructure but supporting the very businesses that are contributing to the rise in electric

vehicle use. In fact, Oklahoma ranks 3rd nationally in installed EV fast charging per capita.

The National Electric Vehicle Infrastructure (NEVI) Formula Program, funded by the Bi-partisan Infrastructure Law (BIL), is a new \$5 billion program that plans to make historic investments in electric vehicle (EV) charging infrastructure across the country. The goal of this program is to establish a network of 500,000 EV chargers by 2030 along federally designated alternative fuel corridors (AFC) in the United States (U.S.) and ensure a convenient, reliable, affordable, and equitable charging experience for all users. To achieve this national goal, each state is required to develop an EV Infrastructure Deployment Plan that describes how NEVI Formula Program funds will be used in conformity with guidance from the Federal Highway Administration (FHWA).

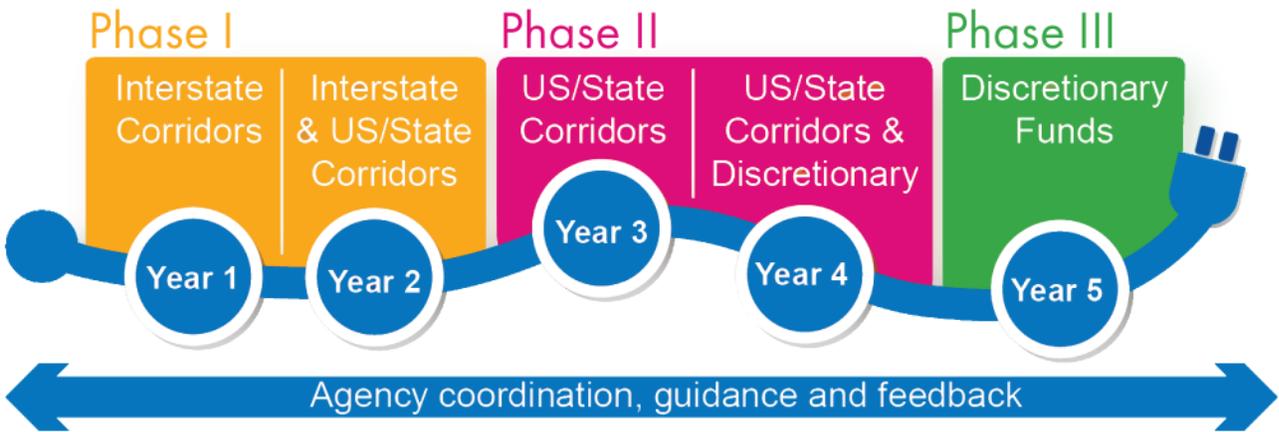
Oklahoma’s NEVI Plan will guide the implementation of charging network over the next five years, as they receive and distribute NEVI funds across the state, and work toward fulfilling their responsibility in building a national EV charging network. This network will include EV charging corridors across the state that improve economic development, tourism, and the environment.

Oklahoma has 19 charging stations on designated Alternative Fuels Corridors (AFC) that are fully NEVI compliant and serve the 7,1591 EVs registered in the state as of May 2022. The farthest distance between fast chargers along major Oklahoma highways and Interstates is only 70 miles.

Oklahoma’s approach to EV infrastructure development over the next five years includes three phases to maximize NEVI funding and ensure compliant and reliable EV deployment across the state. In phase one, ODOT will prioritize building out NEVI-compliant Interstate corridors and begin U.S. and state corridor build outs. In phase two, ODOT will continue work on U.S. and state corridors, while beginning discretionary funds allocation. In phase three, ODOT will focus all remaining discretionary funding to address other transportation issues per NEVI program guidance.



Figure 9: Anticipated Dates of Milestones and EV Infrastructure Deployments



The full Plan was released in July 2022 and can be found at:

https://oklahoma.gov/content/dam/ok/en/evok/documents/Oklahoma_NEVI_Plan.pdf

Tulsa Air Quality Program

The Oklahoma Department of Environmental Quality (DEQ) monitors air quality in the Tulsa region and assures we meet state and federal air standards. There are nine air monitoring stations in northeastern Oklahoma, five of them monitor ground-level ozone. INCOG is widely recognized as the planning agency for air quality issues in the Tulsa metropolitan area. As such, INCOG provides strategic planning and coordination of regional efforts to address the challenges of meeting the national ambient air quality standards. INCOG’s regional Ozone Alert! Program brings citizens, businesses, industries, and governments together to voluntarily reduce ozone-forming emissions on days vulnerable to high ground-level ozone.

