



Futures2040

Topeka Regional Transportation Plan

TOPEKA METROPOLITAN PLANNING ORGANIZATION REGIONAL TRANSPORTATION PLAN

In Partnership with:



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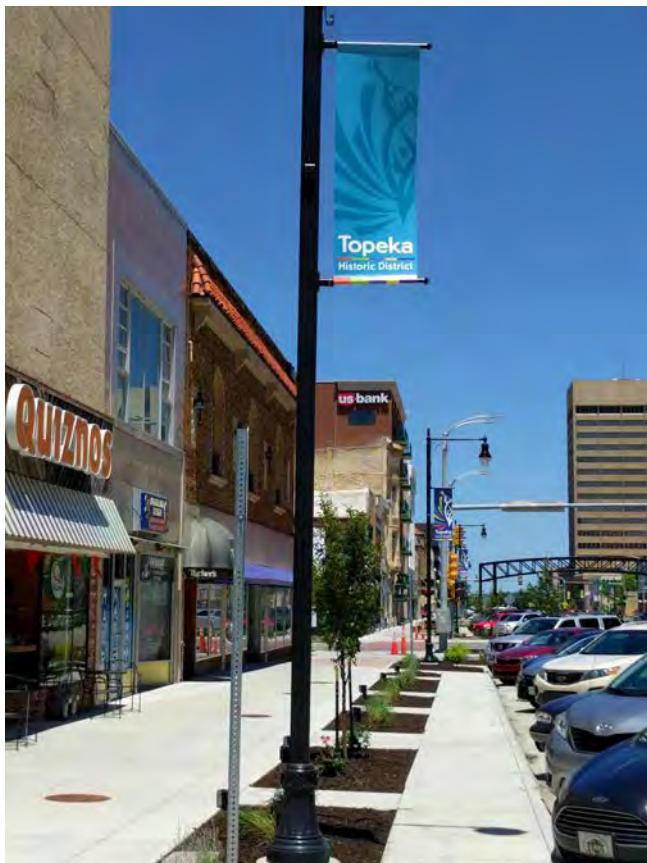
FUTURES2040

**EXECUTIVE
SUMMARY**

NEW DIRECTIONS

Futures2040, the Regional Transportation Plan (RTP) for the Topeka Metropolitan Planning Area (MPA), makes two major policy shifts from prior RTPS:

1. The plan recommends a shift away from projects that add roadway capacity toward projects that preserve the existing roadway network. This is consistent with both Topeka’s Land Use and Growth Management Plan and the Shawnee County Comprehensive Plan which is currently being developed.
2. The plan recommends a significantly increased emphasis on active modes of transportation reflecting recent decisions by Topeka, Shawnee County, and the Metropolitan Topeka Planning Organization (MTPO) to adopt complete streets policies and increase local funding for both pedestrian and bicycle projects. This shift in policy is consistent with the Topeka Sidewalk Master Plan and Bikeways Master Plan.



GUIDING PRINCIPLES

Sustainability

Meeting present day needs without compromising the ability of future generations to meet their own needs by considering the triple bottom line of considering the economic, social and environmental impacts of decisions.

Health and Wellness

Encouraging active lifestyles can have a tremendous positive impact on community health and wellness. Complete streets are a major factor in determining whether people will walk or bike for at least some of their daily trips. While transportation also contributes significantly to air pollution, the Topeka region is currently in attainment of the National Ambient Air Quality Standards.

Livability

Livability is the sum of the factors that add up to a community’s quality of life, and increased emphasis on pavement condition, complete streets, and urban design are all key aspects of the plan. Each of these will enhance the quality of life for people living, working, learning, playing and shopping in the Topeka region.

Transportation-Land Use Connection

The plan builds on the recommendations of the Topeka Land Use and Growth Management Plan adopted in 2015 which emphasizes infill development and redevelopment in existing neighborhoods. Land use and density have significant implications for transportation infrastructure.

EXISTING CONDITIONS

The existing conditions analysis reviews existing conditions for all modes of transportation, including walking, biking, riding transit, driving cars, and trucks. Each section introduces the component system, its use and efficiency, its condition, and safety. Each also considers how the existing transportation system explores the relationship between it, land use, and economic development in addition to the impacts of the existing transportation system on low-income and minority persons within the region.

ROADWAYS

Roadways Today

2040 LRTP

In 2012, MTPO adopted the 2040 Long Range Transportation Plan which continued the long-standing practice of identifying more roadways needing additional mainline capacity and new major thoroughfares that needed to be built. Much of the region’s transportation dollars were allocated to building new roads and widening existing roads.

However, it is clear that Topeka does not have a roadway congestion problem. Non-recurring congestion does occur due to both collisions and construction. And, in specific locations, recurring congestion occurs but is limited to peak periods as people go to and from work and typically lasts only 20-minutes.

PAVEMENT CONDITION

State Highways: Highway pavement conditions are monitored in the spring of each year. Targets have been established by the Kansas Department of Transportation (KDOT) for the percent of pavement in good condition: 85 percent for Interstate highways and 80 percent for non-Interstate highways. The data in Figure 0.1 does not reflect the I-70 pavement resurfacing project completed by KDOT in 2016.

City Streets. Topeka has completed the inspection and evaluation of all city streets as the first phases of a pavement management program process. A Pavement Condition Index (PCI) score (rating scale 0-100) was determined for each street’s condition based on surface condition distresses. The PCI scale provides an objective and rational basis for

determining maintenance and repair needs and priorities. Topeka is currently reviewing the results of the pavement condition study and determining the performance target that will be set. Figure 0.3 shows the ratings given to various streets in Topeka.

Over the past ten years, Topeka has invested \$14 million annually in pavement improvement projects which has resulted in an average PCI of 55 (the borderline between poor and fair pavement condition). To maintain the average PCI of 55, \$19 million per year will need to be provided annually over the next ten years. To increase the average PCI to 65 (average street in fair condition) would require an annual programming of \$31 million and to reach an average PCI of 80 (satisfactory condition) would require an annual investment of \$51 million.

FIGURE 0.2: Annual Cost to Reach PCI Goal

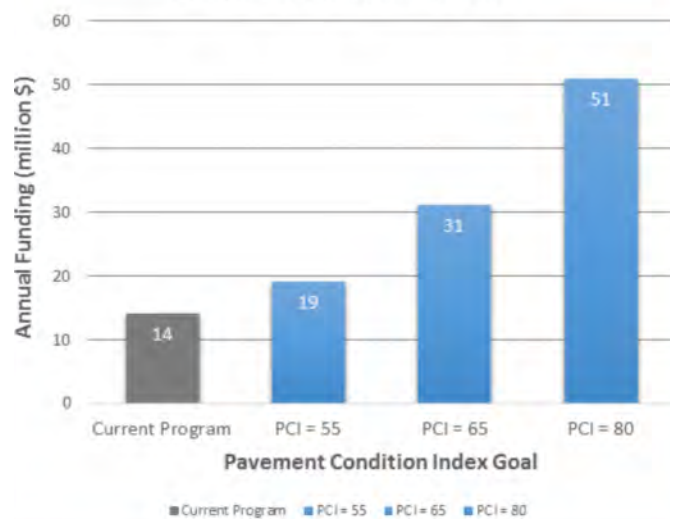
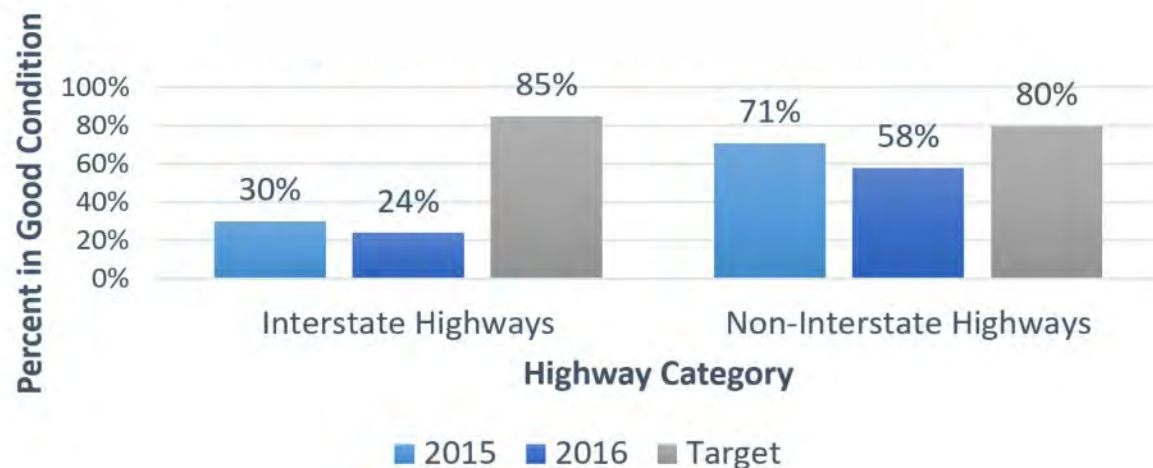


FIGURE 0.1: Highway Pavement Condition



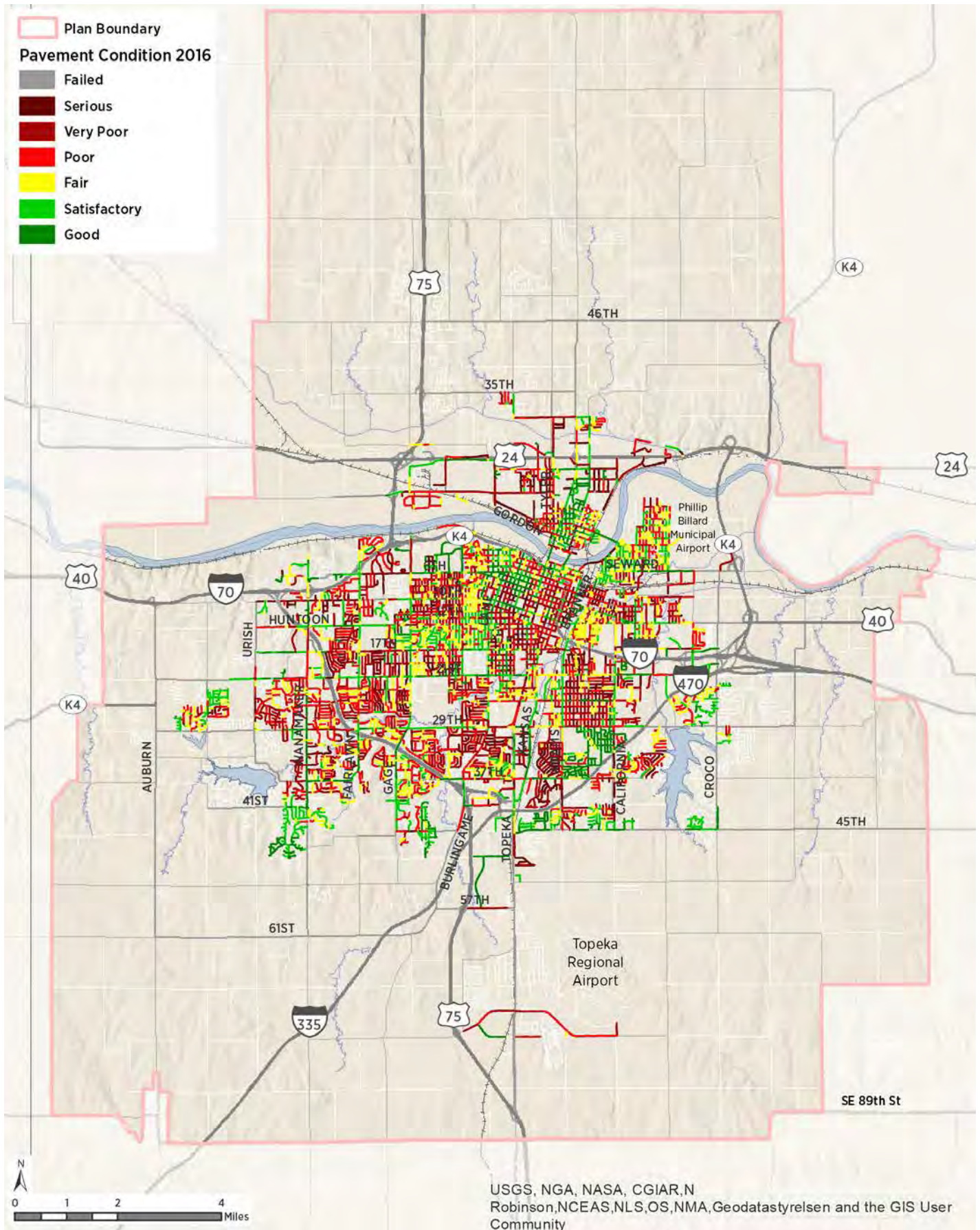
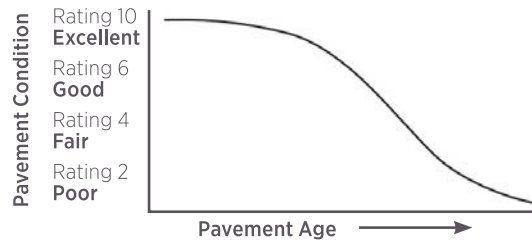


FIGURE 0.3: Highway Pavement Condition

FIGURE 0.4: PASER 1-10 Rating Scale**Ratings are related to needed maintenance or repair:**

Rating 9 & 10: No maintenance required

Rating 8: Little or no maintenance

Rating 7 : Routine maintenance, cracksealing, and minor patching

Rating 5 & 6: Preservation treatments (sealcoating)

Rating 3 & 4: Structural improvement and leveling (overlay or recycling)

Rating 1 & 2: Reconstruction

County Roads: The County annually inspects roadway conditions in the spring. The County uses the Pavement Surface Evaluation and Rating (PASE) method developed by the University of Wisconsin. Figure 0.4 shows the PASER 1-10 rating scale and how the ratings are related to needed maintenance. The County's goal is to maintain all pavements such that a rating of at least 6 (good condition) is achieved. Roads with a rating equal to or less than 5 receive treatment. The County understands that the long-term costs of maintaining pavements in good condition is less than the cost of letting pavements deteriorate to a point where they need replacement.

Roadways New Directions

The roadways in the region in the coming years require new priorities, including the following:

- Making significant investments over time to improve existing roadways with particular attention paid to pavement conditions, bridge conditions and traffic signals.
- Continuing to make investments at key intersections to improve traffic flow and increase traffic safety for all roadway users.
- Building GREAT STREETS in the region by considering design elements that enhance the roadway, including: streetscape elements, building complete streets, burying overhead power lines, considering where and how to locate utility boxes, designing with nature, and celebrating with public art.

12 CHARACTERISTICS OF GREAT STREETS

- The street provides orientation to its users, and connects well to the larger pattern of ways.
- The street balances the competing needs of the street — driving, transit, walking, cycling, servicing, parking, drop-offs, etc.
- The street fits the topography and capitalizes on natural features.
- The street is lined with a variety of interesting activities and uses that create a varied streetscape.
- The street has urban design or architectural features that are exemplary in design.
- The street relates well to its bordering uses — allows for continuous activity, doesn't displace pedestrians to provide access to bordering uses.
- The street encourages human contact and social activities.
- The street employs hardscape and/or landscape to great effect.
- The street promotes safety of pedestrians and vehicles and promotes use over the 24-hour day.
- The street promotes sustainability through minimizing runoff, reusing water, ensuring groundwater quality, minimizing heat islands, and responding to climatic demands.
- The street is well maintained, and capable of being maintained without excessive costs
- The street has a memorable character

List courtesy of the American Planning Association.

WALKWAYS

Pedestrian Master Plan

In 2016, MTPO adopted the Topeka Pedestrian Master Plan which recommends actions for the city to become more pedestrian-friendly and prioritizes a 10-year \$21 million sidewalk, ADA ramp, and crosswalk improvement plan in the city's highest pedestrian demand areas. These include areas around schools, bus routes, parks, and intensive care/ at risk neighborhoods. 18 geographic focus areas, including 13 neighborhoods and 5 corridors, were inventoried for improvements (seen in the map on the next page). The Plan seeks to accomplish 4 goals:

- A complete pedestrian network connecting all neighborhoods
- Maintained sidewalks for safe travel at all times
- A safe and comfortable walking environment
- A culture of walking

Sidewalks Today

The sidewalk system includes 669 miles of sidewalks. In the city, almost half of the streets have sidewalks on both sides. Most neighborhoods in the city's core were constructed with sidewalks because car ownership was less common at the time. But many of those sidewalks are in need of repair. Much of the next ring of development after World War II excluded sidewalks as was the practice in many cities where suburban development was auto-oriented. Sidewalk requirements were re-established by the 1970s and largely exist in the outer ring of the city. Most developments outside the city were not fitted with pedestrian facilities. The end result is a system in need of both repairs and infill sidewalks to cover gaps in the network and provide safe, comfortable mobility to all ages. To that end several initiatives are in place to address these deficiencies:

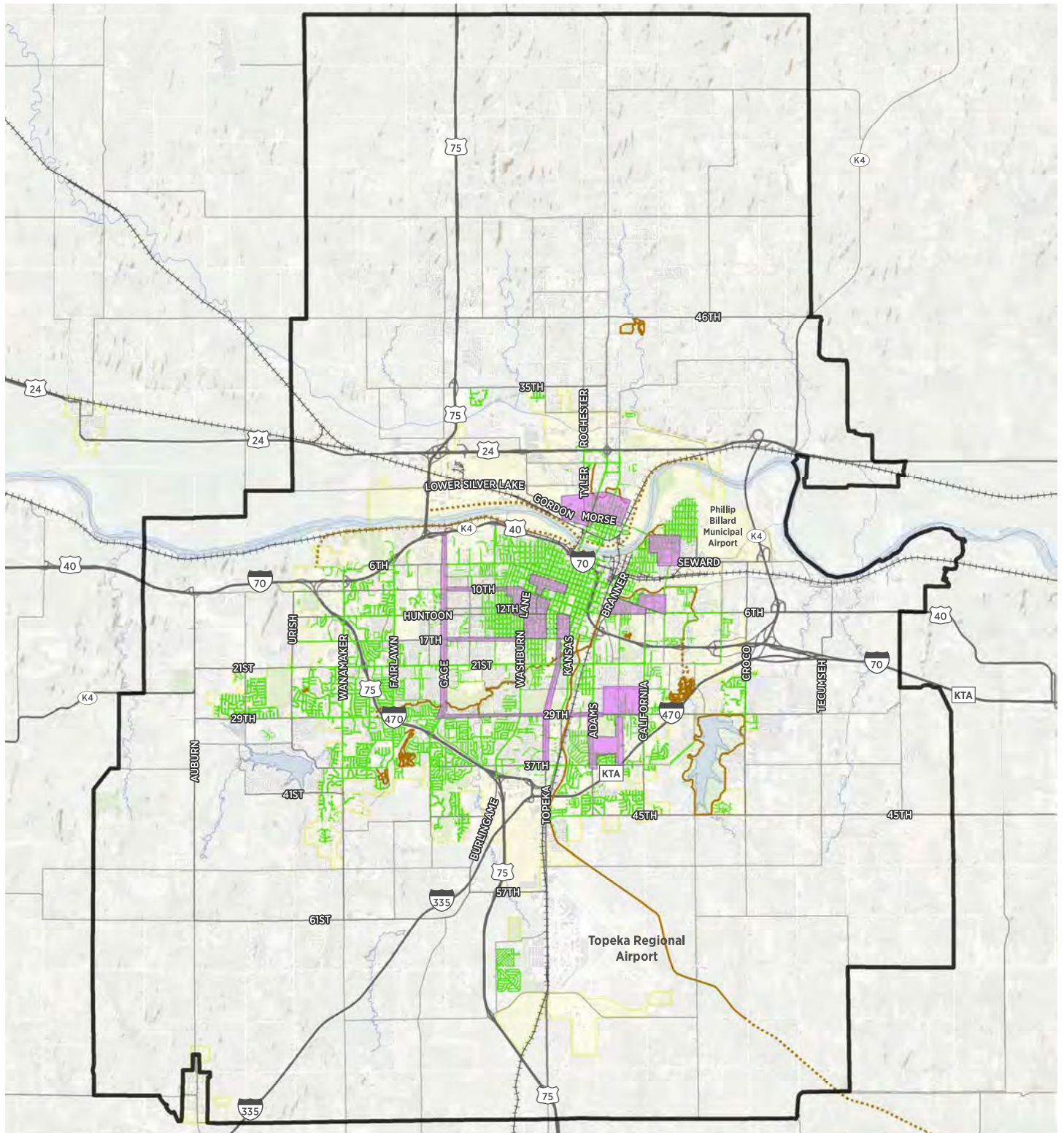
- Funding for pedestrian improvements increased from \$100,000 to \$600,000 annually in the City of Topeka's CIP and also includes \$100,000 for complete street elements, \$100,000 for the 50/50 program, and \$300,000 for ADA ramps for a total of \$1.1 million in yearly projects.
- It is projected that 61 miles of new or repaired sidewalks will be completed through CIP sidewalk and street projects in the next 10 years.

- All street projects in the City of Topeka receive a complete streets review and recommendations in accordance with the City of Topeka's adopted complete streets policy.
- Shawnee County recently adopted a complete streets policy to address development outside the city.
- A Complete Streets Advisory Committee (CSAC) has been formally established by the MTPO to guide implementation of the Pedestrian Plan, Bikeways Plans, and complete street policies.
- Implementing a new policy for benefit districts in the City that will guarantee installation of sidewalks for the entire subdivision even if lots are left undeveloped.

Sidewalks New Directions

The region has established an excellent foundation to make pedestrian transportation a priority that will improve equity, economic competitiveness, and quality of life. Full implementation of the recommendations outlined in the Pedestrian Master Plan Topeka must continue to achieve its stated goals and are essential to becoming a walk-friendly community including:

- Ensuring repairs continue to be made in high demand areas while updating the 50/50 program income guidelines to have more impact in those areas
- Making all bus shelters and the walking areas to them ADA accessible
- Advance safe routes to schools (SRTS) programs
- Develop a joint set of complete street engineering standards for the City and County to ensure all street projects have consistent elements based on the street typology.
- Increase arterial sidewalk capacity from 69% to 79% (both sides) within 10 years as stated in the Pedestrian Plan.



- Plan Boundary
- Railroad Lines
- Water Bodies
- Parks
- City Limits
- Existing Sidewalk
- Pedestrian Priority Areas 2016 - 2025
- Trail**
- Open
- Planned

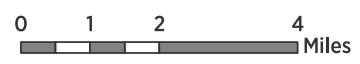


FIGURE 0.5: Existing Pedestrian Infrastructure and Priority Areas

BIKEWAYS

Bikeways Master Plan

In 2012, MTPO adopted the Topeka Bikeways Master Plan which outlines a five-phase plan for the city to establish bike lanes on specific routes and develop a Topeka Bikeway System over a 15-year period. Built of eight trails and 25 “routes” (seen in the map on the next page), Topeka’s plan sought to accomplish six goals:

- Increase the number of people who use the bicycle for transportation as well as recreation
- Improve bicycle access to key community destinations
- Improve access to the city’s pathway system by connection to trails and neighborhoods
- Use bicycling to make Topeka more sustainable.
- Increase roadway safety
- Capitalize on economic development benefits of a destination-based bike system.

Bikeways Today

In four years since the adoption of the Bikeways Master Plan, the City of Topeka was recognized in 2016 as a Bronze Bicycle Friendly Community by the League of American Bicyclists joining 372 communities so designated in all 50 states. The designation recognizes the Topeka community’s commitment to improving bicycling conditions through investments in infrastructure, promotion, education, and pro-bicycling polices including:

- 45 miles, or 37% complete, of the 122-mile on-street master plan network
- Over \$1.8 million from federal, state, city, and private sources for Phase I-II
- County-wide approval of sales tax funding to complete the master plan network by 2031
- First bike-share program started in Kansas (TMTA)
- Shunga Trail extension connecting SW neighborhoods west of I-470 for first time
- Adding full-time multi-modal planner and forming state’s first Complete Streets Advisory Committee to advise/guide implementation of Bikeways Master Plan
- Stepped-up enforcement of 3-ft rule, creation of safe dismount zone Downtown, a “Rules of the Road” video series, and requiring bike parking for new development
- Bike education programs in public grade schools and Cyclovia events in the community

Bikeways New Directions

While the foundations are well set for maintaining Topeka’s Bronze BFC status, achieving Silver BFC status in the next 5 years will require new priorities to emerge including the following:

- Focus on ensuring a more stress-free bikeways network suitable for people of all ages and abilities. More long-term/ultimate designs of the plan should be carried out that place emphasis on protected bikeways including bike lanes, cycle tracks, bike boulevards, sidepaths, etc. compared to short-term options such as sharrows. This will result in slower pace to complete the network but a safer network going forward that leads to increased ridership from all demographics and geographic sectors.
- In order to continually evaluate success of a stress-free network, engage in more frequent use of data to drive network decisions including user surveys, bike counts, social media outreach, mapping tools, etc.
- Expand bicycle education efforts including public campaigns to normalize bicycling for recreation and transportation.
- Adopt complete street engineering standards for City and County so that bikeways elements are not only consistent throughout the MPA, but so they are embedded into the design and cost estimates of street projects on the front end instead of trying to fit complete street recommendations on the back end after budgets have been set.



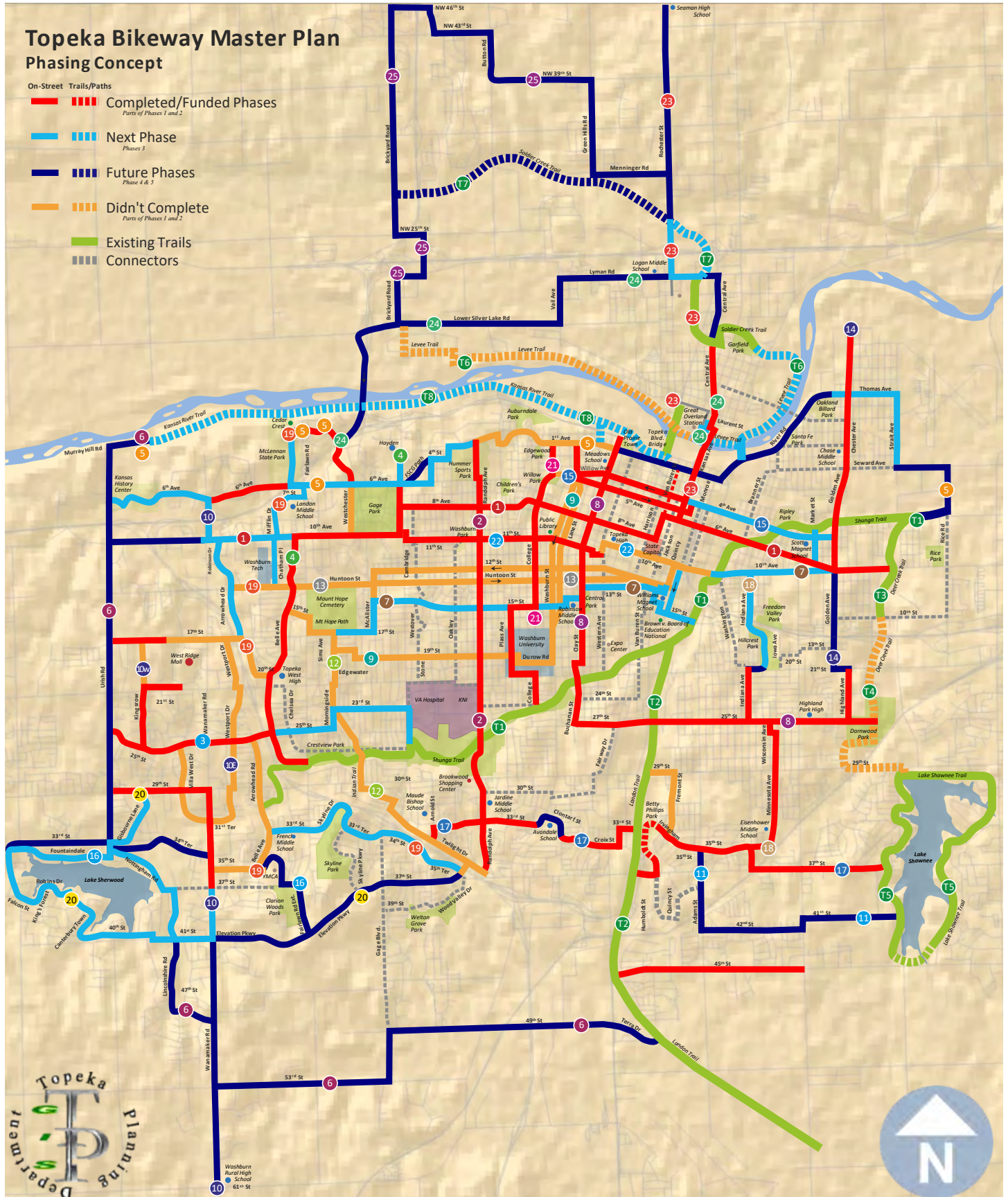


FIGURE 0.6: Existing and Planned Bikeway Infrastructure

TRANSIT

Transit Today

The current fixed route network includes 12 routes, 2 special routes, and a flex zone (seen in the map on the next page). Annual ridership is near 1.2 million, and 95 percent of buses arrive within 5 minutes of their scheduled time. Buses operate on weekdays between 5:40 am and 7:30pm and on Saturdays between 8:15 am and 6:10 pm.

Topeka Metro continues to add amenities to its current total of 71 bus shelters and 30 benches. The recently designated bus stop system is 31 percent compliant with the American with Disabilities Act (ADA) with an ultimate goal of 100 percent compliance by 2020.

Topeka Metro Bikes has 200 bicycles, 17 stations, and 120 in-network hubs. Riders made 15,393 trips in 2016, using hourly, monthly, and annual passes.

