Chapter 8 Long Range Plan Development

Introduction

This chapter identifies plan recommendations that enhance Oklahoma's intermodal transportation system, take advantage of the State's comparative logistics advantages, and support the State's economy and opportunities for economic development.

Recommendations have been developed for each mode and these recognize the connections between the various modes. The strategies herein are described in the context of a policy framework, in which strategies flow from a specific recommendation.

The recommendations and strategies are intended to maximize the potential for short- and long-term economic growth. They demonstrate the State's commitment to partnering with the private sector in promoting economic development through strong transportation planning and infrastructure development.

The recommendations are listed by mode in **Table 8-1** and are consistent with the overall policy framework presented in Chapter 3. The subsequent sections describe recent accomplishments and challenges by mode, followed by 2035 Plan recommendations and strategies. The strategies explain methods that will be used to implement the recommendations.

Table 8-1. Recommendations by Mode

Highway	• Improve safety by replacing or rehabilitating structurally deficient and functionally obsolete bridges on the State Highway system. • Preserve and improve the condition of roads and bridges by fully implementing asset management systems. • Improve highway safety through implementation of system-level strategies. • Improve operational performance on priority highway corridors through strategic targeted improvements. • Improve operational performance of highways through increased use of traveler information systems. • Improve commercial vehicle operations on highways through increased use of electronic/automated routing, screening, and permitting.
Freight Rail	• Improve rail operations through targeted improvements of rail lines. • Preserve and improve rail conditions and operations through adoption of a comprehensive State Rail Plan. • Improve safety by upgrading at-grade highway/rail crossings. • Protect our investment in the rail system by seeking and developing state funding sources for rail improvements. • Improve rail-highway-port connections to facilitate intermodal freight movement.
Passenger Rail	• Promote selected expansion of Amtrak passenger rail service to provide people with multi-modal options for intercity travel. • Improve passenger rail as a modal choice through development of the designated High-Speed Rail Corridor in Oklahoma. • Improve travel time, safety, and reliability of passenger rail through strategic improvements to rail lines and highway/rail at-grade crossings. • Increase intermodal choices by improved connections at passenger rail stations with intercity bus services, public transportation, and park-and-ride facilities.

Table 8-1. Recommendations by Mode (continued)

Public Transportation	• Improve public transportation system operation and performance by promoting connections among rural, urban, tribal, and intercity bus services. • Support multiple modes of transportation among residential areas and employment locations, health services, and other activity centers. • Protect our investment in the public transportation system by seeking dedicated funding sources for public transportation. • Enhance modal choice by identifying and improving intermodal connection points for travel by public transportation, intercity bus, passenger rail, and automobile. • Develop a Statewide Public Transportation Plan that identifies and targets opportunities for strategic improvements to services.
Waterways and Ports	• Protect our investment in the McClellan-Kerr Arkansas River Navigation System (MKARNS) by seeking increased Federal funding for maintenance and improvements, including the deepening of the river channel. • Enhance intermodal connectivity by targeting improvements to truck corridors and railroads which provide access to MKARNS ports. • Facilitate modal choices for goods movement and provide a sustainable budget for marketing and development of Oklahoma ports and waterways.
Aviation	• Improve intermodal freight connectivity through development of new air cargo hub facilities. • Protect our investment in the aviation system by seeking and developing state funding sources for aviation improvements. • Improve intermodal choices through improved connection to public transportation, intercity bus, and passenger rail at airport terminals.
Bicycle and Pedestrian Transportation	• Establish a vision for promoting modal choices for individuals who prefer, or need, an alternative to a motorized vehicle. • Improve safety by incorporating pedestrian and bicyclist facilities when highway and street improvements are made. • Incorporate bicycle and pedestrian facilities at all intermodal connection points.
Multi-Modal Transportation	• Protect our investment in transportation by seeking to establish new and/or dedicated funding mechanisms for all modal systems. • Improve efficiency, economic vitality, and intermodal connectivity by developing a comprehensive multi-modal Freight Plan. • Promote personal travel modal choice by improving intermodal connectivity for public transportation, intercity bus, passenger rail, airports, automobile, bicycle, and walking. • Protect the environment by promoting clean fuels and energy conservation practices within the agency and to the traveling public. • Improve security through adoption of emergency preparedness protocols for managing natural and man-made threats to human resources, transportation capital assets, and information.

Highway

Oklahoma has made system preservation a priority because of the importance of the highway system for providing mobility and enhancing commerce. The country, as a whole, shares this priority of system preservation; specifically, one of USDOT's draft strategic planning goals is to maintain its critical transportation infrastructure in a "state of good repair." As no national definition exists for a "state of good repair," conditions are assessed[1] on a mode-by-mode and a state-by-state basis.