The Air Quality Index (AQI) reflects ground level ozone, corresponding to the EPA’s national standard for ground-level ozone associated health concerns. The EPA’s ozone standard is exceeded when the 8-hour average is 0.071 ppm or greater. The 2022 ozone season ended with higher level of concern for Ozone in Tulsa, especially when temperatures

are high over the summer. The Air Quality planning and related actions should be updated and keep track of these imminent concerns as they evolve with each year, and the Annual Unified Planning Work Program should address these concerns. INCOG Air Quality program can be accessed at <https://tulsaairquality.com/ozone-alert-program/>

Carbon Reduction Program (CRP)

The purpose of the Carbon Reduction Program (CRP) is to reduce transportation emissions through the development of State carbon reduction strategies and by funding projects designed to reduce transportation emissions. The State Carbon Reduction Strategy is required to address efforts to reduce transportation emissions and identify projects and strategies to reduce these emissions. States, in coordination with MPOs, are encouraged to develop their Carbon Reduction Strategies

as an integral part of their transportation planning processes, such as by integrating them into the State’s Long-Range Statewide Transportation Plan (LRSTP), the MPO’s Metropolitan Transportation Plan (MTP), or by developing a separate document which is incorporated by reference into the LRSTP and MTP.



Each Carbon Reduction Strategy shall:

- A. support efforts to reduce transportation emissions;
- B. identify projects and strategies to reduce transportation emissions, which may include projects and strategies for safe, reliable, and cost-effective options
 - i. to reduce traffic congestion by facilitating the use of alternatives to single-occupant vehicle trips, including public transportation facilities, pedestrian facilities, bicycle facilities, and shared or pooled vehicle trips within the State or an area served by the applicable MPO, if any;
 - ii. to facilitate the use of vehicles or modes of travel that result in lower transportation emissions per person mile traveled as compared to existing vehicles and modes; and

- iii. to facilitate approaches to the construction of transportation assets that result in lower transportation emissions as compared to existing approaches;
 - C. support the reduction of transportation emissions of the State;
 - D. at the discretion of the State, quantify the total carbon emissions from the production, transport, and use of materials used in the construction of transportation facilities within the State; and
 - E. be appropriate to the population density and context of the State, including any metropolitan planning organization designated within the State.
- The Carbon Reduction Program Implementation Guidance was released in April 2022 and can be found at:

https://lifo.vermont.gov/assets/Subjects/Transportation-Notices-and-Issues/67ba0af448/crp_guidance.pdf



TULSA AREA
CLEAN CITIES

TulsaCleanCities.com





Public Involvement Process

Public participation processes inform citizens, groups, and organizations about specific decisions likely to affect their lives, ensure that planning and decision-making consider views and input from stakeholders, and resolve issues and problems taking into consideration multiple interests and concerns. Above all, public participation processes encourage citizens and organizations to take an active participation in their community-related transportation issues, building a relationship for better communication and cooperation. The public participation plan for the Tulsa TMA was updated in 2020 and is available for public at INCOG website.

Mission Statement

The intent of the Public Participation Plan is to encourage and support active public participation throughout the planning and decision-making process related to the development of proposed transportation plans, programs, and projects so that a safe, efficient transportation system, reflecting the needs and interests of all stakeholders, can be provided.

Public Participation Procedure

Several techniques for expanding public awareness of transportation planning issues have been identified. This section gives an overview of these techniques aiming to help transportation planners and decision makers choose the best activities according to their goals, target audience, and cost considerations.

INCOG maintains a website where citizens can review information posted and send comments via online forms and email. The website hosts information of interest to the public: meeting schedules and agendas, the RTP, the updated TIP, planning products available from INCOG, and demographic and traffic data. A brochure with a brief description of the regional transportation planning process is also published and distributed as widely as possible. In addition, the INCOG database will be used to provide citizens, affected public agencies, emergency response agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, pedestrian walkways and bicycle transportation facilities, representatives of persons

with disabilities, and other interested parties with a reasonable opportunity to comment on the RTP and TIP and become involved with the transportation planning process, as per federal regulations.