Transit New Directions

Topeka Metro in the coming years is undergoing a number of initiatives to improve mobility within the region, including the following initiatives:

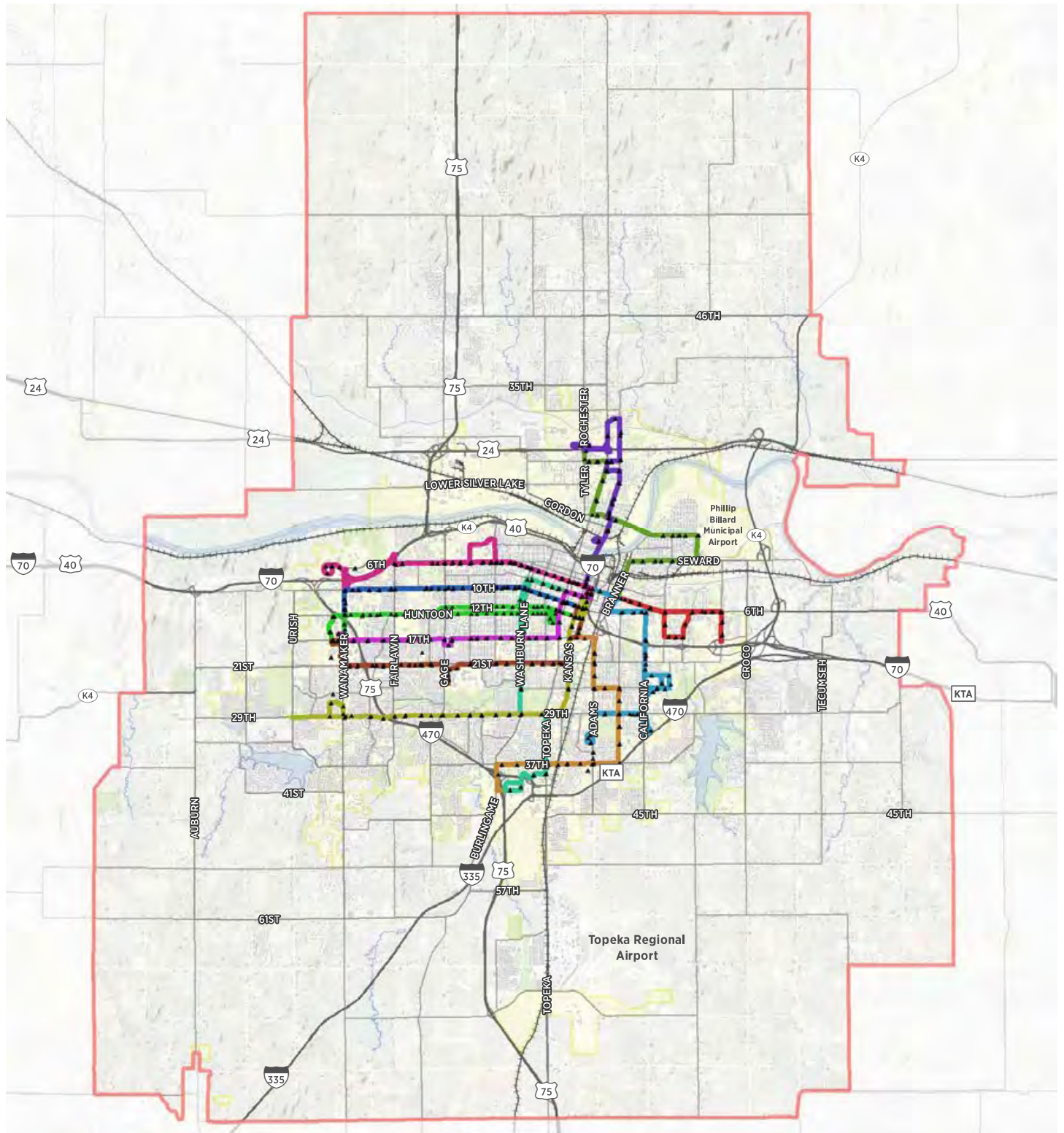
- **New Fare Types.** Fixed route passengers now enjoy 24-hour passes that eliminate the need for transfers and annual bus/bike passes.
- **Automatic Vehicle Location (AVL).** AVL allows for better tracking of on-time performance and will help make possible an upcoming phone app for passengers to be more aware of bus times.
- **Extended Service.** Topeka Metro is exploring opportunities to provide service on Sundays and evenings, a South Topeka job access route, and a commuter route to Lawrence.
- **Paratransit Efficiency.** Revel scheduling software has improved efficiency in paratransit service scheduling, saving taxpayers dollars while maintaining service levels.
- **More Bikes and Stations.** Topeka Metro will continue to add bicycles and stations to the system, increasing coverage and accessibility for all Topeka residents.
- **Bike Racks at Bus Stops.** Bike racks will be incorporated into bus stop amenity improvements, especially in areas with limited bicycle parking.

New Bus Stop Amenities



Topeka Metro Bike Share





- Plan Boundary
 - Railroad Lines
 - Water Bodies
 - Parks
 - City Limits
 - ▲ Designated Bus Stops
- | | | |
|-------------------|---|---|
| Bus Routes | — 4 | — 12 |
| | — 1 | — 5 |
| | — 2 | — 6 |
| | — 3 | — 7 |
| | — 10 | — 17 |
| | | — 21 |
| | | — 29 |

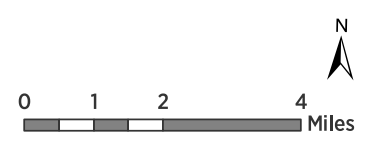


FIGURE 0.7: Topeka Metro Transit System Map

FUTURES2040 GOALS

Based on eight federally required planning factors, what was learned about what was important to the members of the public, a review of other plans in the region, including the last regional transportation plan, five goals emerged to guide this plan’s decision-making. In order of importance, this plan’s goals are as follows:

- Maintain Existing Infrastructure.
- Improve Mobility and Access.
- Increase Safety for All Modes of Transportation.
- Enhance Quality of Life.
- Promote Economic Development.

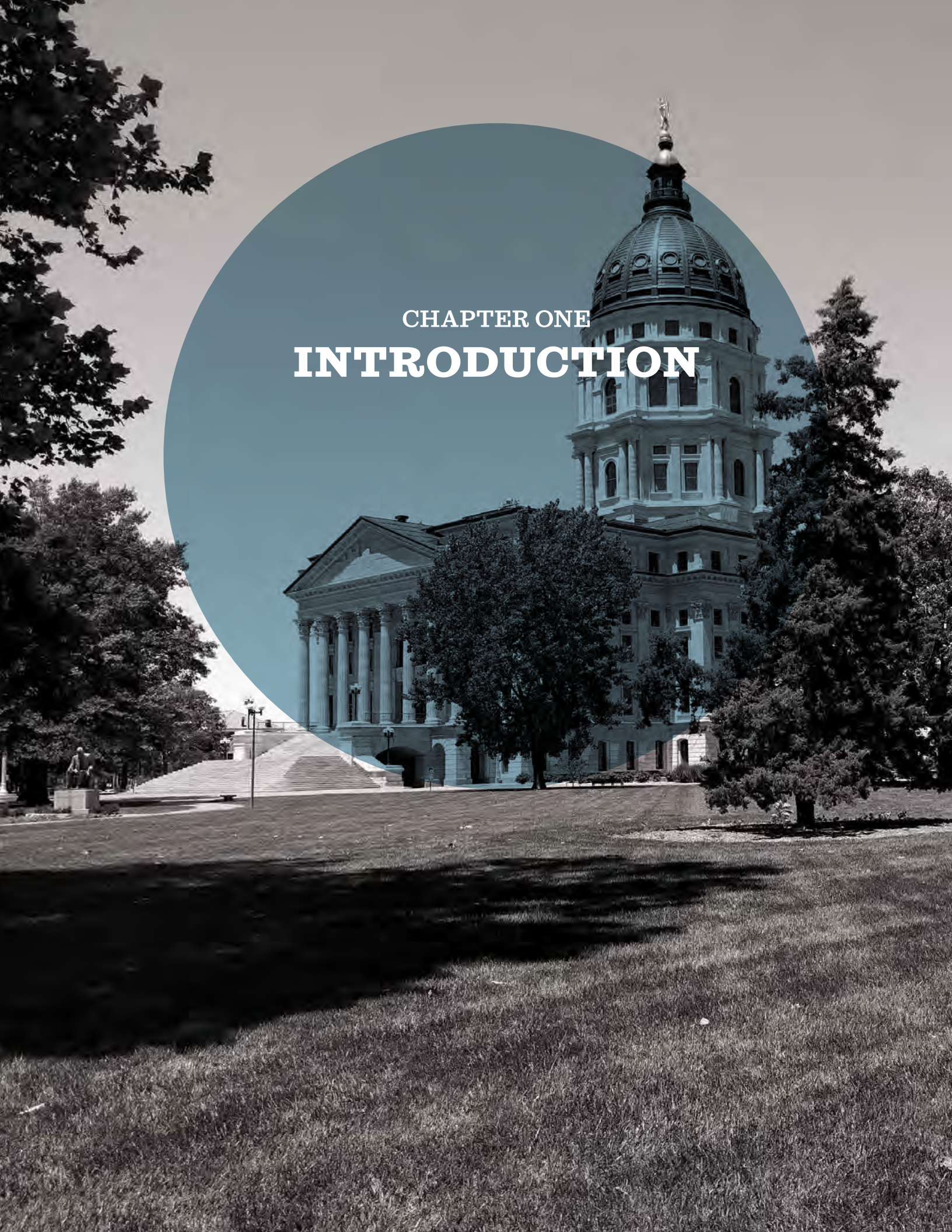
Again, it is important to note that spending priorities with Futures2040 Regional Transportation Plan have shifted from the last Long Range Transportation Plan adopted five years ago. This plan places much greater emphasis on system preservation and on other modes of transportation, particularly the active modes of transportation. The City of Topeka in particular may need to pursue additional funding resources to be better able to improve pavement conditions over time.

PROJECT EXPENDITURES AND REVENUES

The financial analysis project just under \$1.88 billion in funds from federal, state and local sources will be available between 2017 and 2040 for surface transportation spending. In addition, the RTP identifies just under \$1.86 billion in transportation projects by all project sponsors between 2017 and 2040. Thus, there appears to be adequate financial resources available to implement this plan. This can be seen in a comparison between expected revenues and expenditures below.

FIGURE 0.8: Financial Constraints - Expenses and Revenues

	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	Total
GRAND TOTAL REVENUES	\$300,483,577	\$360,827,476	\$464,574,515	\$365,565,110	\$384,416,174	\$1,875,866,851
+ PREVIOUS PERIOD DIFFERENCE		\$79,243,718	\$17,387,661	\$31,240,315	\$21,739,572	
GRAND TOTAL PROPOSED EXPENDITURES	\$221,239,859	\$422,683,533	\$450,721,861	\$375,065,853	\$391,671,847	\$1,861,382,953
DIFFERENCE BETWEEN REVENUES & EXPENDITURES	\$79,243,718	\$17,387,661	\$31,240,315	\$21,739,572	\$14,483,899	\$14,483,898



CHAPTER ONE
INTRODUCTION

NEW DIRECTIONS

Futures2040: Regional Transportation Plan (RTP) for the Topeka Metropolitan Planning Area (MPA) makes two major policy shifts from prior regional transportation plans:

1. The plan recommends a shift away from projects that add mainline capacity to roads toward projects that preserve the existing roadway network.
2. The plan recommends an increased emphasis on active modes of transportation reflecting recent decisions by Topeka, Shawnee County, and the Metropolitan Topeka Planning Organization (MTPO) to adopt complete streets policies. There also has been a significant increase in local funding for pedestrian and bicycle projects.

Futures2040 is a guide for transportation and mobility decisions for Topeka and surrounding Shawnee County. It explores current demographic, economic, and land use trends, models future growth, identifies needs for streets, public transit, bikes, pedestrians, and freight through the year 2040, and recommends future transportation projects. As the Regional Transportation Plan (RTP), it also is integral to receiving federal funds while laying the groundwork for valuable transportation projects and initiatives that will help the Topeka metro realize its full potential. More specifically, the RTP addresses the following:

- An overview of the community including population and housing development, employment goals and plans, and regional land use;
- A systems-level analysis that considers roadways, transit, and active transportation, in addition to projected demand for transportation services over 20 years;
- An overview of the public's involvement in deciding their future;
- Cost estimates and reasonably available financial sources for operation, maintenance, and capital investments; and
- Policies, strategies, and projects for the future, in addition to ways to preserve existing roads and facilities and make efficient use of the existing system.

The success and vitality of the Topeka region depends on how it grows and develops. Quality of life will be defined by a range of lifestyles, the health of the natural and built environment, and access to jobs, housing, and community goods and services. It will not come from any single decision, jurisdiction, or variable, but it will depend on the region's ability to coordinate aggregate choices over time. Informed choices and integrated, collaborative solutions that advance a regional vision will optimize limited resources, create stronger communities, and make strides towards a prosperous future.

BACKGROUND

Federal law requires urbanized areas with populations of greater than 50,000 residents to undertake continued, comprehensive, and cooperative long-range transportation planning for Metropolitan Planning Areas (MPAs). These are carried out by Metropolitan Planning Organizations (MPOs) as guided by the Fixing America's Surface Transportation (FAST) Act, adopted 2015. Plans must meet current and future needs for all modes of transportation and be updated every five years. The Metropolitan Topeka Planning Organization (MTPO) – a partnership between the City of Topeka, Shawnee County, Jefferson County, the Topeka Metropolitan Transit Authority and the Kansas Department of Transportation Topeka, formed in 2004 – oversees this duty.

The previous RTP, titled “MTPO 2040 Long Range Transportation Plan,” was adopted in 2012 with the same horizon year as the current plan. Futures2040 builds on this past plan while complying with FAST Act's streamlined, performance-based, and multimodal program, including maintaining infrastructure, improving safety, reducing congestion, improving road and freight system efficiency, protecting the environment, reducing delays in project delivery, and creating economic growth. In focusing on performance-based planning, the MTPO increased its use of data and performance measures within planning, including visualization and other tools to communicate information throughout the planning process. Key performance-based transportation planning elements include:

- C. Baseline data:** The latest available estimates and assumptions for population, land use, travel, mode share, employment, congestion, economic activity, and transportation and land use conditions and trends.
- D. Applicable studies, policies, and plans:** State Strategic Highway Safety Plan, State Asset Management Plan, Transit Asset Management Plan, State Freight Plan, modal plans such as pedestrian, bicycle, and transit plans.
- E. Integrated multimodal transportation system:** Existing transportation facilities, including major roadways, transit, multimodal and intermodal facilities, pedestrian walkways and bicycle networks, and intermodal connectors.
- F. Analysis and Consideration of Revenue:** Revenue projections based on realistic assumptions about funding all capital, operating, and maintenance costs associated with the surface transportation system must be analyzed through an iterative process and revisited as new information and forecasts are developed through the planning process.

GUIDING PRINCIPLES

Additional guiding principles have also helped the development of this plan. Some, such as a concern for sustainability and environmental justice, have been gaining strength for years. Others, including an increased focus on other effects of transportation investments, are more recent. The following highlights some of the guiding principles that were considered in developing Futures2040. This list is by no means exhaustive, and many of the ideas below are often inexorably linked. However, each of these considerations is important when it comes to ensuring that the transportation plan comprehensively address transportation issues and their impact on quality of life.

Sustainability

Sustainability means meeting present needs without compromising the ability of future generations to meet their own needs. While environmental sustainability often comes to mind, economic sustainability and social sustainability are equally important. Environment speaks to minimizing environmental damage so as not to negatively affect others; in transportation, this is often tied to reducing air pollution (currently Shawnee County is meets National Ambient Air Quality Standards) and guiding development to protect vulnerable areas. Economy speaks to strengthening the regional economy and workforce to build resilience; in transportation, this includes providing mobility options to connect workers with jobs and making sure goods can be efficiently shipped to markets. Equity speaks to not excessively hurting marginalized groups; this is often done by investing in Environmental Justice areas while not disproportionately harming those that live there.

Wellness and Transportation

Aspects of wellness are integral to transportation planning when approached holistically, including consideration of active transportation, safety, air pollution, and opportunities for healthy lifestyles. Transportation systems that encourage walking and bicycling can help people to increase their levels of physical activity, resulting in significant potential health benefits and disease prevention. Beyond traditional measures of reduced injuries and fatalities, safety can lead toward the overall goal to a “healthier community.” Regarding air pollution, transportation-related air emissions negatively impact human health. Finally, community design and transportation systems can support or inhibit residents in their pursuit of health-related activities such as access from residences and workplaces to stores with healthy foods, medical offices, social service centers, and active recreation facilities.

Livability

Livability is the sum of the factors that add up to a community’s quality of life—including the built and natural environments, economic prosperity, social stability and equity, educational opportunity, and cultural, entertainment and recreation possibilities. Looking beyond mobility has revolutionized transportation planning. A new understanding of the impacts of transportation investments on people, neighborhoods, and cities has emerged, leading to context-sensitive design, complete streets, and new standards. The results of this shift are visible everywhere with improved crosswalks, bike infrastructure, wider sidewalks with space for outdoor activity, and street trees that provide improved drainage and reduced impervious surface. Collectively, these details support more livable and enjoyable places, especially for pedestrians, bicyclists, and others who do not travel by car.

Transportation-Land Use Connection

The goal of transportation planning is to provide better access. As cities reacted to sprawling, 20th century suburban development, they realized that segregating land uses may not be the best method as it almost requires additional driving to conduct daily life. Consequently, Euclidian zoning has been reconsidered in favor of mixed-use development or neighborhood commercial districts which can accomplish access through co-location as well as mobility. To do so, these districts locate home, work, shopping, and recreation much closer to each other, supported by compact and higher density development. This has led to balancing the effects of transportation investments on land use and mobility.

PLANNING PROCESS

The planning process was conducted by the Metropolitan Topeka Planning Organization (MTPO) and RDG Planning & Design, in collaboration with WSP USA and Venice Communications. As a collaborative effort, the team engaged citizens and stakeholders throughout the planning process which informed decisions and ensured that plan outcomes are meaningful, appropriate, and achievable. It also kept officials, agencies, local governments, the public and interested parties informed of the planning effort and allowed opportunities for input into the plan.

The process kicked off in May 2016, establishing a **Foundation of Facts**. This included an existing conditions analysis which reviewed all modes of transportation, including walking, biking, riding transit, driving cars, and trucks. It also took into consideration how the existing transportation system supports land use and economic development and the environmental impacts of the existing transportation system on low-income and minority persons within the region.

Next, the team set to **Forecast the Future** which included a future conditions analysis. During this phase, the team estimated and forecasted future conditions for all modes of transportation, including walking, biking, riding transit, driving cars, and trucks. It also considered how the proposed future transportation system will support adopted future land use plans and economic development initiatives, in addition to the environmental impacts of the proposed transportation system on low-income and minority persons within the region.

Finally, the team sought to **Formulate the Fit**. This included synthesizing the earlier two tasks to allow the region to shape its future. Specifically, it involved the development of the financial plan, the prioritized project listing, and a review of the proposed projects' consistency with the adopted goals and objectives of the RTP. During this phase, the plan was also reviewed for consistency with federal planning factors.

Throughout the process, public engagement was a critical element in any planning effort, so numerous opportunities and channels of communication were employed for Topeka area citizens, public agencies, transportation agencies, and other stakeholders to review materials and offer their ideas related to the development of Futures2040.

Steering committee meetings and public engagement efforts began in May 2016 and continued through plan adoption. Key components of this outreach included:

- Five steering committee meetings were held with the with MTPO Technical Advisory Committee (TAC), in addition to two additional full TAC meetings and four meetings with the MTPO policy board;
- Interviews with 11 stakeholder groups comprising more than 50 stakeholders in addition to informal discussions with MTPO staff, local agencies, transit providers, KDOT, FHWA, FTA and other necessary local, state, and federal agencies;
- Two public community surveys which garnered more than 775 responses;
- Six public meetings held in August and November with 128 attendees, and one additional public meeting held during the adoption process in April; and
- A thirty-day public comment period.

These key activities in addition to promotion on the project website, the City's website, through NextDoor, and through the City's social media accounts provided the public up-to-date information about progress on the plan. For further information on public involvement and the planning goals and objectives crafted from it, see Chapter 5.

ORGANIZATION

The following document is organized similarly to the way the planning project was carried out. Chapter 1 introduces the project, its background, and its process. This is followed by three sections, each of which has two chapters.

The first section, **Foundation of Facts**, examines the region's existing conditions.

Chapter 2 provides an overview of the community, including an investigation of population, household, and employment change, distribution, and density, in addition to other related factors such as environmental justice populations, land use patterns, and an environmental baseline analysis.

Chapter 3 reviews existing conditions for all modes of transportation, including walking, biking, riding transit, driving cars, and trucks. It also took into consideration how the existing transportation system supports land use and economic development and the environmental impacts of the existing transportation system on low-income and minority persons within the region.

The next section, **Forecast the Future**, analyzes future conditions in the region.

Chapter 4 considers population, household, and employment projections, future needs for all modes of transportation, including walking, biking, riding transit, driving cars, and trucks, and potential transportation investments. It concludes with several transportation scenarios and three select link analyses, their forecasted effects on future land use plans and economic development initiatives, and the environmental impacts that proposed transportation system may have on low-income and minority persons within the region.

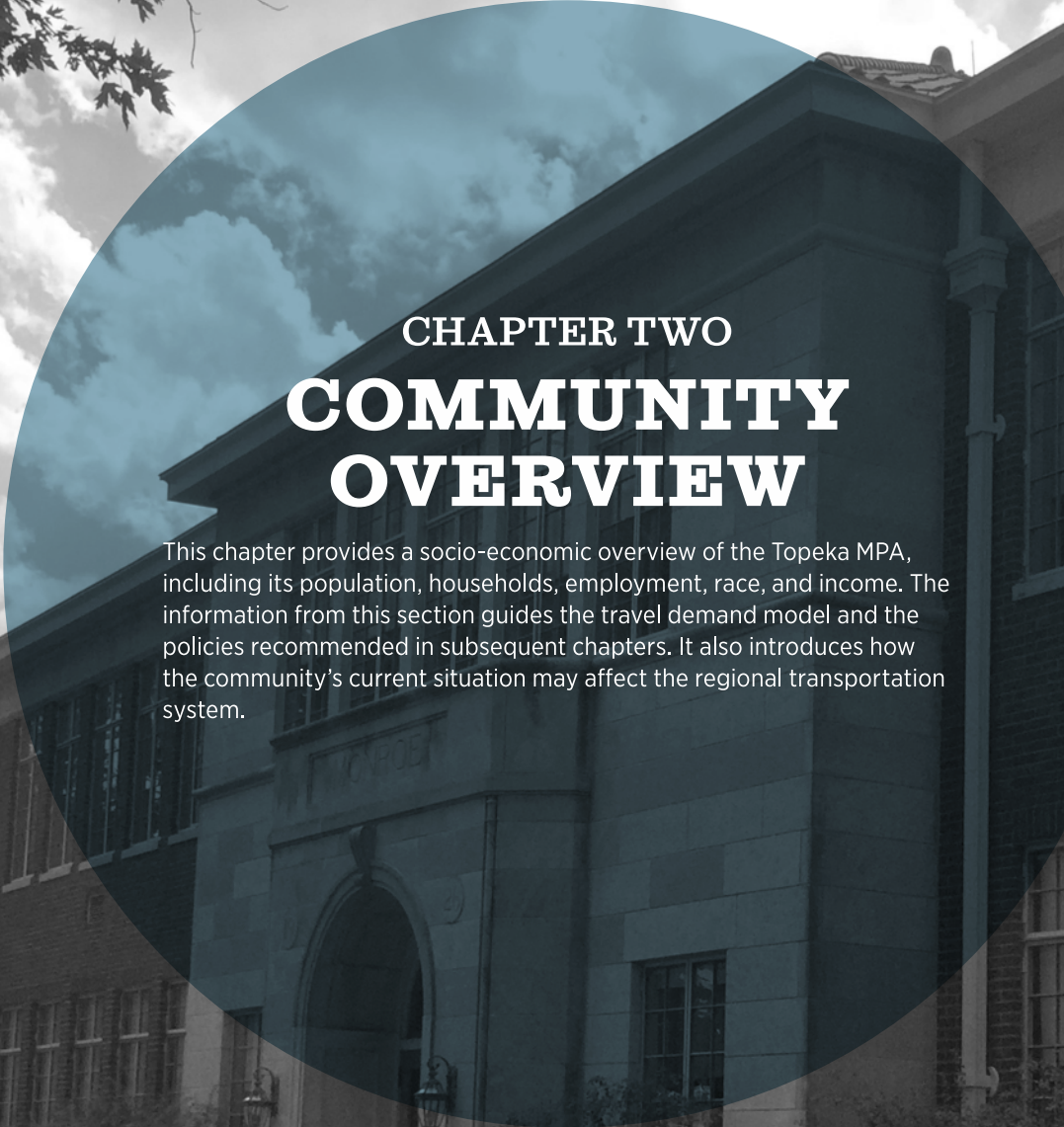
Chapter 5 provides the estimated costs of the potential projects proposed in the previous chapter and forecasts future expected revenues.

The final section, **Formulate the Fit**, synthesizes the earlier two sections to realistically meet the transportation needs of the region.

Chapter 6 explores public involvement, themes that came out of public involvement, and planning goals and objectives that were developed from there. It concludes by looking at how this plan fits with other planning efforts.

Chapter 7 contains final recommendations for prioritized project listing and other recommendations for the MTPO.

Public comments, displayed materials, detailed methodologies, and other additional information can be found in the document's appendices.



CHAPTER TWO

COMMUNITY OVERVIEW

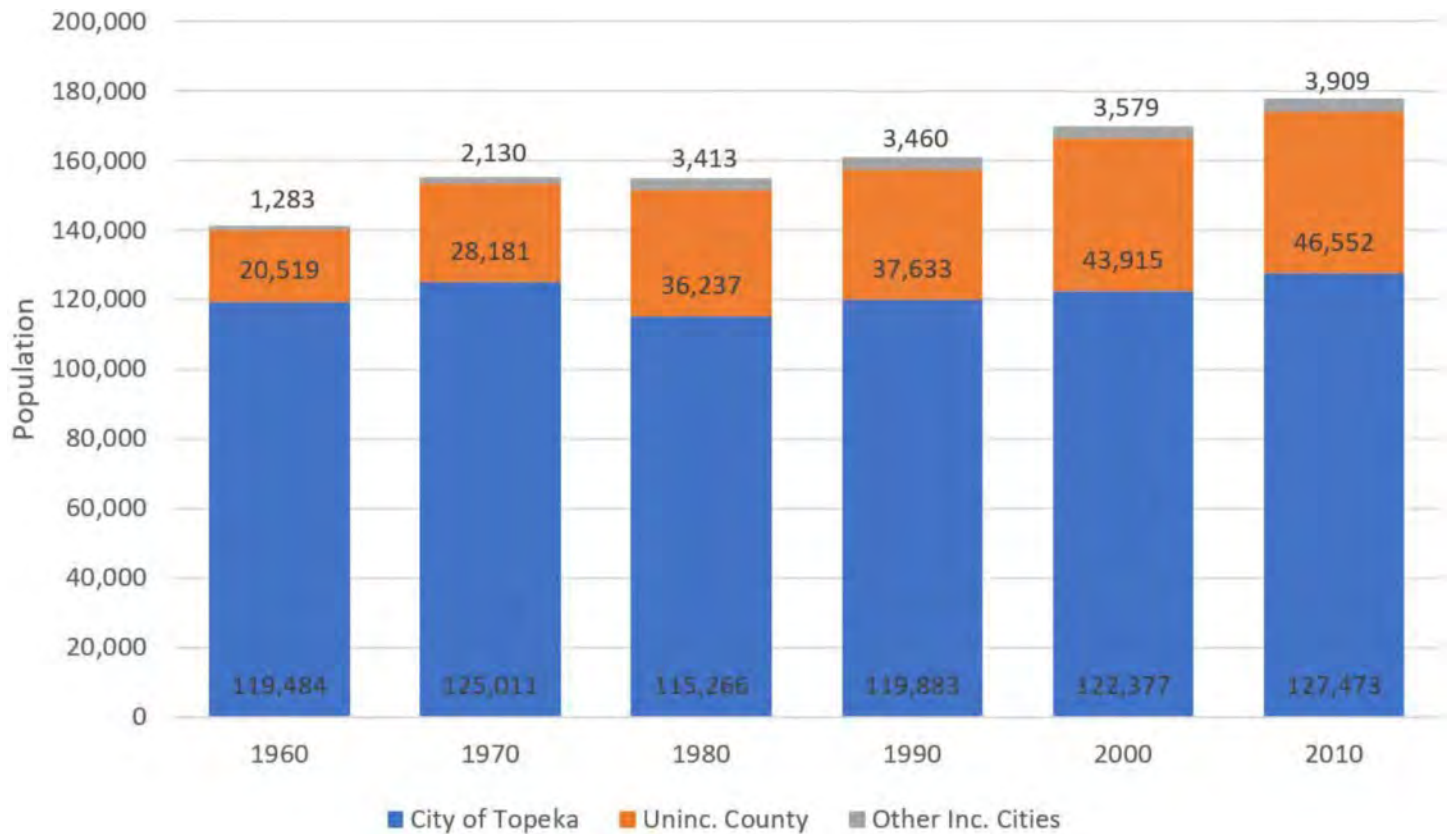
This chapter provides a socio-economic overview of the Topeka MPA, including its population, households, employment, race, and income. The information from this section guides the travel demand model and the policies recommended in subsequent chapters. It also introduces how the community's current situation may affect the regional transportation system.

Topeka, fifth largest city in Kansas with a population approaching 128,000 and State Capital, is in Shawnee County roughly 65 miles west of Kansas City. The County, covering 556 square miles, is the third most populous county in the state and has grown steadily over the past fifty years due to its strong economy and solid employment base. The county contains four other incorporated communities beyond Topeka and outside the MPA: Auburn, Silver Lake, Rossville, and Willard. Topeka and its metropolitan planning area (MPA) covers some 287 square miles of eastern Shawnee and Jefferson Counties, including the City of Topeka, its future growth areas, and nearby areas likely to become urbanized by 2040. Grantville, an unincorporated community of about 50 persons in Jefferson, is also in the MPA, but is not prominently featured in analyses due to its small size.