Preserving existing pavements and bridges, particularly those on the National Highway System (NHS), including the interstate system, is critical to the system's cost effectiveness and sound operations. Increasing volumes of freight traffic are notable because of their utilization of the highway system for commerce and efficiency and because of the added wear and tear caused by trucks.

ODOT has made great progress toward meeting goals established in the previous Long Range Plan. As reported by ODOT in May 2010, there were 796 structurally deficient and 600 functionally obsolete bridges in the state system. There are also-load posted bridges on the State's US and State Highways. The reduction in the number of load-posted bridges on the Oklahoma system from 151 in 2005 to 40 in 2010 is a considerable achievement. A significant investment has also been made in the US 70 and US 54 Corridors, both part of the State's Transportation Improvement Corridor program. ODOT will continue its efforts to provide a safe, well-managed highway and bridge system, as evidenced in the following Plan recommendations.

Traffic on Oklahoma's major highways has increased dramatically in the past 20 years and is expected to continue to compound in the foreseeable future. In 2009, the State's roadways with more than two lanes registered 46 million vehicle miles of travel daily. Improvements to these highways are often ODOT's most expensive projects, but also yield high returns and have an immediate impact on regional traffic patterns. Over 211 miles of interstate pavement have been rehabilitated or reconstructed since 2003 and an additional 90 miles are included in ODOT's *2011–2018 8-Year Construction Work Plan.*

Roadway collisions where vehicles cross over into an oncoming lane of traffic have the greatest potential for dangerous consequences on high-volume, high-speed roads. The installation of median barriers minimizes the opportunity for such accidents. A before-and-after analysis of 50 miles of roadway where cable barriers were installed over the past decade revealed an 84-percent decrease in crashes (63 before, 10 after) and a 94-percent decrease in fatalities (18 before, one after). A total of four years of data (two years before cable barrier installation, two years after) were reviewed in the ODOT study.

Oklahoma's rural nature and historically agricultural-based economy has witnessed the conversion of many farm-to-market roads and bridges into highways. While these roads were ideal for transporting livestock and crops to market 70 years ago, they are less than adequate for supporting today's heavier trucks, meeting increased traffic demands, and accommodating higher operating speeds. Almost 4,700 miles of Oklahoma highways are rural, two-lane facilities without shoulders. The *2011–2018 Construction Work Plan* addresses the challenge of improving safety and increasing mobility on these roads; over the next eight years, the Work Plan shows 485 miles of shoulder and roadway improvements to two-lane highways without paved shoulders.

Highway Modal Recommendations

Highway Recommendation #1

Improve safety by replacing or rehabilitating structurally deficient and functionally obsolete bridges on the State Highway system.

- Continue an aggressive schedule for replacing load-posted bridges on the State Highway System.
- Pursue methods of rehabilitating and replacing fracture-critical, including truss-style, bridges.
- Develop a programmatic approach to identify and address potential preservation issues on noteworthy historic bridges, including, but not limited to, truss-style bridges, working collaboratively with community partners.

Highway Recommendation #2

Preserve and improve the condition of roads and bridges by fully implementing asset management systems.

- Further develop the State's Bridge Management System (PONTIS). Utilize data from the Bridge Management System to highlight specific areas requiring action in relation to safety, maintenance, and reconstruction or expansion.
- Utilize the bridge rating system as a tool to identify marginally sufficient structures, and incorporate them into the Bridge Maintenance Program.
- Utilize the Pavement Management System and Maintenance Management System as tools to develop a short-, medium-, and long-term pavement preservation program.
- Assess the impact that increased truck size, weight, and axle configurations will have on highway system capacities.

Highway Recommendation #3

Improve highway safety through implementation of system-level strategies.

- Add shoulders on two-lane rural highways with high accident rates.
- Install median barriers to higher-volume divided highways experiencing crossover collisions.
- Improve safety of roadway infrastructure though implementation of proven approaches outlined in the Oklahoma Strategic Highway Safety Plan (September 2007).
- Promote system operational strategies to reduce the negative impact of congestion-causing incidents on transportation systems. This includes effective traffic incident management, traveler information systems, corridor management, and technologies to manage safety in work zones, among others.

Highway Recommendation #4

Improve operational performance on priority highway corridors through strategic targeted improvements.

Since 1995, the Long Range Plan defined three types of highway corridors: Transportation Improvement Corridors, Freight Operation Improvement Corridors, and National (Highway System) High Priority Corridors. The current Plan continues this practice.

- Make targeted investments on the State's priority highways to accommodate traffic growth and truck routes.
- Evaluate State Highways that are a part of the National Network for Conventional Combination Trucks and make selected improvements to strengthen system safety and efficiency for truck operations.

Highway Recommendation #5

Improve operational performance of highways through increased use of traveler information systems.