Various provisions of MAP-21, the federal transportation law, require expanded consultation and cooperation with federal, state, local and tribal agencies responsible for land use, natural resources, and

other environmental issues. INCOG will seek to engage these segments of the community and incorporate their comments throughout the planning process. INCOG will also undertake appropriate consultation and coordination activities with agencies related to safety planning and security planning.



Specific Environmental Justice and Limited English Proficiency (LEP) Considerations

State and federal policies and regulations, including Environmental Justice initiatives, reinforce the need of agencies to focus attention on reaching low-income and minority households. There are many individuals whose primary language is not English. Individuals who do not speak English as their primary language and who have a limited ability to read, write, speak or understand English can be “Limited English Proficient”, or “LEP.” This language barrier may prevent individuals from accessing services and benefits. To include traditionally underserved communities in the decision-making process, it is necessary to identify key stakeholders that have low or no participation, what is preventing them from participating, and what can be done to overcome barriers and increase the levels of participation. Some explanations for the lack of participation include cultural and language barriers, disabilities, economic constraints, and lack of participation opportunities.

To ensure that cultural and language barriers are overcome, Limited English Proficiency (LEP) procedures will be implemented, such as making information readily available and having public notices translated for Spanish-speaking populations. Meetings and/or public hearings shall be made accessible and user-friendly for all stakeholders, taking into consideration convenient locations and schedules. In addition, INCOG will provide appropriate accommodations for citizens with hearing and/or sight impairment. Effective participation, education and communication shall be tailored to specific non-traditional transportation stakeholders and problems. Effective participation, education, and communication shall



be tailored to specific non-traditional transportation stakeholders and problems.

“According to 2018 ACS data, 20,687 people (2.6%) 5 years and over in the Tulsa TMA speak English “not well” or ‘not at all’ at home.”

To reach the LEP population, a four-factor analysis outlined in the Department of Transportation policy guidance will be followed:

1. The number or proportion of LEP persons eligible to be served or likely to encounter a program, activity, or service of the recipient or grantee.
2. The frequency with which LEP individuals come in contact with the program.
3. The nature and importance of the program, activity, or service provided by the recipient to people’s lives.
4. The resources available to the recipient and costs.

To assist the LEP populations in the Tulsa TMA and assure that persons with limited ability to speak, read, write, and understand the English language participate in all INCOG’s programs, INCOG will post public participation notices in accessible locations both in English and Spanish with INCOG’s contact for further assistance to other languages translation.

Regional Transportation Plan

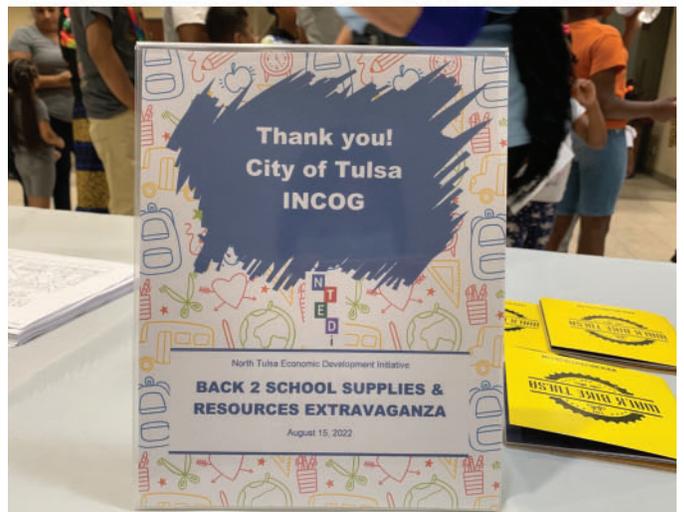
The Regional Transportation Plan (RTP) has at least a 20-year horizon and is necessary for the effective programming and implementation of transportation improvements. The RTP is predicated on demographic and economic assumptions and forecasts for the region. It identifies the various transportation

systems: roadways, public transportation (or transit), bicycle/pedestrian, and freight systems desired for the metropolitan community, as well as how the transportation modes interrelate with each other. The RTP summarizes the costs of the investments that will be needed, the resources necessary and expected to achieve the recommended improvements, and the resulting effects or impacts such investments will produce. The RTP serves as a guide for the investment of local, state, and federal resources and becomes a component of the Oklahoma Statewide Intermodal Transportation Plan. It also serves as the foundation for plans to improve the overall transportation system.

