6. Mobility Options

North Central Texas is a large, diverse place, and the mobility needs of residents and businesses vary greatly across the region. It is of utmost importance that the transportation system satisfies mobility needs and also provides transportation choices. The primary purpose of the Metropolitan Transportation Plan is to accommodate the multimodal mobility needs of this growing region. Mobility has a significant impact on quality of life. It allows people to live where they want; to access jobs, education, and healthcare; and provides a means to cultural and recreational activities. In addition to quality of life impacts, mobility also influences the regional economic vitality and appeal. The ability to move goods easily from producers to consumers has been a major factor in the growth and prosperity North Central Texas has experienced over the past 40 years.

The following sections discuss mobility options for the North Central Texas region. Full-sized versions of the Mobility 2045 recommendations maps contained within this chapter can be found in appendix E. Mobility Options, along with detailed policy, program, and project recommendations.

**Mobility Options at a Glance**
A variety of transportation options are available to meet the diverse travel demands of the North Central Texas region. These modes work together to move goods, improve mobility, and provide access to, from, and throughout the area.

**Did You Know ...**
... there are 27 airports and 2 military training airfields in the region?
... Dallas-Fort Worth is home to the nation’s largest inland port?
... Mobility 2045 recommends expanding the Regional Veloweb to approximately 1,884 miles?
... Mobility 2045 calls for almost 260 miles of passenger rail?
The Importance of Regional Aviation Planning

As the nation’s largest inland port and its fourth-largest metropolitan area, North Central Texas relies heavily on aviation facilities to sustain growth and economic prosperity. By connecting the region to global markets, aviation facilities provide economic development opportunities, the ability to engage in business activities related to aviation and the movement of cargo, and leisure and tourism opportunities throughout the world. The region’s airports serve as a nonconventional inland port system, providing global access and enhancing the regional economy. Improving and maintaining surface access and land-use compatibility is crucial to preserving the regional system of aviation facilities.

The region has approximately 400 aviation facilities and is home to over 300 aerospace and aviation employers. Collectively, aviation in North Central Texas accounts for over $22 billion in economic impact.

Because of this economic impact, the Regional Transportation Council has a planning goal that landside access should not limit growth at the region’s airports. Ideally, these airports should be able to grow to their airside limit without delays from roadway congestion. This includes intermodal connectors, which provide access for intermodal shipments to airports.

Aviation facilities are vital transportation assets, and to remain competitive, they require coordinated planning, land-use protection, and funding support.

Aviation Policies and Programs

Policies are an important element in the planning and implementation of programs and projects. Mobility 2045 supports the following policies associated with aviation:

AVIATION AT A GLANCE

The goal of regional aviation planning in North Central Texas is to promote, maximize, protect, and advance regional aviation infrastructure to accommodate future growth in the region. Achieving this goal will require integrating transportation connections while ensuring adequate future air and ground access and capacity within the region’s aviation system.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS AVIATION INITIATIVE GOALS

1. Update general aviation and heliport regional plans.
2. Maintain the Air Transportation Advisory Committee.
3. Develop new policies, partnerships, plans, and programs for aviation.
4. Examine the market and timing for:
   - Additional aviation facilities
   - New intercity high-speed rail access to aviation
   - Improvements to reliever, general aviation, and heliport assets
5. Determine needs related to:
   - Long-term airspace demands
   - Maintaining international competitiveness
   - Surface access to and land use around airports/heliports
   - Improving air quality

AIR TRANSPORTATION ADVISORY COMMITTEE

The Air Transportation Advisory Committee is composed of airport managers, city managers, aviation industry representatives, and aviation experts from throughout the region. This committee provides a regional forum for discussing aviation needs related to general aviation and heliports. During the Regional General Aviation and Heliport System Plan process, the Air Transportation Advisory Committee served as the Project Review Committee and performed technical review functions on behalf of the North Central Texas Council of Governments’ Executive Board and Regional Transportation Council on an as needed basis.

Regional aviation planning at the North Central Texas Council of Governments does not address selection of projects for entitlement funding/block grants/Airport Improvement Program funding, airport closures, interference with activities of private commercial pilots, or the performance of air carrier system planning.
AV3-001: Improve efficiency, safety, air quality, and access related to aviation.

AV3-002: Provide input to the National Plan of Integrated Airport Systems and the Texas Airport System Plan.

AV3-003: Encourage compatible land-use planning surrounding airports in the region.

AV3-004: Establish a comprehensive and integrated Aviation Education System in North Central Texas.

AV3-005: Implement operational restrictions and other requirements of Unmanned Aircraft Systems around regionally significant aviation facilities.

Mobility 2045 supports the following programs associated with aviation:

AV2-005: Aviation Surface Access Planning

AV2-006: Data Collection and Performance Tracking

AV2-007: Continuous Aviation System Planning

AV2-009: Encroachment Prevention and Compatible Land-Use Planning

AV2-010: Integrated Aviation Education System

AV2-011: Coordination of Unmanned Aircraft Systems

At the state level, the Texas Airport System Plan (TASP) provides an overview of needed capacity and a statewide aviation activity forecast. Out of more than 1,600 landing facilities in the state, 292 airports meet TASP requirements. TASP provides guidelines that help determine how to maximize the value of public funds and identify capital improvements that best serve the state's aviation needs such as transportation, business, and economic development functions that will benefit Texas.

At the regional level, the Regional General Aviation and Heliport System Plan provides aviation activity forecasts for a specific geography in North Central Texas and will make recommendations about aviation infrastructure that is used regionally by corporate entities, private citizens, and aviation students.

At the local level, each airport will continue to maintain Airport Master Plans and Airport Layout Plans as required by the Federal Aviation Administration.

In addition, as the Metropolitan Planning Organization for the 12-county Dallas-Fort Worth Metropolitan Planning Area, the North Central Texas Council of Governments (NCTCOG) is responsible for providing surface access and services to improve air quality at aviation facilities; for processing data summary requests related to the Airport Improvement Program and Environmental Protection Agency programs; and for monitoring capacity and use at the region’s major airports, including air cargo and foreign trade zone activity.

**Aviation Planning in Context**

Various levels of planning are needed to meet the demands on the region’s airport system. System planning occurs at all levels of government and plays a role in maintaining the region’s airports.

At the federal level, the National Plan of Integrated Airport Systems (NPIAS) provides an overview of national aviation capacity needs and funding requirements. The 2017-2021 NPIAS identifies 3,332 existing and 8 proposed airports of national significance. These airports are eligible for federal funding under the Airport Improvement Program. Twenty-nine of these facilities are located in the 16-county region of North Central Texas.

Aviation Facilities in North Central Texas

The 12-county Metropolitan Planning Area is home to a variety of public and private aviation facilities, including:

- **2 Primary Commercial Service Airports**: Airports that serve the needs of the flying public by hosting scheduled commercial airline service. These include Dallas Fort Worth International Airport and Dallas Love Field.

- **11 Reliever Airports**: Designated by the Federal Aviation Administration to relieve congestion at major commercial aviation locations by diverting general aviation traffic.

- **14 General Aviation Airports**: Designed to meet the needs of corporate aviation, small-scale cargo use, and recreational flight.
Data Collection and Performance Tracking

One of NCTCOG’s roles is to monitor aviation trends at the region’s commercial and air cargo airports. NCTCOG tracks the impact of Unmanned Aircraft Systems and the innovative technologies introduced through the Federal Aviation Administration’s Next Generation Air Transportation System (NextGen). Planning procedures for these technologies should benefit the long-term viability of the aviation system.

Aviation connects North Central Texas to national and global markets. The data shown in the following two graphs (Exhibits 6.1-2 and 6.1-3) illustrate recent trends in passenger and cargo volumes at the region’s major aviation facilities.