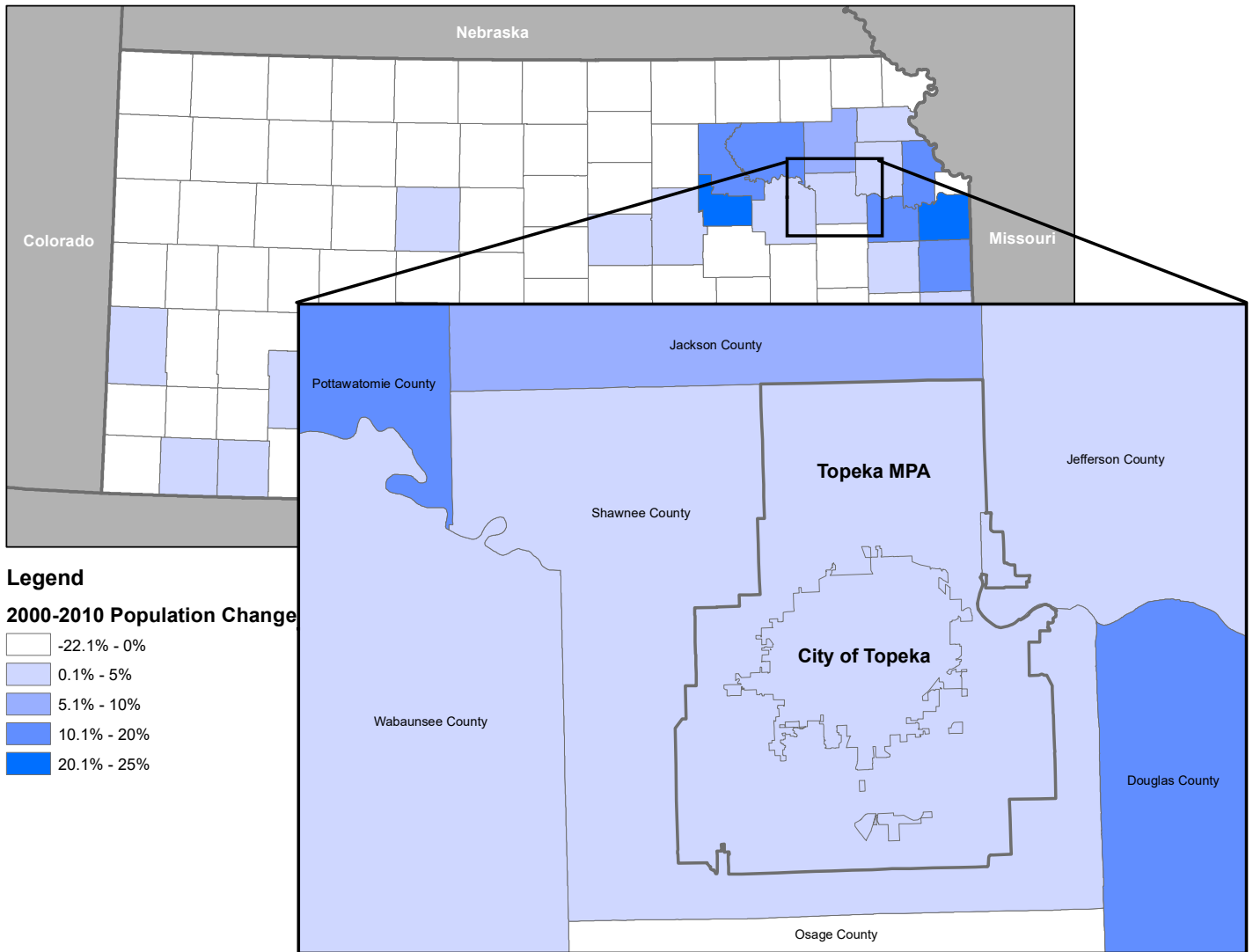
POPULATION AND HOUSEHOLDS

Shawnee County and Topeka have grown steadily over the last fifty years, though unincorporated areas have grown faster. The county's population grew an average of more than 5 percent from 1960 to 2010, reaching nearly 178,000 residents by 2010. Other than a population decline during the 1970s, Topeka also experienced steady albeit slower growth. Because much of the county's growth occurred in unincorporated and exurban areas which now comprise over a quarter of the county's total population in 2010, compared to being less than 15 percent in 1960. Conversely, the City declined as a percentage of the County's population, though this has lessened over time due to City policies regarding utilities.

FIGURE 2.1: Shawnee County Population: Topeka, Other Incorporated Cities, Unincorporated Areas



Source: 1960, 1970, 1980, 1990, 2000, and 2010 US Censuses



2.2: Shawnee County and Topeka Metropolitan Planning Area Map

Population and Household Density

The population of the Topeka MPA, calculated using 2015 Traffic Analysis Zone (TAZ) data, lies between the population of the City and County. In 2015, the MPA's population reached almost 170,900, three quarters of whom live in Topeka with about 74,900 households. This amounts to over 95 percent of the county's population. Since 2000, the population has increased by 5.9 percent while the number of households increased by 15.5 percent. Because household growth outpaced population growth, the average household size in the MPA decreased from 2.49 to 2.28 persons per household over that time.

Because the area of the MPA remained constant, both population and household density increased from 2000 to 2015. The City of Topeka contains the most concentrated areas of population as would be expected. This includes areas just west of downtown, northeast of I-470 and SW Gage Boulevard, and southwest of I-470 and SW 21st Street. Some areas outside the City also have urban population densities such as around Lake Sherwood, east of Topeka on 29th Street, and north of Topeka on US-75. The population density map (right) displays the distribution of population in the MPA by TAZ. Compared to other major cities in Kansas, below, Topeka has one of the lower population densities.

FIGURE 2.3: Topeka MPA Population and Households

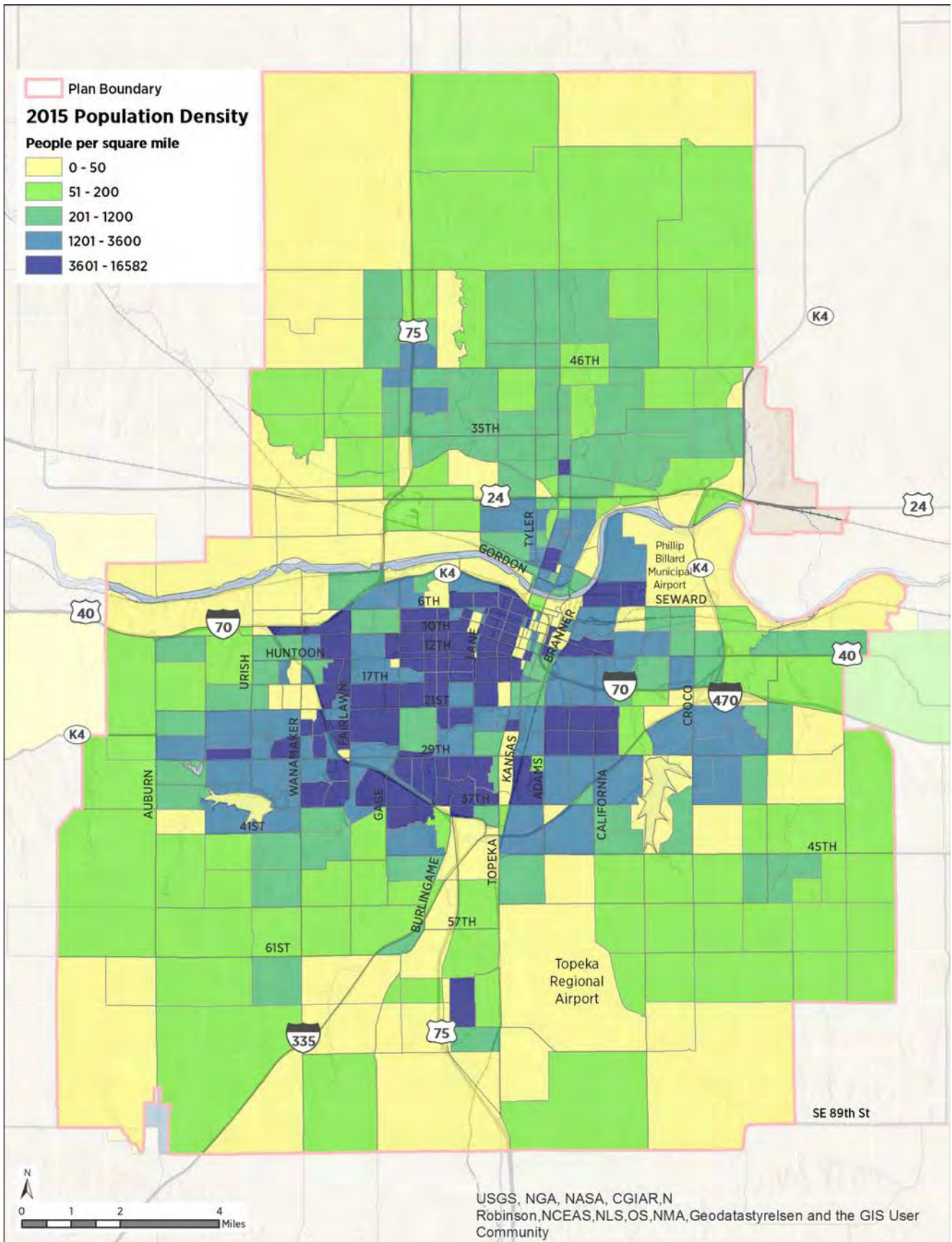
	2000	2015 Estimate	Change	% Change
Population	161,402	170,869	+9,467	+5.9%
Population Density (Pop. / Mi2)	563.0	595.9		
Households	64,917	74,947	+10,030	+15.5%
Household Density (HH / Mi2)	226.4	261.4		
Average Household Size (Pop. / HH)	2.49	2.28	-0.21	

Source: MTPO Estimates by Traffic Analysis Zone

FIGURE 2.4: Population and Population Densities of Largest Cities in Kansas

	Wichita	Overland Park	Kansas City	Olathe	Topeka	Lawrence
Population	387,147	181,464	148,855	131,508	127,672	91,305
Population Density (Persons/Square Mile)	2,430	2,425	1,193	2,204	2,122	2,720

Source: 2015 5-Year American Community Survey



Source: MTPO Estimates by Traffic Analysis Zone

FIGURE 2.5: 2015 Estimated Population Density

Age

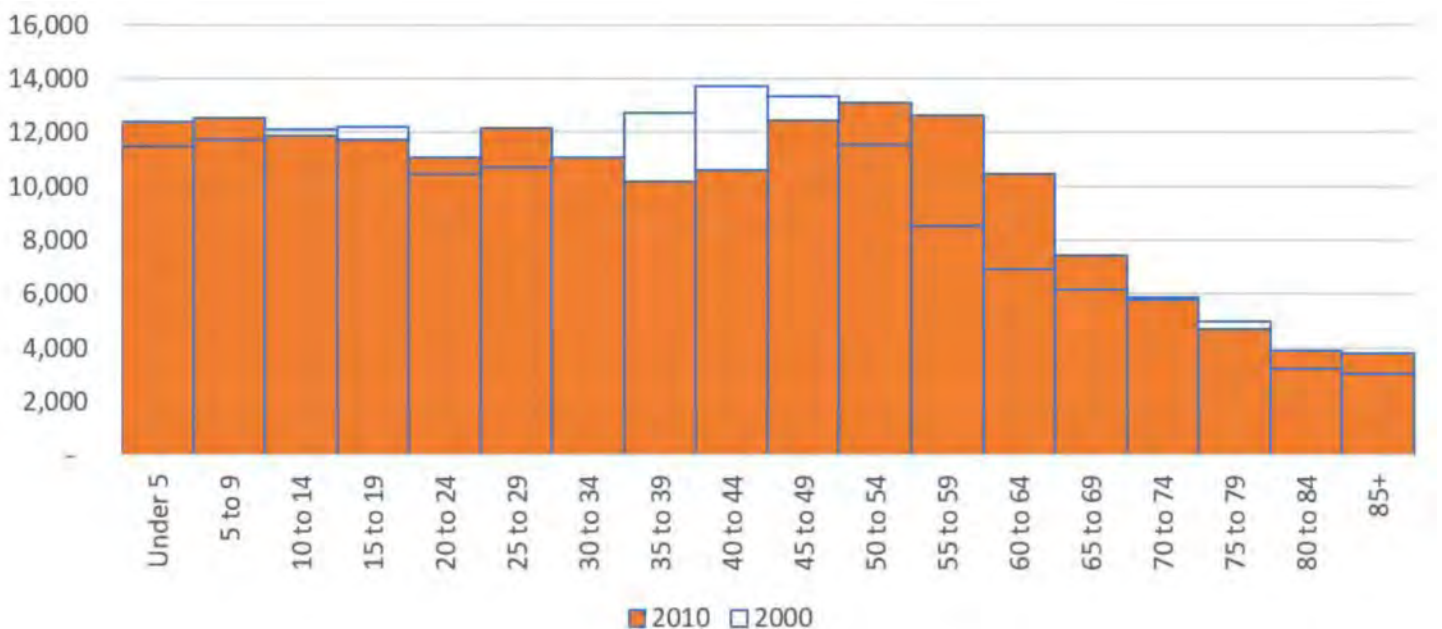
Age cohorts further clarify demographic trends in Shawnee County. Over the last 20 years, the County's population aged along with the nation. In 2000, the Baby Boomer generation was 35 to 49 years old, beginning high-skill years in the workforce and passing prime child-bearing years. By 2010, Boomers were 45 to 59, reaching the peak of their careers and becoming empty nesters. As of 2015, Boomers began reaching retirement age. These factors have caused the median age to increase from 37.1 in 2000 to 38.6 in 2015. Furthermore, those older than 65 increased from 13.7 to 14.4 percent from 2000 to 2010, and 2015 estimates suggest that they now comprise 16.5 percent of the county.

Increasing rates of seniors dramatically impact the types of transportation services and systems needed across Shawnee County. This is especially true as the county has aged more rapidly than the City. From 1990 to 2010, the County's population age 65 and over increased more than 21 percent from 21,085 to 25,612, while the City's population over 65 increased 2.9 percent from 17,667 to 18,186 over that same period. This trend suggests that many living outside of City limits with more limited transportation options (such as transit or active transportation access) may face mobility challenges in the future.

The Millennial generation, the children of the Baby Boomers, are also increasingly important. As the nation's largest demographic, those who came of age in the new millennium were strongly affected by the Great Recession. That, in addition to changes preferences, have led to delays in marriage and childbearing, resulting in lower fertility rates. While fertility rates have increased among older women, this could signify a permanent change towards smaller families, or it instead foreshadow a bounceback as women who deferred having babies begin to start families. Demographers are split. However, recent surveys have also shown an increased desire for walkability among millennials, which could potentially have a large impact on the shape of cities.

The steady growth of the population, the relatively low density of the City, and the consistent development of new areas also will impact the transportation system. More of these impacts are discussed in the Land Use section, which explores in detail how land use has changed over time.

FIGURE 2.6: 2000-2010 Age Distribution in Shawnee County

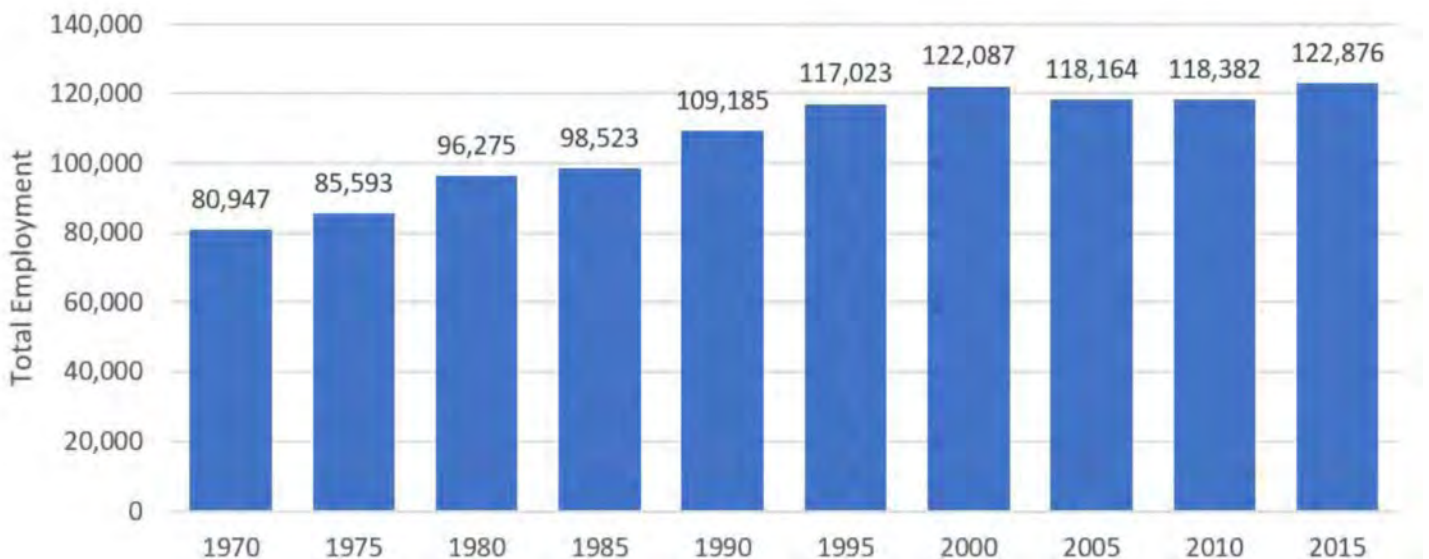


EMPLOYMENT

Since 1970, employment increased in Shawnee County until an initial peak of nearly 122,100 jobs in 2000. From 2000 to 2005, employment decreased by about 4,000 or 3.2 percent, after which it remained flat through 2010. It then surpassed its 2000 peak in 2015 at almost 122,900 jobs. These trends reflect the County's general economic growth, economic recession, and market recovery.

Since the recession, much of the growth in jobs has come from proprietor employment, i.e. business ownership as opposed to wage and salary employment. Proprietor employment increased from 11 percent of jobs in 2000 to 15 percent in 2015. This demonstrates a shift away from wage and salary employment, which is still some 4,100 jobs below what it was in 2000.

FIGURE 2.7: 1970 - 2015 Total Employment in Shawnee County



Source: Bureau of Economic Analysis (BEA)

FIGURE 2.8: Total Employment by Type

	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Wage and Salary	72,291	75,269	85,011	86,098	95,740	102,215	108,523	101,085	100,759	104,450
	89.3%	87.9%	88.3%	87.4%	87.7%	87.3%	88.9%	85.5%	85.1%	85.0%
Proprietor	8,656	10,324	11,264	12,425	13,445	14,808	13,564	17,079	17,623	18,426
	10.7%	12.1%	11.7%	12.6%	12.3%	12.7%	11.1%	14.5%	14.9%	15.0%
Total	80,947	85,593	96,275	98,523	109,185	117,023	122,087	118,164	118,382	122,876

Source: Bureau of Economic Analysis (BEA)

Labor Force

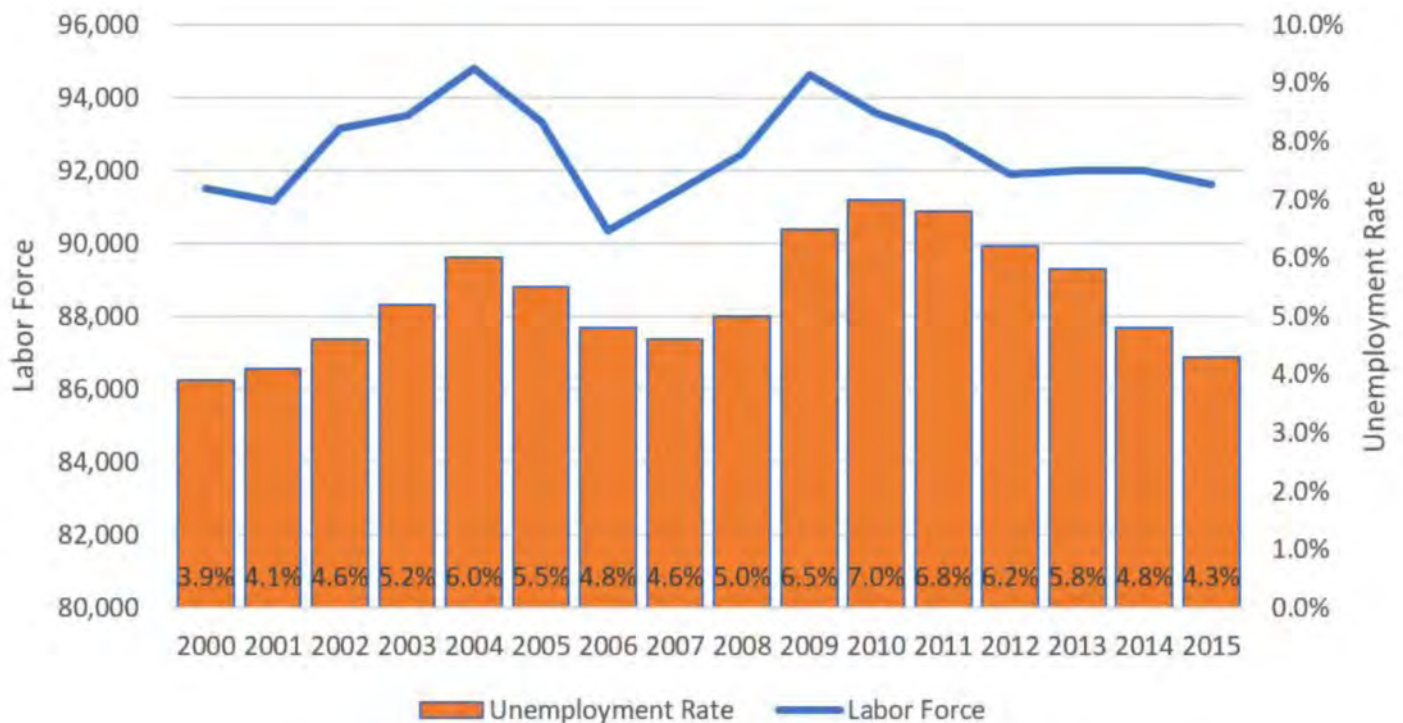
In 2000, Shawnee County's labor force, that is active workers living in the area, was estimated at 91,500. Increasing to over 94,800 workers in 2004, the number declined until 2006, climbed again through 2009, and declined back to 91,600 in 2015. The unemployment rate followed a similar two-humped pattern with peaks in 2004 and 2010 at 6.0 and 7.0 percent respectively. As of 2015, the unemployment rate is 4.3 percent.

Shawnee County's unemployment rate tends to be comparable to that of the State of Kansas, though at times it is higher. Generally, both Shawnee County and Kansas are below national unemployment rates. The fact that the labor force is lower than the number of jobs suggests that either many jobs are part-time or, more likely, that many jobs in the County are filled by people commuting into the County who are not residents of the County.

Industry

Health care, retail trade, and local government are the three largest job sectors, comprising about one third of total employment in Shawnee County. Other strong sectors include finance, state government, and administrative services. This is no surprise as Topeka is the Capital of Kansas. Most, though not all, of the County's top industries have grown over the past decade. However, cutbacks on state employment has resulted in 1,000 state jobs lost. The retail sector also had large decreases in employment, as has the transportation/warehousing and information sectors. The strongest job growth has occurred in the administrative services (at nearly three quarters of job gains in the county), followed by major gains in finance, health care, accommodation/food services, and management, each evidenced by more than 1,000 new jobs over the past decade. Overall, the County gained over 4,700 jobs in the past decade, despite the small growth from 2005 to 2010.

FIGURE 2.9: Unemployment Rate and Labor Force in Shawnee County



Source: Bureau of Labor Statistics (BLS)

FIGURE 2.10: Change in Employment by Industry

	2005	2010	2015	'05-'15 Change
Health care / social assistance	16,486	17,360	17,835	+1,349
Retail Trade	13,057	11,392	11,891	-1,166
Local Government	10,369	11,337	10,838	+469
Finance / Insurance	7,354	8,043	8,969	+1,615
State Government	9,359	9,208	8,330	-1,029
Administrative / Support Services	4,695	5,313	8,163	+3,468
Accommodation / Food Services	6,444	7,773	7,718	+1,274
Manufacturing	7,295	6,488	6,843	-452
Other Services	7,088	6,535	6,476	-612
Professional / Scientific / Technical	5,608	6,170	6,374	+766
Construction	6,233	5,475	6,098	-135
Real Estate / Rental	3,849	3,780	3,947	+98
Wholesale trade	3,818	3,435	3,600	-218
Transportation and warehousing	4,894*	4,137*	3,578	-1,316*
Non-Military Federal	2,632	3,675	3,437	+805
Management	844	1,000	1,906	+1,062
Information	2,935	2,016	1,646	-1,289
Arts / Entertainment / Recreation	1,614	1,699	1,578	-36
Educational Services	1,104	1,016	1,265	+161
Military	1,116	1,045	802	-314
Farming / Forestry / Fishing	959*	910*	893	-66*
Mining / Quarrying / Extraction	191	389	528	+337
Utilities	220*	186*	161	-59*
Total employment (number of jobs)	118,164	118,382	122,876	+4,712

* Indicates numbers are estimated using past trends

Source: 2005, 2010, and 2015 Bureau of Economic Analysis (BEA)

Employment Density

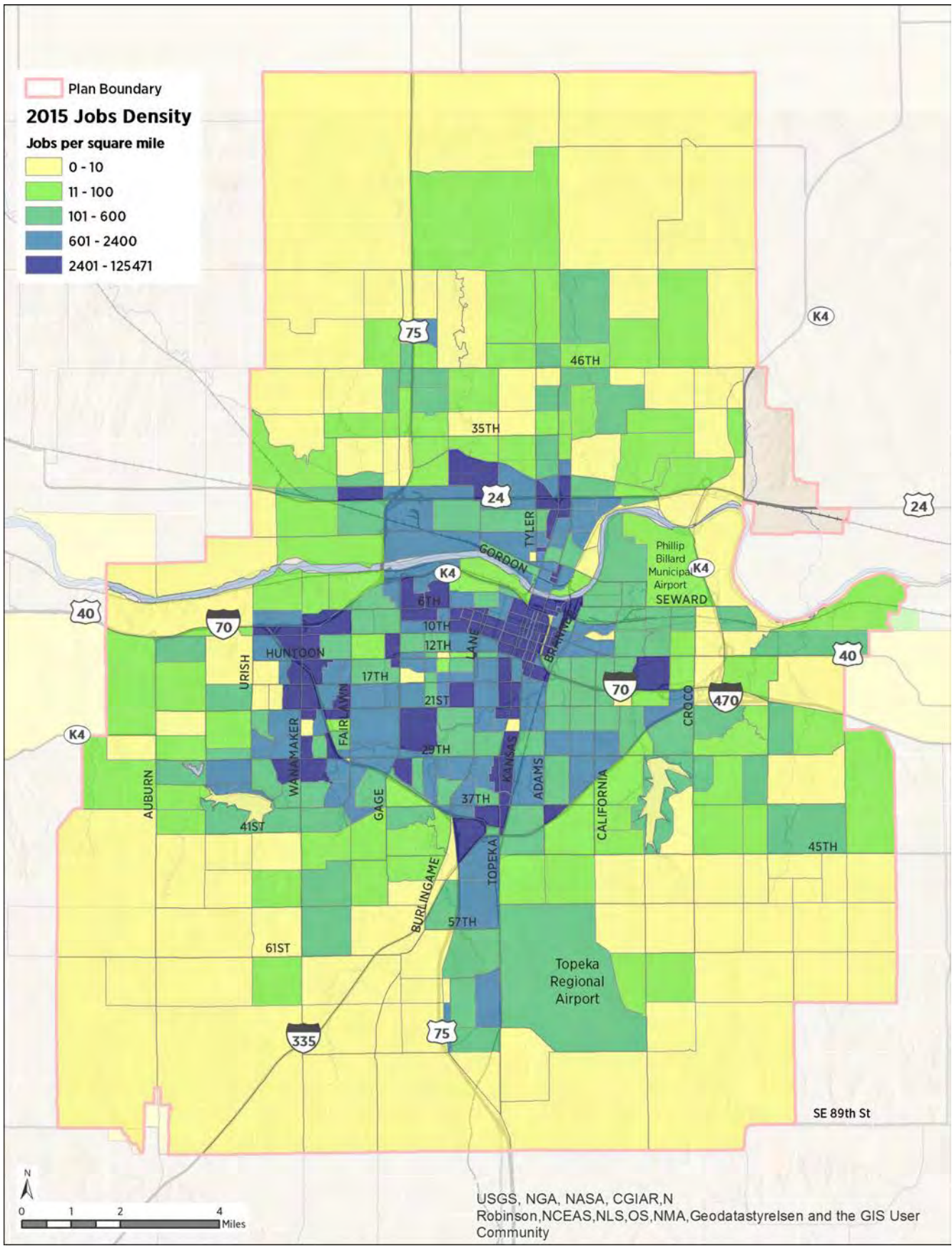
Employment within the MPA was estimated using Traffic Analysis Zones from the Travel Demand Model. The total MPA employment in 2015 was estimated at 111,574, comprising over 90 percent of jobs in the County. From 2000 to 2015, the number of jobs in the MPA increased by 8,800 or 8.6 percent. This raises the employment density from 358 to 389 jobs per square mile. Notable between 2000 and 2015 is an increase from 0.64 to 0.65 jobs per person, bring the amount closer to two jobs per three residents.

There are several major employment areas within the MPA. The largest of which is downtown / near downtown. These include many of the State of Kansas' Offices and major medical areas like St. Francis and Stormont-Vail. Another major employment area can be found along Wanamaker Avenue, which includes Westridge Mall and numerous big box and retail stores. Other clusters of employment are evident near SW Topeka Boulevard, including the Topeka Regional Airport, Target and Home Depot distribution centers, and the Mars plant, and on US-24, centered on the Goodyear Plant. These are further explored in the land use section.

FIGURE 2.11: Topeka MPA Employment

	2000 Estimate	2015 Estimate	Change	% Change
Total Jobs	102,765	111,574	+8,809	8.6%
Retail Jobs	18,750	19,724	+974	5.2%
Non-Retail Jobs	84,015	91,850	+7,835	9.3%
Area (Square Miles)	286.7	286.7		
Density (Jobs / Square Mile)	358.4	389.1		
Jobs Per Person	0.637	0.653		

Source: MTPO Estimates by Traffic Analysis Zone



Source: MTPO Estimates by Traffic Analysis Zone

FIGURE 2.12: 2015 Estimated Employment Density

ENVIRONMENTAL JUSTICE POPULATIONS

Because the MTPO plans for transportation and mobility for all members of the community at the regional level, it is also important to assess the natural, cultural and socioeconomic resources to support Environmental Justice (EJ) efforts, in addition to the National Environmental Policy Act (NEPA), Executive Order 12898, and the Title VI Civil Rights Legislation. To that end, race, ethnicity, income, national origin, and language ability are all important factors to transportation planning.

Race and Ethnicity

Within Shawnee County, nearly three quarters of the population are white and non-Hispanic/Latino. Minority groups including non-white and Hispanic/Latino populations comprise 25.2% of the population, the largest group of which are Hispanics/Latinos, at nearly 12 percent of the population, followed by Blacks/African Americans at 7.4 percent. Topeka tends to have larger minority populations than the county with nearly 31 percent of Topeka's population in a minority group. Minority populations are defined as any identifiable minority group(s) who live in a geographic proximity. Block groups with more than the County average of non-white or Hispanic populations (25.2%) are considered minority populations for further EJ analyses.

Income

Shawnee County's income distribution is depicted below. In general, Shawnee County has lower household incomes compared to Kansas at large. The median income in Shawnee County in 2014 was \$49,695, compared to \$51,872 for Kansas. Within Shawnee County, most lower income residents reside in the City of Topeka, including more than 90 percent of households making less than \$15,000. Higher income individuals tend to live outside of Topeka, most of which make over \$75,000.