A wide range of communication tools are now available to reach users more effectively and provide highly reliable and current information with a relatively low investment. These resources offer greater opportunities for promoting mobility, reliability, safety, and economic viability to the State's commuters, travelers, and freight haulers.

- Expand the utilization of internet-based systems and emerging technologies for managing traveler information and user notifications.
- Improve ITS communication and the use of variable highway message signs to inform motorists of congestion, bottlenecks, and workzones.

Highway Recommendation #6

Improve commercial vehicle operations on highways through increased use of electronic/ automated routing, screening, and permitting.

- Automate and expand electronic commerce for commercial vehicle transactions. A web-based automated permitting and routing system for oversize, overweight vehicles is currently under development. The Oklahoma Permitting and Routing Optimization System (OKie PROS) will use integrated GIS data and maps, along with real-time information, to provide assistance to oversize, overweight commercial motor vehicle users for making safe and efficient route choices.
- Continue development of Ports of Entry—technology-based commercial motor vehicle weigh and credential screening stations located at major highway entry points to the State. Oklahoma's Ports of Entry data is a part of the nationwide Commercial Vehicle Information System Network (CVISN) electronic framework established by Federal Motor Carrier Safety Administration, the States, and motor carriers to address safety, screening, and credentials administration.

Freight Rail

Since 2005, the major railroads have invested over $34 billion for system maintenance and capacity upgrades nationwide. While freight demand forecasts nearly double by 2035, from 19.3 billion tons in 2007 to 37.2 billion tons in 2035, the railroads should be generally prepared to handle the growth by investing about $5 billion annually. Industry estimates place capacity investment needs between $121 billion and $143 billion for new bridges, tracks, etc. This excludes the regular maintenance and replacement costs.[2]

However, many of the U.S.'s most important freight lines will be asked to share the same network with passenger rail when both freight and passenger rail frequencies increase. Thus, capacity challenges will emerge on specific operating segments, including some of Oklahoma's current rail lines.

Rail freight infrastructure and services contribute to Oklahoma's economic vitality in the following ways:

- Shipping costs for bulk transportation users and intermodal users are reduced by providing competition to truck freight.
- Service by three Class I railroads provides increased competition in the State.
- Short lines or regional railroads preserve service on branch lines and offer excellent service to customers and serve as collectors for Class I railroads.
- Freight movement by rail reduces truck traffic on the State's highways.
- Freight rail also reduces emissions since one freight train can replace many trucks to carry the same volume of goods.

Freight railroad safety will continue to be a priority with ODOT. In 2009, Oklahoma ranked 15th nationally for highway-rail grade crossing collisions with 48 crashes. None involved passenger trains.[3]

The following recommendations focus on strengthening the State's rail system, recognizing the key national, regional, and state role it plays in economic competitiveness and safety.

Freight Rail Modal Recommendations

Freight Rail Recommendation #1

Improve rail operations through targeted improvements of rail lines.

- ► Support elimination of bottlenecks both on main lines and classification yards (the multi-track facilities where freight cars are transferred from one engine to another based on their destination) by the Class I railroads.
- ► Support double tracking and signal/operations improvements to meet projected rail traffic increases.
- ► Maintain coordination between government agencies and Class I railroads.
- ► Support upgrades to state-owned Class III track and structures to permit use of 286,000–pound standard rail cars and larger, which in turn will support Class I service and improve service efficiency.
- ► Evaluate the need for rail grade separation improvements as part of planning efforts for Transportation Improvement Corridors.

Freight Rail Recommendation #2

Preserve and improve rail conditions and operations through adoption of a comprehensive State Rail Plan.

- ► Develop the State Rail Plan in accordance with Federal Railroad Administration (FRA) guidelines. The Plan will allow the State to qualify for future Federal funds through the FRA.

- Identify branch lines at risk of abandonment of rail freight service and establish priorities for lines to be preserved through State or other intervention as part of the State Rail Plan.

Freight Rail Recommendation #3

Improve safety by upgrading at-grade highway/ rail crossings.

- Update the existing rail crossing inventory with current rail and highway traffic data and review accident exposure ratings using the FRA safety program.
- Provide technical assistance to local communities planning to improve rail-highway crossing facilities, including roadway surfaces and signal devices.
- Continue efforts to evaluate the consolidation of at-grade crossings to further improve safety.

Freight Rail Recommendation #4

Protect our investment in the rail system by seeking and developing state funding sources for rail improvements.

- Review rail programs of other states and sources of funding for potential application to Oklahoma.
- Develop options for statewide programs to target preservation and upgrading of Class III lines. Consider modifications to fee structure assessed to operators of state-owned lines, request for additional funds from the State, and/or expanding the lease-purchase program.

Freight Rail Recommendation #5

Improve rail-highway-port connections to facilitate intermodal freight movement.