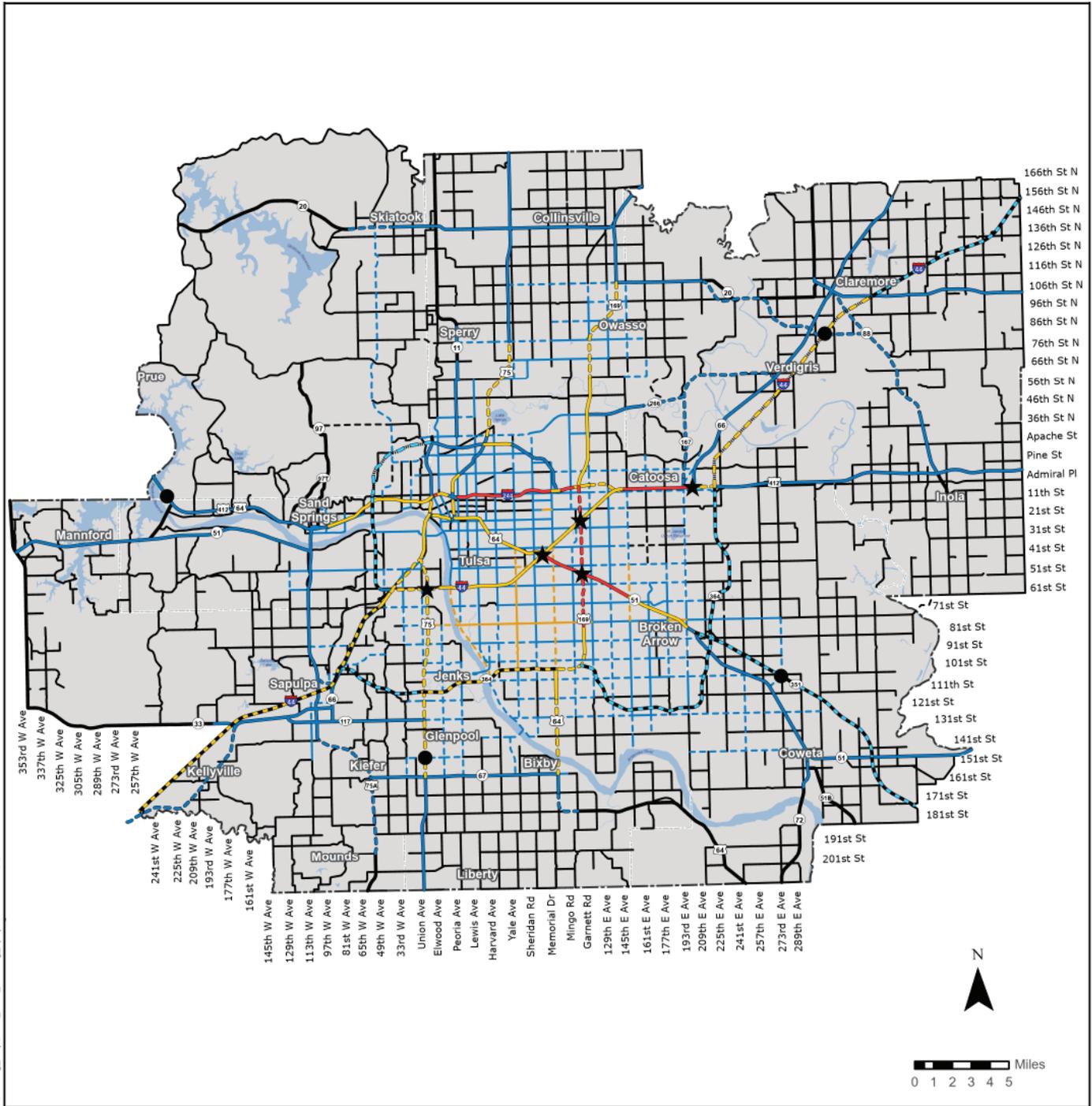
Public participation is an integral part of the RTP, and the plan itself must reflect the desires of the communities within the region to help them attain their transportation goals. To this end, INCOG, in addition to its outreach efforts as required by federal and state laws, will seek to interact with the following specific groups through techniques aiming to inform, involve, give feedback, and achieve significant participation.

As a part of the RTP development process, INCOG has kept the regional transportation committees and INCOG Board informed of the process. The COVID pandemic has affected the outreach, hence when possible virtual meetings were held. Toward the completion of the RTP documentation, INCOG will engage local public agencies and other stakeholder groups and agencies while finalizing the plan. INCOG also provides for a 30-day public comment period where public agencies and public may provide comments relevant to the plan goals, actions identified.