Low-income populations are considered those whose median household incomes are at or below the US Department of Health and Human Services (HHS) poverty guidelines. Within Shawnee County, approximately 10.5 percent of families lived in poverty in 2015 (2015 5-year ACS). Block groups with more than twenty percent of families in poverty are considered low income populations for further EJ analyses for low income populations.

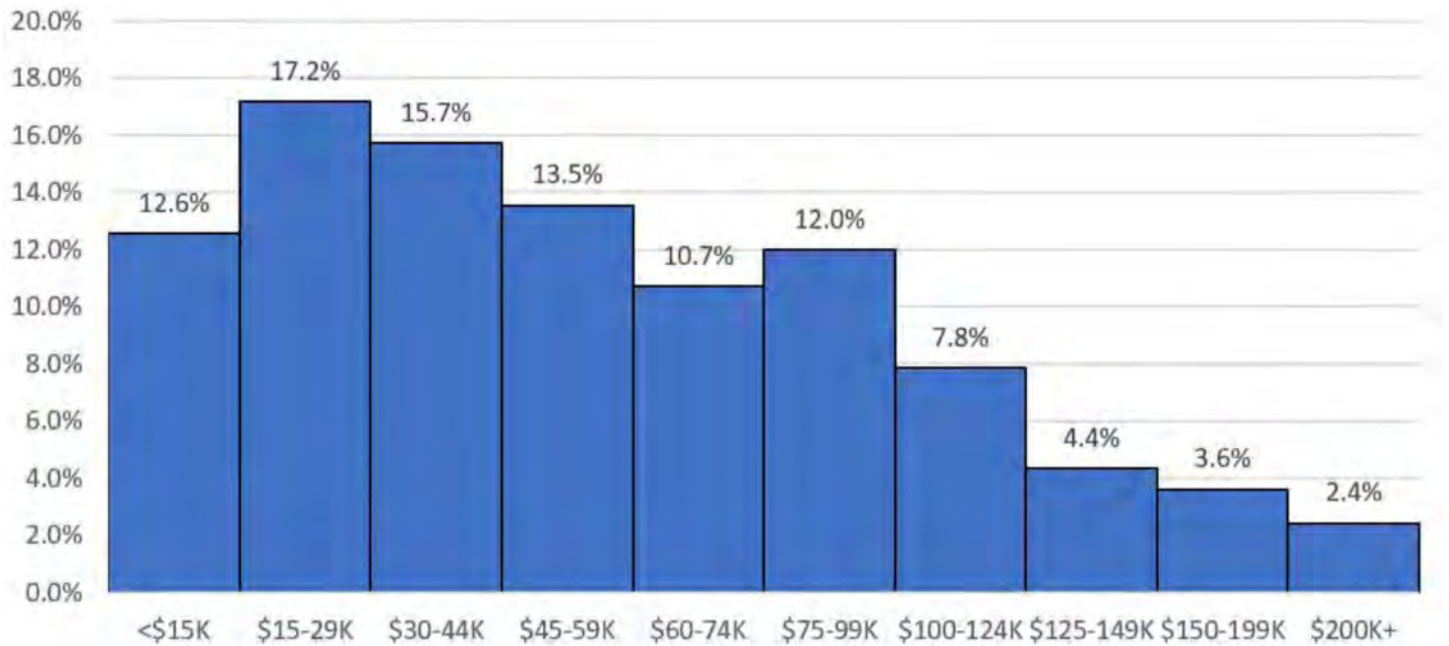
The Department of Housing and Urban Development (HUD) also identifies populations with low/moderate incomes (LMI), as determined by the percentage of the population at or below 80 percent of the area median income depending on the size of the family. In Shawnee County, a family of four is considered LMI if they make less than \$52,500 annually. Block groups with more than 50 percent of the population in LMI households is also considered low income populations for further EJ analysis.

FIGURE 2.13: Race and Ethnicity in Shawnee County and Topeka

	Shawnee County		Topeka	
	No.	Pct.	No.	Pct.
Not Hispanic or Latino	158,215	88.5%	110,079	86.2%
White	133,760	74.8%	88,386	69.2%
Black/African American	13,206	7.4%	12,338	9.7%
American Indian/Alaska Native	1,229	0.7%	973	0.8%
Asian/Native Hawaiian/Pacific Islander	2,023	1.1%	1,652	1.3%
Other	260	0.1%	241	0.2%
Two or More Races	7,737	4.3%	6,489	5.1%
Hispanic or Latino	20,577	11.5%	17,593	13.8%
Total	178,792	100.0%	127,672	100.0%

Source: 2015 Five-Year ACS

FIGURE 2.14: Median Household Income for Shawnee County

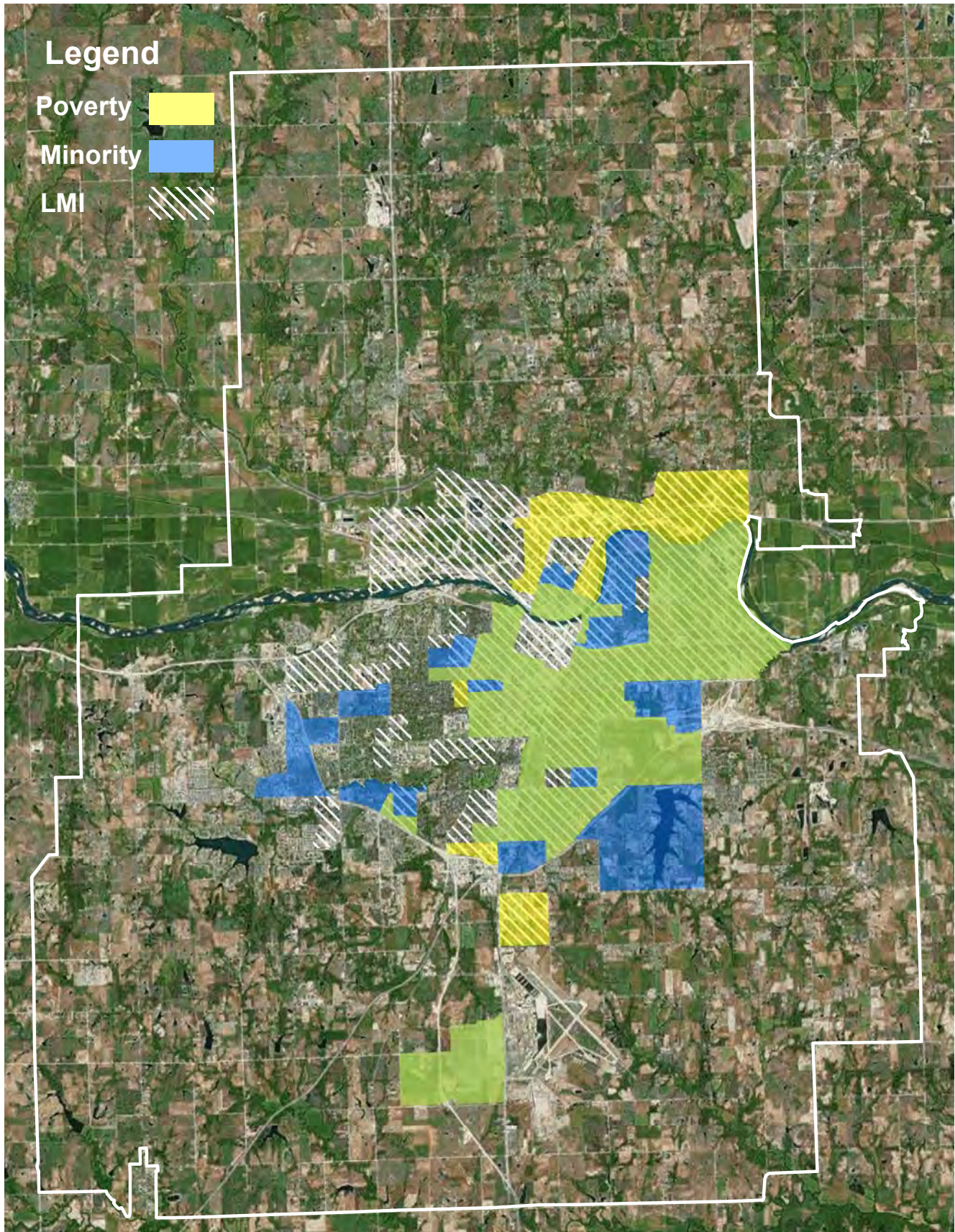


Source: Bureau of Labor Statistics (BLS)

FIGURE 2.15: Shawnee County FY 2015 Low Income Limits

Family Size	1	2	3	4	5	6	7	8
Low Income Limit (80% AMI)	\$36,750	\$42,000	\$47,250	\$52,500	\$56,700	\$60,900	\$65,100	\$69,300
Area Median Income	\$65,600							

Source: Department of Housing and Urban Development



Source: 2015 Five-Year ACS and HUD Low Income Limits

FIGURE 2.16: Environmental Justice Areas

Though any population may be subject to disproportionate impacts from a transportation project or investment, identifying minority and low-income populations is useful to understand the comparative effects throughout affected populations. EJ populations were identified using the methodology above from 2015 5-Year American Community Survey data and HUD’s “FY2016 LMISD by State – All Block Groups” dataset. As can be seen right, EJ areas are located throughout Topeka with higher poverty areas typically in the east. Notably, non-white and Hispanic/Latino populations live throughout the City.

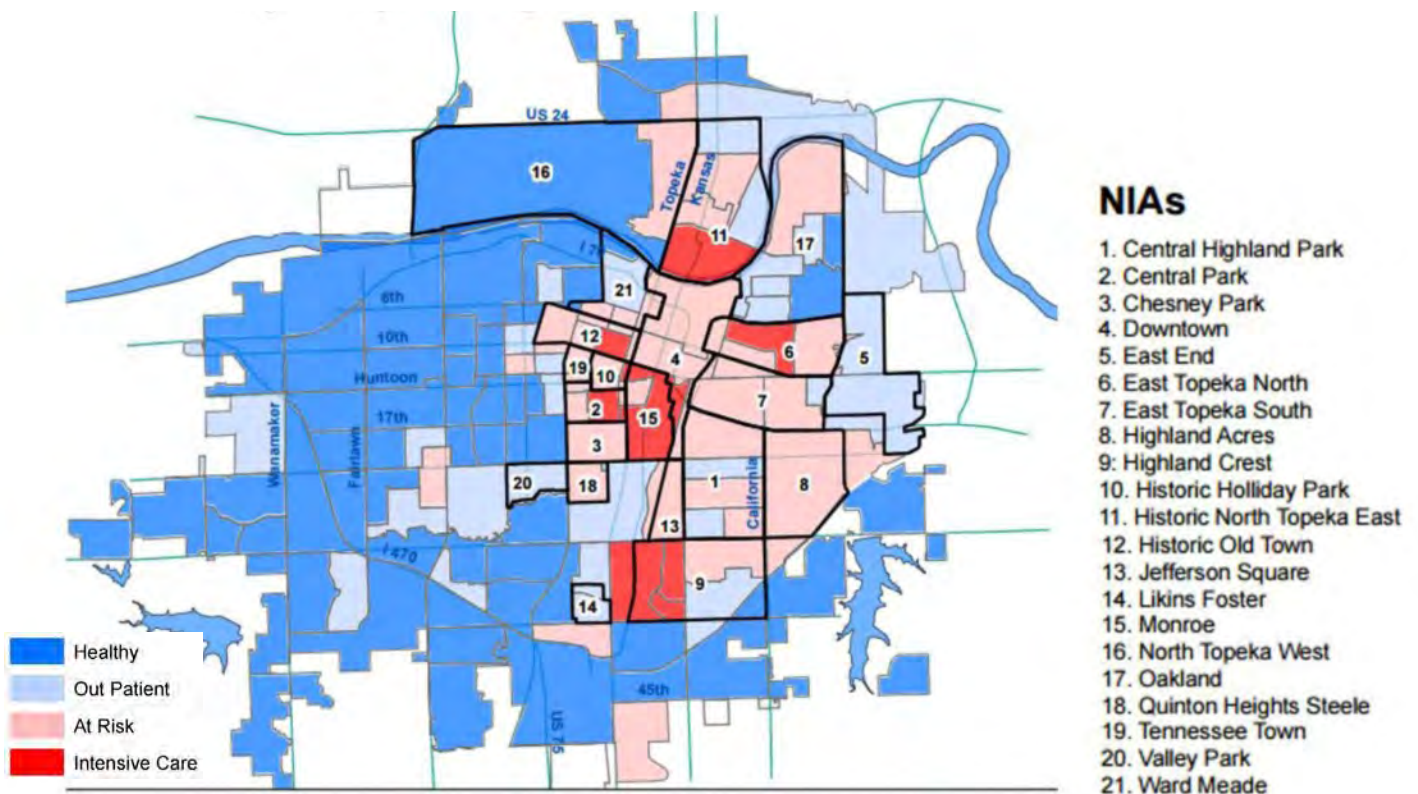
Since 2000, the City of Topeka has also measured its neighborhoods’ “health” to determine priorities for planning and funding assistance. Health ratings use five “Vital Signs” to evaluate neighborhood conditions which in turn can be used to improve neighborhoods. Each vital sign was scored from the most desirable (4 points) to the least desirable condition (1 point). Each score is added together to create a composite average score to determine the neighborhood’s overall health. Generally, areas with lower health scores correlate to areas with minority and low income populations, as seen below.

FIGURE 2.17: City of Topeka Neighborhood Health Indicators

Vital Signs	Sources
Poverty Level	2009-2013 US Census Bureau 5-Year American Community Survey
Public Safety (Part 1 Crimes per 100 Persons)	2013-14 Topeka Police Dept and City of Topeka Planning Dept
Residential Property Values	2014 Shawnee County Appraiser’s Office
Single Family Homeownership	2014 Shawnee County Appraiser’s Office and City of Topeka Planning Dept
Boarded Houses (nuisance securements and unsafe structures)	2014 City of Topeka Dept of Neighborhood Relations

Source: City of Topeka, 2015 Neighborhood health executive summary

FIGURE 2.18: 2014 City of Topeka Neighborhood Health Map



Limited English Proficiency

Limited English-Proficient (LEP) individuals are another population that needs to have meaningful access to all transportation programs and activities, consistent with Executive Order 13166, Title VI of the Civil Rights Act of 1964, and Section 504 of the Rehabilitation Act of 1972. To comply, the MPTO applied a four-factor analysis to provide meaningful access for LEP individuals to all programs and activities in its LEP Plan. The four-factor analysis looked at:

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

The more eligible LEP persons, the more contact they make, and the greater the importance of the program or service, the more likely enhanced language services will be needed. The intent is to balance meaningful access by LEP persons to critical services without imposing undue burdens.

Within Shawnee County, approximately 92 percent spoke only English at home in 2015, a number that is slightly lower for the City of Topeka. In terms of other languages spoken at home, Spanish is the next largest group comprising 3.5 percent of the county's population. Of other language speakers, nearly two thirds speak English "very well," leaving 3.1 percent of the county's population considered LEP.

Over three fourths of non-English speakers speak Spanish and not more than 5 percent of the population speaks another specific language. This suggests Spanish is the dominant language spoken by LEP individuals in the MPA and should be the focus of translations or language assistance activities.

According to the MTPO's LEP plan, there has been limited contact with LEP persons, including no recent contact at meetings, through Board or Committee members, through phone contact, or by personal visits. Website access by LEP persons is also not known and no requests for language-assistance services have been made to date. Because LEP individuals comprise less than 5 percent of the MPA's population, contact with LEP persons is expected to be infrequent and unpredictable.

While the numbers of LEP persons are low, it is important that they have equal access and input to the MTPO planning processes that determine federal funding priorities for transportation projects and programs. Given the importance of equal participation by LEP persons, the MTPO incorporated an LEP Plan to guide situations where translations of MTPO documents or processes are warranted. The impact of proposed transportation investments on underserved and underrepresented populations are especially important regarding the MTPO's primary planning documents, including the:

- Annual Unified Planning Work Program (UPWP)
- Four-year Transportation Improvement Program (TIP)
- Public Participation Plan (PPP)
- Five-year Regional Transportation Plan (RTP)

If LEP persons request translation or comprehension services, the MTPO has a variety of resources to help, including several community organizations that service LEP populations. For more information regarding available resources, see the MTPO's adopted LEP Plan. The City of Topeka and MTPO also offers bilingual persons that speak and read Spanish, software that translates written English documents into Spanish, Title VI brochures available in English and Spanish, and LEP information posted to the MTPO website. Efforts will be made to accommodate LEP requests as represented in the MTPO's LEP Plan because of the importance of involving all populations in transportation planning process.

FIGURE 2.19: Ability to Speak English by Language Spoken at Home for Shawnee County and Topeka

Language Spoken at Home	Shawnee County					Topeka				
	Total	Speak English Only or "Very Well"		Speak English Less Than "Very Well"		Total	Speak English Only or "Very Well"		Speak English Less Than "Very Well"	
		No.	Pct.	No.	Pct.		No.	Pct.	No.	Pct.
Only English	153,059	-	-	-	-	105,853	-	-	-	-
Spanish	10,246	5,837	3.5%	4,409	2.6%	9,466	5,363	4.5%	4,103	3.5%
Indo-European Language	1,787	1,547	0.9%	240	0.1%	1,434	1,244	1.1%	190	0.2%
Asian or Pacific Island Language	1,310	812	0.5%	498	0.3%	1,065	683	0.6%	382	0.3%
Other Language	308	244	0.1%	64	0.0%	278	221	0.2%	57	0.0%
Total	166,710	161,499	96.9%	5,211	3.1%	118,096	113,364	96.0%	4,732	4.0%
Total	178,792	100.0%	127,672	100.0%						

Source: 2015 Five-Year ACS

FIGURE 2.20: Summary of Language Spoken at Home and Ability to Speak English

Population 5 years and over	166,710	118,096
English Only	91.8%	89.6%
Language Other than English	8.2%	10.4%
Speaks English Less than "Very Well"	3.1%	4.0%

PLACE OF BIRTH FOR FOREIGN-BORN POPULATION

Foreign-Born Population excluding Population Born at Sea	8,126	7,238
Europe	7.6%	7.6%
Asia	24.4%	23.1%
Africa	2.9%	2.4%
Oceania	0.5%	0.4%
Latin America	62.7%	65.4%
Northern America	1.9%	1.1%

Source: 2015 Five-Year ACS

LAND USE AND DEVELOPMENT

Understanding land use and development is important to identify future transportation needs and services. Not only does it guide where transportation infrastructure will be needed, but land use policies also guide what form development will take, including densities, land use mixes, and other important factors impacting transportation.

Residential and Agricultural

The predominate land use in Topeka is residential with 25 percent of the city's area made up of single family homes and another 19 percent comprised of higher density housing. Many homes in Topeka are in the traditional neighborhoods near Downtown, though these neighborhoods have changed over the last fifty years. Some single-family homes were converted to multi-family or office uses, often mixing uses on a single block. Others were demolished. These neighborhoods' ages vary, but most housing was constructed pre-1950. The average density of single family uses in Topeka is 3.8 units per acre, with most between 3 and 6 units per acre.

Suburban subdivisions are the dominant residential use in the broader Topeka area, facilitated by urban infrastructure such as water, sewer, and roads, in addition to land use policies that supported growth on the fringe. Most suburban subdivisions occurred from the 1960s through the 1980s. However, as new development engulfed older residential subdivisions designed to rural standards, challenges arose. Topeka's more recent land use policies strive to prevent future substandard development near the City. Regardless, unincorporated areas continue using plat exemptions which do not require review.

Exurban residential areas tend to have lots larger than three acres and are not formally subdivided or annexed. Often along section roads, they can leave lot interiors undeveloped, resulting in very low net densities. For example, 92 3-acre lots can be developed on the perimeter roads of a section, resulting in a net density of about one lot per seven acres with 80 undeveloped acres in the center. Exurban development is spread relatively evenly around Topeka. The average size of unsubdivided exurban parcels outside of the City is about 4.6 acres per single family unit with the majority large enough to be exempt from platting. Rural subdivisions still occur with an average density of 1.1 units per acre, but they can be less common. Non-single family residential uses make up another 587 acres or 0.4 percent of the MPA's area outside of Topeka; most are located near Lake Sherwood or in Montara.

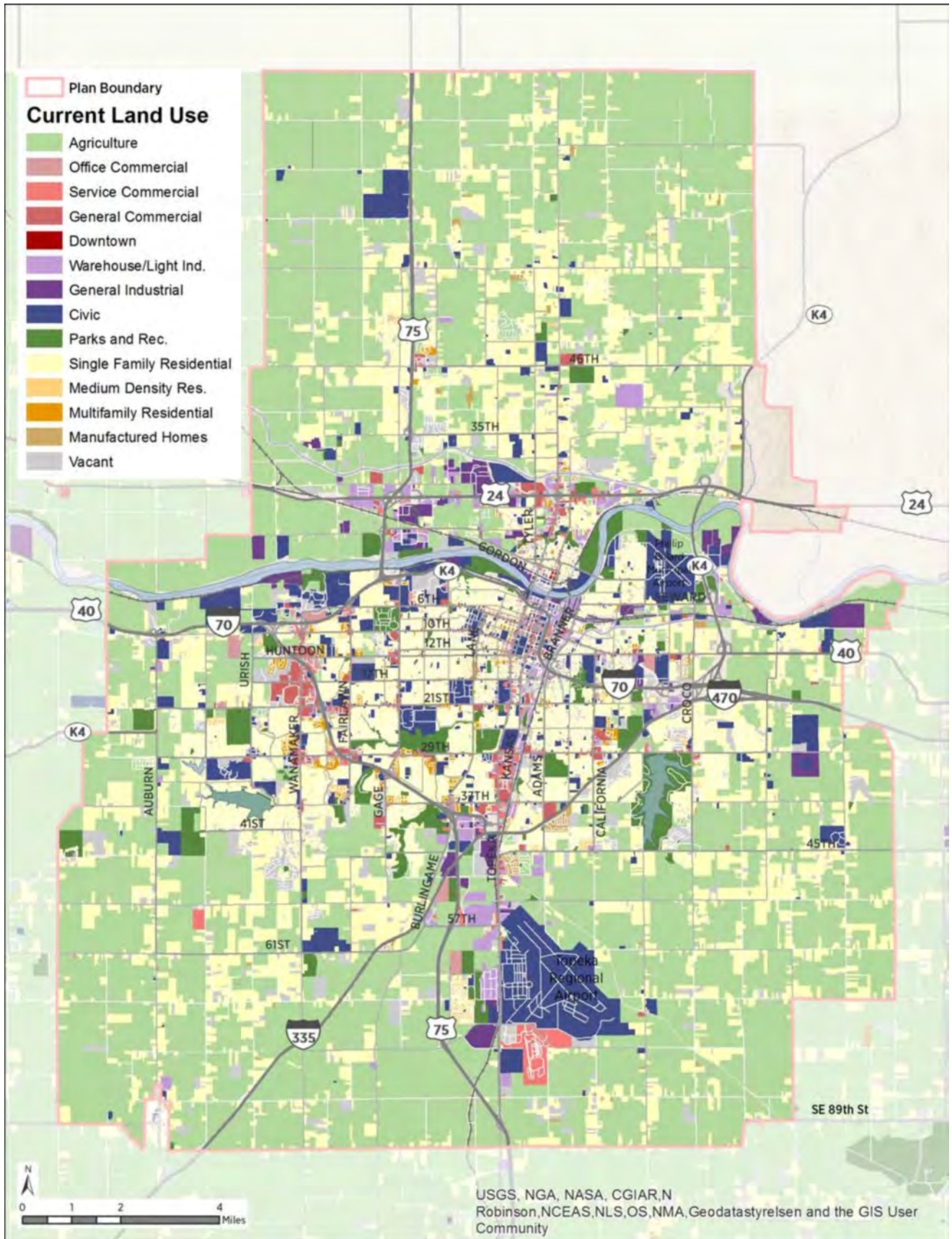
Aside from residential uses, agriculture is still the dominant land use outside of Topeka, making up more than 88,000 acres or 62 percent of the MPA. Agricultural uses closer to Topeka tend to have exurban residential uses interspersed with it. The average agricultural parcel is near 40 acres. Nearly 300 of these parcels are interior remnants without access to roads, comprising more than 5,400 acres. The City also has about 2,800 acres of agricultural uses, which are in areas slated for future development.

The prevalence of exurban development has changed the rural character of areas outside the City and has directly impacted the region's transportation system. Issues from this pattern include increased traffic on the fringe, higher per person infrastructure costs to serve development, greater environmental impacts, a lack of transit, sidewalks, or active transportation infrastructure, and demands on rural roadways not designed for this type of development.

FIGURE 2.21: 2016 Land Use in Topeka MPA

	MPA			City of Topeka			MPA Remainder		
	Parcels	Acres	Pct.	Parcels	Acres	Pct.	Parcels	Acres	Pct.
Agriculture	2,710	91,057.4	49.6%	409	2,781.2	7.0%	2,301	88,276.2	61.5%
Parks and Rec	379	5,613.0	3.1%	325	3,191.2	8.0%	54	2,421.8	1.7%
Single Family Res.	51,792	41,044.1	22.4%	38,593	10,180.9	25.5%	13,199	30,863.2	21.5%
Medium Density Res.	3,325	896.4	0.5%	2,453	718.9	1.8%	872	177.5	0.1%
Multifamily Res.	1,858	6,661.1	3.6%	1,850	6,601.9	16.5%	8	59.1	0.0%
Manufactured Homes	220	803.5	0.4%	132	453.4	1.1%	88	350.1	0.2%
Office Com.	732	1,065.9	0.6%	712	798.7	2.0%	20	267.2	0.2%
Service Com.	577	1,441.2	0.8%	540	1,169.6	2.9%	37	271.6	0.2%
General Com.	829	1,463.3	0.8%	795	1,252.1	3.1%	34	211.3	0.1%
Civic	1,082	10,385.6	5.7%	890	4,451.7	11.1%	192	5,933.9	4.1%
Warehousing/Light Ind.	662	2,592.7	1.4%	560	1,504.3	3.8%	102	1,088.4	0.8%
General Ind.	128	1,819.6	1.0%	99	728.0	1.8%	29	1,091.6	0.8%
ROW	0	10,273.6	5.6%	0	3,103.2	7.8%	0	7,170.3	5.0%
Vacant	5,185	8,389.3	4.6%	3,880	3,064.1	7.7%	1,305	5,325.1	3.7%
Total	69,479	183,506.5	100.0%	51,238	39,999.2	100.0%	18,241	143,507.3	100.0%

Source: Shawnee County



Source: Shawnee County

FIGURE 2.22: 2015 Estimated Employment Density

Civic, Parks, and Recreation

Civic land is owned by local, state, or federal governments or by non-profit organizations like churches, hospitals, and schools. In the MPA, they comprise 10,400 acres or 6 percent of the MPA's land area. Much of the civic land in the MPA is held in public or non-taxable ownership. The Metropolitan Topeka Airport Authority covers over 2,450 acres as the largest area of public land. Utility providers also cover a significant area of the county, as do healthcare-related, educational, and religious uses. Park and recreational uses, including golf courses, comprise another 3 percent (5,613 acres) of the land area. Often, these are the destination of many trips, especially large park areas such as Lake Shawnee.

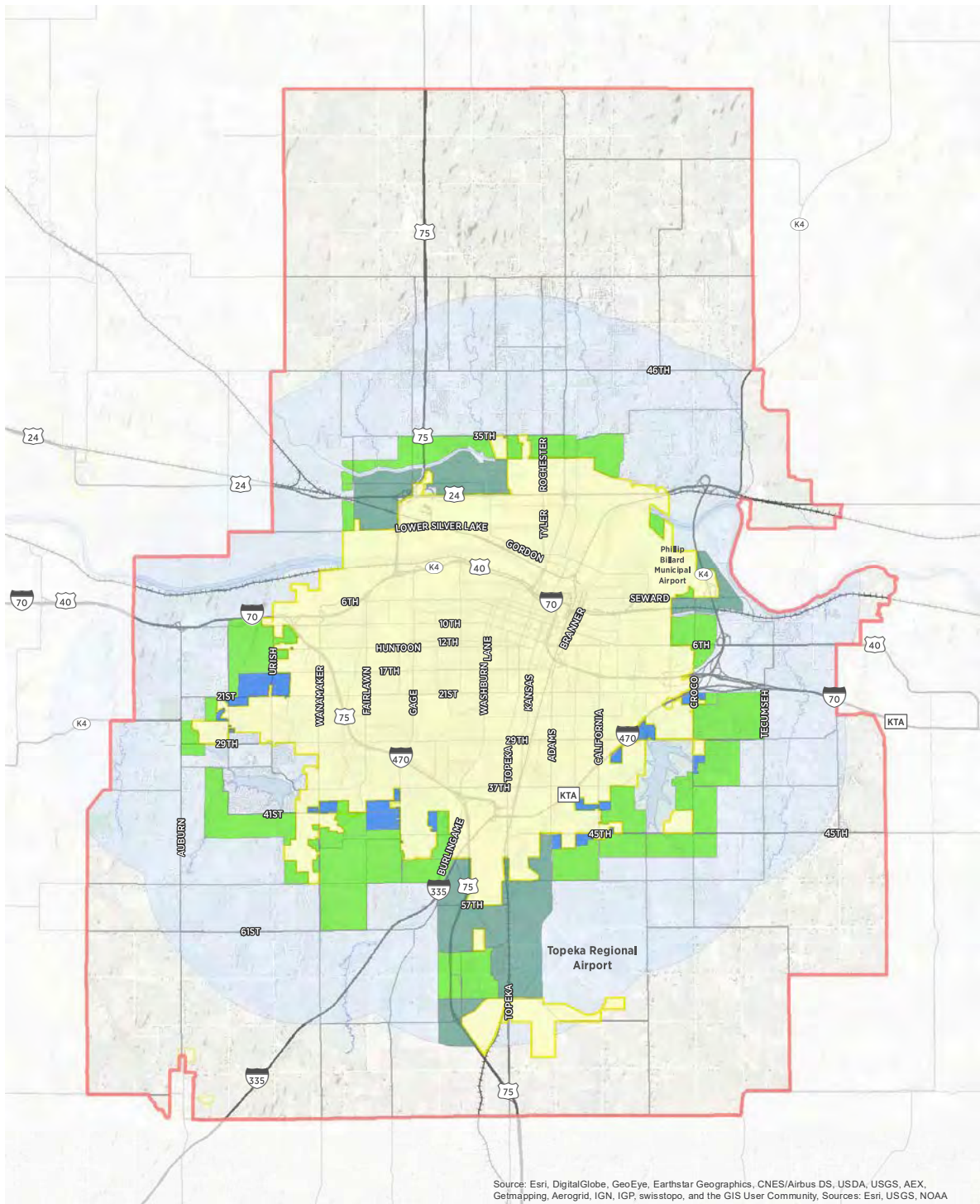
Commercial and Industrial

Most employees work in one of several zones by Topeka. The largest employment clusters are Downtown Topeka, along Wanamaker, along the S Topeka Boulevard/S Kansas Avenue Corridor, near the Topeka Regional Airport, and near the US-75 Corridor by US-24 and Lower Silver Lake Road.