Exhibit 6.1-2: Annual Air Passengers Volumes
NCTCOG staff will continue to monitor these volumes and trends in aviation technology to assess infrastructure needs at the regional level.

**Aviation Surface Action Planning**

The mobility of air passengers and cargo is affected by the capacity of airports and surrounding highway and transit systems. Congestion in the air or on the ground can significantly impact air cargo operations and efficiency. National and international trade and travel require a surface transportation network that successfully connects with facilities for air passengers and cargo. The map in Exhibit 6.1-4 displays projected travel times to or from Dallas Fort Worth International Airport. Similar maps for Dallas Love Field and Fort Worth Alliance Airport are located in Appendix E. **Mobility Options.** This analysis was performed based on models for the average peak-period traffic in 2045 and it assumes the recommendations in Mobility 2045 have been constructed.

This analysis fulfills NCTCOG’s role as the region’s Metropolitan Planning Organization. NCTCOG also will inventory specific improvements to the roadways surrounding the region’s aviation facilities. This inventory will be created to assist decision makers in prioritizing and funding these connectors.

**Continuous Aviation System Planning**

NCTCOG also worked with the Federal Aviation Administration to produce a Regional General Aviation and Heliport System Plan for the 16-county NCTCOG region and surrounding areas. This effort updated the regional inventory, developed a system to manage aviation data, and analyzed demand on the current and forecast system. This study explored market demand, system deficiencies, needed improvements, and economic impacts of the regional general aviation and heliport system. NCTCOG coordinated with federal- and state-level planning agencies to ensure that regional priorities are considered in planning and funding decisions at those levels.
This study also addressed potential constraints on regional airspace, including changes to passenger and air cargo activity, changes in business travel, and the influence of new technologies. NCTCOG will coordinate with city officials, the public, and aviation stakeholders to ensure that recommendations are implemented to enhance the regional aviation system.

**Encroachment Prevention and Compatible Land-Use Planning**

As urban development increases, it will be vital for neighboring land use to be compatible with the region’s aviation facilities. The noise associated with airfields makes some land uses incompatible when located in close proximity to aviation facilities. These land uses include housing, schools, offices, and public gathering places. Safety is also a concern, particularly near the ends of the runways. When airport neighbors voice noise and safety concerns, the results can include restrictions on flight schedules, costly modifications by airports, and in extreme cases, political pressure to close airports. Aviation facilities require a high level of public investment; promoting compatible land-use planning and land development controls can protect this investment. This effort will be of particular interest as the region’s population continues to grow.

**Regional Military-Community Planning**

In 2018, the North Central Texas Council of Governments completed work with the Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB), surrounding communities, and other regional military installations to develop a Regional Joint Land Use Study. The study identified strategies to allow military installations and surrounding communities to develop in a compatible manner to ensure that the military presence in North Central Texas is sustained. This Joint Land Use Study follows up on a similar study that focused on NAS Fort Worth JRB and was completed in 2008. At the conclusion of the 2008 study, NAS Fort Worth JRB and surrounding communities created the NAS Fort Worth JRB Regional Coordination Committee (RCC). The RCC is a collaborative effort to ensure that future development near the installation is compatible with current and future operations of the base. The RCC enhances communication and cooperation among the base and local governments. RCC participants identify and solve issues shared among the communities surrounding the installation, including transportation topics such as transit, safety, and infrastructure improvements; emergency preparedness; storm water management; and community education.

**Integrated Aviation Education System**

With a high concentration of aviation and aerospace companies operating in North Texas, it is vital that the industry workforce pipeline is prepared to meet current and future employment demands. According to the Texas Workforce Commission, these employers will need nearly 50,000 highly skilled and trained workers in 2020 to remain competitive in a rapidly evolving global market. Considering the industry’s annual economic impact of over $40 billion, it is imperative that the local workforce is informed, educated, and skilled. NCTCOG’s Aviation Education Initiative, begun in 2009, has emphasized science, technology, engineering, and math courses at Independent School Districts (ISD), community colleges, and universities. By July 2013, about 800 students were enrolled in ISD aviation programs and about 300 students were

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**FACTORS AFFECTING AIRPORT SYSTEM PLANNING**

**Physical Considerations**
Consider the geographical and engineered location of a new airport or of the expansion of an existing airport.

**Operational Considerations**
Evaluate airside and landside access.

**Environmental Considerations**
Take into account regulatory guidelines and mandates, including those addressing air quality, noise, and surrounding land use.

**Economic Considerations**
Evaluate the short- and long-term costs, as well as the source and timing of funding used to facilitate development of the aviation system.

**Socio-Political Considerations**
Ask the public: “Will the idea and development of new projects work for the surrounding community and our region?”
enrolled in college and university aviation programs. Embry Riddle Aeronautical University’s Worldwide Campus announced in 2012 that it would offer bachelor’s and master’s degrees at Alliance Airport, and in 2013, Tarrant County College expanded its Aviation Maintenance program. In 2012, NCTCOG launched NCTaviationcareers.com to provide information about aviation training and careers. Over the next five years, four ISDs implemented aviation/aerospace programs for high school students and there is a new regional aviation maintenance school.

Coordination of Unmanned Aircraft Systems

Technological advances are leading to new uses of unmanned aircraft. Historically used almost exclusively by the military, Unmanned Aircraft Systems (UAS) use has grown in both the public and private sectors. NCTCOG is working with municipalities, first responders, and transportation partners to ensure unmanned and manned aircraft can coexist in the busy skies above North Central Texas. NCTCOG compiled a report, Unmanned Aircraft: Policy, Operations and Local Integration, which serves as a framework for how the agency, with guidance from the Air Transportation Advisory Committee, will approach UAS coordination. With Uber Elevate announcing its goal of making Dallas one of the test hubs for its urban air transportation platform, featuring unmanned helicopter taxi services and the eventualty of last-mile package delivery by UAS, North Central Texas is poised to become a frontrunner in UAS integration.

In addition, the city of Mineral Wells has been utilized as a center of UAS testing in the region. NCTCOG will continue working with its partners and private-sector entities, such as UAS operators or manufacturers, government entities, emergency responders, and others to accelerate safe UAS integration. Through workshops and other outreach efforts, NCTCOG will continue to help facilitate a regional effort that allows UAS technology to realize its potential while ensuring the skies remain safe for traditional aviation activities.

Summary

The goal of the aviation planning efforts in North Central Texas is to promote, maximize, protect, and advance regional aviation infrastructure to accommodate future growth in the region. This goal will be accomplished by collecting data, tracking performance, reviewing and monitoring surface transportation access to aviation facilities, conducting continuous aviation system planning, planning for compatible land use to prevent encroachment, integrating aviation education systems, and coordinating UAS efforts. The policies, programs, and projects discussed in this section are intended to advance the aviation planning activities and coordination efforts within North Central Texas.

New projects, programs, and policies will be developed as needed, and they will enable NCTCOG’s Executive Board and the Regional Transportation Council to continue to support important aviation goals throughout the region.

See appendix E. Mobility Options for a complete listing of policies, programs, projects, and maps related to aviation.
6.2. Freight

Mobility 2045 Supported Goal

Improve the availability of transportation options for people and goods.

Freight Planning

Freight and goods movement are essential to our daily lives. Homes could not be built, fuel could not be delivered, and store shelves could not be filled without freight movement. In Texas, 20 tons per household and 12,700 tons per business of freight were moved in 2016.\(^1\) If freight ceased to move, the effects would be felt within hours.

Freight transportation is a key component in our regional, state, and national economies. Freight-related employment constitutes approximately 20 percent of all regional employment. In 2015, North Central Texas accounted for 30 percent of Texas’ gross domestic product.