Participate in development of the State Multimodal Freight Plan and identify potential logistics centers, transloading facilities, and other intermodal rail service opportunities. Support the development of multimodal freight corridors that connect major population centers with freight generators and international gateways.

Passenger Rail

Passenger rail can be a very efficient transport mode, but because of the nature of its high capital cost, dense corridors are required to justify the investment. By connecting the largest of Oklahoma's cities with rail connection to major population centers in adjacent states, the efficiencies of rail can be put to work. To gain the travel densities needed, local connections and other collector systems can be developed to serve less dense corridors and form a cohesive regional transportation system.

Oklahoma has been investing in the return of intercity passenger rail since the first Amtrak Heartland Flyer ran between Oklahoma City and Fort Worth, Texas, in June 1999. The State also participated in a study that resulted in Oklahoma's inclusion in the nation's "Vision for High Speed Rail America." The Plan envisions that the Heartland Flyer will continue along the same route; infrastructure upgrades are proposed which will result in service improvements.[4]

The existing Heartland Flyer line between Central Oklahoma and the Dallas-Fort Worth area and the proposed Oklahoma City to Tulsa route are components of the USDOT-designated South Central High Speed Rail Corridor. The Plan supports upgrades to the Oklahoma City to Fort Worth segment, as well as proceeding with construction of the Oklahoma City to Tulsa portion of the route.

Another passenger rail route under considera-tion is the rail corridor from Oklahoma City to Newton, Kansas (near Wichita). Further pursuit of this effort must be closely coordinated with the State of Kansas, BNSF, and Amtrak.

Population densities in many Oklahoma cites would likely not meet the threshold for the capital investment required for rail, but an integrated feeder system using private bus lines and various rural, tribal, and urban transit systems should be explored.

The Plan continues to endorse rail safety and maintain and improve intermodal connections.

Passenger Rail Modal Recommendations

Passenger Rail Recommendation #1

Promote selected expansion of Amtrak passenger rail service to provide people with multi-modal options for intercity travel.

- Cooperate and coordinate with Amtrak, BNSF, and the State of Kansas in expanding passenger rail service by means of an Oklahoma City to Newton or Wichita, Kansas, Amtrak route.

Passenger Rail Recommendation #2

Improve passenger rail as a modal choice through development of the designated High-Speed Rail Corridor in Oklahoma.

- Proceed with planning and engineering activities necessary for high speed rail development between Oklahoma City and Tulsa.
- Improve the existing Amtrak Heartland Flyer line from Oklahoma City to Fort Worth and upgrade to emerging high speed rail standards.

Passenger Rail Recommendation #3

Improve travel time, safety, and reliability of passenger rail through strategic improvements to rail lines and highway/rail at-grade crossings.

- Update the existing rail crossing inventory with current rail and highway traffic data and review accident exposure ratings using the FRA safety program.
- Provide technical assistance to local communities planning to improve rail-highway crossing facilities, including road-way surfaces and signal devices.

- Continue efforts to evaluate the consolidation of at-grade crossings to further improve safety further.
- Collaborate with Amtrak, BNSF, and the State of Texas to evaluate modifications to Amtrak Heartland Flyers schedule and station stops.
- Continue improvements to the Amtrak Heartland Flyer line by encouraging double track construction in selected locations, thus allowing for additional frequency and capacity for the Oklahoma City to Fort Worth service.

Passenger Rail Recommendation #4

Increase intermodal choices by improved connections at passenger rail stations with intercity bus services, public transportation, and park-and-ride facilities.

- Encourage expanded and improved connections to passenger rail stations from rural, tribal, and urban public transit, intercity buses, and airport terminals. Coordinate schedules to provide better connections of local and regional public transportation systems and to provide seamless and convenient transportation throughout the State and region. (See related Public Transportation recommendations.)
- Coordinate with urban public transit systems to define and implement formal park-and-ride lot locations adjacent to ODOT and other rights-of-way, where ridership warrants, to enhance passenger rail ridership and efficiencies.

Public Transportation

Over the past decade, national transit ridership has increased and Oklahoma transit ridership has grown as well. Most notably, between the years 2003 and 2008, the ridership on the State's 19 rural (non-tribal) transit systems grew 56 percent.[5] During the same period, urban transit ridership remained stagnant, while revenue miles grew about nine percent.

With the demand for public transportation increasing both to serve the elderly and disabled populations as well as the journey to work and medical related trips, the State conducted the *Oklahoma Transit Needs Assessment* in 2003. Out of Oklahoma's 77 counties, 73 counties are rural, making rural transit an important element to overall statewide public transportation concerns. The total number of rural one-way passenger trips reported for 2002 was 1.9 million trips. The Needs Assessment estimated that the current rural Oklahoma transit system meets 28 per-cent of the State's transit needs, meaning that in 2002, unmet rural transit needs were approximately 6.7 million one-way person trips. This is predicted to grow 1.1 percent annually, to result in over 8.4-million rural unmet trips by 2022.[6] Nationally, transit data indicate that about 25 percent of the bus and rail assets are in marginal or poor condition. The same issues related to aging infrastructure for transit systems—vehicles, transit centers, maintenance garages, transit bus stops, etc.—exist in Oklahoma, adding demand for replacement funding.