Downtown Topeka remains the major employment center for office workers and is a government and financial center for the region. While it used to be the main retail center, today it has smaller stores primarily catering to downtown employees. Thus, downtown is busy during "daytime" but less so at night. Recent efforts to revitalize the riverfront and North Topeka (NOTO) are already helping build on downtown outside of regular business hours. Some industrial uses also remain downtown along the north and east sides near the Kansas River and Burlington Northern Santa Fe Railroad (BNSF). Other concentrations of employment include the Payless Shoe Source World Headquarters on E. 6th Street and the medical district along Washburn Avenue. However, the past 30 years have seen retail employment shift from downtown to S Topeka Boulevard and more recently to the Wanamaker Road corridor.

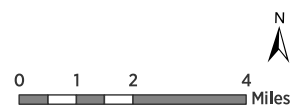
Today, the Wanamaker corridor is the regional retail center with large concentrations of businesses and over 4 million square feet of commercial space in a mix of large and small stores attracting people from Northeast Kansas. While retail along S Topeka Boulevard diminished, US-24 has seen renewed interest in commercial development. Secondary commercial centers (Topeka Boulevard and US-24) generally attract customers from about ten miles. Commercial areas cover 3,970 acres in the MPA.

Most industrial uses in are located within incorporated areas or adjacent to the Interstate, Highways, and railroads. Three primary industrial areas in the MPA are anchored by Topeka Regional Airport and the Mars Plant in south Topeka, the Goodyear Plant north of Topeka, and northeast/east of downtown which includes the BNSF shops and other light and general industrial uses along the railroad as previously mentioned. Billard Airport in northeast Topeka is also an industrial anchor, though it has not developed as much as anticipated following the K-4 reconstruction. In total, there are 2,593 acres of light industrial/warehousing and 1,820 acres of general industrial land.



Topeka Metropolitan Transportation Plan

- Plan Boundary
- Three Mile Limit (ETJ)
- Railroad Lines
- Topeka
- Water Bodies
- Employment Area
- Parks
- Service Tier 2
- City Limits
- Service Tier 3



Source: Shawnee County

FIGURE 2.23: City of Topeka Limits, Urban Growth Areas, Extraterritorial Jurisdiction, and MPA Boundaries

Policy and Future Land Use

In 2015, the City of Topeka approved the Topeka 2040 Land Use and Growth Management Plan (LUGMP) which recommends policies for the City, the Urban Growth Area (UGA), and Topeka's three-mile extraterritorial jurisdictional (ETJ). The LUGMP supports fiscally responsible, sustainable, and planned growth and the coordination of growth and city services. This includes encouraging compact, contiguous development; connected, mixed use, walkable neighborhoods; and a variety of transportation options. Many of its goals correlate with those of this RTP.

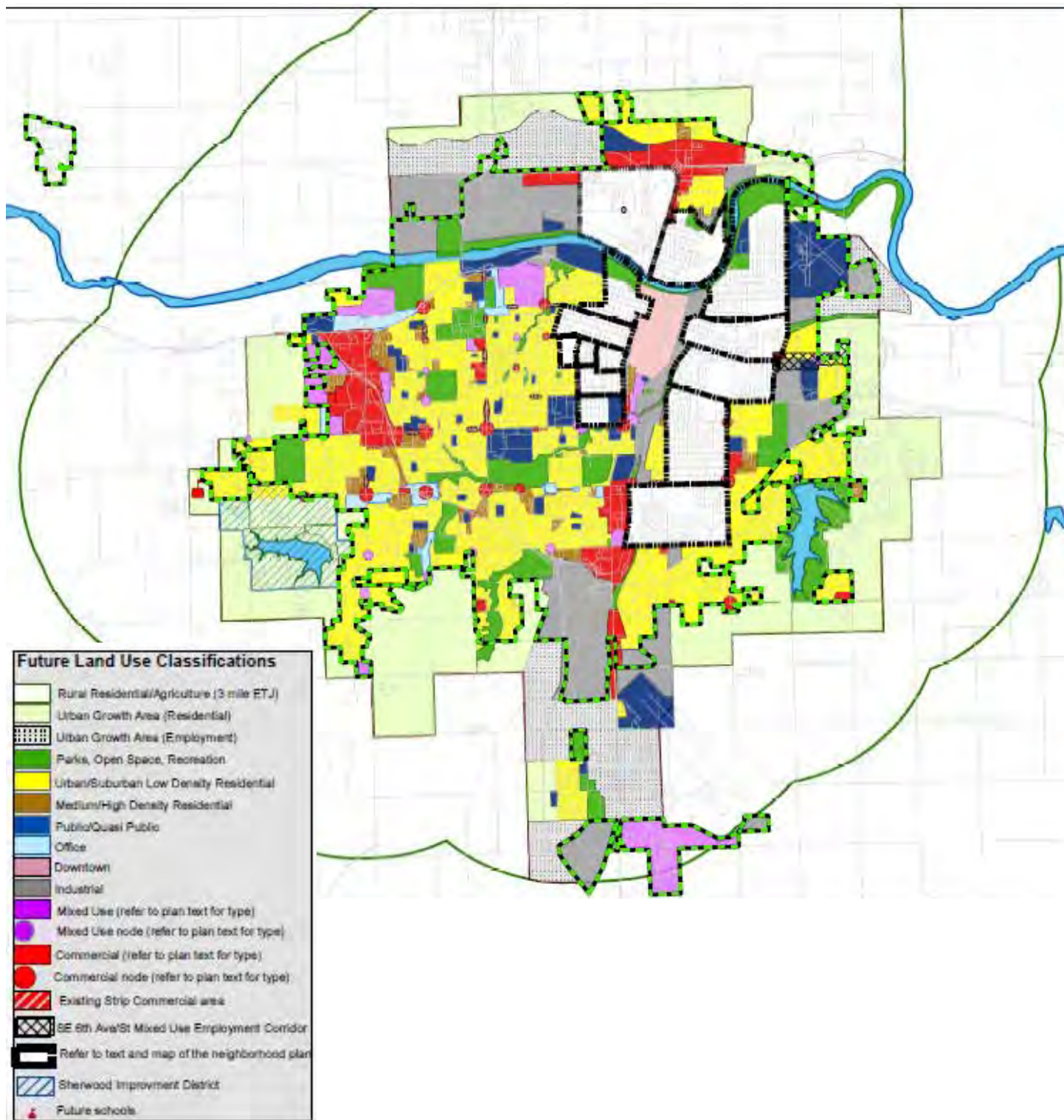
To prevent previous difficulties with annexing substandard infrastructure and low population densities, the LUGMP created four service tiers in which most of the MPA's growth is expected to occur. Doing so directs future growth to existing areas in Topeka, followed by land in Topeka's UGA that will be annexed when ready for urban development as determined by the requirements of each tier:

- Tier 1 is vacant or under-developed property within the City; it is prioritized for future growth.
- Tier 2 is contiguous to the City and is the next priority; however, urban development must be cost effective for the City, and growth should only occur where Topeka has made service and infrastructure investments.
- Tier 3 should only be developed after all 5 urban services are provided.
- The Employment Tier contains areas planned for industrial-type uses, so extending infrastructure can occur depending on development opportunities.

The area outside the UGA but within the ETJ is to remain relatively undeveloped to curb rural residential sprawl. The following map shows the development tiers for the City of Topeka and the ETJ boundary.

Proposed future land uses within the MPA based on the recently prepared plans including the LUGMP follow. In general, the future land use plan indicates patterns of development and appropriate land use arrangements – addressing the planned development in the existing Topeka City Limits, planned annexation areas, and planned growth zones for urban development. Future land use plans for the MPA support infill and contiguous residential development, the expansion of industrial development near Topeka Regional Airport, along the US Highway 75 Corridor north of the Kansas River, and in the US Highway 24 Corridor along the north edge of Topeka, and continued opportunities for mixed uses along major roadways and at major intersections in the Topeka Area. The County does not currently have a comprehensive plan for unincorporated areas, but they are currently creating one. This will further guide development in unincorporated areas outside of Topeka's UGA.

Shawnee County is also in the process of developing the first Comprehensive Plan for the unincorporated area. It is anticipated this plan will be complete by July 2017. Efforts were made to coordinate the development of Futures2040 with the County's Comprehensive Plan. Future iterations of the RTP should explicitly consider the county's development goals.



Source: City of Topeka 2040 Land Use and Growth Management

FIGURE 2.24: Topeka's Future Land Use Map

ENVIRONMENT

Environmental issues in transportation planning continue to be a priority and are considered in the transportation planning process. This allows the mitigation of negative impacts to valued resources including wildlife, water sources, agricultural land and floodplains, according to the requirements of the National Environmental Policy Act (NEPA). This section presents a baseline for Topeka's environmental conditions, including natural resources, air, soil, and water quality, flooding, wildlife, and historic resources.

Natural Resources

Shawnee County and the Topeka MPA have a diversity of natural landscapes. The northern part of the County, including much of the City of Topeka, is in the glaciated region of Kansas. The southern half of the county is part of the Osage Cuestas, characterized by east facing ridges to gently rolling plains. Moving west, one begins to enter the rolling prairie, rising to 100 feet. Some notable elevations, such as Burnett's Mound, provide ways to overlook much of the area. These landscapes host numerous environmental resources which help guide the pattern of land development.

As a plains community, Topeka's topography is generally gentle. Most of its land area, within the I-470 south loop and south of US 24, features relatively easy grades with gentle slopes rising out of the Shunga Creek valley to the south and a moderate escarpment along the south edge of the Kansas River floodplain, part of which is topped by I-70. Steeper slopes are found outside of the I-470 loop, especially around the two lakes and southwest of I-470 in a sector between Gage Boulevard and 29th Street. A more rolling topography also occurs north of Soldier Creek.

Natural growth timber - including elm, cottonwood, black walnut, oak, sycamore, box elder, hickory, and ash - occurs primarily along the bottoms of the Kansas River and its tributaries. They are sustained by the rich loamy soil, ranging from 15 feet in the bottoms to the one-foot surface covering in the upland prairies. Limestone suited for building and yielding lime comprises the underlying rock formation. Clay beds are also distributed throughout and coal can also be found some 15 feet below the surface in irregular beds.

Air Quality

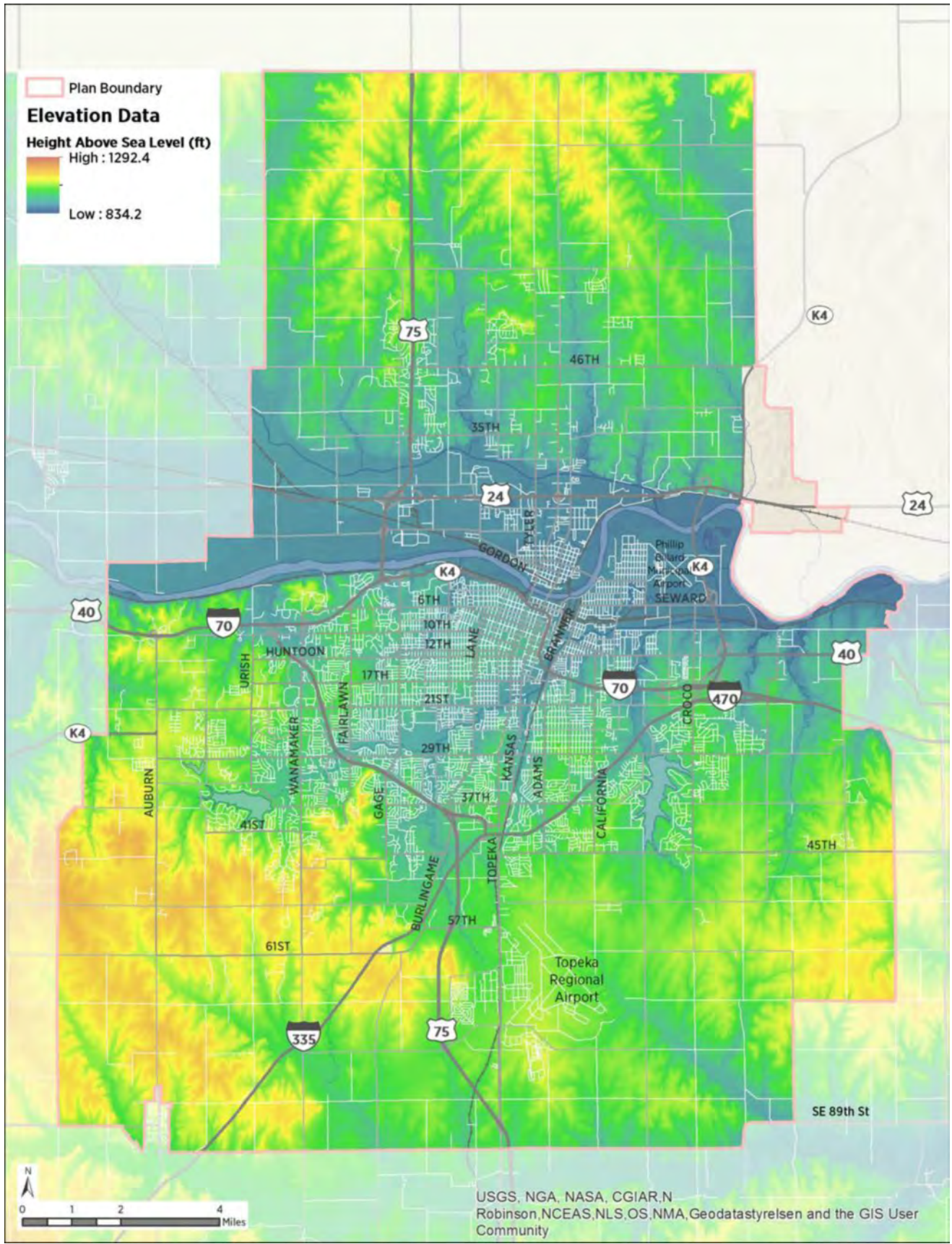
The Clean Air Act was implemented to remedy the damaging effects of bad air quality on human health and the environment. Administered by the Environmental Protection Agency (EPA), the Act sets National Ambient Air Quality Standards (NAAQS) which limit certain kinds of air pollutants in air. Geographic areas in compliance with standards are "attainment areas," while areas that do not meet standards are "nonattainment" areas. Topeka is an attainment area, meaning that its air quality is within acceptable standards set by the EPA.

Water Quality

Shawnee County is in the Kansas-Lower Republican Basin which includes much of northeast Kansas. The Kansas River flows southeast through the county, dividing it in two. The Wakarusa River flows east across the south part of the county from its source near Auburn and joins the Kansas River in Douglas County. Within Shawnee County, two drainage sub-basins exist: the Middle Kansas Watershed which drains north- and central-Shawnee to the Kansas River and the Lower Kansas Watershed which drains south Shawnee to the Wakarusa River. Each has several major creeks that feed into them. All in all, the tributary system covers much of the county.

Within Topeka, most creeks drain into the Kansas River, including the Shunganunga main channel, its southern branch, and Deer Creek. Dams on Shunganunga in the southwest and Deer Creek on the southeast create Lake Sherwood and Lake Shawnee, respectively. To the north, Soldier Creek is the primary drainage corridor with an improved channel.

Regarding water quality, much of the Kansas River and the streams feeding into the Kansas River are impaired. Different parts of the watershed suffer disparate issues, but includes issues such as the amount of phosphorus, total suspended solids, eutrophication, aquatic plants, Fecal Coli, Diazinon, Atrazine, pH, and E. Coli in the water. However, the 2016 Kansas Integrated Water Quality Assessment considers most of these issues to be a medium priority for addressing.



Source: USGS

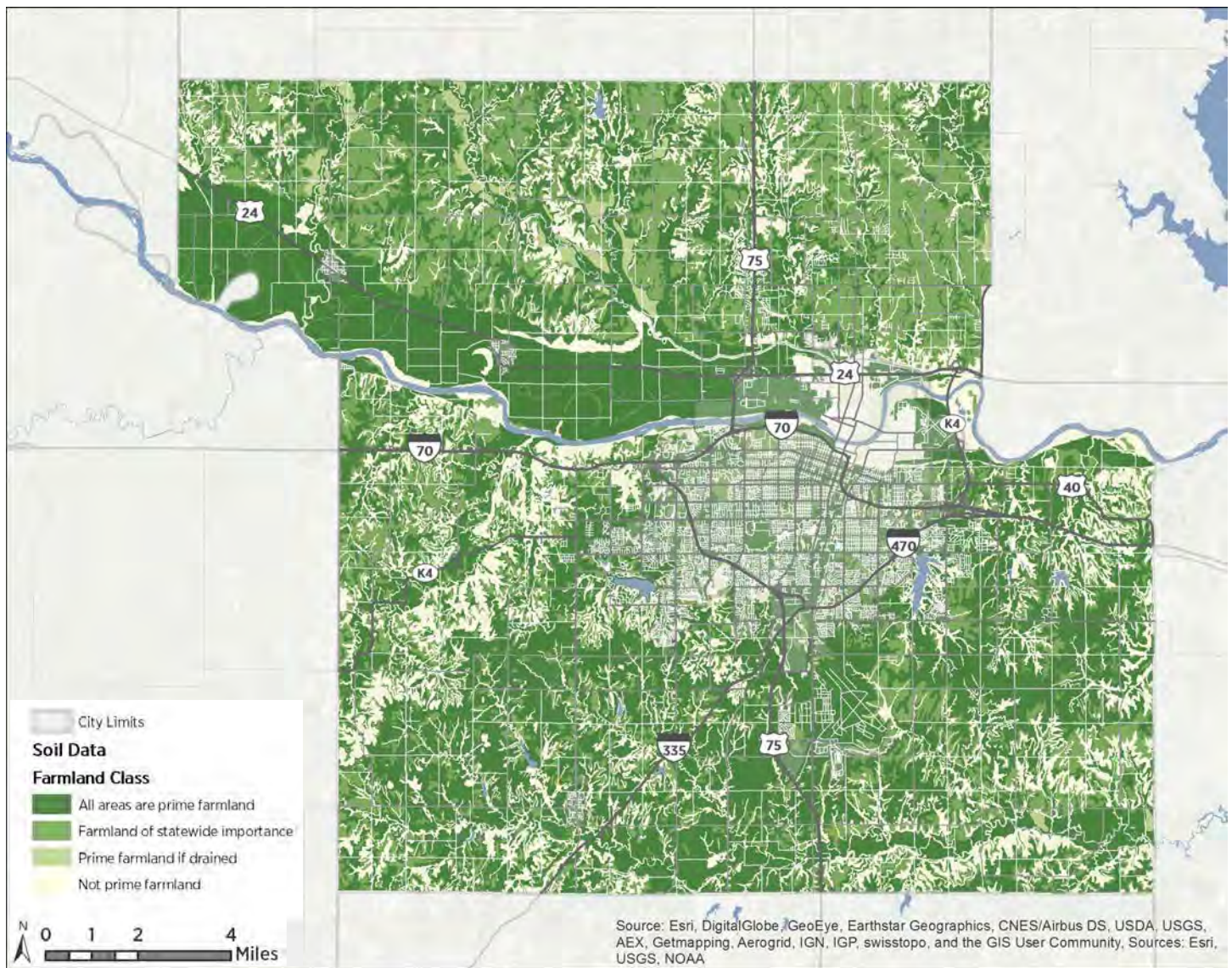
FIGURE 2.25: Topographic Map of MPA

Shawnee County also has other water features. Approximately 4,210 different ponds dot the county, in addition another 1,256 acres of lakes. The largest lakes, Lakes Sherwood and Shawnee, provide recreational, stormwater storage, and scenic and wildlife benefits. Other wetlands, including riverine areas, comprise an additional 3,300 acres, approximately 1,625 of which are freshwater wetlands. Many wetlands are in the floodplain, though they are also scattered across the county with most found in “cow ponds.” Wetlands provide ecosystem services such as stormwater and streamflow control, water purification, groundwater recharge, and flood protection.

Agricultural Land

Given its wealth of fertile and arable land, agriculture plays a significant role in Shawnee County, shaping its economy and making up its most valuable natural resource. Approximately 55 percent of Shawnee County is designated by the United States Department of Agriculture (USDA) as prime farmland, and another 23 percent is farmland of statewide importance. The remaining 22 percent is not considered prime farmland due to soil type, slopes, or water content. Much of the prime farmland is in the Kansas River bottoms. Land that is not prime for farming is often located along the higher altitudes and on steep slopes, used for grazing.

FIGURE 2.26: Soil Suitability for Farming



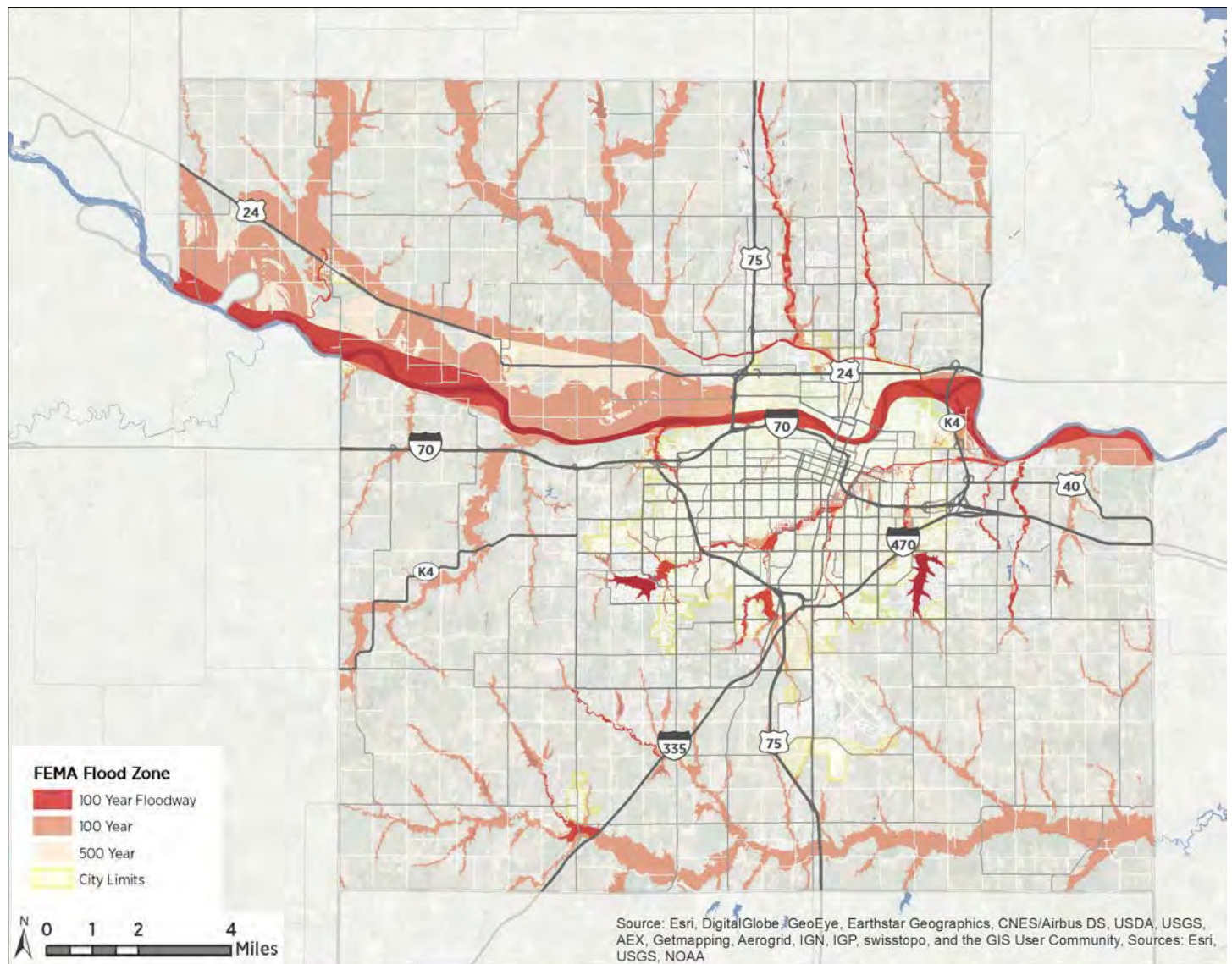
Source: USDA

Flooding

Risk for flooding is designated based on an area's chance of flooding. If the chance of flooding is 1 percent or once every hundred years, it is considered to have a high flood risk. If the chance of flooding is 0.2 percent or once every five hundred years, it is considered to have a medium flood risk. Typically planning for hundred year floods is adequate, but when important public or private facilities are built, building out of the five-hundred-year flood plain is often wise.

In the MPA, the Kansas River hundred-year flood plain is the largest obstacle with the lowlands along the River and its tributaries having lower elevations and a higher risk of flooding. These floodplains cover much of northwest Shawnee County. While these areas are not suitable for development, they are excellent for farming. The portion of the County near the Wakarusa River also needs to take its and its tributaries' floodplains into account during development. However, they are not as significant, especially given the lower demand for transportation to the south.

FIGURE 2.27: Shawnee County Floodplains

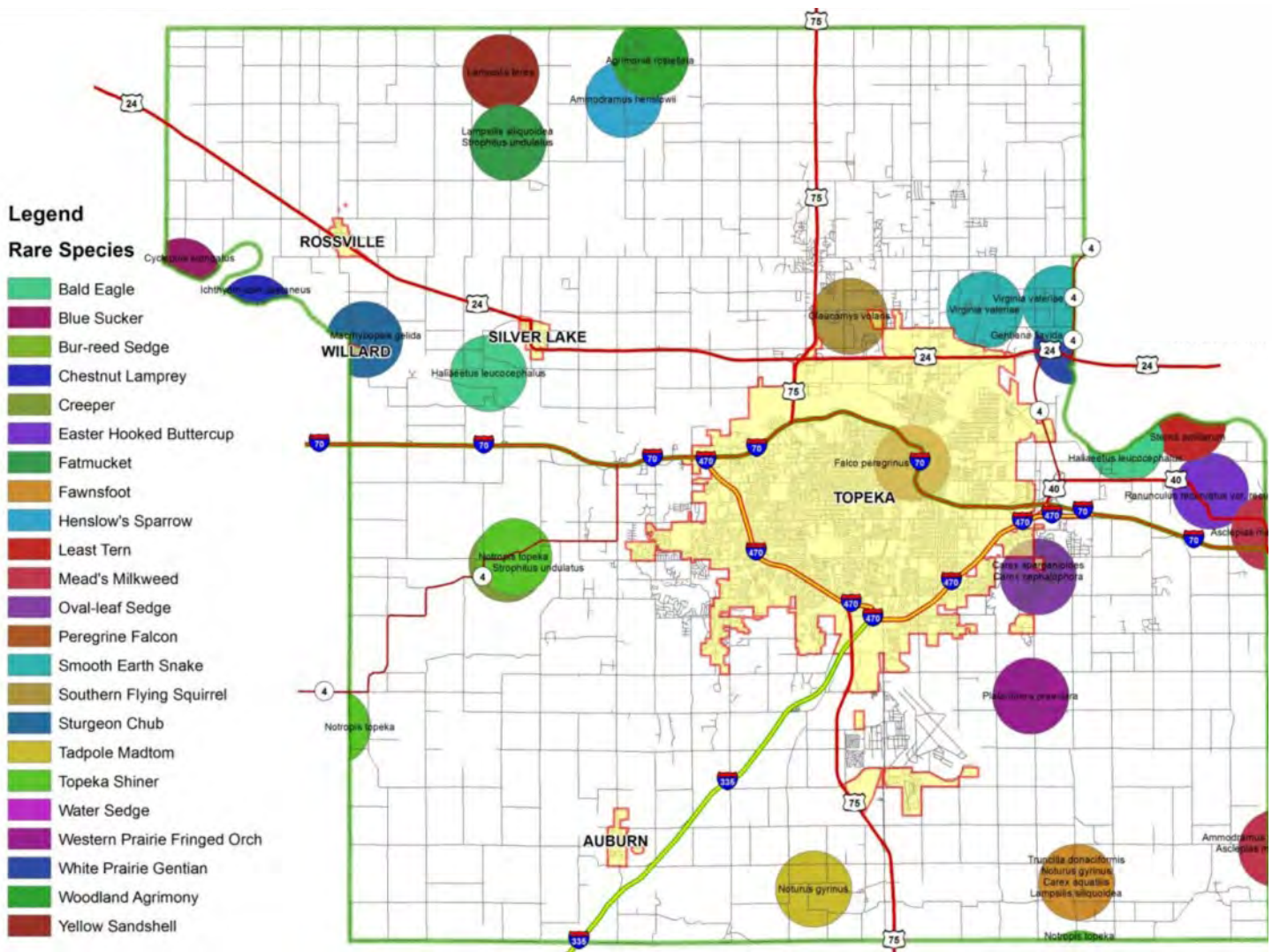


Source: FEMA

Wildlife

State and federally-listed species are protected by the Kansas Nongame and Endangered Species Conservation Act of 1975. The act makes the Kansas Department of Wildlife, Parks and Tourism (KDWP) responsible for identifying and conserving listed species, and overseeing activities affecting threatened and endangered species. Endangered species are wildlife whose existence as a viable part of the state's wild fauna is determined to be in jeopardy. Threatened species are wildlife which appear likely to become an endangered species within the foreseeable future.