The region is the nation’s largest inland port, where freight is moved, transferred, and distributed to destinations across the state and around the world. Four major Interstate Highways criss-cross the region: IH 20, IH 30, IH 45, and IH 35 (including IH 35E and IH 35W branch routes). The region is a national railroad crossroads and a domestic and international air cargo hub, making it a national logistics hub. Ninety-eight percent of the US population can be reached from North Central Texas within 48 hours by truck. The region has one of the most extensive surface and air transportation networks in the world, providing widespread trade opportunities for the more than 600 motor/trucking carriers and almost 100 freight forwarders operating within the region.

As domestic and international freight demand continues to grow, the ability of infrastructure to meet that demand is crucial to the region’s economy and mobility and to the safety of its residents. As such, freight integration is a critical component in the overall transportation planning process. Effective freight planning impacts Transportation Management and Operations, Transportation Safety, Intelligent Transportation Systems, and Air Quality.

\(^1\) Texas Freight Mobility Plan, 11/2/2017, www.movetexasfreight.com

These programs are addressed in the Operational Efficiency and Environmental Considerations chapters.

KEY TERMS

**INTERMODAL TRANSPORTATION:** The use of multiple modes to transport a particular element of freight.

**FIRST/LAST MILE:** Local street and arterial connections to ports and rail yards that are key to the efficiency of the freight system.

**CLASS 1 RAILROADS:** Freight railroads having annual carrier operating revenues of $250 million or more after adjusting for inflation.

**FOREIGN TRADE ZONE:** An area within the US at or near an airport under US Customs control where goods are held duty free pending customs clearance.

Effective freight planning must consider the following five significant freight transportation issues in the North Central Texas region:

- First/last mile connections
- Inadequate infrastructure
- Growing congestion on major regional transportation facilities
- Truck parking
- Safety

To help overcome these freight transportation issues, NCTCOG has multiple regional freight planning goals:

- Seek freight community participation in the planning process.
- Monitor freight traffic through the region to identify potential bottlenecks.
- Improve freight movement efficiency to, from, and within the region.
- Promote safety, mobility, and accessibility.
- Reduce the air quality impacts of freight movements.
- Seamlessly incorporate freight considerations in transportation projects.
- Develop and use a sustainable and reliable funding source for freight programs and projects.
- Develop a regional freight database.
- Improve railroad safety and reliability.

Achievement of these goals will enable NCTCOG to better plan for the needs of freight transportation facilities and the freight sector as a whole.

Freight North Texas is an ongoing planning program led by NCTCOG to enhance the safety, mobility, efficiency, and air quality associated with freight movements within the North Central Texas region. As a part of creating the Freight North Texas Program, in September 2011, NCTCOG staff convened the Regional Freight Advisory Committee, consisting of freight professionals. The Regional Freight Advisory Committee provides guidance to North Central Texas Council of Governments staff and regional policy makers regarding freight activities, and the council also provides strategic product and project review. The guiding document for Freight North Texas is *The North Central Texas Regional Freight System Inventory*, published in May 2013. This document highlights policies, programs, and projects needed to improve freight planning and operations in North Central Texas. Several follow-up studies from the report include:

- Freight Congestion and Delay Study (completed in 2016)
- Regional Truck Parking Study (completed in 2017)
- Land-Use Compatibility Analysis (in progress)
- Economic Impact of Freight on the Region (not yet started)
- Freight Project Evaluation System (not yet started)

Completing these studies will provide a more comprehensive and accurate representation of regional freight and will help to identify and prioritize effective initiatives.

**Texas Freight Mobility Plan**

The Texas Freight Mobility Plan, adopted in late 2017, is the Texas Department of Transportation’s (TxDOT) governing document for freight transportation planning in the state. The plan includes the Texas Multimodal Freight Network and Texas Highway Freight Network. It also assesses the state’s freight transportation assets, goals, policies, and programs. The state, Metropolitan Transportation Organizations, and local governments will all be able to utilize these resources for freight planning. The plan also includes freight-related rail, air cargo, and highway projects that can benefit from federal funding. This freight funding has been established by the Fixing America’s Surface Transportation Act and will be assigned to projects according to their priority as determined by TxDOT. NCTCOG strives to be in harmony with the Texas Freight Mobility Plan and will work with TxDOT on freight projects for the North Central Texas region. For more information on the Texas Freight Mobility Plan, please visit [http://movetexasfreight.com/](http://movetexasfreight.com/).

**Rail Planning**

As a vital part of the nation’s freight network, Texas has over 10,000 miles of freight tracks, the most of any state. Three of the nation’s Class 1 railroads operate within North Central Texas: 1) BNSF Railway, 2) Kansas City Southern, and 3) Union Pacific Railroad. These railroads can be seen in Exhibit 6.2-1. Each of these Class 1 railroads operates at least one intermodal facility in the region. In addition, several short-line railroads have local operations in the region, including the Dallas, Garland & Northeastern Railroad and the Fort Worth & Western Railroad. These rail lines combine to serve all 48 contiguous states, Alaska, Canada, and Mexico, and they work cooperatively with trucking firms and ocean shippers to expedite intermodal freight movements.
Key freight railroad facilities in North Central Texas include:
- BNSF Railway Intermodal and Carload Transportation Center at Alliance
- Kansas City Southern Wylie Intermodal Terminal in Wylie
- Union Pacific Railroad Dallas Intermodal Terminal in Wilmer
- Union Pacific Railroad Mesquite Intermodal Terminal in Mesquite

Rail is an important part of the region's freight system and working with the rail industry to create a more complete freight network is critical. NCTCOG has several policies and programs pertaining to freight rail planning. These include promoting proper land-use planning, encouraging safe and efficient rail crossings, and improving access to the intermodal facilities.

A Regional Rail Study will be conducted by NCTCOG and TxDOT to inventory rail assets, constraints, and safety issues on the rail network. The study also will develop a list of rail enhancements prioritized in the best interest of the North Central Texas region; the enhancements will address current passenger- and freight-rail performance concerns. To improve coordination between regional transit agencies and freight rail carriers, the study will also seek to identify policies, programs, and agency-specific strategies to reduce freight delays and maintain on-time passenger rail service. The study will contain information and project recommendations for the rail system as a whole but will emphasize the integration of passenger and freight rail.

NCTCOG currently has several rail initiatives, including the Railroad Crossing Reliability Partnership Program and the Regional Railroad Crossing Banking Program. These help to create safer and more efficient rail movement in the region.

### Air Cargo Planning

North Central Texas has two major air cargo facilities: 1) Dallas Fort Worth International Airport and 2) Alliance Airport. Alliance is exclusively an air cargo airport. Trucks are the primary method used to transport cargo away from the airports. Although air cargo carries a higher value than the other modes of freight, it does not have as big an impact on the regional freight network as other modes. Air cargo creates less impact because it has a relatively low weight compared with that of truck or rail cargo. Despite this low weight, the location of air cargo terminals and the volume of their goods movement still need to be considered in freight transportation planning. For more information about air cargo in the region, please refer to the Aviation section of this chapter.

### Pipeline Planning

Pipelines and pipeline facilities in the region transport petroleum, natural gas, and other hazardous materials. The oil and natural gas industry is an integral component of the regional economy. NCTCOG tracks the impact of the pipelines on freight transportation networks. Regional commercial pipelines total approximately 16,000 miles, and this network operates mainly below ground.

### Highway Planning

The US transportation system moves a daily average of approximately 54 million tons of freight valued at nearly $48 billion. Most freight in the US is moved via truck. Deregulation of the trucking industry, the passage of the North American Free Trade Agreement, reductions in rail service, and growth
in time-sensitive freight have greatly impacted the number of trucks on the nation’s roadways, including those in North Central Texas.