Finally, the INCOG Regional Transportation Plan will be available for public at any time via web, email upon request, public library, or in hard copy format for those that request it. A copy will be kept at INCOG offices for public to view and comment.



Appendix A: Roadways Capacity Additions Map



Path: G:\Mapping\INCOG Divisions\Transportation\LRTIP\2050\working_map\LRTIP_2050_Working_Ty.aprx. Saved: 11/23/2022 11:12 AM



0 1 2 3 4 5 Miles

Legend

Interchanges

- ★ Expressway Interchange
- Grade-Separated Interchange

Roadway Type

— Arterial

— Highway

— Turnpike

Roadway Status

- - - New/Changed Roadway

— No Roadway Changes

Roadway Through Lanes

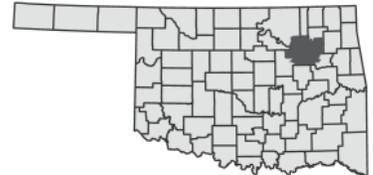
— 2 Lanes

— 4 Lanes

— 6 Lanes

— 8 Lanes

Location Map



Appendix B: List of Capital Improvements - Roadways

ARTERIALS	Roadway Segment	Planned Through Lanes
SH-11/Peoria Ave	86th St N to 96th St N	4 Lanes
SH-117/121st St South	US-75 to Peoria Ave	4 Lanes
SH-151	Diamond Head Drive (Grade Separation)	2 Lanes
SH-166	SH-66 to SH-97	4 Lanes
SH-167/193 East Ave	I-44/US-412 to SH-266	4 Lanes
SH-20	NW Franklin Rd to SH-88	4 Lanes
SH-20	N 41st W Ave to N 80th W Ave	4 Lanes
SH-266	161st Street to SH-167/193rd East Ave	4 Lanes
SH-266	SH-167 to I-44/Will Rogers Turnpike	4 Lanes
SH-51 Connector	SH-51 to Muscogee Tpke Interchange	4 Lanes
SH-66	121st St South to 241st St South	4 Lanes
SH-72	SH-51 to Pecan St	4 Lanes
SH-88	SH-20 to 46th Street North	4 Lanes
US-75A	131st St South to 191st St South	4 Lanes
5th St	A Street to Main St (Jenks)	4 Lanes
11th St South	129th East Ave to 145th East Ave	4 Lanes
12th St	SH 97 to Adams Rd	4 Lanes
25th West Ave	Edison Rd to Pine St	4 Lanes
31st St South	129th E Ave to 145th E Ave	4 Lanes
31st St South	145th East Ave to 177th East Ave	2 Lanes
33rd West Ave	141st St S to SH-67/151st St S	4 Lanes
33rd West Ave	61st St South to 71st St South	4 Lanes
33rd West Ave	71st St South to 81st St South	4 Lanes
41st St South	129th E Ave to 193rd East Ave	4 Lanes
41st St South	33rd West Ave to 57th West Ave	4 Lanes
41st West Ave/52nd West Ave	Apache St to SH-20	4 Lanes
41st West Ave	Apache St to Newton St	2 Lanes
41st St South	Garnett Rd to 129th E Ave	4 Lanes
41st St South	Yale Ave to Sheridan Rd	6 Lanes
43rd St North	N 41st / 52nd West Ave to SH-97	2 Lanes
46th St North	SH-11/Peoria Ave to Lewis Ave	4 Lanes
49th West Ave	41st St South to 51st St South	4 Lanes
49th/41st West Ave	Edison Rd to Newton St	4 Lanes
51st St South	Garnett Road to 193rd East Ave	4 Lanes
61st St South	177th East Ave to 209th East Ave	4 Lanes
61st St South	Peoria to Lewis Ave	4 Lanes
61st St South	US-75 to 49th West Ave	4 Lanes
66th St North	145th E Ave to 161st E Ave	4 Lanes
71st St South	33rd West Ave to US-75	4 Lanes
71st St South Extension	4200 Rd to E 71st St South	2 Lanes
71st St South	US-75 to Arkansas River	6 Lanes
81st St South	33rd W Ave to Elwood Ave	4 Lanes
81st West Ave	7th St S/10th St S to Charles Page Blvd	4 Lanes
81st St South	Garnett to SH-51	4 Lanes
81st St South	Harvard to Sheridan Ave	4 Lanes
81st St South	SH-97 to SH-66	4 Lanes
86th/91st St South/Canyon Rd	49th West Ave to SH-66	4 Lanes
86th St North	US-75 to Memorial Dr	4 Lanes