FIGURE 2.28: Illustrative Map of Rare Species in Shawnee County



Source: Shawnee County Planning Department

FIGURE 2.29: Shawnee County Wildlife by Preservation Status

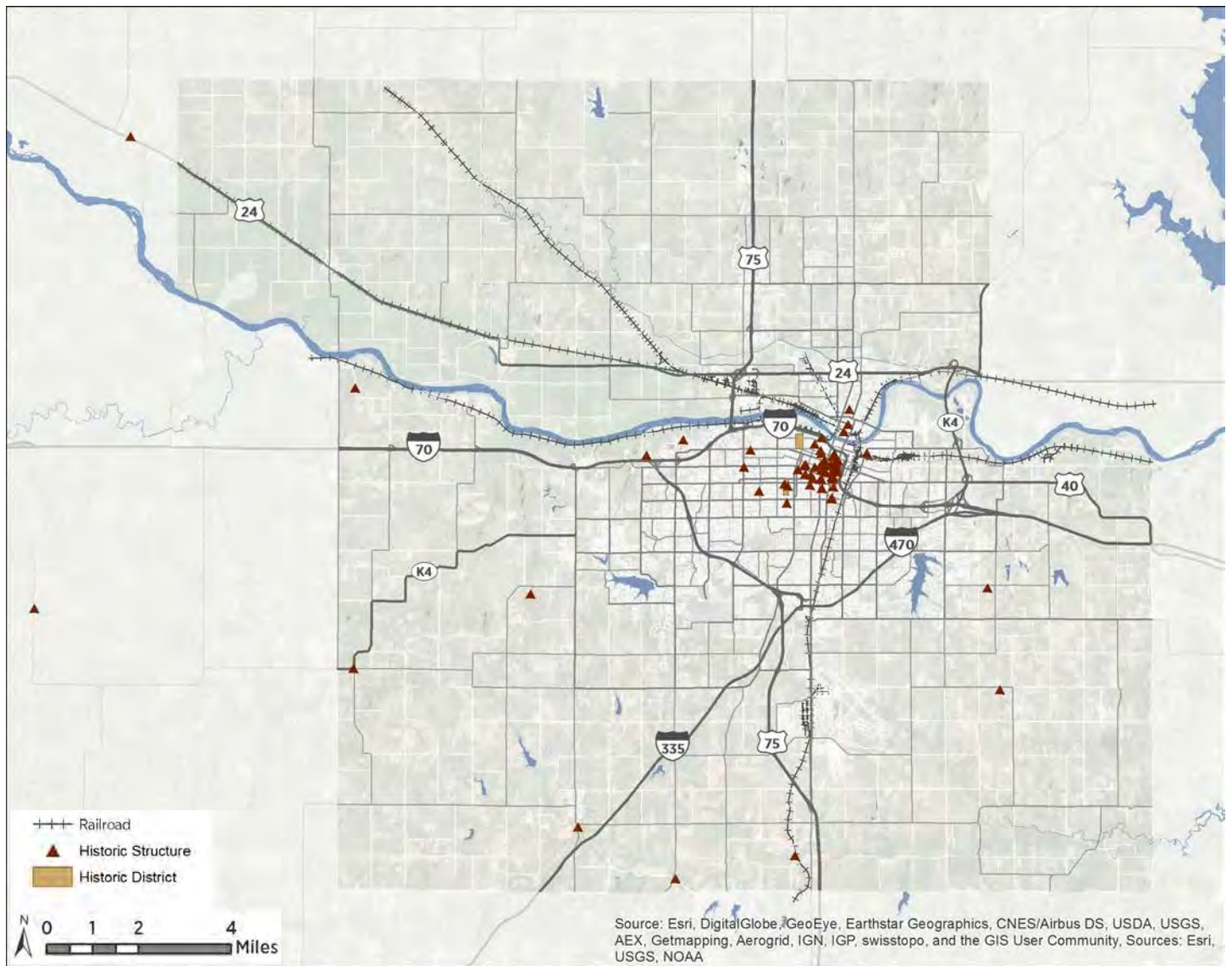
Federal	State	Name	Sci. Name	Critical Habitat in Shawnee County
Endangered	Endangered	Least Tern	<i>Sterna antillarum</i>	Yes
		Whooping Crane	<i>Grus americana</i>	No
		American Burying Beetle	<i>Nicrophorus americanus</i>	No
Threatened	Threatened	Topeka Shiner	<i>Notropis topeka</i>	Yes
	Threatened	Piping Plover	<i>Charadrius melodus</i>	Yes
Candidate	Threatened	Sturgeon Chub	<i>Macrhybopsis gelida</i>	Yes
None	Threatened	Shoal Chub	<i>Macrhybopsis hyostoma</i>	Yes
		Plains Minnow	<i>Hybognathus placitus</i>	Yes
		Silver Chub	<i>Macrhybopsis storeriana</i>	Yes
		Snowy Plover	<i>Charadrius alexandrinus</i>	No
	State Species In Need of Conservation	Eastern Spotted Skunk	<i>Spilogale putorius</i>	No
		River Shiner	<i>Notropis blennius</i>	No
		Black Tern	<i>Chlidonias niger</i>	No
		Short-eared Owl	<i>Asio flammeus</i>	No
		Ferruginous Hawk	<i>Buteo regalis</i>	No
		Golden Eagle	<i>Aquila chrysaetos</i>	No
		Timber Rattlesnake	<i>Crotalus horridus</i>	No
		Southern Flying Squirrel	<i>Glaucomys volans</i>	No
		Tadpole Madtom	<i>Norturus gyrinus</i>	No
		Blue Sucker	<i>Cycleptus elongatus</i>	No
		Creeper Mussel	<i>Strophitus undulatus</i>	No
		Fawnsfoot Mussel	<i>Truncilla donaciformis</i>	No
		Common Shiner	<i>Luxilus cornutus</i>	No
		Johnny Darter	<i>Etheostoma nigrum</i>	No
		Bobolink	<i>Dolichonyx oryzivorus</i>	No
		Henslow's Sparrow	<i>Ammodramus henslowii</i>	No
Smooth Earth Snake	<i>Virginia valeriae</i>	No		
Yellow-throated Warbler	<i>Setophaga dominica</i>	No		
Cerulean Warbler	<i>Setophaga cerulean</i>	No		
Eastern Whip-poor-will	<i>Antrostomas vociferus</i>	No		
Fatmucket Mussel	<i>Lampsilis siliquoidea</i>	No		

Source: Kansas DePartment of Wildlife, Parks, and Tourism

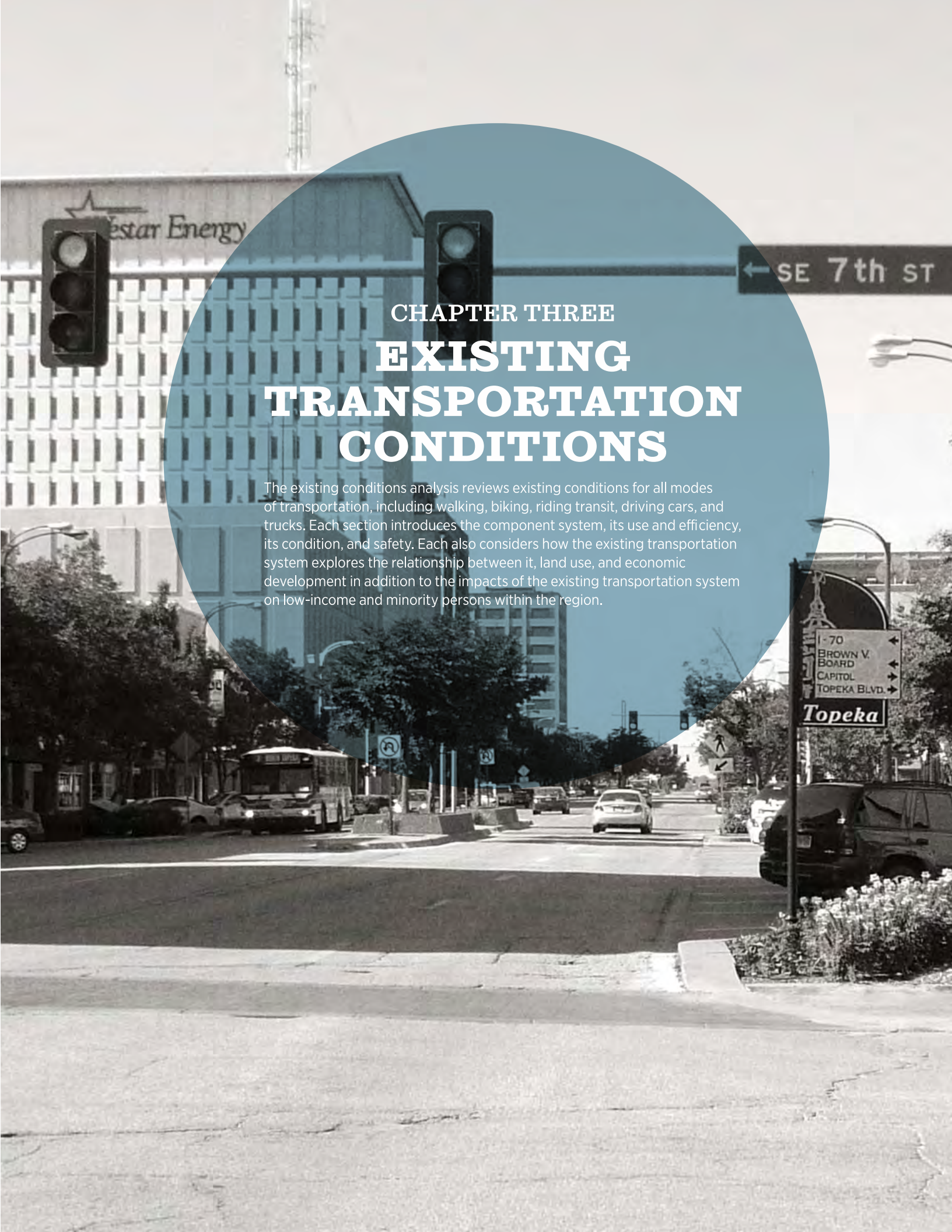
Historic Resources

Shawnee County has more than 75 entries on the National Register of Historic Places. Notable sites include the Brown v. Board of Education National Historic Site, Constitution Hall, and of course the Kansas State Capitol. The County also has several State Historic Sites in addition to those of national importance. Topeka contains most landmarks, though the county's small communities and unincorporated areas also feature historic sites. Multiple Native American cultural sites are also scattered around the County.

FIGURE 2.30: Historic Register Entries in Shawnee County



Source: National and State Registers of Historic Places



CHAPTER THREE

EXISTING TRANSPORTATION CONDITIONS

The existing conditions analysis reviews existing conditions for all modes of transportation, including walking, biking, riding transit, driving cars, and trucks. Each section introduces the component system, its use and efficiency, its condition, and safety. Each also considers how the existing transportation system explores the relationship between it, land use, and economic development in addition to the impacts of the existing transportation system on low-income and minority persons within the region.



Principal Arterial - SW Wanamaker Road



Collector Street - SW Belle Avenue

ROADWAYS

Introduction

A community’s economy and quality of life are greatly impacted by its roadway network. Growing regions look for ways to reduce vehicle congestion for drivers, facilitate public transit service, provide for non-motorized travel, accommodate freight movement, and improve safety for travelers using all modes of transportation. The City of Topeka, Shawnee County, the Kansas Department of Transportation (KDOT), and the Kansas Turnpike Authority (KTA) all have responsibilities for planning, constructing, and maintaining portions of the region’s roadway network. In this section, the Futures2040 investigates the Metropolitan Planning Region’s (MPA) existing highways, streets, and roads, exploring their characteristics, traffic flows, condition, and crash histories. Following sections of this Plan analyze the impacts of future land use changes and related traffic growth through the year 2040 as well as develop recommendations for changes to the roadway network that should be implemented over that timeframe.

Roadway System

In developing the RTP, it is important to understand that roadways serve a variety of functions and that the Plan focuses on those highways, streets and county roads that have a regional significance. An understanding of the characteristics and role of each roadway is the basis for the analysis of the current roadway network, predicted future traffic conditions, safety issues, and project recommendations.

FUNCTIONAL CLASSIFICATION

The Topeka and Shawnee County road network consists of several classifications of roadways. Figure 3.1 summarizes the total rural and urban miles of roadway in Shawnee County by functional class and the daily vehicle-miles traveled (DVMT) on those roads.

Functional classification is based upon two factors: traffic mobility and property access. Moving from left to right on Table 3.1, functional classification changes from a mobility focus to an access focus. Interstate highways and freeways carry higher traffic volumes and speeds, but have no direct access to adjacent properties. At the other end of the scale, local roads provide direct access to adjacent properties and typically have low traffic volumes and speeds. General definitions are:

- **Interstate Highways and Freeways:** Examples of Interstate highways include I-70 and I-470. US-75 near Topeka is an example of a freeway.
- **Arterials:** Arterial streets and roads serve major activity centers, such as Downtown Topeka or highly developed residential or commercial areas. Examples: Wanamaker Road, Fairlawn Avenue, Topeka Boulevard, Adams Street, 21st Street and 29th Street.
- **Collectors:** Streets that connect local streets to arterial streets; these streets carry a higher volume of traffic than local streets. Examples: SW MacVicar Avenue, River Road, and SE 25th Street.
- **Local Streets:** Neighborhood and other streets that carry low volumes of traffic; their primary purpose is to provide access to adjoining properties.

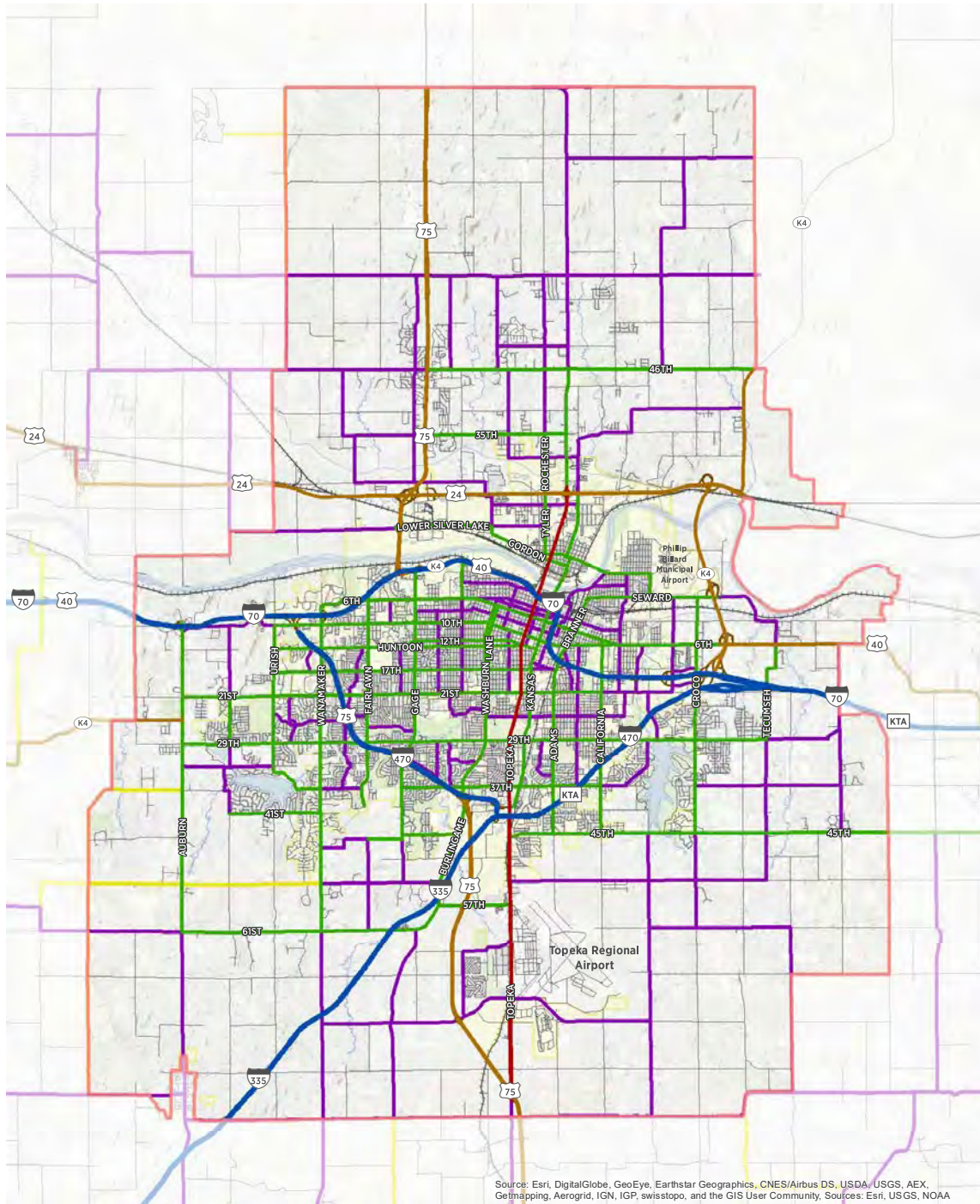
As can be seen in Figure 3.1, local roads comprise about two thirds of the transportation system’s infrastructure, both in rural and in urban contexts. However, moving from local roads and as access focus towards interstate and a mobility focus, the relative DVMT per mile of roadway increases drastically for both rural and urban areas. In the urban context, there are 495 DVMT per mile of local road and in rural areas, 117 DVMT per mile of local road. On Interstates, those numbers jump to 30,754 and 19,903 DVMT per mile of interstate respectively. In addition, urban roads get anywhere from 1.3 to 4.8 time more use per road mile.

Figure 3.2 on the following page shows the functional classification of roads in and near Topeka.

FIGURE 3.1: 2015 Mileage and Travel by Roadway Functional Classification within Shawnee County

		Rural						
		Interstate	Freeway	Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local
Centerline Miles		18.3	6.5	17.7	7.7	155.3	48.2	508.4
DVMT		364,223	85,119	93,589	20,652	140,345	15,669	59,443
		Urban						
		Interstate	Freeway	Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local
Centerline Miles		33.1	25.5	15.0	161.3	152.9	3.5	816.1
DVMT		1,017,943	433,668	212,825	1,282,365	330,569	5,430	403,976

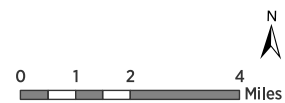
Source: Kansas Department of Transportation



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Sources: Esri, USGS, NOAA

Topeka Metropolitan Transportation Plan

- | | | |
|----------------|---------------------------|-----------------|
| Plan Boundary | Functional Classification | Minor Arterial |
| Railroad Lines | Interstate | Major Collector |
| Water Bodies | US & State Highway | Minor Collector |
| Parks | Access Ramps | Locals |
| City Limits | Principal Arterial | |



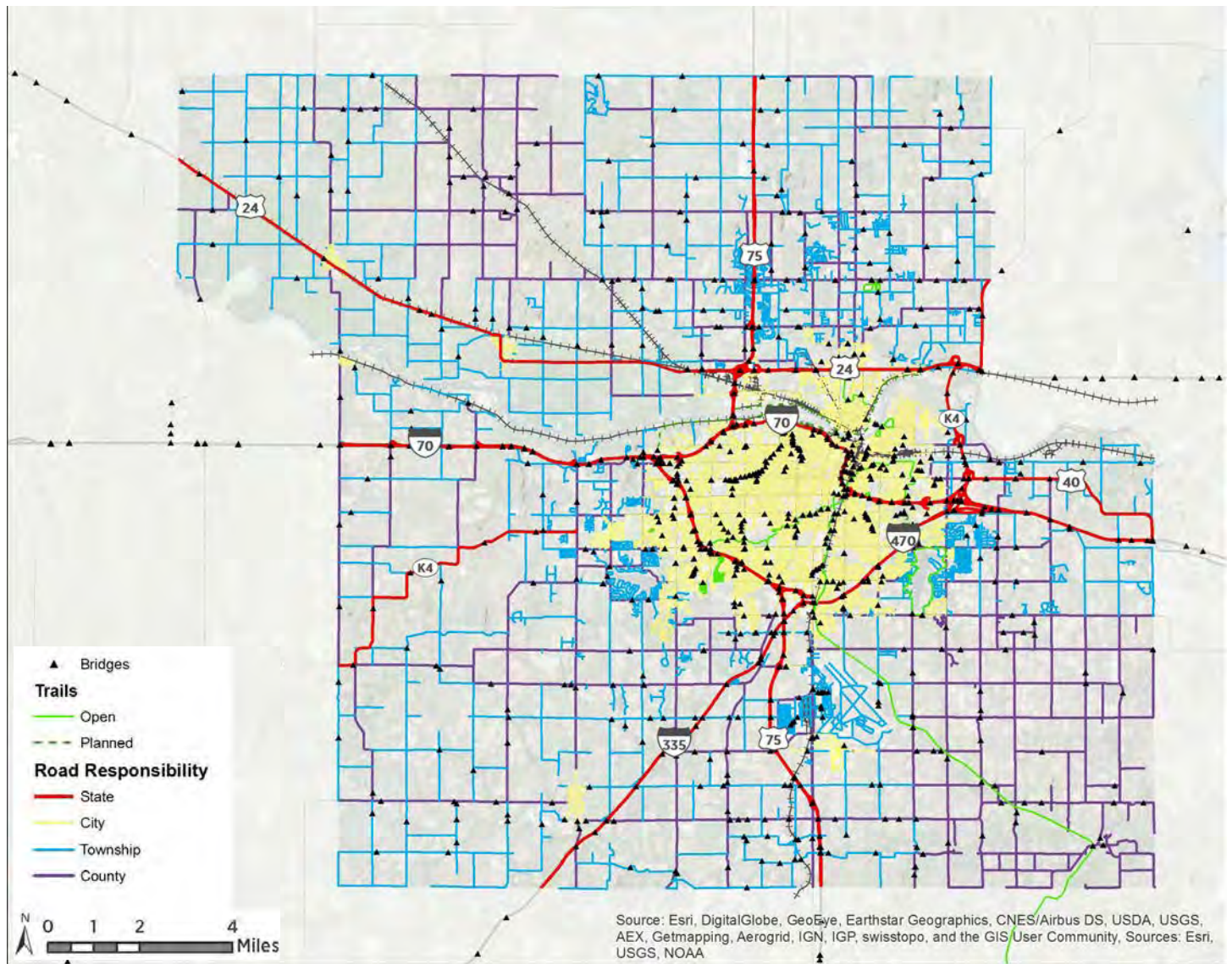
Source: Kansas Department of Transportation

FIGURE 3.2: Roadway Functional Classification

BRIDGES

Within the State of Kansas, there are nearly 26,000 bridges, overpasses and large culverts – about 25 percent of which are located on the state highway system. A bridge is generally defined as any structure over water or a roadway having a span length of 20 feet or greater. Within Shawnee County there are 554 bridges. 45.8 percent of these bridges are operated by Shawnee County, 30.0 percent belongs to KDOT, 17.9 percent are operated by the City of Topeka, and 6.9 percent are managed by the KTA.

Figure 3.3 displays where bridges are throughout Shawnee County.



Source: Kansas Department of Transportation

FIGURE 3.3: Bridge Locations

Roadway Use and Efficiency

To analyze travel in the MPA beyond descriptive terms, it is important to understand the regional movement of traffic on the roadway system. This includes looking at daily traffic volumes, commuting patterns, and system congestion.

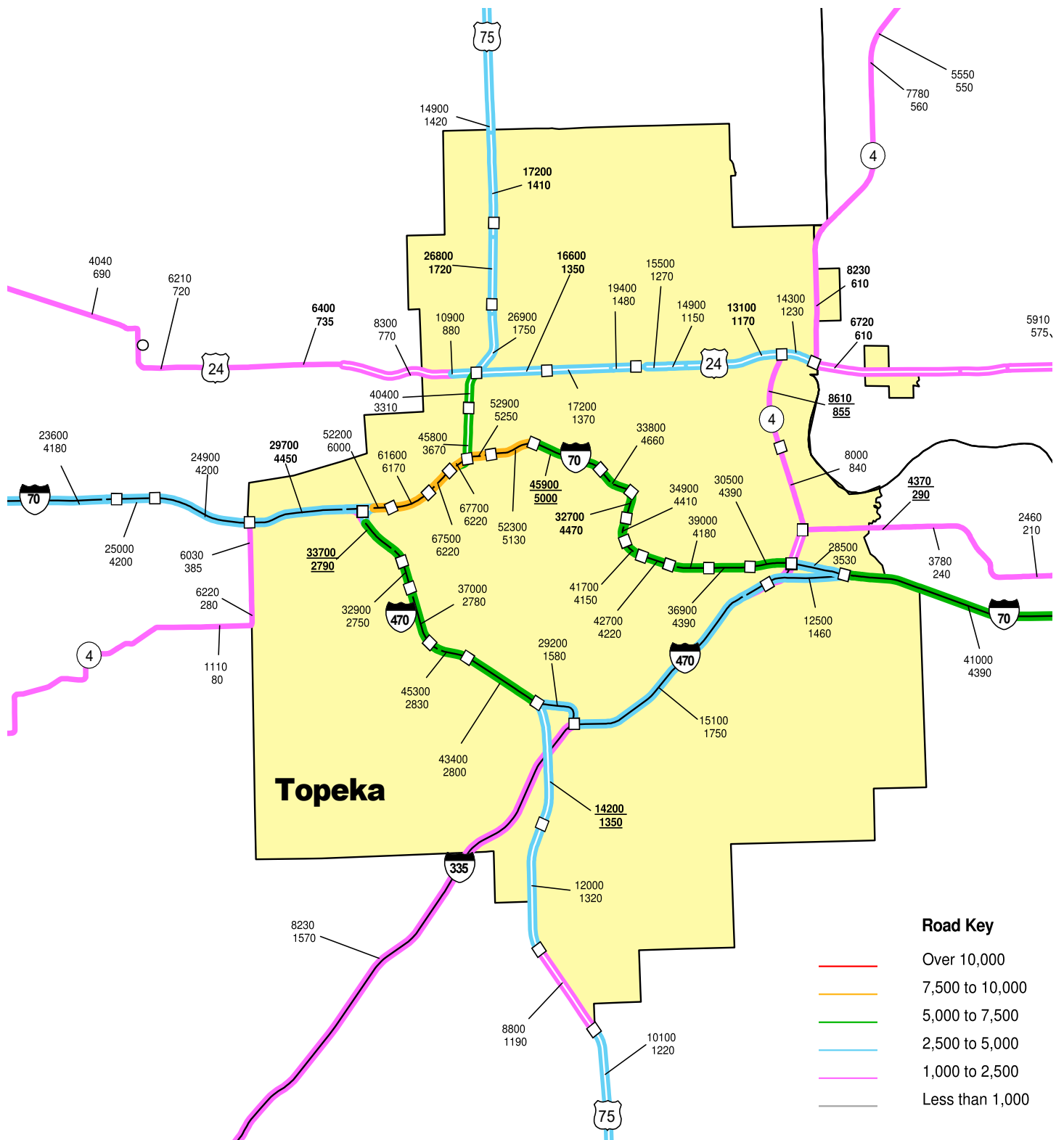
DAILY TRAFFIC VOLUMES

Figure 3.4 shows the annual average daily traffic volumes on highways near Topeka. I-70 is a major trade and travel corridor in Kansas stretching 424 miles from Colorado to Missouri. The daily traffic volume on I-70 in the MPA varies from 29,700 vehicles per day (VPD) near Topeka's west city limits, to about 34,000 vehicles near downtown, and 41,000 VPD to east of the Kansas Turnpike connection. The highest traffic volume on I-70 is between I-470 and US-75 where it reaches more than 67,000 VPD. I-70 is a key freight corridor as well with trucks making 11 to 18 percent of the total traffic.

Traffic volumes on segments of I-470 between I-70 and the Kansas Turnpike vary between 33,000 and 45,000 VPD. US-75 south of Topeka carries about 10,000 vehicles per day of which 12 percent are trucks. North of Topeka, US-75 carries approximately 15,000 vehicles a day with 10 percent trucks.

Arterial Streets: Wanamaker Road is a major north-south arterial street that serves Topeka's primary commercial area. Traffic volumes on Wanamaker Road are highest from I-70 to 21st Street, varying from 22,000 between I-70 and Huntoon Avenue to almost 24,000 VPD between 17th and 21st Streets. Topeka Boulevard is a major north-south arterial street that connects North Topeka to Downtown to Forbes Regional Airport. Topeka Boulevard traffic volumes are approximately 20,000 VPD. 21st Street is a major east-west arterial street with traffic volumes ranging from 22,265 west of I-470 to 16,000 west of Topeka Boulevard.

River Crossings: The Kansas River forms a natural barrier dividing the metropolitan area and limiting the options for north-south traffic. The metropolitan region has five crossings of the Kansas River. US-75 carries 45,800 VPD over the river, followed by Topeka Boulevard which carries approximately 20,000 vehicles. Three other bridges that carry less traffic includes Kansas Avenue (9,180 VPD), K-4 (8,610 VPD), and Sardou Avenue (7,240 VPD).



Source: KDOT 2016 Traffic Flow Map - Annual Average Daily Traffic

FIGURE 3.4: 2015 Annual Average Daily Traffic Volumes

COMMUTING PATTERNS

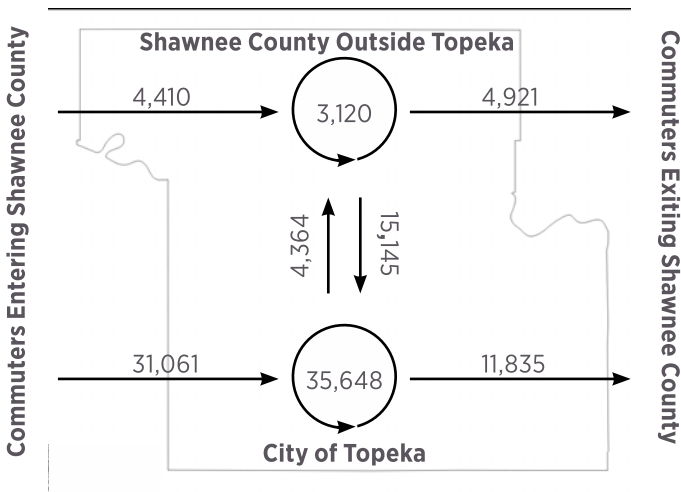
Commuting patterns indicate how people travel to jobs. The graphic below shows number of commuters between Topeka, Shawnee County, and areas outside of Shawnee County. Arrows indicate general flows and do not indicate direction.

For rural residents of Shawnee County living outside the City of Topeka, more than two thirds work within Topeka City limits. Another fifth of county residents commute to jobs outside of Shawnee County, while only 13 percent work within the county outside of Topeka.

For residents of Topeka, over two thirds work in City limits, though they fill less than 44 percent of all positions in the City. Instead, many jobs in Topeka are filled by the 31,061 people who live outside the County but commute to Topeka to work. As for Topekans who do not work in Topeka, nearly 4,364 work in the county while another 11,835 work outside of Shawnee County.

Commuters who enter and leave Shawnee County each work day come from all directions. Data from the Census’s 2014 Longitudinal Employer-Household Dynamics dataset estimates 35,471 workers enter Shawnee County from other counties to work. Figure 3.6 shows the number of workers commuting from nearby counties. Most commuters that work in Shawnee County but live elsewhere, travel each day from Douglas and Johnson Counties to the east, Jackson County and Jefferson County to the north and northeast, and Osage County to the south.

FIGURE 3.5: Commuting Patterns for Primary Jobs Between Topeka, Rural Shawnee County, and External Counties



The 2014 U.S. Census estimates over 16,756 workers reside in Shawnee County but work in a different county. Figure 3.7 shows that most workers who live in Shawnee County have employment within the county. Of those who work elsewhere, the majority travel eastward to Douglas, Johnson, and Wyandotte Counties in Kansas and Jackson County, Missouri. Two lesser patterns are workers traveling to the northwest for jobs in Pottawatomie and Riley Counties and the north/northeast in Jackson and Jefferson Counties.