Truck travel characteristics and routes are continuously monitored and inventoried. This information helps to forecast the impact of proposed transportation planning and infrastructure projects on the movement of freight. Additionally, as more precise data is collected and monitored, models that forecast truck flow may be used to evaluate proposed changes to the transportation system.

Dedicated truck routes are an important component of the regional freight system. Primary and secondary truck routes for the region can be seen in Exhibit 6.2-2. Federal, state, and local governments may establish truck routes as a means to direct freight traffic to minimize congestion for both passenger and freight vehicles. Truck routes also offer designated routes to key freight facilities. Within Central Texas, 96 municipalities have some form of truck route designated by ordinance.

Connecting the region’s freight network to the Federal Highway Administration’s (FHWA) National Highway Freight Network (NHFN) is vital to the region’s freight movement. NCTCOG engaged in developing a Regional Critical Urban Freight Corridor system. The goal was to identify important freight corridors that provide critical connectivity to the state freight network and the NHFN. The Regional Critical Urban Freight Corridor system aligns with Mobility 2045, the Transportation Improvement Program, and the State’s 10-Year Plan.

Critical Urban Freight Corridors (CUFC) are a requirement of the Fixing America’s Surface Transportation Act as part of FHWA’s NHFN. Being a part of the NHFN allows these corridors, which would not normally be on the NHFN, to be eligible for state and federal funding. Twelve corridors were identified and approved by the Regional Transportation Council to submit to TxDOT and FHWA as the current CUFCs. These corridors are illustrated in Exhibit 6.2-3. NCTCOG will work with TxDOT staff every year to ensure the proper roads in the region are identified as CUFCs.

Exhibit 6.2-2: Regional Truck Routes

Exhibit 6.2-3: Current Critical Urban Freight Corridors
The truck lane restrictions proposed in the 2005 Truck Lane Pilot Study and 2009 Truck Lane Restriction Expansion Study are operational along sections of highway segments in Collin, Dallas, Ellis, Parker, Rockwall, and Tarrant counties. Exhibit 6.2-4 illustrates these sections. As portrayed, the majority of the operational truck lane restrictions are in Dallas and Tarrant counties. Exhibit 6.2-4 also illustrates plans for future truck lane restrictions, which will eventually reach Denton County. Combined, these truck lane restrictions are expected to improve highway safety and mobility and the region’s air quality. Exhibit 6.2-5 illustrates the impact of truck lane restrictions on the average speed for vehicles traveling on IH 20 and IH 30.

### Exhibit 6.2-5: Truck Lane Restrictions Impacts

<table>
<thead>
<tr>
<th>Lane</th>
<th>Without Truck Lane Restrictions (Standard Enforcement) mph</th>
<th>With Truck Lane Restrictions (Standard Enforcement) mph</th>
<th>Change in Average Speed mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>71.5</td>
<td>72.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Middle</td>
<td>65.6</td>
<td>66.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Right</td>
<td>60.8</td>
<td>61.3</td>
<td>0.5</td>
</tr>
</tbody>
</table>


The recommendations included in this study provide verifiable data to local, regional, and state agencies and private entities. The recommendations also include opportunities to improve truck parking infrastructure by enhancing existing, and developing additional, truck parking facilities. Increasing the number of viable truck parking spaces would help truck drivers comply with federally mandated regulations, improve safety on roadways, and enhance regional economic development (see Exhibit 6.2-6).

Safety in freight movement, as stated earlier, is a high priority in the goods movement industry and needs to be properly tracked and evaluated on a consistent basis. Freight highway safety in the region is annually tracked by reviewing and analyzing truck-involved crashes. Analysis focuses on the crash location, possible causes, impact on traffic congestion, and potential solutions to improve highway safety involving truck movements. Please see Exhibit 6.2-7) for hotspots related to truck-involved crashes. For more information about safety and the region's transportation system, please see the Transportation System Safety section.
The first/last mile connections are as important to freight movement as are Interstate Highways. Getting goods to and from intermodal facilities, warehouses, and factories on local streets and arterials can be the point of greatest delay. NCTCOG completed the Freight Congestion and Delay Study in 2015. This study examined four focus areas near intermodal facilities and freight-oriented developments. The study’s purpose was to find improvements to the first/last mile connections that would benefit the regional system. The analyses identified several opportunities to improve these critical connections. Study recommendations include:

- Connecting truck routes to facilitate continuous routes in, out, and through the region.
- Improving the geometry of turns along truck routes.
- Improving weight capacity on the roads.
- Improving movement at railroad crossings.

The process and findings of this study can be applied to areas beyond the four focus areas.

Key freight truck facilities in North Central Texas include:
- BNSF Railway Intermodal and Carload Transportation Center at Alliance
- Kansas City Southern Wylie Intermodal Terminal in Wylie
- Union Pacific Railroad Dallas Intermodal Terminal in Wilmer
- Union Pacific Railroad Mesquite Intermodal Terminal in Mesquite
- Dallas Fort Worth International Airport
- Alliance Airport Air Cargo Terminals
- Foreign Trade Zone Number 39: Dallas Fort Worth International Airport; Number 113: Ellis County; Number 168: Dallas-Fort Worth; Number 196: Fort Worth (Alliance)

NCTCOG is aware of the new and emerging technologies that affect freight transportation. These include electronic driver logs, automated vehicles, connected vehicles, and alternative delivery methods. These and other new
technologies will have a sizable impact on the movement of freight. NCTCOG will continue to monitor and incorporate potential impacts of new technologies into the planning process as they emerge. For more information on automated vehicles, see the Transportation Technology chapter.

NCTCOG will continue to monitor the impacts on freight movement that result from major infrastructure projects external to the region, including the Panama Canal Expansion and potential Red River Navigation projects.

**Performance Measures**

Performance measures provide a means to assess how Freight Goals and Policies are being met. Moving Ahead for Progress in the 21st Century Act (MAP-21) focused on safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. To help meet the goals set forth in MAP-21, Metropolitan Planning Organizations were required to establish and report on performance measures.

For freight movements, the MAP-21 performance measure is the Truck Travel Time Reliability Index that measures the reliability of travel times on the Interstate System within the metropolitan area. For more information on this and other federally required performance measures that NCTCOG targets, please see the Performance Measures section of the Regional Performance chapter.

Additional regional freight performance dimensions to track progress include:

- Yearly vehicle classification counts
- Complete (commercial vehicle) freight travel model
- Updated freight transportation facility inventory
- Reduction in annual number of accidents between trucks and non-trucks
- Increased travel speeds for non-truck traffic
- Reduction in accidents/incidents at at-grade railroad crossings
- Reduction in the number of at-grade railroad crossings
- Increased number of truck parking locations
- Reduction of incidents involving hazardous materials
- Improved and increased relationships with the freight community
- Improved attendance at Regional Freight Advisory Committee meetings
- Improved compatible land uses near freight development

**Freight Policies**

Mobility 2040 includes the following policies to guide attainment of freight goals:

**FP3-001**: Foster regional economic activity through safe, efficient, reliable freight movement while educating elected officials and the public regarding freight’s role in the Dallas-Fort Worth region’s economy.

**FP3-002**: Encourage the freight industry to participate in freight system planning and development to improve air quality and delivery time reliability.

**FP3-003**: Identify and maintain regional freight networks to meet business and consumer demand benefiting everyday life.

**FP3-004**: Enhance intermodal freight activity through innovation, facility development, and improved connections to the freight network by requiring local governments to create a dedicated and recurring funding source for projects that enhance freight mobility.

**FP3-005**: Enhance freight-oriented land-use sustainability by requiring local governments to adopt compatible zoning requirements to property adjacent to freight-oriented development land uses.

**FP3-006**: Incorporate technological advancements into the freight system.

**FP3-007**: Improve efficiency by promoting safety, mobility, and accessibility on the freight networks.

**FP3-008**: Monitor freight traffic annually along major corridors and major freight facilities through the creation and maintenance of a regional freight database.