Providing for increased public transportation options and bringing the systems' assets to a state of good repair are challenges that the following recommendations seek to address. These measures aim to fortify Oklahoma's existing transit services, while advancing service improvements and efficiencies in locations where current demand may be unmet or underserved.

Public Transportation Modal Recommendations

Public Transportation Recommendation #1

Improve public transportation system operation and performance by promoting connections among rural, urban, tribal, and intercity bus services.

- Expand and improve connections between rural transit systems and intercity bus stops/terminals, urban transit system transfer points, airports, and Amtrak Heartland Flyer stops. (See related Passenger Rail Transportation recommendations.)
- Coordinate with urban public transit systems to define and implement formal park-and-ride lot locations adjacent to ODOT and other rights-of-way, where ridership warrants.
- Implement additional transit services as funds become available.
- Continue collaboration with the University of Oklahoma in development of an electronic database regarding the State's transit service routes and locations.

Public Transportation Recommendation #2

Support multiple modes of transportation and improved accessibility among residential areas and employment locations, health services, and other activity centers.

- Investigate potential for agreements between rural transit systems and health and hospital systems, social service providers, and major employers to expand transit service options.

- Conduct study to identify demand for off-peak transit service for intra- and inter-city bus services.
- Coordinate with health and human service agencies and others to expand paratransit services for special needs populations and individuals with disabilities.

Public Transportation Recommendation #3

Protect our investment in the public transportation system by seeking dedicated funding sources for public transportation.

- Prepare a statewide program of FTA-eligible capital projects and operational needs every three to five years. Identify non-Federal match for FTA-eligible projects.
- Encourage continued cooperation among ODOT and the urban transit systems and appear as one voice to the Oklahoma legislative delegation on FTA funding requests.
- Promote development of dedicated transit funding sources beyond the existing Public Transportation Revolving Fund.

Public Transportation Recommendation #4

Enhance modal choice by identifying and improving intermodal connection points for travel by public transportation, intercity bus, passenger rail, and automobile.

The Oklahoma City and Tulsa metropolitan areas are the major economic engines of the State economy. Together, they comprise about 63 percent of all the State's employment. The vitality of the commercial centers of these cities is critical to the economic health of the metropolitan areas and to the State. Providing safe and convenient access by a variety of transportation modes to and from the metropolitan area businesses, health centers, airports, and other modal and activity centers is integral to maintaining the State's economy.

- Monitor existing and estimate future passenger travel demand for Oklahoma City to Tulsa travelers. Continue examination of options, including bus, intercity rail, etc., in coordination with passenger rail efforts.
- Identify demand for intercity/commuter connections between midsize cities and between cities and Oklahoma City and Tulsa.

Public Transportation Recommendation #5

Develop a Statewide Public Transportation Plan that identifies and targets opportunities for strategic improvements to services.

- Conduct planning study to analyze statewide transit network with recommendations for improvements to existing service as well as locations for new services. Utilize data from surveys regularly completed by Oklahoma City Metro Transit, Tulsa Transit, and CART (Cleveland Area Rapid Transit) in the Norman area.
- Encourage Lawton Area Transit Service and rural transit operators to undertake regular surveys of their users to assess trends, travel patterns, needs, desires, etc.
- Support efforts by metropolitan areas and other sub-state regions to evaluate public transit needs and plan for future service between substate regions and cities.

Waterways and Ports

The U.S. maritime system carries over 75 percent of goods by volume and 48 percent of goods by value traded globally. The system carries goods to and from ports along some 25,000 inland, intra-coastal and coastal waterways, of which the McClellan-Kerr Arkansas River Navigation System (MKARNS) makes up 445 miles of the system. Forty-two countries trade with the MKARNS, making it the State's gateway to goods import and export. The Panama Canal expansion will likely increase demand on the MKARNS as well as overall global trade growth.

Not only do the U.S. seaports support global trade, but they do so efficiently, saving significant amounts of fuel. For a comparison, one gallon of fuel carries a ton of goods 5,765 miles by barge, 413 miles by rail, and 155 miles by semi-truck. The EPA estimates that towboats emit 35 to 60 percent fewer pollutants than locomotives and trucks.

Within Oklahoma, waterborne commerce carried over 3.8 million tons with a value exceeding $2 billion in 2008. Oklahoma's ports and terminals provide loading and off-loading services to an average 2,000 commercial semi-trucks daily. Intermodal connections, such as rail to barge, truck to port movements, especially adjacent to Oklahoma's ports, are critical.