FIGURE 3.6: Commuters Commuting to Shawnee County from Other Counties (Chosen by location and number of workers)

	Commuting From	Percent of Jobs
Douglas County, KS	3,841	4.1%
Johnson County, KS	3,367	3.6%
Osage County, KS	2,769	3.0%
Jefferson County, KS	2,506	2.7%
Jackson County, KS	2,082	2.2%
Leavenworth County, KS	1,249	1.3%
Riley County, KS	1,130	1.2%
Pottawatomie County, KS	1,054	1.1%
Wabaunsee County, KS	1,037	1.1%
Wyandotte County, KS	1,021	1.1%
Jackson County, MO	967	1.0%
Lyon County, KS	892	1.0%
Geary County, KS	556	0.6%

Source: 2014 Census Longitudinal Employer-Household Dynamics

FIGURE 3.7: Shawnee County Residents Commuting to Work Place in Other Counties (Chosen by location and number of workers)

	Commuting To	Percent of Workers
Staying in Shawnee County	58,277	77.7%
Johnson County, KS	4,165	5.6%
Douglas County, KS	2,651	3.5%
Wyandotte County, KS	823	1.1%
Riley County, KS	717	1.0%
Jackson County, KS	715	1.0%
Pottawatomie County, KS	638	0.9%
Jefferson County, KS	442	0.6%
Osage County, KS	363	0.5%
Jackson County, MO	361	0.5%
Leavenworth County, KS	345	0.5%
Lyon County, KS	326	0.4%
Wabaunsee County, KS	195	0.3%
Geary County, KS	146	0.2%

Source: 2014 Census Longitudinal Employer-Household Dynamics

ROADWAY CONGESTION AND TRAVEL TIMES

To identify congestion in the MPA, a regional travel demand model was developed as an analysis tool. The model includes Topeka and a portion of Shawnee County. The model road network includes highways, arterial streets and collector streets. Household and employment data are used to estimate the number and type of trips on the road network, as well as the routes used.

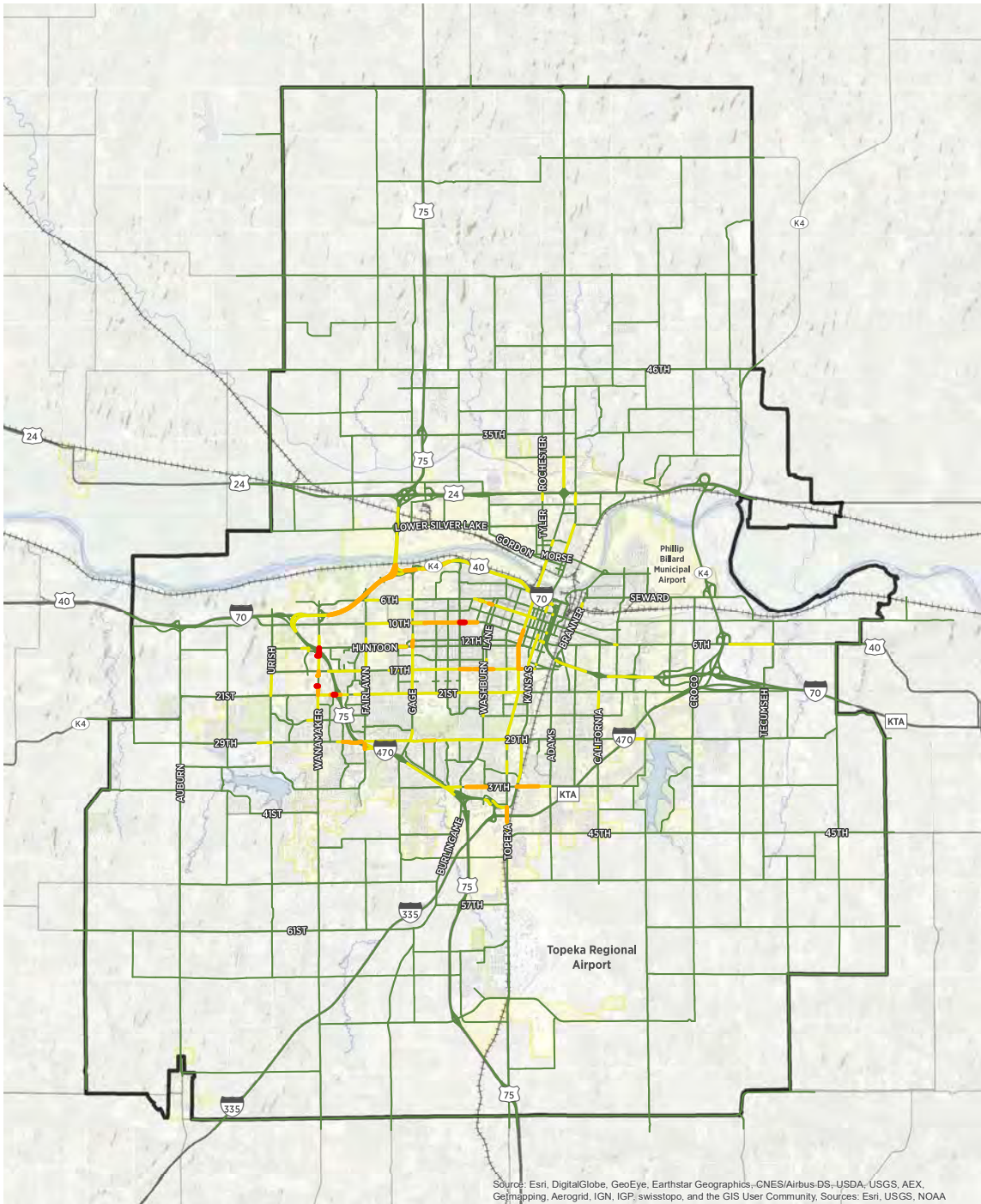
Traffic volume data from the travel demand model, along with roadway characteristics, such as the number of lanes or functional classification, are used to define the quality of traffic operations or level of service (LOS) along a roadway. For LOS, “A” represents the best rating and “F” the worst. General descriptions of six traffic operation conditions are provided in Figure 3.8. The table also notes the traffic volume-to-capacity ratios used for the RTP and how they correspond to each LOS. The capacity of a roadway is the maximum volume that can be carried during a defined period.

LOS congestion metrics is one measure of system reliability and mobility. However, while LOS is important, it is not the only way to measure these factors. Other common methods are reliability or travel time. However, because of the availability of LOS data, this method was selected.

It should also be noted that many other factors contribute to the quality of a roadway. Roadway congestion needs for the system also much be balanced against other priorities, like safety, ease of use by multiple modes of transportation, economic development opportunities, and the aesthetic quality of roadway, among other considerations. Regardless, LOS reflects one important aspect of Topeka’s system and is used in conjunction with these other factors.

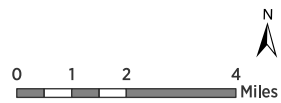
FIGURE 3.8: Traffic Operation Conditions (LOS)

Level of Service	Volume to Capacity	Description
A	0.00-0.60	Represents free flow, the least congested condition. Individual users are virtually unaffected by the presence of others in the traffic stream. Allows users to select desired speeds and to maneuver freely within the traffic stream.
B	0.61-0.70	Within the range of stable flow, but the presence of others in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A.
C	0.71-0.80	Within the range of stable flow, but LOS C marks the beginning of flow in which the operation of individual users becomes affected by interactions with others in the traffic stream.
D	0.81-0.90	LOS D represents high-density, but stable flow. Speed and freedom to maneuver are restricted, and the driver experiences a poor level of comfort and convenience.
E	0.91-1.00	LOS E represents operating conditions at or near capacity (maximum traffic) levels. Freedom to maneuver within the traffic stream is difficult. Comfort and convenience levels are poor and driver frustration is high.
F	>1.00	LOS F is used to define forced or breakdown flow, the most congested condition. It exists when the amount of traffic desiring to use a roadway exceeds the maximum volume that can be accommodated during a given period of time.



Topeka Regional Transportation Plan

- Plan Boundary
- Railroad Lines
- Water Bodies
- Parks
- City Limits
- 0.00 - 0.59
- 0.60 - 0.79
- 0.80 - 0.99
- 1.00 - 1.07



Source: Travel Demand Model Estimates

FIGURE 3.9: 2015 Estimated Base Year Network Congestion within Topeka MPA

Figure 3.9 illustrates 2015 base year traffic conditions utilizing base year population and employment estimates by Traffic Analysis Zone. Green and yellow lines represent roads that are not congested, while orange and red lines indicate roads that are congested or severely congested, respectively. Figure 3.10 shows the percent of each roadway type at various LOS.

Figure 3.11, provides baseline data for the year 2015 traffic conditions from the travel demand model. This data will be compared to the expected conditions in 2040. Terms are defined as follows:

- **Vehicle Miles Traveled (VMT):** The measurement of the vehicle-miles traveled each day.

- **Vehicle Hours Traveled (VHT):** The sum of the vehicle-hours traveled each day.
- **Lane Miles:** Lane miles are calculated by multiplying the centerline mileage of a roadway by the number of lanes it has.
- **Delay:** The difference in hours between VHT for the calculated traffic conditions minus the VHT if all roadways were free flowing with no delays.

For the most part, traffic within the Topeka MPA moves smoothly. Areas that are currently experiencing the worse congestion include portions of Wanamaker, 21st Street near I-470, and parts of 10th Street. Topeka Boulevard near downtown and the west part of I-70 within Topeka also show signs of moderate levels of congestion.

FIGURE 3.9A: 2015 Base Year Network Congestion: Topeka Core

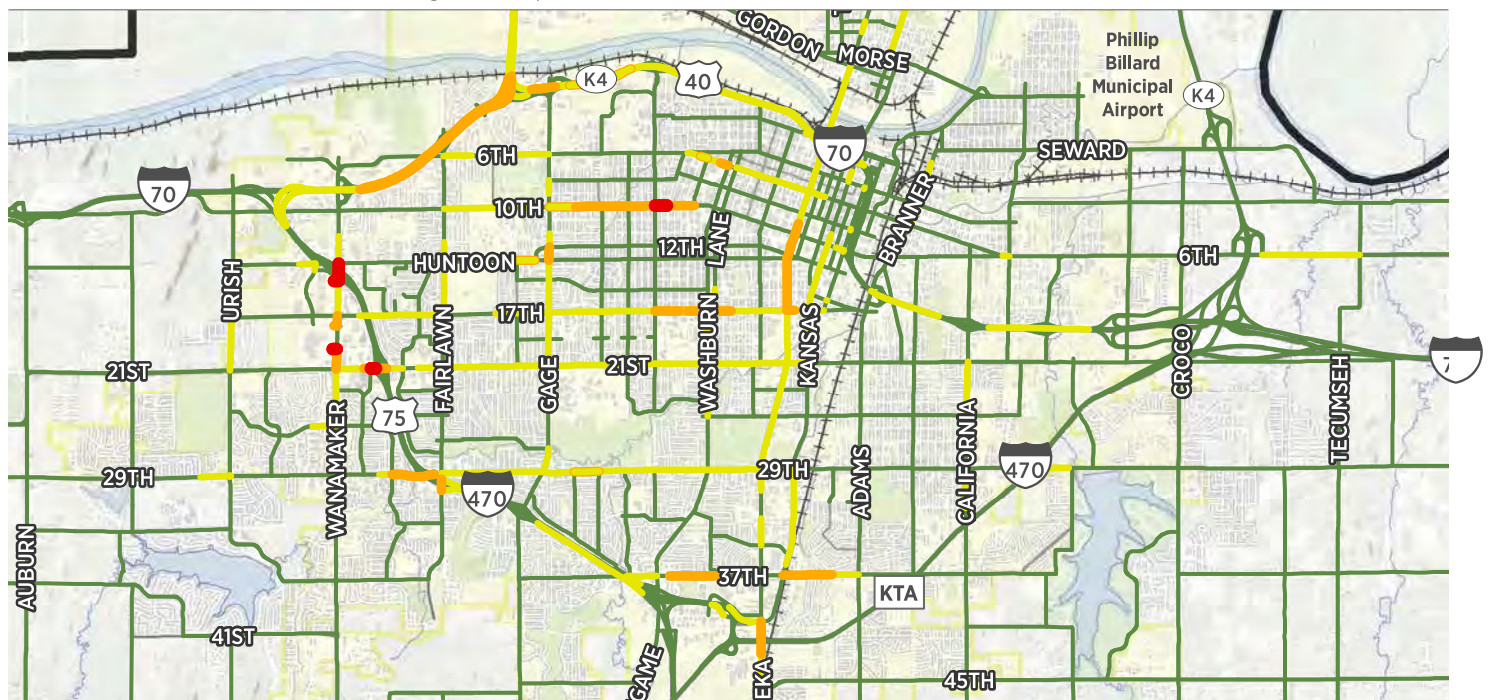


FIGURE 3.10: Level of Service by Roadway Type

LOS	Interstate	Expressway	Major Arterial	Minor Arterial	Collector
A	63%	88%	52%	80%	98%
B-C	30%	10%	40%	16%	1%
D-E	6.4%	0.0%	6.7%	2.4%	0.0%
F	0.0%	0.0%	0.4%	0.2%	0.0%

FIGURE 3.11: Select Measures by Roadway Type

Roadway Type	VMT (Miles)	VHT (Hours)	Lane Miles	Delay (Hours)
Interstate	1,052,351	17,372	169	1149
Expressway	463,745	7,498	115	9
Major Arterial	1,038,092	27,194	263	886
Minor Arterial	669,911	17,137	266	318
Collector	329,989	8,207	459	22
Total	3,554,088	77,408	1,273	2,384

FOUNDATION FACTS: ROADWAYS, BRIDGES, AND FREIGHT MOVEMENT

Roadway Pavement Conditions

HIGHWAY PAVEMENT CONDITION

Highway pavement conditions are monitored in the spring of each year. Targets have been established by the Kansas Department of Transportation (KDOT) for the percent of pavement in good condition: 85 percent for Interstate highways and 80 percent for non-Interstate highways. Figure 3.12 compares the performance data for the years 2015 and 2016 to these targets. It should be noted that the 2016 data for Interstate highways was collected before the overlay project on I-70 through Topeka.

Conclusions:

- The pavement condition for both Interstate and Non-Interstate highways are below the performance measure targets.
- There is a downward trend to the pavement condition for non-Interstate highways.
- Additional funds would be needed to reach the performance targets for highways in Topeka and Shawnee County.
- If funding is not provided, pavement conditions will ultimately require replacement rather than rehabilitation – resulting in higher long-term costs to the state.

Recommendations:

- Continue additional funding to maintain highway pavement beyond 2019.
- Continue to monitor pavement conditions.

CITY STREETS

The City of Topeka has completed a roadway system inspection and evaluation as the first phases of a pavement management program process. A Pavement Condition Index (PCI) scale provides an objective and rational basis for determining maintenance and repair needs and priorities. KDOT also measures bridge conditions on a regular basis to ensure their safety.

PCI is a rating scale that measures the condition of pavements through systematic measurement of surface distresses, like cracking, rutting, joint failure, roughness, oxidation and other factors. The PCI scale ranges from 0 -100 and is an indicator of the maintenance strategy needed. The PCI is grouped into seven categories corresponding to the most cost effective maintenance strategies:

- **Good (PCI 85-100):** Pavement has minor or no distresses and requires only routine preventative maintenance.
- **Satisfactory (PCI 70-84):** Pavement has scattered, low-severity distresses that need only routine preventative maintenance.
- **Fair (PCI 55-69):** Pavement has a combination of generally low-and medium-severity distresses. Maintenance needs are minor to major rehabilitation.
- **Poor (PCI 40-54):** Pavement has low-, medium- and high-severity distresses. Near-term maintenance and repair needs may range from rehabilitation up to reconstruction.
- **Very poor (PCI 25-39):** Pavement has predominantly medium- and high-severity distresses that require considerable maintenance. Near-term maintenance and repair needs will be intensive in nature, requiring major rehabilitation and reconstruction.

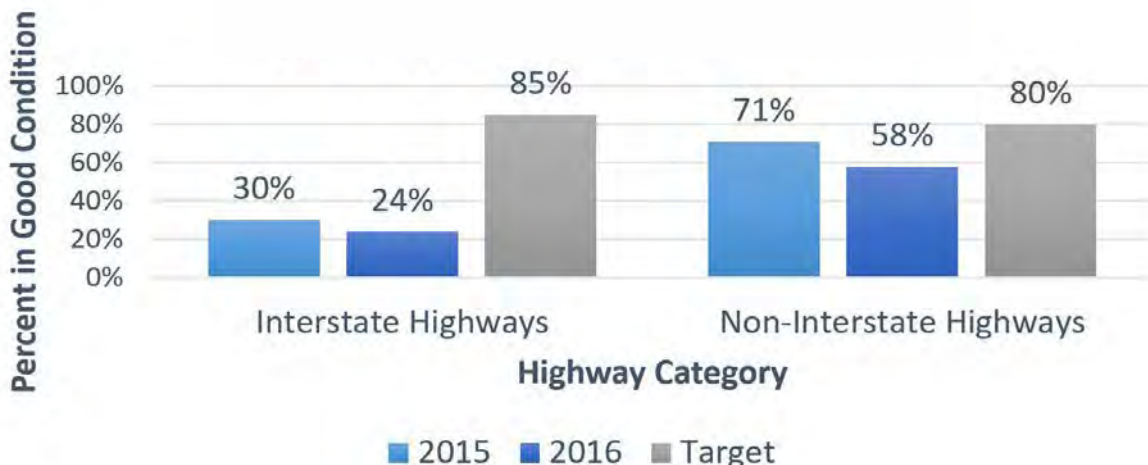


FIGURE 3.12: Highway Pavement Condition

- **Serious (PCI 11-24):** Pavement has mainly high-severity distresses that result in frequent potholes. Near-term maintenance and repair needs will be intensive in nature, requiring major rehabilitation and reconstruction.
- **Failed (PCI 0-10):** Pavement deterioration and distresses are extensive. Pavement has progressed to the point that complete reconstruction is only applicable maintenance strategy. Note: This does not mean the road is unsafe for travel.

Figure 3.13 shows the average PCI for city streets by functional classification and Figure 3.16 provides a visual graphic of pavement conditions. Streets shown in a red color indicate pavements that are in poor to serious condition.

FIGURE 3.13: Pavement Condition for City Streets

Street Type	Average PCI	Pct. of Street Network
Principal Arterials	65.5	1.4%
Minor Arterials	62.7	14.8%
Collectors	51.5	7.4%
Local	51.5	76.4%

The average PCI for arterial streets indicates they are in fair condition. The condition of average collector and local streets is poor. The current overall system average PCI for all streets is 55, which places the system in the category of fair to poor. These ratings reaffirm that the City of Topeka needs an effective pavement management program to improve the overall condition of streets.

1. 57% of the system requires reconstruction maintenance strategies.
2. 19% of the system requires rehabilitation strategies.
3. 24% of the system will need continued preventative maintenance strategies.

For the last 10 years, the City of Topeka has invested an average of \$14 million each year to improve existing streets. To keep the current PCI of 55, the City would need to invest \$19 million each year for the next 10 years. Comments from the public indicate that current street conditions aren't acceptable, so the City is determining what grade they want to reach. This is visualized in Figure 3.15.

It has been recommended that the City start investing more money into maintaining, rehabilitating and reconstructing existing streets. For example, to increase the PCI grade to 65, \$31 million would need to be invested each year for the next 10 years. To get to 80 (satisfactory), the annual investment jumps to \$51 million.

Figure 3.14 compares the pavement condition of Environmental Justice (EJ) with non-EJ areas. Overall, approximately 674 miles of road were rated, 57.5 percent of which were in poor, very poor, serious, or failed condition. EJ areas comprised about two thirds of roads in Topeka, or about 459 miles. 58 percent of EJ roads were in poor or lower condition. This suggests that EJ areas have similar quality roads to non-EJ areas, i.e. they do not suffer disproportionately from roads in poor condition.

FIGURE 3.14: Pavement Condition in EJ vs. Non-EJ Areas

	Total Road Mileage	Road Mileage at Poor or Worse Condition	Percent of Roads in Poor or Worse Condition
EJ Areas	458.69	266.19	58.0%
All Areas	674.02	387.47	57.5%

Conclusions:

- The current average Pavement Condition Index (PCI) for city streets is 55. PCI 55 is the border between pavements in poor and fair condition.
- An increase in annual funding from \$14 million to \$19 million will be required to maintain a PCI of 55.
- Maintaining and improving existing streets is a top priority based upon input received from the community.
- Maintaining existing streets supports long-term land use goals of redeveloping the core of the City.
- A significant increase in funding for the pavement rehabilitation and reconstruction will be required to increase the average PCI of city streets.

Due to these conclusions, the recommendations reflect a need to continue monitoring pavement conditions, develop a pavement management system, and increased funding for pavement rehabilitation and reconstruction projects.

FIGURE 3.15: Annual Cost to Reach PCI Goal

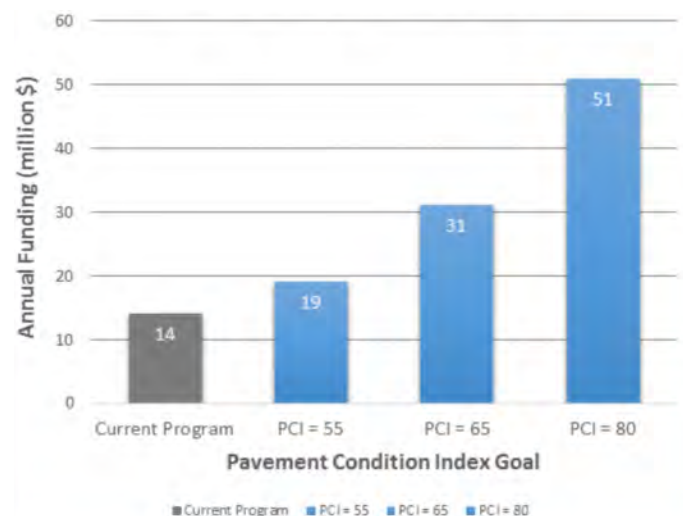
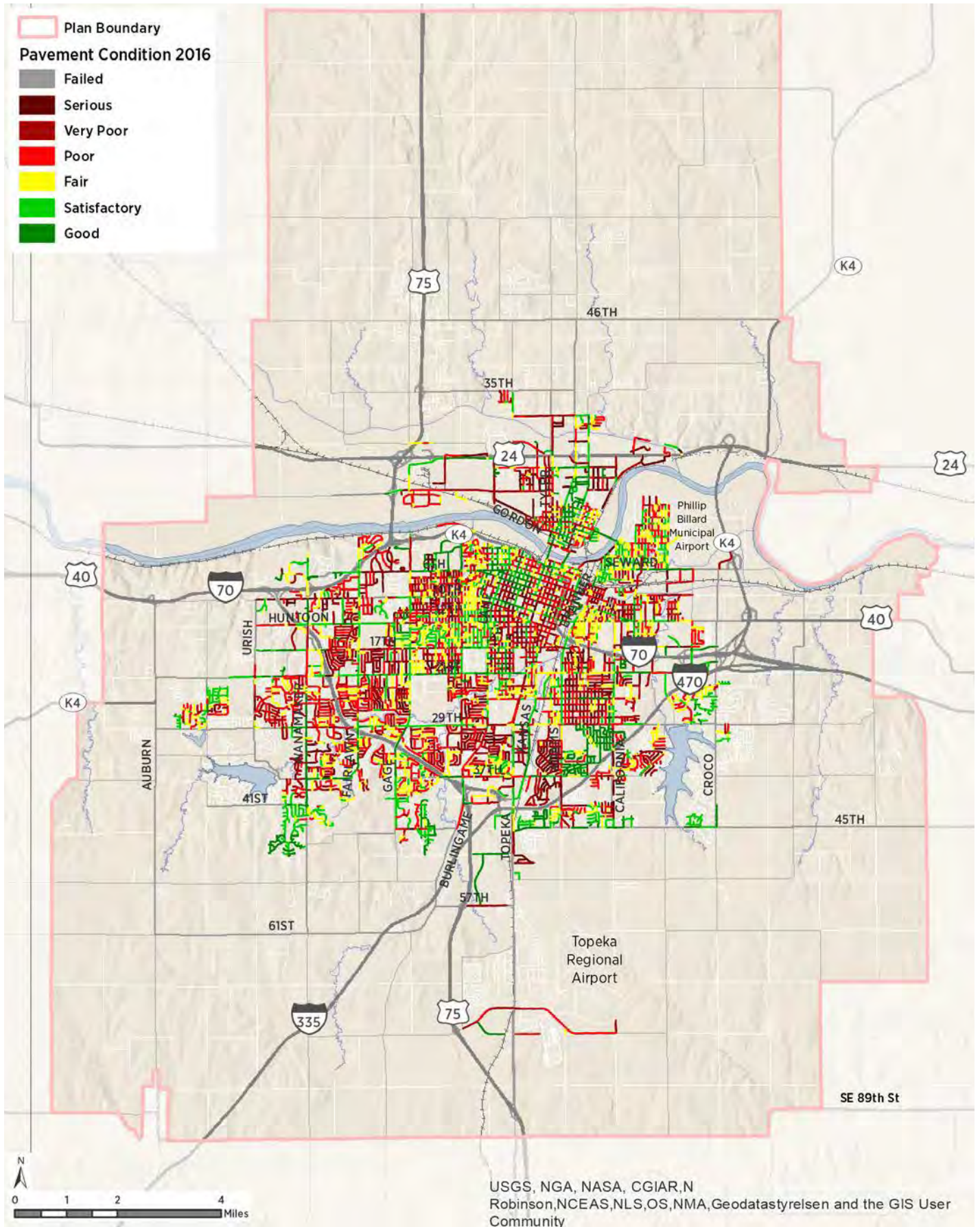


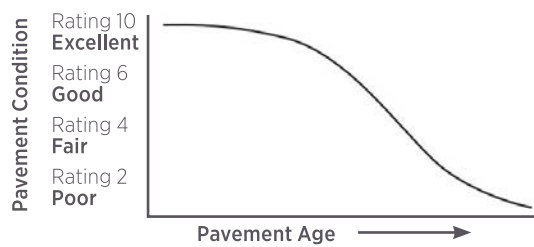
FIGURE 3.16: Pavement Condition for City Streets



COUNTY PAVEMENT CONDITION

The County annually inspects roadway conditions in the spring. The County uses the Pavement Surface Evaluation and Rating (PASER) method developed by the University of Wisconsin. Figure 3.17 shows the PASER 1-10 rating scale and how the ratings are related to needed maintenance. The County’s goal is to maintain all pavements such that a rating of at least 6 (good condition) is achieved. Roads with a rating equal to or less than 5 receive treatment. The County understands that the long-term costs of maintaining pavements in good condition is less than the cost of letting pavements deteriorate to a point where they need replacement.

FIGURE 3.17: PASER 1-10 Rating Scale



Ratings are related to needed maintenance or repair:

- Rating 9 & 10:** No maintenance required
- Rating 8:** Little or no maintenance
- Rating 7 :** Routine maintenance, cracksealing, and minor patching
- Rating 5 & 6:** Preservation treatments (sealcoating)
- Rating 3 & 4:** Structural improvement and leveling (overlay or recycling)
- Rating 1 & 2:** Reconstruction

Conclusions:

- Shawnee County has an effective pavement management process.
- County roads are maintained in good condition

Due to these findings, recommendations reflect continuing the pavement management program and continue funding to maintain good pavement condition.

BRIDGE CONDITION

In accordance with state and federal requirements, KDOT, KTA, Shawnee County and the City of Topeka conduct biennial inspections of the bridge inventory for load capacity and maintenance needs. This includes looking at the condition of their deck (riding surface), super structure (supports immediately beneath the driving surface), and substructure (foundation and supporting posts and piers). Based upon this evaluation, bridges are assigned an overall sufficiency rating and a capital improvement program for new bridge construction and major rehabilitation is developed and administered.

Figure 3.18 shows the number of bridges in Good, Fair, and Poor Condition in Topeka, Shawnee County (outside Topeka), on state highways, and on the Kansas Turnpike.

Overall, 62.3 percent of the total bridges are in Good Condition, 34.1 percent are in Fair Condition, and 3.6 percent are in poor condition. Shawnee County has the lowest percentage of bridges in good condition (52.8 percent), followed by Topeka (54.5 percent). Meanwhile, KDOT and

FIGURE 3.18: Bridge Condition



Source: Kansas Department of Transportation

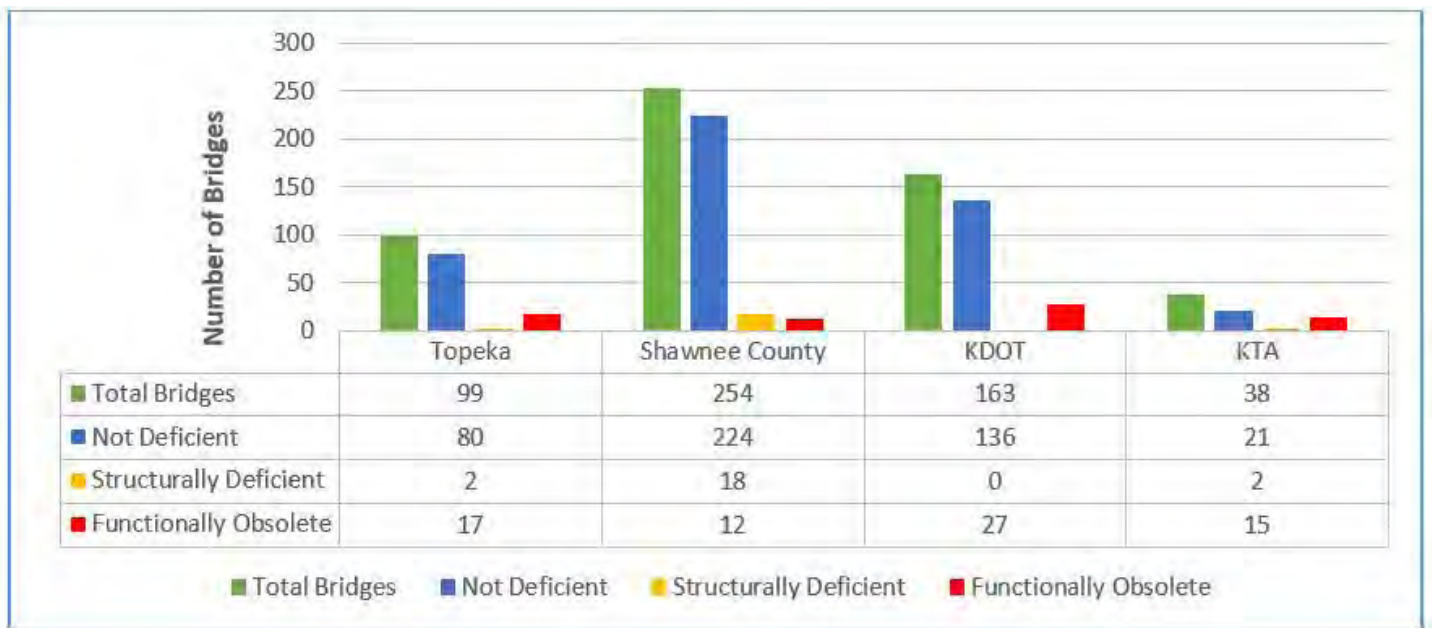
KTA have 77.9 percent and 78.9 percent bridges in good condition, respectively. Shawnee County also has the highest percent of bridges in poor condition (6.3 percent), followed by KTA (5.3 percent) and Topeka (2.0 percent). Performance measures have not been established for bridge condition. Figure 3.19 shows the number of Structurally Deficient, Functionally Obsolete, and Not Deficient bridges in Topeka, Shawnee County (outside Topeka), on state highways (KDOT), and on the Kansas Turnpike). Definitions for these are as follows:

- **Structurally Deficient:** Means there are elements of the bridge that need to be monitored and/or repaired. The fact that a bridge is “structurally deficient” does not imply that it is likely to collapse or that it is unsafe. A “deficient” bridge typically requires maintenance and repair and eventual rehabilitation or replacement to address deficiencies.