Appendix B: List of Capital Improvements - Roadways (continued)

86th St North	145th East Ave to 161st East Ave	4 Lanes
86th St North	20th West Ave to Cincinnati Ave	2 Lanes
86th St North	Peoria to US-75	4 Lanes
91st St South	Delaware Ave to Memorial Drive	4 Lanes
91st St South	Elwood Ave to Peoria Ave/Elm St	4 Lanes
91st St South	Garnett to 193rd E Ave	4 Lanes
91st St South	Memorial Dr to Mingo Rd	4 Lanes
91st St South	Union Ave to Elwood Ave	4 Lanes
96th St North	Memorial Dr to Garnett Rd	4 Lanes
96th St North	129th East Ave to 145th East Ave	4 Lanes
96th St South	New Sapulpa Rd to SH-66	4 Lanes
101st St South	Riverside Drive to 161st East Ave	4 Lanes
101st St South	177th to SH-51	4 Lanes
106th St North	Garnett Road to 145th East Ave	4 Lanes
111th St South	33rd W Ave to Peoria Ave	4 Lanes
111th St South	Yale Ave to Garnett Rd	4 Lanes
116th St North	US-75 to US-169	4 Lanes
121st St South	Memorial Drive to 145th E Ave	4 Lanes
121st St South	161st E Ave to 305th East Ave	4 Lanes
121st St South	Riverside Dr to Sheridan Rd	4 Lanes
129th East Ave	51 Street S to 71st Street S	4 Lanes
129th W Ave	41st St South to 51st St South	4 Lanes
129th E Ave	71st St South to 121st St South	4 Lanes
129th East Ave	96th St North to 116th St North	4 Lanes
131st St South	Peoria Ave/Elm St to Yale Pl	4 Lanes
131st St South	Riverside Ave to Sheridan Rd	4 Lanes
131st Street Bridge - Arkansas River	131st Street South & Riverside Dr	4 Lanes
141st St South	193rd East Ave to SH-51	4 Lanes
141st St South	Elwood Ave to Peoria Ave/Elm St	4 Lanes
141st St South	33rd West Ave to US-75	4 Lanes
141st St South	Fern St to Elwood Ave	4 Lanes
145th East Ave	106th St North to 116th St North	4 Lanes
145th East Ave	121st St South to 131st St South	4 Lanes
145th East Ave	41st St South to 71st St South	6 Lanes
145th East Ave	I-44 to 41st St South	4 Lanes
145th East Ave	66th St North to 71st St North	2 Lanes
145th East Ave	76th St North to 86th St N	4 Lanes
145th East Ave	86th St N to 106th St N	4 Lanes
161st East Ave	Admiral Pl to Tiger Switch Rd	4 Lanes
161st E Ave	121st St South to 131st St South	4 Lanes
161st East Ave	21st St South to 41st St South	4 Lanes
161st East Ave	66th St North to 76th St North	4 Lanes
177th East Ave	41st St South to 51st St South	4 Lanes
177th East Ave	81st St South to 91st St South	4 Lanes
177th East Ave	91st St South to 101st St South	4 Lanes
177th East Ave	SH-266 to 66th St North	2 Lanes
193rd East Ave	I-44 to 61st St South	4 Lanes
193rd East Ave	71st St South to 101st St South	4 Lanes
193rd East Ave	Creek Tpke to 121st St South	4 Lanes
241st East Ave	101st St South to 141st St South	4 Lanes
273rd East Ave	71st St South to SH-51	4 Lanes
A Street	5th Street to Main St (Jenks)	4 Lanes

Appendix B: List of Capital Improvements - Roadways (continued)