The strength of Oklahoma's waterways sets the State apart from other areas by providing greater options for the shipping and distribution of goods. However, waterways often do not receive the necessary attention and funding to utilize the waterways fully. The following recommendations seek to strengthen access to meet economic and security needs.

Waterways and Ports Modal Recommendations

Waterways and Ports Recommendation #1

Protect our investment in the McClellan-Kerr Arkansas River Navigation System (MKARNS) by seeking increased Federal funding for maintenance and improvements, including the deepening of the river channel.

- Continue to work with State and local officials, as they advocate for funding for the deepening of the McClellan-Kerr Arkansas River Navigation System.
- Continue cooperation with the State of Arkansas to secure Federal funding for the waterway system.

Waterways and Ports Recommendation #2

Enhance intermodal connectivity by targeting improvements to truck corridors and railroads which provide access to MKARNS ports.

- Work collaboratively with the Port of Catoosa and other stakeholders to address issues related to transporting "high, wide, and heavy" loads to and from the Port. (Connections are needed to surrounding states.) Develop criteria and a process for deciding on highway routes to handle port-related freight. Subsequently, improve structures and pavement on routes to accommodate oversize vehicles.
- Participate in development of the *State Multimodal Freight Plan* and identify potential transloading facilities and other intermodal service opportunities.

Waterways and Ports Recommendation #3

Facilitate modal choices for goods movement and provide a sustainable budget for marketing and development of Oklahoma ports and waterways.

- Seek partnerships with private sector user groups, economic development associations, and other public entities to support promotion of the Oklahoma waterways network.

Aviation

Air transportation plays an important role in economic competitiveness; it affects manufacturing supply chains, tourism and hospitality markets, and business travel. Domestic and international passenger traffic increased despite the effects of the events of September 11, 2001, energy price increases, and the recent global recession.

The enplanements at Will Rogers World Airport grew by 6.1 percent through 2008 (from 1.74 million to 1.85 million enplanements); while the Tulsa International Airport saw enplanements shrink 7.9 percent over the same timeframe (1.73 million to 1.59 million).[7] Both of these airports, along with other regional and local airports in the State, expect to see slow but steady increases in passenger activity over the coming years.

As the U.S. manufacturing base has been shifting to high-value and high-tech products, the importance of efficiency and reliability in transportation have increased to support just-in-time supply chains. Airport freight services are integral to the freight supply chain. The State experienced a slump in air cargo activity in the first part of the decade after 2001. However, because of growth in high-value industries (e.g., electronics), air cargo volume in Oklahoma is expected to grow over two percent per year over the forecast period.

The following recommendations support development of the passenger and freight aviation linkages. These address the intermodal and transshipment opportunities within the State and illustrate the need for additional funding for aviation in Oklahoma.

Aviation Modal Recommendations

Aviation Recommendation #1

Improve intermodal connectivity through development of new air cargo hub facilities.

- Coordinate with metropolitan planning organizations, chambers of commerce, Oklahoma Trucking Association, defense installations, Oklahoma airport operators, and other stakeholders to determine the lead agency and initiate a study to identify potential locations and types of commodities that would reap highest benefits from transshipment center(s) within Oklahoma. The study should consider various interfaces for freight, including rail, commercial motor vehicles, and waterways.

Aviation Recommendation #2

Protect our investment in the aviation system by seeking and developing state funding sources for aviation improvements.

- Conduct a study to compare Oklahoma's method of providing state aviation funding with that of other similar sized and surrounding states. The study could also include development of methodologies to prioritize projects as candidates for funding.
- Use aviation funding study results to define potential new and additional revenue sources to increase state aviation funding participation. Also develop guidelines to allow airport operators to apply for grants and obtain funding.

Aviation Recommendation #3

Improve intermodal choices through improved connection to public transportation, intercity bus, and passenger rail at airport terminals.

- Coordinate with local stakeholders and public transportation providers to expand and improve connections to airport terminals from rural and urban public transit, intercity buses, and passenger rail stations.

Bicycle and Pedestrian Transportation

Planning and designing streets with all users in mind improves pedestrian, bicyclist, and motorist safety and use. Bicycle and pedestrian infrastructure contributes to the economic vitality of a community, region, or state in the following ways:

- Improves conditions for all transportation users by keeping bicyclists and pedestrians safer, thereby reducing the costs of emergency response, health care, and lost productivity.[8]
- Reduces the need for transportation users to rely solely on motorized vehicles for transportation needs, thereby reducing air, noise and water quality pollution; improving congestion; saving on individual transportation costs and government transportation investments; and improving health.
- Assists local communities with infrastructure and education grants that help students bicycle and walk to school safely through Safe Routes to Schools, a Federal program.[9] This program helps to reduce the reliance on motorized transportation modes, with health, environmental, financial, and mobility benefits.