**FP3-009**: Incorporate freight analysis and involve the freight community in the planning process of all transportation projects.

**FP3-0010**: Improve air quality related to freight through adopting local ordinances prohibiting truck engine idling.
FP3-011: Improve railroad safety through public education, innovation, and partnering with local governments to address railroad crossing safety improvements.

FP3-012: Incorporate technological advancements into the regional freight network.

FT3-013: Encourage regional railroads to participate in rail system planning, identifying issues, and the development of integrated operations with local commuter rail agencies.

Freight Programs

Programs are an important element in the planning and implementation of the freight goals and policies. Mobility 2045 supports the following programs associated with freight:

- Data Collection
- Freight System/Network Planning
- Freight Outreach Activities
- Land-Use Planning

Each of these programs contains several parts and initiatives, which are outlined in the section below.

FP2-110: Data Collection

The program’s purpose is to collect data and monitor freight traffic in the region, including:

- Vehicle classification counts and vehicle movements
- Freight Travel Demand Forecasting Model
- Freight transportation facility inventory
- Federal Highway Administration, state, local, and private data sources
- Economic information regarding impact of freight

Data will be collected for the region, and particularly for areas with freight facilities and high freight traffic. Capital improvement needs will be documented as well.

Data will also be used in outreach to elected officials and policy makers to communicate freight’s importance to the region.

FP2-120: Freight System/Network Planning

The planning efforts and studies listed below are part of the Freight System/Network Planning Program:

- **Safety**: Increase public and freight operators' safety through education and projects.
- **Freight Rail**: Continue various regional rail planning efforts, including:
  - Complete the Regional Rail Study and implement recommendations
  - Railroad Crossing Banking Program
  - Railroad Safety Education Program
  - Railroad Crossing Quiet Zone Planning
  - Railroad Crossing Reliability Partnership Program
- **Freight Routes**: Identify, analyze, and improve freight routes, including:
  - Innovative solutions (e.g. truck-only lanes)
  - Develop and keep Critical Urban Freight Corridors up-to-date
  - Bottleneck removal projects
  - New technologies (e.g. automated vehicles)
  - Improve truck parking availability
  - Infrastructure improvements on primary and secondary freight networks and local truck routes
  - First/last mile access improvements
  - Operations improvement on key freight routes
  - Implement projects to enhance network connectivity
- **Hazardous Materials Routing**: Analyze/reevaluate hazardous materials routing to ensure safe movement of hazardous materials, and reevaluate current routes to account for current population and employment data.
FP2-130: Freight Outreach Activities
This program’s purpose is to engage in educational and outreach activities within and outside the freight sector. Outreach participants include professionals in the freight industry, public officials, and the general public. This outreach will increase understanding of freight’s importance to the region and of long-term freight planning for the public, industry professionals, and decision makers.

FP2-330: Land-Use Planning
This program’s purpose is to help ensure compatible land uses are considered near freight development, including:
- Railroad tracks
- Intermodal facilities
- Freight-orientated developments
- Truck routes and other major freight carry roadways
- Truck parking facilities

This program will help create safer and more efficient freight centers.

Summary
Goods are moved, transferred, and distributed from North Central Texas to destinations across the United States and around the world via truck, train, and aircraft. Providing reliable infrastructure and freight planning that integrates multiple modes is crucial to the region’s economy and is vital to the local, state, and national economies and residents’ quality of life. Mobility 2045 recommends a variety of goals, policies, and programs to support the efficient, safe, and reliable movement of freight in North Central Texas.
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6.3. Active Transportation

Mobility 2045 Supported Goals

Improve the availability of transportation options for people and goods.

Support travel efficiency measures and system enhancements targeted at congestion reduction and management.

Ensure all communities are provided access to the regional transportation system and planning process.

Preserve and enhance the natural environment, improve air quality, and promote active lifestyles.

Encourage livable communities which support sustainability and economic vitality.

Ensure adequate maintenance and enhance the safety and reliability of the existing transportation system.

Develop cost-effective projects and programs aimed at reducing the costs associated with constructing, operating, and maintaining the regional transportation system.

Providing Traveler Choice

- All trips less than two miles in length in the urbanized area should have options available to be accomplished by non-motorized or transit modes of travel.
- All roadways in the urbanized area should be designed and constructed to accommodate at least three modes of transportation.
- Roadway projects should implement context-sensitive design approaches compatible with the community and neighborhood in which the roadway is located.

Introduction

Active transportation, or bicycle and pedestrian modes, is an integral component of Mobility 2045. Active transportation offers numerous options to improve the existing transportation system efficiently and cost effectively through a variety of systematic enhancements. Active transportation benefits all road users and creates more livable, safe, cost-efficient communities. The region’s active transportation network is used as a mode of transportation by people of all ages and abilities to walk and bicycle. The network is used for non-recreational trips and a variety of purposes such as traveling to work or school, and as first /last mile connections with transit services, including bus stops and rail stations.

A current federal statute, United States Code, Title 23, Chapter 2, Section 217 (23 USC 217), mandates that “bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.”

The United States Department of Transportation (USDOT) policy statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations signed on March 11, 2010 is “to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.”

The USDOT policy emphasizes that active transportation accommodations should be given the same priority as other transportation modes. Walking and bicycling facilities should meet accessibility requirements and provide safe, convenient, and interconnected transportation networks that ensure transportation choices are available for people of all ages and abilities, especially children. With this stronger emphasis for multimodal transportation facilities by USDOT, TxDOT has also established guidance, signed on March 23, 2011, to proactively plan, design, and construct facilities to safely accommodate bicycles and pedestrians.
Active Transportation Context in North Central Texas

Many cities and counties in the region have developed and adopted bicycle master plans, trail master plans, or a combination of both. Various communities are also developing plans for local pedestrian networks and programs to provide safe routes to schools. In addition, numerous cities and transportation agencies have adopted local policies for bicycle accommodations to encourage bicycling as a form of transportation. The number of locally adopted community bicycle and trail master plans in the region grows each year. These documents are used in the development of Mobility 2045 to ensure regional connectivity and continuity.

The types of pedestrian and bicycle facilities available differ from community to community, and their conditions vary based on the context and density of the surrounding area where they are located. These projects provide for non-motorized modes of transportation, and also enhance travel and tourism throughout the region, including access to destinations of statewide significance such as the Fort Worth Stockyards National Historic District, the Arlington Entertainment District, Fair Park in Dallas, and others.

In urban areas, the active transportation network typically includes a wide mix of interconnected sidewalks, off-street shared-use paths, and on-street bikeways, including designated or separated bike lanes and cycle tracks and marked shared lanes. The network concentration is the greatest in higher density urban areas and where there are high volumes of users requiring connections to transit and major destinations. These areas also have a significant number of short trips that can be achieved by walking and bicycling.

In suburban areas, the active transportation network typically includes similar facilities to those in urban areas. However, the overall network and mix of the active transportation network may vary from urban areas due to differences in the physical design and density of land uses and the opportunities for short walking and biking trips.

In rural unincorporated areas, the active transportation network may consist of signed wide shoulders on roads for safe bicycle travel between rural towns.

In order to support regional goals related to mobility, land use, the environment, the economy, and public health, Mobility 2045 recognizes that the active transportation network in the region cannot be treated as stand-alone facilities. Sidewalks, off-street shared-use paths, and on-street bikeways should be integrated as part of Complete Streets, and they should be interconnected with transit services and other modes of transportation. This seamless multimodal transportation network can connect housing and key destinations, including employment centers, education, medical, retail and entertainment centers, and others. Much of the region’s 2045 active transportation network of pedestrian facilities and on-street bikeways will be implemented through Complete Streets designed and operated to enable safe access and travel for users of all ages and abilities.