Adams Rd	10th St South to 12th St South	4 Lanes
Admiral Pl	145th East Ave to Creek Turnpike	4 Lanes
Admiral Pl	Garnett Rd to 129th East Ave	4 Lanes
Apache St	41st West Ave to Osage Dr	4 Lanes
Cherokee St	193rd E Ave to Denbo St	4 Lanes
Delaware Ave	81st St South to 91st St South	4 Lanes
Elwood Ave	71st St South to 151st St South	4 Lanes
Frankoma Rd	96th St South to SH-66	4 Lanes
Garnett Rd	11th St South to Pine St	4 Lanes
Garnett Rd	91st St South to 111th St South	4 Lanes
Garnett Rd	106th St North to 116th St North	4 Lanes
Garnett Rd	Pine St to 36th St N	4 Lanes
Harvard Ave	61st St South to 71st St South	4 Lanes
Harvard Ave	71st St South to 91st St South	4 Lanes
Harvard Ave	91st St South to 101st St South	2 Lanes
Hickory St	Line St to SH-117/Taft Ave	4 Lanes
Kimberly Clark Pl/Sandusky	131st - 151st St South	4 Lanes
Lewis Ave	81st St South to 91st St S	4 Lanes
Line Ave	Hickory Street to SH-66	4 Lanes
Main St Jenks	Peoria Ave/Elm St to A St	4 Lanes
Memorial Dr	111th St S to 151st Street S	6 Lanes
Memorial Dr	161st St South to Mingo Rd	4 Lanes
Memorial Dr	I-44 to Creek Turnpike	6 Lanes
Mingo Rd	81st St South to 91st St South	4 Lanes
Mingo Rd	21st St South to 41st St South	4 Lanes
Mingo Rd	Admiral Pl to 11th St South	4 Lanes
Mingo Rd	Creek Tpke to 121st St South	4 Lanes
Peoria Ave/Elm St	91st St S to 96th St S	4 Lanes
Peoria Ave/Elm St	111th St S to 121st St South	4 Lanes
Peoria Ave/Elm St	121st St South to 151st St S	4 Lanes
Peoria Ave	61st St South to 71st St South	4 Lanes
Pine St	Mingo Road to SH-66	4 Lanes
Pine St	25th West Ave (Gilcrease Museum Rd) to Union Ave	4 Lanes
Pine St	Memorial Dr to Mingo Rd	4 Lanes
Port Rd Extension	SH-11 to Sheridan Rd	4 Lanes
Riverside Dr	101st St South to 121st St South	4 Lanes
Riverside Dr	I-44 to 101st St South	6 Lanes
Riverside Dr	121st St South to 131st St South	4 Lanes
Sheridan Rd	Apache St to 36th St North	4 Lanes
Sheridan Rd	121st Street South to 131st Street South	4 Lanes
Sheridan Rd	81st St South to 101st St S	4 Lanes
Union Ave	51st St South to 96th St South	4 Lanes
Wekiwa Rd	SH-97 to 129th West Ave	4 Lanes
Whirlpool Dr	66th St N to 76th St N	4 Lanes
Yale Ave	101st St South to 121st St South	4 Lanes
Yale Ave	US-64/SH-51 (Broken Arrow Exp) to I-44	6 Lanes
Yale Ave	Dawson Rd to Apache St	4 Lanes

Expressway	Segment	Lanes
I-244	Garnett Rd to 145th E Ave	6 Lanes
I-244	I-44 to US-75 South	6 Lanes
I-44	I-244 to US-75 South (Arkansas River)	6 Lanes