Bicycle and Pedestrian Modal Recommendations

Bicycle and Pedestrian Recommendation #1

Establish a vision for promoting modal choices for individuals who prefer, or need, an alternative to a motorized vehicle.

- ► Continue to pursue opportunities to bring State highways in small rural communities into compliance with the Americans with Disabilities Act.
- ► Incorporate bicycle facility design standards into the next version of the ODOT *Roadway Design Manual.*
- ► Encourage local communities that are planning or constructing new facilities for pedestrians and bicyclists to seek technical support from the State's bicycle and pedestrian coordinator.
- ► Assess and respond to needs for pedestrian and bicycle infrastructure on or adjacent to state routes concurrent with related street and highway improvements when implementing improvement projects on the State Highway system.
- ► Develop a statewide bicycle plan that builds and expands upon the work of the State's Metropolitan Planning Organizations.

Bicycle and Pedestrian Recommendation #2

Improve safety by incorporating pedestrian and bicyclist facilities when highway and street improvements are made.

- ► Provide pedestrian signals, warning beacons, signage, striping and lighting at intersections of state routes with high-volume pedestrian crossings.
- ► Promote statewide and local-area education programs to make transportation users aware of pedestrian and bicyclist rights and responsibilities.
- ► Continue to promote safe walking and bicycling facilities on public rights of way through the Safe Routes to School program.

Bicycle and Pedestrian Recommendation #3

Incorporate bicycle and pedestrian facilities at all intermodal connection points.

- ► Support inclusion of bicycle facilities into new and renovated intermodal facilities, such as train depots, bus terminals, etc.
- ► Support efforts by local governments, public transit providers, passenger rail systems, and others to expand and improve bicycle ways and walkway connections to passenger travel stations and stops.

Multi-Modal Transportation

Since the early 1990s, the U.S. Department of Transportation has focused on efforts to encourage communication and coordination among various transportation modes. Thus, use of the words intermodal and multimodal have become a larger part of the transportation planning vocabulary. Many types of transportation require an interface between modes. For example, on a trip from home to work, an individual will use the walk/pedestrian mode, may drive a car to a park-and-ride location, and then take a bus. In addition, some topics are of vital concern to all modes. For example, funding and environmental issues affect many, if not all, transportation project development.

Thus, this multi-modal section addresses issues that overlap or affect several modes, as well as themes that are important to many modes.

According to the United States Census Bureau, the country's population will increase by over 26 percent between 2010 and 2035. The nation's gross domestic product will almost double during this 25-year period. Based on studies completed in 2009 by the National Surface Transportation Policy and Revenue Commission, the combined impact of freight and population growth will result in a 65-percent increase in the number of autos and trucks on the highway system between 2010 and 2035.

The following recommendations reinforce the key role that Oklahoma's transportation system plays with state and national economic competitiveness. The multimodal concepts acknowledge the importance of developing a diverse transportation system that offers the traveling public and businesses competitive, safe, convenient, affordable, and environmentally responsible transportation choices.

These multi-modal measures focus on maintaining the system in a "state of good repair" while also recognizing the fiscal challenges facing the Federal and State programs with current dedicated revenue sources inadequate to sustain current spending limits.

The Plan focuses on connectivity and safety among all of the modes: highways to railroads to ports; pedestrian and bicycle paths to public transit, passenger rail, and airports; and sidewalks and pedestrian paths to various destinations. Many linkages also promote more livable communities. The strategies also recognize the special role the transportation system plays in times of natural disasters and national emergencies.

As energy becomes increasingly expensive, alternative fuels and more energy efficient modes play important roles as do congestion management and traveler information systems. Reducing congestion and arming the traveler with information about mobility options leads to more efficient trips, improved air quality, and fewer greenhouse gas emissions.

Multi-Modal Transportation Recommendations

Multi-Modal Transportation Recommendation #1

Protect our investment in transportation by seeking to establish new and/or dedicated funding mechanisms for all modal systems.

- Develop and maintain information on historical trends and provide this information to State government leaders and the Congressional Delegation to support their search for new funding sources for the State Highway System. Continue to assist government leaders in determining appropriate transportation funding and improvements priorities.
- Support efforts by the Oklahoma Congressional Delegation to obtain discretionary monies for Congressional High Priority Corridors and Freight Operational Improvement Corridors.
- Continue to work with sovereign Native American Tribes and Nations to leverage resources for transportation improvements. Native American Tribes and Nations have been an important partner in providing funds for transportation improvements in the State.
- Cooperate and coordinate with local governments to research possible new funding partnerships for transportation projects of mutual interest. A number of other states are testing innovative funding partnerships with local and regional governments.
- Because of inadequate Highway Trust Fund revenues, explore various alternatives for funding the State's surface transportation program, such as consider weight and vehicle miles travelled for fuel tax; fund transportation capital improvements from the (Federal) general fund; increase car tag fees; index the motor fuel tax to inflation; and charge user fees to provide maintenance funds for freight-related infrastructure.
- Provide information to State government leaders and Oklahoma's Congressional Delegation to assist them in finding additional sources of funding for rural, urban, and tribal transit, passenger and freight rail service improvements, aviation improvements, and waterways improvements.