Mobility 2045 supports the development of local Complete Streets policies and the implementation of Complete Streets infrastructure on both new and reconstructed streets; such design will safely accommodate all users in the region. Additional information on Complete Streets can be found in the Sustainable Development section of the Operational Efficiency chapter, the Healthy Communities section of the Environmental Considerations chapter, and in the Roadway section of this chapter. According to the 2009 National Household Travel Survey, in urban areas, 52 percent of all trips were three miles or less in distance, and 29 percent of all trips were one mile or less.

These trips are ideal for biking, walking, transit, or a combination of these modes of travel. By encouraging investment in facilities that support these forms of transportation, the region has the opportunity to shift short trips to walking and bicycling modes, resulting in more transportation choices and improved air quality. Therefore, Mobility 2045 aims to provide options for non-motorized or transit modes of travel for all trips in the urbanized area that are less than two miles in distance.
Combined Regional Paths and Bikeway Network

The active transportation network in the region consists of regional shared-use paths (Regional Veloweb), supporting community shared-use paths, and the on-street bikeway network (including on-street wide shoulders in rural areas). This network is reflected in the map in Exhibit 6.3-1 and the table in Exhibit 6.3-2. This network plays a key role in supporting Mobility 2045 and the implementation of the multimodal Complete Streets and transit infrastructure that safely accommodate all travelers throughout the region.

Exhibit 6.3-2: Combined Regional Veloweb, Community Shared-Use Paths, and On-Street Bikeways Network Miles by Facility Status (June 2018)

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regional Veloweb Paths</strong></td>
<td></td>
</tr>
<tr>
<td>Regional Veloweb, Existing</td>
<td>455</td>
</tr>
<tr>
<td>Regional Veloweb, Funded</td>
<td>143</td>
</tr>
<tr>
<td>Regional Veloweb, Planned</td>
<td>1,285</td>
</tr>
<tr>
<td><strong>Total Veloweb Paths</strong></td>
<td>1,883</td>
</tr>
<tr>
<td><strong>Community Shared-Use Paths</strong></td>
<td></td>
</tr>
<tr>
<td>Community Shared-Use Paths, Existing</td>
<td>318</td>
</tr>
<tr>
<td>Community Shared-Use Paths, Funded</td>
<td>57</td>
</tr>
<tr>
<td>Community Shared-Use Paths, Planned</td>
<td>2,584</td>
</tr>
<tr>
<td><strong>Total Community Paths</strong></td>
<td>2,959</td>
</tr>
<tr>
<td><strong>Total Regional Veloweb and Community Paths</strong></td>
<td>4,842</td>
</tr>
<tr>
<td><strong>On-Street Bikeways</strong></td>
<td></td>
</tr>
<tr>
<td>On-Street Bikeways, Existing</td>
<td>212</td>
</tr>
<tr>
<td>On-Street Bikeways, Funded</td>
<td>84</td>
</tr>
<tr>
<td>On-Street Bikeways, Planned</td>
<td>1,817</td>
</tr>
<tr>
<td><strong>Total On-Street Bikeways (Urbanized Area)</strong></td>
<td>2,113</td>
</tr>
<tr>
<td>On-Street Wide Shoulders, Existing</td>
<td>247</td>
</tr>
<tr>
<td>On-Street Wide Shoulders, Planned</td>
<td>101</td>
</tr>
<tr>
<td><strong>Total On-Street Wide Shoulders (Rural Area)</strong></td>
<td>348</td>
</tr>
<tr>
<td><strong>Total On-Street Bikeways</strong></td>
<td>2,461</td>
</tr>
<tr>
<td><strong>Total All Facilities</strong></td>
<td>7,303</td>
</tr>
</tbody>
</table>

1 The Regional Veloweb and Community Shared-Use Path network does not include recreational paths/loops, private paths, equestrian or nature trails, or wide sidewalks less than 10 feet in width.
2 On-street bikeways in the urbanized area include separated or protected bike lanes/cycle tracks, bike lanes, marked shared lanes, and marked bicycle boulevards. On-street bikeways in the urbanized area do not include signed bike "routes", signed "share the road", unmarked wide outside lanes, or signed wide shoulders. The use of wide shoulders is included on various roadways linking rural communities outside of the urbanized area.

Mobility 2045 represents extensive research on and compilation of the locally adopted master plans for active transportation infrastructure throughout the region.
region. By working with local and regional stakeholders, the plan prioritizes corridors for improvement as represented by the Regional Veloweb and other policies for active transportation infrastructure investment and safety. Mobility 2045 represents the compilation of 63 locally adopted plans with shared-use paths (trails) and 61 locally adopted plans that include on-street bikeway facilities. Various new or updated plans are adopted each year throughout the region, and the North Central Texas Council of Governments regularly coordinates with local jurisdictions to update a database of existing, funded, and planned active transportation facilities.

**Recommended Off-Street Network: The Regional Veloweb**

The Regional Veloweb is a network of off-street shared-use paths (trails) designed for non-recreational trip purposes by bicyclists, pedestrians, and other non-motorized forms of transportation. The Veloweb serves as the regional expressway network for active transportation, and it extends the reach of the region’s roadway and passenger rail transit network for non-motorized transportation. The Veloweb has planned connections in 10 counties and 105 cities in North Central Texas. Alignments were determined through the cooperative efforts of local governments and NCTCOG staff by:

- Identifying existing and funded facilities.
- Reviewing locally planned bicycle and pedestrian facilities.
- Locating routes that would provide air quality benefits and access to transit stations and major destinations.
- Identifying corridors that provide the greatest potential for regional connectivity.
- Identifying routes that provide opportunities to enhance travel and tourism.

The Regional Veloweb is reflected in **Exhibit 6.3-3** and includes approximately 1,884 miles of shared-use path facilities in various stages of development. These shared-use paths are expected to be consistent with the recommendations and design guidance set forth by the American Association of State Highway Officials (AASHTO) for the development of bicycle facilities. The primary design considerations of Veloweb paths typically include wider cross sections (minimum 12-foot width) and grade-separated crossings of roadways with significant traffic flows. They may have wider 16- to 24-foot sections or separated facilities for pedestrians and bicyclists in areas experiencing high-peak user volumes due to the proximity to transit stations, employment and education centers, and/or other major venues. Design considerations for regional and community pathways are described in more detail in **Exhibit 6.3-3**.
Exhibit 6.3-4: Regional Veloweb 2045 Pathways
Classifications and Primary Design Considerations

<table>
<thead>
<tr>
<th>Regional Pathways 2045 Primary Design Considerations</th>
<th>Community Pathways Primary Design Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent with the guidance set forth by AASHTO for the development of bicycle facilities.</td>
<td>Consistent with the guidance set forth by AASHTO for the development of bicycle facilities.</td>
</tr>
<tr>
<td>Minimum width: 12 to 14 feet (typical) with 16- to 24-foot wide sections or separated facilities for pedestrians and bicyclists in areas with high-peak user volumes.</td>
<td>Minimum width: 10 to 14 feet (typical) with wider sections where warranted due to high-peak volumes.</td>
</tr>
<tr>
<td>Typically independent right-of-way corridors such as greenways, along waterways, freeways, active or abandoned rail lines, utility rights-of-way, and unused rights-of-way.</td>
<td>May include more alignments adjacent to local collector and arterial roadways, and through neighborhoods and areas where right-of-way is more constrained and user volumes are lower.</td>
</tr>
<tr>
<td>Continuous linear corridors that provide long-distance connections through cities and across counties; provide connections to major destinations, including transit stations, employment and education centers, and/or other major activity venues with high volumes of users.</td>
<td>Corridors generally shorter in length and may terminate within a community, may supplement adjacent on-street bikeways along roadways with higher traffic speeds and volumes not suitable for less experienced bicyclists, and may provide short connections between on-street bikeways and neighborhoods.</td>
</tr>
<tr>
<td>Grade-separated crossing of roadways with significant traffic flows. Few, if any, driveway crossings and signalized or stop sign intersections.</td>
<td>May include more at-grade crossings of roadways with signalized or stop sign intersections while minimizing any conflicts with motor vehicles and associated operational and safety issues.</td>
</tr>
<tr>
<td>Supported by a network of local community paths, sidewalks, and on-street bikeways that provide connections to local neighborhood destinations.</td>
<td>Serves as an extension of the regional pathway network by providing connections to local neighborhood destinations.</td>
</tr>
<tr>
<td>Constructed with a long-lasting impervious surface.</td>
<td>Constructed with a long-lasting impervious surface.</td>
</tr>
</tbody>
</table>