Appendix B:
List of Capital Improvements - Roadways *(continued)*

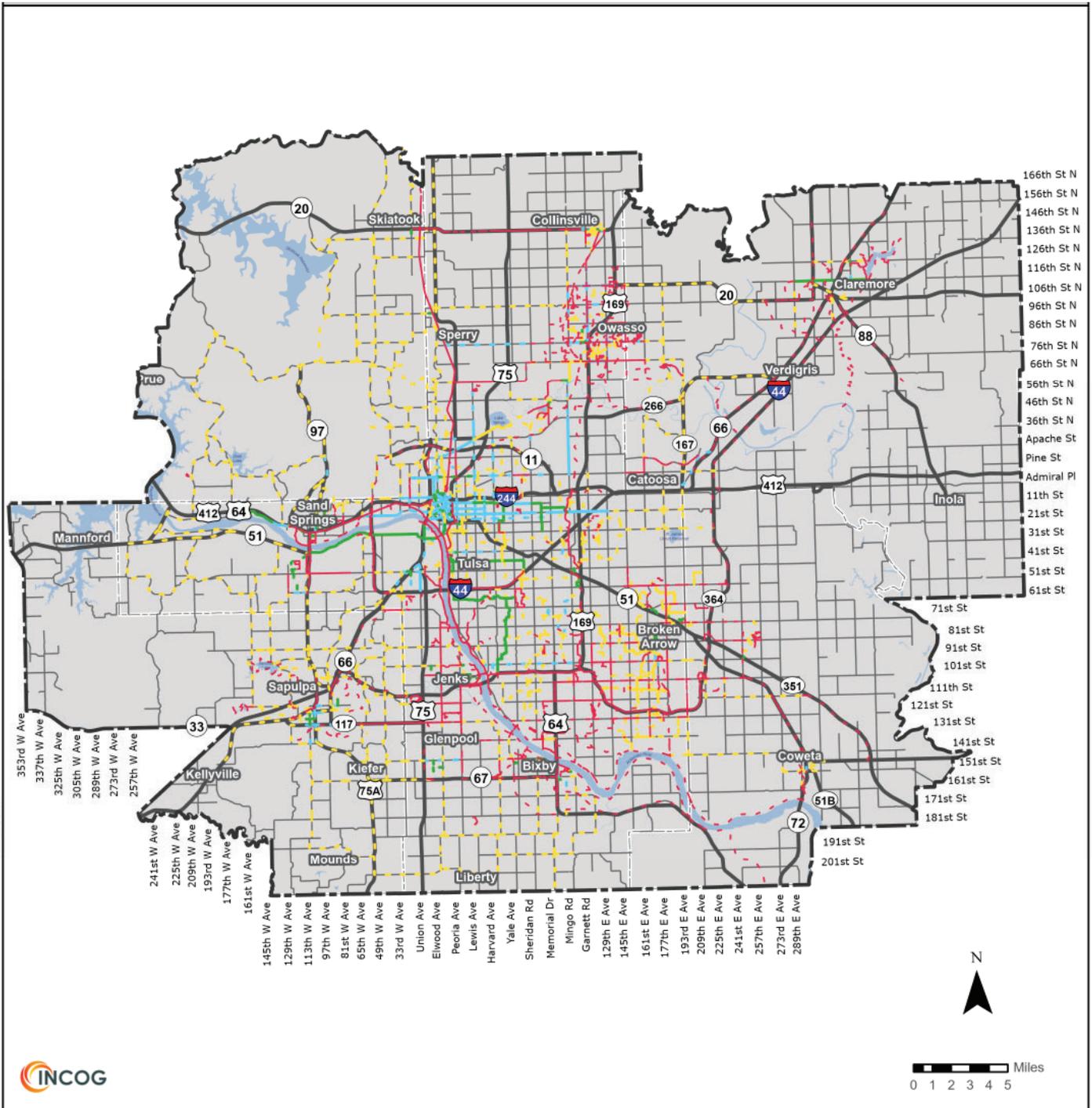
US-169	I-244 to 71st St South	8 Lanes
US-169	66th St North to 116th St North	6 Lanes
US-169	91st St South to Memorial Drive	6 Lanes
US-412	SH-66 to Creek Turnpike	6 Lanes
US-75	I-244 to SH-67	6 Lanes
US-75	36th St North to 86th St North	6 Lanes

Grade Separated Interchanges

- BA Expressway & US-169 S
- I-44 & BA Expressway
- I-44 & US-169
- US-412/SH-66/I-44
- US-75 & 141st Street Interchange

Turnpike	Segment	Lanes
Gilcrease North West Expressway	US-412 to LL Tisdale Ave as a Turnpike	4 Lanes
Muskogee Turnpike Interchange	Muskogee Turnpike and 101st St/273rd East Ave Interchange	
Will Rogers Turnpike	US-412 to SH-20	6 Lanes

Appendix C: GO Plan – Bicycle/Pedestrian Improvements Map



Path: G:\Mapping\INCOG Divisions\Transportation\LRTIP\2050\working_map\LRTIP_2050_Working_Typrpx. Saved: 10/27/2022 8:06 AM



Legend

GO Plan Recommendations

- Bike Lane/Buffered Bike Lane
- Cycle Track
- Priority Shared Lane/Sharrow
- Signed Route
- Sidepath/Trail

Existing Facility

- Bike Lane/Buffered Bike Lane
- Sharrow
- Signed Route
- Paved Trail

Downtown Inset





2 West Second Street, Suite 800
Tulsa, OK 74103
(918) 584-7526
www.incog.org