Multi-Modal Transportation Recommendation #2

Improve efficiency, economic vitality, and inter-modal connectivity by developing a comprehensive multi-modal Freight Plan.

- In recognition of a systems-based approach to freight movement, develop a long-range multimodal Freight Plan for Oklahoma. Within that freight plan, identify a series of goals for multimodal systems integration and communication strategies.
- Support investments to improve linkages between the McClellan-Kerr Arkansas River Navigation System (MKARNS) and the rail and highway systems, particularly rail and intermodal connectors.

Multi-Modal Transportation Recommendation #3

Promote personal travel modal choice by improving intermodal connectivity for public transportation, intercity bus, passenger rail, airports, automobile, bicycle, and walking.

- Identify gaps and opportunities in urban and rural public transportation, intercity bus, passenger rail, airports, automobiles, and bicycle and pedestrian facilities and operations.

- Promote the "Complete Streets" approach for street and highway projects. (A "Complete Streets" approach ensures that roadways are designed and operated with all users in mind, including bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.)[10]

Multi-Modal Transportation Recommendation #4

Protect the environment by promoting clean fuels and energy conservation practices within the agency and to the traveling public.

- Assess current ODOT practices in construction, maintenance, and agency operations to identify areas for potential energy conservation. (This could include installing light emitting diode traffic signals, reducing roadside mowing, using warm-mix asphalt, etc.)
- Focus efforts to assist the travelling public in conserving fuel, such as developing efficient traffic operations, park-and-ride infrastructure, traffic signal optimization, work zone design to minimize idling time, etc.
- Improve air quality by reducing traffic congestion and bottlenecks that result in increased emissions.
- Promote the use of alternative fuels and distribution mechanisms throughout Oklahoma to facilitate the utilization of the State's abundant clean fuels. These cleaner fuels and engine technologies will provide Oklahoma with improved air quality and will promote the development of the State's resources.

Multi-Modal Transportation Recommendation #5

Improve security through adoption of emergency preparedness protocols for managing natural and man-made threats to human resources, transportation capital assets, and information.

- Contribute to the public's safety by coordinating with the State Department of Emergency Management and the U.S. Departments of Homeland Security and Defense to plan for the restoration, and ensure the availability, of transportation services after a disaster and during times of national emergencies.
- Improve the security and resilience of the transportation system, including highways, transit, rail, ports and marine, air cargo, and passenger aviation, through identification of "safety-critical" assets.
- Develop alternate routes and transportation system redundancy to maintain mobility during emergencies or natural disasters.

Conclusion

ODOT will use this Plan to develop and implement programs to enhance the State's multimodal transportation system. This system will provide the traveling public and businesses competitive, safe, convenient, affordable, and environmentally responsible transportation choices. ODOT will work with the elected officials, public, and private stakeholders to ensure the State's transportation network is a high-performing system ensuring economic competitiveness for the next 25 years.

Chapter 8 Endnotes

[1] United States Department of Transportation (USDOT). April 2010. Draft U.S. DOT Strategic Plan: FY2010- FY2015 "Transportation for a New Generation".

[2] Association of American Railroads. June 2008. Railroad Service in Oklahoma. USA.

[3] Federal Railroad Administration. June 2010. Website, (http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Query/stateoverview.aspx). US Department of Transportation, Washington, D.C.

[4] The Oklahoma City Journal Record. August 2008. Heartland Flyer ridership increases between OKC and Fort Worth. Website, (http://journalrecord.com/2008/08/21/heartland-flyer-ridership-increases/).

[5] Oklahoma Department of Transportation (ODOT). December 2003. Oklahoma Transit Needs Assessment. Transit Programs Division.

[6] Oklahoma Department of Transportation (ODOT). December 2003. Oklahoma Transit Needs Assessment. Transit Programs Division.

[7] Federal Aviation Administration. June 2010. Website, (http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/index.cfm?year=all). US Department of Transportation, Washington, D.C.

[8] Oklahoma Department of Public Safety. 2009. Pedestrians in 2008 Crashes Fact Sheet.

[9] Oklahoma Department of Public Safety. 2009. Pedalcyclists in 2008 Crashes Fact Sheet.

[10] Federal Aviation Administration. June 2010. Website, (http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/index.cfm?year=all). US Department of Transportation, Washington, D.C.