Off-Street Network: Community Shared-Use Paths
Community shared-use path facilities support the Regional Veloweb and help extend the reach of the Veloweb network by connecting it to local and neighborhood destinations. Approximately 2,955 miles of these paths, shown in the map in Exhibit 6.3-5, are in various stages of development. These facilities are also expected to be consistent with the recommendations and guidance set forth by AASHTO for the development of bicycle facilities. This network of facilities does not include recreational park loops, private paths, equestrian or nature trails, or wide sidewalks less than 10 feet in width.

Mobility 2045 forecasts that a portion of the network of community shared-use paths will be implemented. The paths that will be constructed are primarily located in corridors that serve as extensions of the Regional Veloweb and provide connections to transit facilities and other local major destinations. While not fully funded by Mobility 2045, community shared-use paths provide important connections within communities and will be implemented as funding is available.

Exhibit 6.3-5: Community Shared-Use Paths

Regional On-Street Bikeway Network
On-street bikeways facilitate safe and convenient travel for bicyclists, and they serve as extensions of the Regional Veloweb and community shared-use path network by providing non-motorized travel connections between housing, employment, major destinations, and transit facilities. The existing and
planned on-street bikeway network, shown in Exhibit 6.3-6, provides the densest network of bicycle facilities in a growing number of communities throughout the region. Currently more than 61 locally adopted plans include on-street bikeway facilities representing more than 2,458 miles in various stages of development.

Exhibit 6.3-6: On-Street Bikeway Network

Consistent with guidance from AASHTO, the National Association of City Transportation Officials, FHWA, and the Separated Bike Lane Planning and Design Guide, the type and design of on-street bikeways can vary based on the community and context in which they are located. Bikeways in urban and suburban areas of the region are recommended to include the following:

- Separated or protected bike lanes/cycle tracks
- Bike lanes
- Marked shared lanes
- Marked bicycle boulevards

Communities may also provide on-street bicycle accommodations that include signed bike routes and signed shared roadways without designated bikeway pavement markings, including wide outside lanes. However, these facilities are not represented in Mobility 2045. Bikeways between communities in rural unincorporated areas of the region generally consist of paved shoulders, particularly on roadways with higher speeds or traffic volumes. Paved shoulders in these rural areas provide opportunities for travel between small communities.

**Pedestrian Network**

Pedestrian facilities must accommodate a diverse group of travelers of all ages and abilities, including people who walk, jog, use wheelchairs or walkers, or push strollers. Pedestrians tend to be the most vulnerable road users; therefore, pedestrian facilities should be designed and implemented to increase their safety and effectiveness.

The pedestrian network provides a primary mode of travel for short trips and it supports other transportation modes. The network of pedestrian facilities should be complete, direct, safe, and enjoyable to use. This can be accomplished by addressing the continuity of the sidewalk network, the streetscape, and the physical context in which the sidewalk is located.

Planning for the pedestrian network requires similar consideration and analysis as planning for roadways. The pedestrian network enhances economic development by connecting places where people like to live and visit, and it improves safety by supporting safe routes to school. When fully developed, the pedestrian network should provide safe links between destinations such as schools, employment, and transit facilities. Programs that invest in this network should prioritize improvements that connect to major destinations, improve safety, and help promote community livability and a healthy lifestyle.

The primary considerations of the pedestrian network include:

- Completing gaps in the sidewalk network
- Completing first/last mile connections to transit services
- Providing safe routes, including crossings of busy streets and major barriers, that are compliant with the Americans with Disabilities Act
- Providing context-sensitive streetscapes

**Americans with Disabilities Act and Transition Plans**

The Americans with Disabilities Act (ADA) of 1990 is a civil rights statute that prohibits discrimination against people with disabilities. Title II of the ADA
addresses public services and the accessibility of public transportation to people with disabilities. After the ADA became effective, public facilities were required to be designed and constructed to be accessible by people with disabilities. Failing to design and construct facilities accessible by people with disabilities constitutes discrimination and is prohibited by law. Title II of the ADA applies to facilities built after 1990, pre-existing facilities, and any organization with 50 or more employees.

State and local governments are required to perform self-evaluations of current facilities and develop a transition plan to address deficiencies by building new projects and by altering existing projects, including performing reconstruction, major rehabilitation, widening, resurfacing, signal installation, and upgrades. This affects pedestrian facilities in the public right-of-way, including sidewalks, curb ramps, and warnings detectable by a range of users. In the case of noncompliance for state or local governments, FHWA will seek a voluntary compliance agreement. If an agreement cannot be met, FHWA will send the case to the Attorney General for action.

NCTCOG is helping local jurisdictions comply with ADA through policy, funding, and training for officials.

Policies, Programs, and Projects

This section describes the policy framework that guides the implementation of the region-wide network of urban and rural active transportation facilities. This includes the integration of Complete Streets, context-sensitive solutions, and other relevant initiatives into roadway planning, design, implementation, and maintenance policies. This multimodal network vision of Mobility 2045 will create a seamless and interconnected transportation network that safely accommodates users of all ages and abilities, including pedestrians, bicyclists, transit riders, and motorists.

Three policies form the foundation of the Mobility 2045 active transportation vision; these policies are supported by a variety of programs and projects. Each element plays an integral role in meeting shared regional goals and needs. Policies guide decision-making processes, programs compose the policy framework, and performance measures maintain accountability. See appendix E. Mobility Options for a complete listing of policies, programs, projects, and maps related to active transportation.

Policy BP3-001: Support the planning and design of a multimodal transportation network with seamless interconnected active transportation facilities that promotes walking and bicycling as equals with other transportation modes.

The active transportation network must be interconnected with transit services and integrated as part of Complete Streets to connect key destinations, including employment centers; education, medical, retail, and entertainment centers; and other destinations for daily activities. Mobility 2045 promotes roadways in the urbanized area that are designed and constructed to accommodate at least three or more modes of transportation.

BP2-001: Active Transportation Planning and Design

A. Multimodal Transportation Plans: Encourage development of local pedestrian and bicycle plans, as well as modifications to local transportation plans and standards that provide for pedestrian accommodations, on-street bikeways, and the network of off-street trails.

B. Complete Streets: Facilitate and support the adoption of local policies and the implementation of Complete Streets projects with bicycle and pedestrian facilities as routine accommodations for new roadway construction and reconstruction projects.

C. Context-Sensitive Design: Incorporate bicycle and pedestrian modes in all transportation corridor studies, support the adoption of regional and local policies, and implement Complete Streets projects and roadway projects that are sensitive in design to the context of their surroundings.

D. Corridor Studies: Integrate bicycle and pedestrian mobility in all transportation corridor studies, incorporate bicycle and pedestrian modes in corridor studies, and support the funding and construction of bicycle and pedestrian elements of final corridor studies.

E. Americans with Disabilities Act Transition Plans: Encourage local agencies to adopt and implement Americans with Disabilities Act transition plans.

F. Local Regulations: Encourage local jurisdictions to adopt ordinances, zoning standards, engineering standards, and guidelines that accommodate bicycle and pedestrian modes of travel through such means as Complete Streets policies, thoroughfare technical specifications, right-
of-way and easement preservation, bicycle parking ordinances, bicycle passing ordinances, and end-of-trip facilities.

G. Data Collection and Analysis: Monitor and evaluate the North Central Texas region’s bicycling and walking efforts by collecting bicycle and pedestrian count data, analyzing bicycle and pedestrian crash data, conducting regional non-motorized travel surveys, developing an appropriate methodology indicating active transportation’s modal share goal, and publishing findings.

H. Technical Support/Resources/Research: Collect relevant research materials regarding bicycle and pedestrian transportation to utilize in regional initiatives and provide as resources to local governments and area stakeholders.

Policy BP3-002: Implement pedestrian and bicycle facilities that meet accessibility requirements and provide safe, convenient, and interconnected transportation for people of all ages and abilities.

Mobility 2045 promotes bicycle and pedestrian projects that connect multiple jurisdictions and expand the regional network by improving coordination, connectivity, and continuity between counties and communities. To realize the potential of active transportation, special attention must be paid to the current barriers and safety issues the region is experiencing. These include:

- An incomplete network of bicycle and pedestrian facilities, including those that serve environmental justice and transit-dependent populations.
- High rates of pedestrian and bicycle crashes and fatalities involving motor vehicles.
- Limited funding for safe routes to school projects.
- Infrastructure that is not compliant with ADA.
- Significant barriers to safe active transportation travel; these barriers include freeways, major streets with high traffic volumes and speeds, and waterways.

Improving safety is a top priority for USDOT, and Mobility 2045 is committed to reducing fatalities and serious injuries on the transportation network throughout North Central Texas.

BP2-002: Active Transportation Network Implementation

A. Complete the Regional Active Transportation Network: Continue the Regional Transportation Council Local Funding Program initiatives and Sustainable Development Funding Programs. The Local Funding Program initiatives include the Local Air Quality Transportation Alternatives Program. Sustainable Development Funding Programs direct funds to local governments to improve, expand, and complete the bicycle and pedestrian facilities network and related programs throughout the region.

Implementation priorities include:

1. Close Gaps and Improve Connectivity in the Regional Veloweb, On-Street Bikeway Network, and Pedestrian Network: Eliminate major gaps in the regional network and complete connections to address major barriers such as freeways, railroads, and waterways.

2. Linkages to Transit and Major Destinations: Support and complete the development of pedestrian and bicycle facilities that provide access from neighborhoods to public transportation services, education facilities, employment centers, medical, retail, and other destinations.

3. Environmental Justice Areas and Transit-Dependent Populations: Improve accommodations for pedestrians and bicyclists in environmental justice areas and improve connections for transit-dependent populations.

4. Regional Pedestrian Network: Develop a Regional Pedestrian Network and Safety Plan. Implement projects that improve accommodations and safety for pedestrians, with special attention given to vulnerable road users and disadvantaged communities.

5. Safe Routes to School: Coordinate with Independent School Districts, municipalities, public safety officials, and other agencies throughout the region to ensure safe and accessible walking and bicycling corridors to education facilities.

B. Safety Improvements: Support efforts to reduce crashes and fatalities between motor vehicles and pedestrians and bicyclists, including the implementation of Proven Safety Countermeasures outlined by the Federal Highway Administration Office of Safety. Prioritize infrastructure design techniques and safety countermeasures projects in areas with high rates of pedestrian and bicycle crashes and fatalities.
C. Americans with Disabilities Act Compliance: Support efforts to identify Americans with Disabilities Act accessibility needs and incorporate improvements into the overall transportation network.

Policy BP3-003: Support programs and activities that promote pedestrian and bicycle safety, health, and education.

Walking and bicycling are legitimate forms of transportation that have the potential to positively impact the region by shifting travel modes, resulting in reduced congestion and improved air quality and public health. Mobility 2045 promotes enhanced safety for active travel by increasing education and training opportunities for cyclists, pedestrians, motorists, and professionals who are designing and implementing roadway facilities, implementing safety infrastructure projects, and promoting enforcement of traffic laws to reduce bicycle and pedestrian-related conflicts.

BP2-003: Active Transportation Education and Outreach

A. Safety Education Programs and Campaigns: Support and create programs and campaigns that educate bicyclists, pedestrians, and the general public about bicycle operation, bicyclists’ and pedestrians’ rights and responsibilities, and lawful interactions between motorists, bicyclists, and pedestrians to increase safety for all road users. Support programs aimed at increasing bicycle and walking trips by providing incentives, recognition, or services that make bicycling and walking more convenient transportation modes.

B. Healthy and Livable Communities: Create healthier and more livable communities by encouraging the use of bicycle and pedestrian facilities for work and non-work trips, and for daily physical activity.

C. Enforcement: Encourage enforcement efforts of traffic laws and target unsafe bicyclist, pedestrian, and motorist behaviors to improve safety and reduce collisions and conflicts between motorists, bicyclists, and pedestrians.

D. Technical Training and Education: Provide pertinent training to transportation-related professionals.

E. Mapping Facilities and Plans: Maintain a regional database and provide information regarding existing and planned active transportation facilities and related amenities throughout the region.

In the future, the multimodal network and related policies, programs, and projects may be considered in the context of automated vehicles. Such vehicles have the potential to both benefit (through vehicle safety features) and harm (through infrastructure such as dedicated lanes) efforts to safely implement active transportation. Appropriate policies could help ensure that automated vehicles improve safety for bicyclists and pedestrians. More information on automated vehicles can be found in the Transportation Technology chapter.

Priority Areas to Improve Facilities and Accessibility

Mobility 2045 recommends prioritizing improvements to active transportation facilities to close gaps within the larger network, increase the use of facilities, improve safety and comfort for pedestrians and bicyclists, and create easier access to destinations in areas with high propensity for walking and bicycling including:

- Public transportation facilities (bus stops and rail stations)
- Mixed-use/transit-oriented development areas
- Central business districts and major employment centers
- Educational institutions
- Neighborhood services (e.g. grocery stores, medical centers, libraries)
- Neighborhoods with transit-dependent populations
- Areas with pedestrian and bicycle safety concerns and high rates of crashes
- Areas with a high density of short car trips
- Areas with moderate to severe vehicle congestion levels (see appendix E. Mobility Options).
- Routes of statewide and regional significance identified by the Texas Department of Transportation Bicycle Tourism Trails Study

These destinations and routes are places that generate higher than average pedestrian and bicycle traffic. Prioritizing improvements in these areas and corridors will create the greatest benefit for people who travel by walking or bicycling. Other factors to consider when prioritizing projects include community support, cost/benefit analysis, sharing of construction costs, and geographic balance to ensure facilities are evenly constructed throughout the region.
Performance Measures

Federally required performance measures for Metropolitan Planning Organizations are addressed in the Regional Performance chapter. Additional performance dimensions related to active transportation include:

- Number of pedestrian fatalities
- Number of pedestrian serious injuries
- Number of bicyclist fatalities
- Number of bicyclist serious injuries
- Number of miles of existing Regional Veloweb
- Number of miles of existing community shared-use paths
- Number of miles of existing on-street bikeways

Summary

Active transportation is an important element in providing for the region's diverse needs and enhancing transportation choice. Walking and bicycling provide low-cost mobility options that place fewer demands on local roads and highways. Increased commitment to and investment in walking networks and bicycle facilities can help meet goals for cleaner, healthier air; less congested roadways; and more livable, safe, cost-efficient communities. The recommendations made in Mobility 2045 seek to increase active transportation as a viable transportation mode for the residents of North Central Texas.