- **Functionally Obsolete:** Means a bridge was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that do not meet current standards for lane widths, shoulder widths, or vertical clearances to serve current traffic demand, or those that may be occasionally flooded.
- **Not Deficient:** Means that a bridge meets current safety standards.

For the 2040 Metropolitan Transportation Plan update, ratings were available for state highway and non-state bridges. Of the 554 bridges, 71 (12.8%) were functionally obsolete and 22 (4.0%) were structurally deficient. Progress is being made to improve the overall condition of bridges in the region, as 44 bridges were noted as structurally deficient the previous plan.

FIGURE 3.19: Bridge Deficiency



Source: Kansas Department of Transportation

Roadway Safety

There is a national, state, and local focus on continually studying and improving roadway safety for vehicle and non-vehicle travelers. Potential safety improvements include vehicle design and technology improvements, roadway geometric improvements, changes to intersection design and control, reduction in driver distractions, and efforts to increase driver awareness. The desired result is to reduce the total number of crashes that occur with emphasis on reducing fatal and serious injury crashes.

The Kansas *Strategic Highway Safety Plan 2015* was developed to drive the formulation and implementation of safety-related programs. “The mission of the Kansas SHSP is to drive strategic investments that reduce traveler casualties and the emotional and economic burdens of crashes, utilizing the 4 E’s (education, enforcement, engineering, and emergency medical services) in a collaborative process.”

Improvements have been made at the State level that affects the enforcement portion of the “4 Es”. In 2009, the State modified the graduated driver license rules, affecting Kansas teenage drivers seeking licenses and permits beginning in 2010. New requirements raise the unrestricted driving age to 17, increase learners’ permit length, and include limitations for passengers, late night driving, and cell phones. Three other new laws were passed by the State legislature in 2010 impacting all motorists in Kansas.

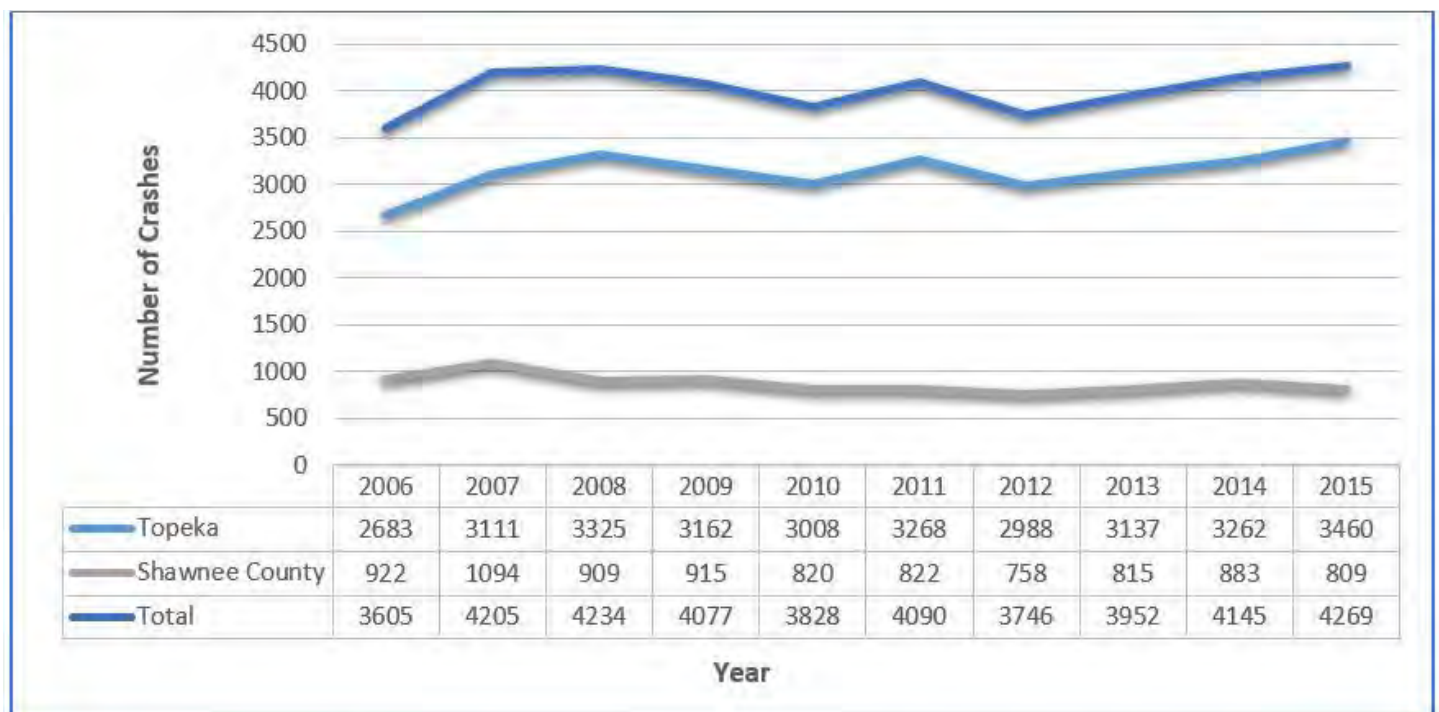
1. Tougher seatbelt laws make driving without a seatbelt a primary offense and allow officers to stop and fine a motorist for not wearing a seatbelt.
2. Texting while driving was banned, except for voice activated devices and messages to emergency personnel.
3. Anyone convicted of a second offense of driving under the influence are required to have an interlock device placed on a vehicle’s ignition.

With these new rules in place, the SHSP set a goal to halve the number and rate of fatalities and serious injuries that occur in Kansas by 2029, starting with statistics from 2009. Consistent with this overall goal is to also halve the number of fatalities and serious injuries for local roads over this 20-year period.

TOTAL CRASHES

Figure 3.20 shows the number of crashes occurring within the City of Topeka, Shawnee County (excluding Topeka), and the overall total. The number of crashes is growing within the city limits of Topeka, while the number is decreasing outside the city in Shawnee County. The total number of crashes somewhat follows the miles traveled as travel decreased from 2007 to 2011, then increased to 2015.

FIGURE 3.20: Total Crashes Years 2006-2015



Source: Kansas Department of Transportation

FATAL CRASHES

Figure 3.21 shows the number of motor vehicle fatal crashes that occurred within the City of Topeka from 2011 through 2015 and the classification of the roadways where they occurred. Most fatal crashes occurred on roadway types that typically carry higher volume traffic.

Figure 3.22 shows the number of fatal crashes that occurred in Shawnee County, outside the city limits of Topeka. Forty percent of the fatal crashes in rural areas occurred on local roads. An additional 40 percent of fatal crashes occurred on Interstate highways or freeway/expressway roadways.

Figure 3.23 shows the locations of all crashes from 2010 to 2015. Note that they tend to cluster around high-traffic areas, especial downtown and near highway intersections and on-ramps.

Figure 3.24 shows the locations where fatal crashes occurred during the years 2013, 2014, and 2015.

The Insurance Institute for Highway Safety notes the following statistics for the United States in 2015:

- Crashes claimed 35,092 lives
- The number of people killed in motor vehicle crashes has fallen over the last decade. The death toll increased 7 percent in 2015, though it still is much lower than it was in 2005, when it began a sharp decline, or in 1975, when the U.S. Department of Transportation began keeping track.
- Fatality rates per population and per mile traveled have dropped even more rapidly. The crash death rate per population has fallen by nearly half since 1975, but increased 6 percent from 2014 to 2015.

FIGURE 3.21: Fatal Crashes in the City of Topeka Years 2011-2015

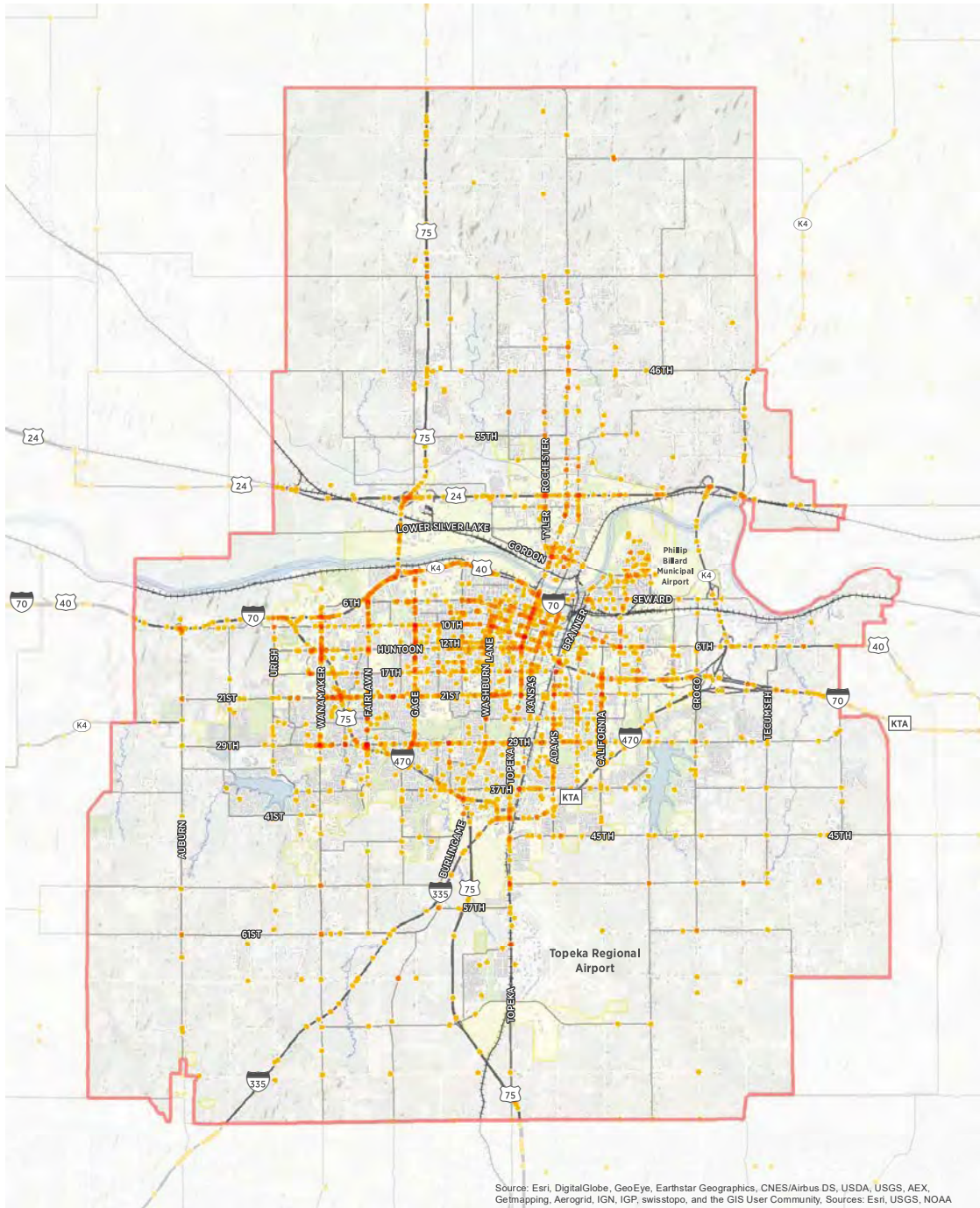
Functional Classification	2011	2012	2013	2014	2015	Total	5-Year Average
Local Road	2	1	0	4	0	7	1.4
Minor Collector	0	0	0	0	0	0	0
Major Collector	0	2	0	0	0	2	0.4
Minor Arterial	1	0	1	1	2	5	1
Principal Arterial	3	2	2	3	1	11	2.2
Freeway / Expressway	0	2	1	2	1	6	1.2
Interstate Highway	5	1	1	1	1	9	1.8
Total	11	8	5	11	5	40	8

Source: Kansas Department of Transportation

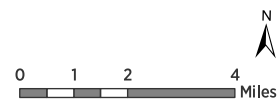
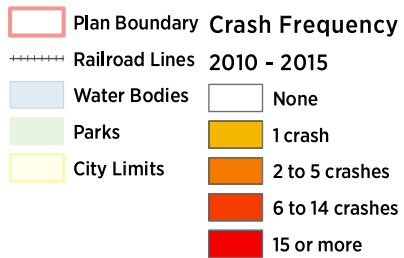
FIGURE 3.22: Fatal Crashes in Shawnee County 2011-2015 (not including City of Topeka)

Functional Classification	2011	2012	2013	2014	2015	Total	5-Year Average
Local Road	2	4	2	2	2	12	2.4
Minor Collector	0	0	0	0	0	0	0
Major Collector	0	1	0	1	0	2	0.4
Minor Arterial	0	0	0	2	1	3	0.6
Principal Arterial	0	0	0	0	1	1	0.2
Freeway / Expressway	1	1	3	2	1	8	1.6
Interstate Highway	0	1	2	0	1	4	0.8
Total	3	7	7	7	6	30	6

Source: Kansas Department of Transportation



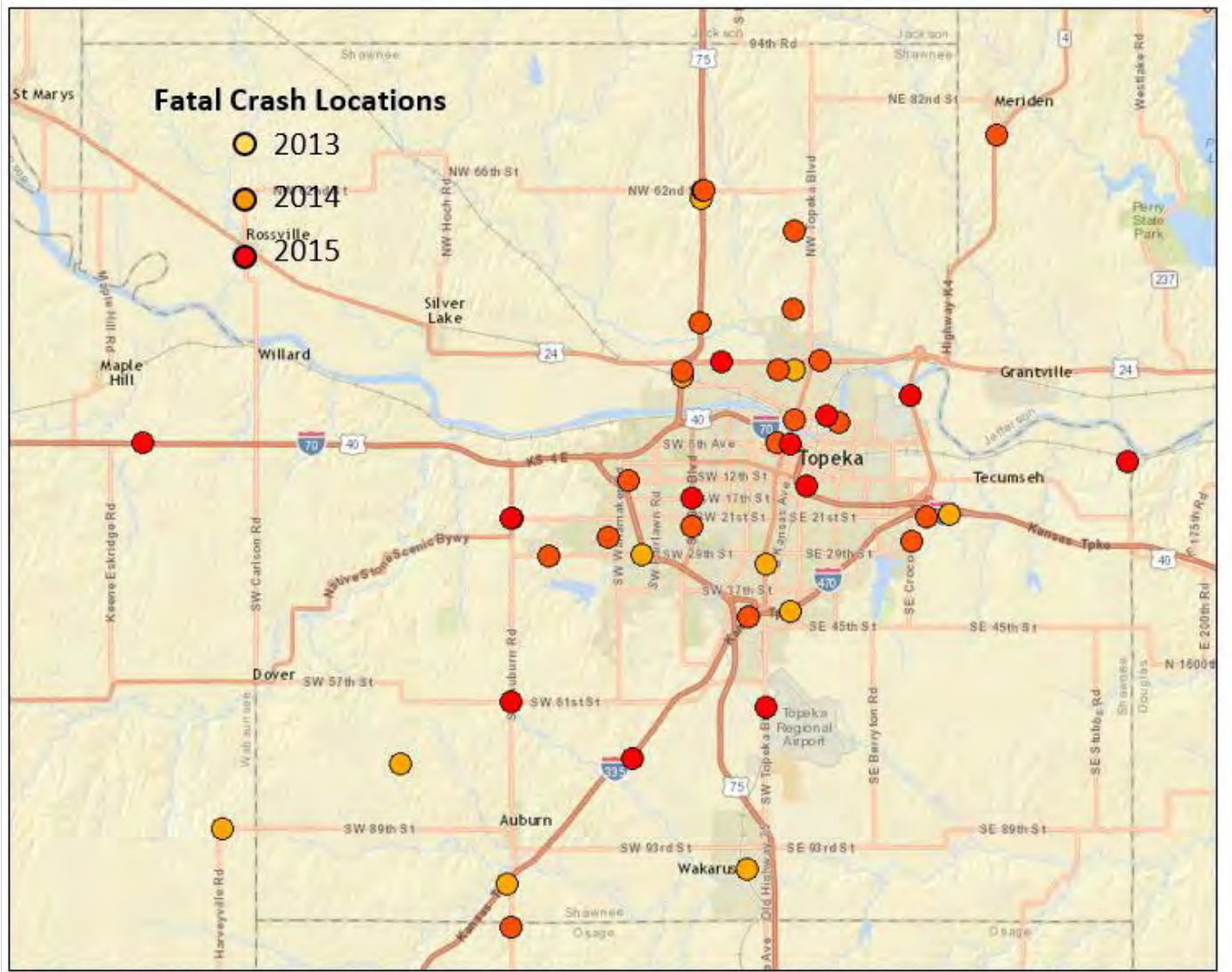
Topeka Metropolitan Transportation Plan



Source: Travel Demand Model Estimates

FIGURE 3.23: Crash Frequency, 2010-2015

FIGURE 3.24: Fatal Crash Locations



Source: Fatality Analysis Reporting System (FARS)

Figure 3.25 shows the number of fatalities that have occurred over the years 2006 to 2015 in the City of Topeka, Shawnee County (excluding Topeka), and the combined total. The dashed lines below show the “rolling” five year averages with the year shown being the final year of the 5-year period. The rolling average method is used to smooth variations in the data and provide a better understanding of how the number of fatalities is changing over time.

The trend in both figures shows the number of fatalities to be slowly increasing. From 2006 to 2010, the City of Topeka averaged 6.4 fatalities per year. This increased to an average of 8.6 fatalities per year for the period of 2011 to 2015. In the County, fatalities slightly decreased from 7.6 per year from 2006 to 2010 to 7.0 per year from 2011 to 2015.

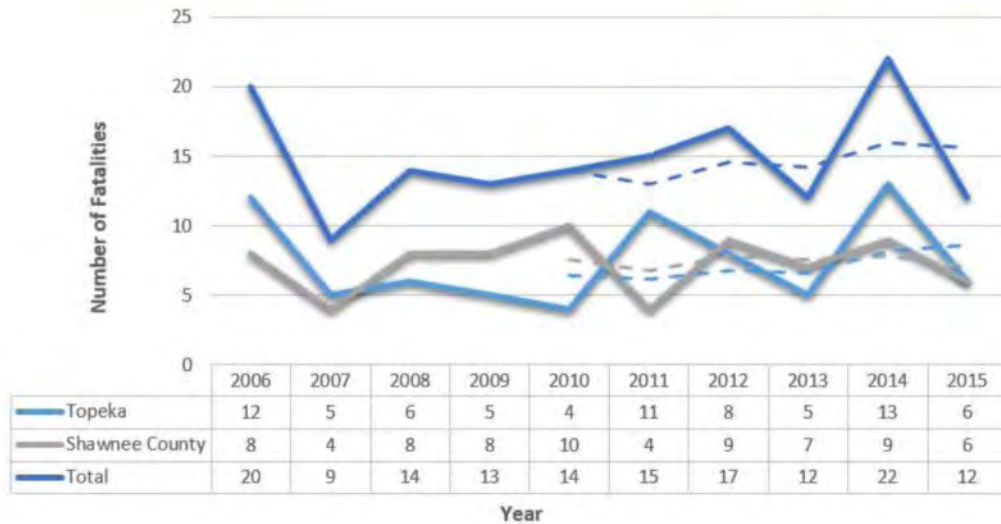
The Kansas SHSP has set a goal to halve the number of fatalities over a 20-year period ending in the year 2029. For

Shawnee County (including Topeka) this means reducing the number of fatalities to an average of seven per year. The blue bars in Figure 3.26 represent the yearly targets to reach the goal. The orange bars in the figure show the average number of roadway-related fatalities occurring in Shawnee County (including Topeka) for the periods ending in 2011, 2012, 2013, 2014, and 2015.

It should be noted that the overall number of fatalities is fairly low and that reducing a few fatalities per year would have a significant impact on the trend lines shown. Due to the low number of fatalities, the fatality rate may provide a better indication of how the region is performing.

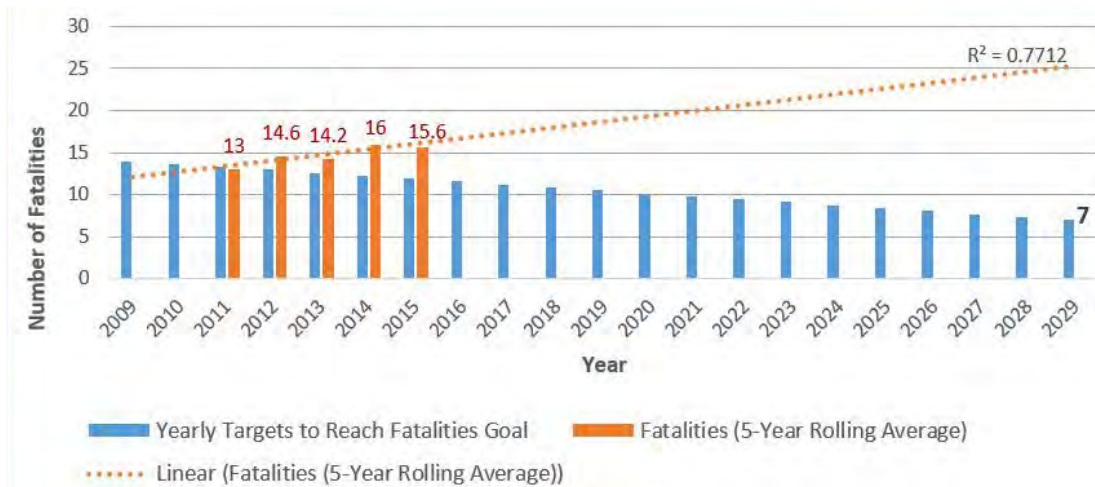
Fatality rates are calculated as the number of fatalities that occur per 100 million vehicle-miles traveled. The values for fatality rate shown in Figure 3.27 are “rolling” five year averages with the year shown being the final year of the 5-year period.

FIGURE 3.25: Number of Fatalities and 5-Year Rolling Averages



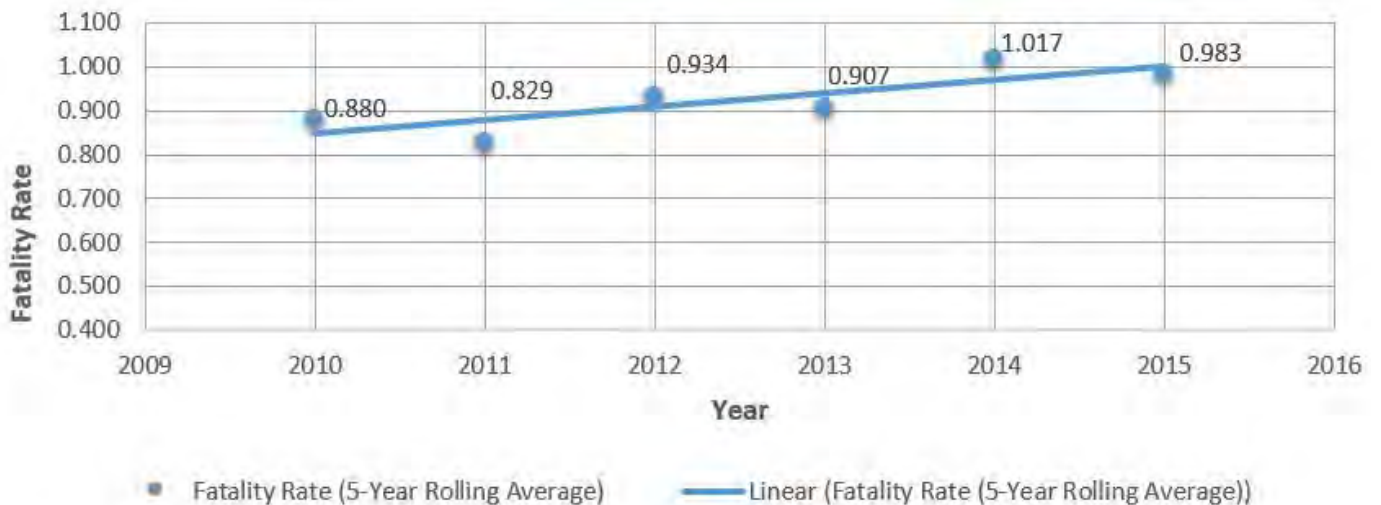
Source: Kansas Department of Transportation

FIGURE 3.26: Performance Measure – Number of Fatalities



Source: Kansas Department of Transportation

FIGURE 3.27: Fatality Rate (5-Year Rolling Average)



Source: Kansas Department of Transportation

Figure 3.28 shows the total number of fatalities in the United States for the years 1965 to 2015 and the fatality crash rate in number of fatalities per 100 million vehicle-miles traveled (VMT).

The 2015 fatality rate for all roads in Shawnee County, including Topeka, is 0.983 fatalities per 100 million VMT which is below the national rate of 1.12 fatalities per 100 million VMT. The Kansas SHSP goal for fatality rate is to reduce the number of fatalities occurring to 0.575 per 100 million vehicle-miles traveled (VMT) by 2029. This goal is adopted for the region. The blue bars in Figure 3.29 represent the yearly targets to reach that goal. The orange bars show the 5-year rolling average fatality rate for all roadways in Shawnee County (including Topeka) for periods ending in 2011, 2012, 2013, 2014, and 2015.

While the trend line indicates that the average rate of fatalities within Shawnee County is slowly increasing, the rates for recent years are below the targets needed to reach the Kansas goal.

INJURY CRASHES

There are three categories of non-fatal injuries that are included in the total injury statistics:

- Possible Injury – complaint of pain
- Non-incapacitating Injury – an injury evident to observers, but is not disabling
- Serious (Disabling) Injury – an injury that prevents the injured person from walking, driving or continuing normal activities

Figure 3.30 shows the total number of injury crashes occurring in the City of Topeka, Shawnee County (excluding Topeka), and the overall total. Dashed lines indicate the five-year rolling averages for those same areas.

Over the years 2006 to 2015, the number of injury crashes in Topeka and in Shawnee County is slightly decreasing. During the period from 2006 to 2010, the City of Topeka averaged 785 injury crashes per year. This decreased to an average of 767 injury crashes per year for the period from 2011 to 2015. In the County, injury crashes decreased from 200 per year for 2006-2010 to 164 per year for 2011-2015.

FIGURE 3.28: Fatalities and Fatality Rate per 100 Million VMT by Year



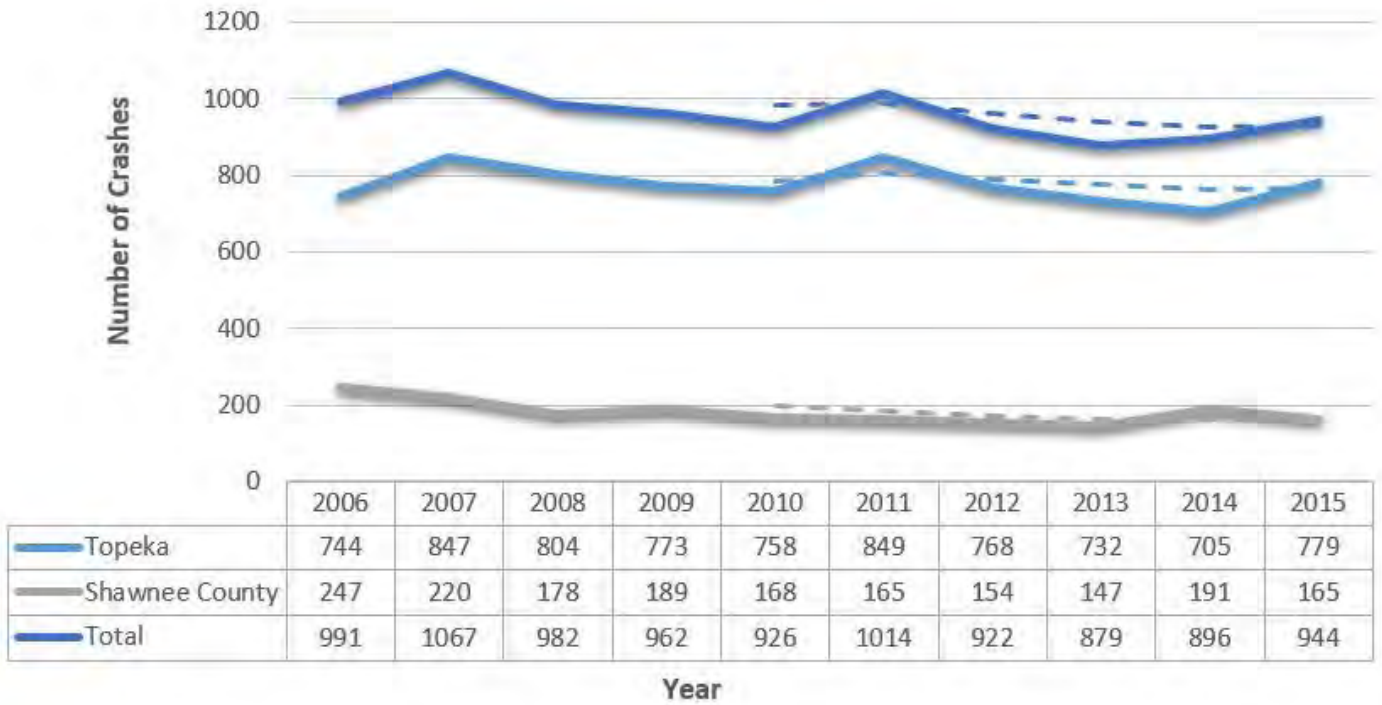
Source: NHTSA's National Center for Statistics and Analysis

FIGURE 3.29: Performance Measure – Fatality Rate (Number of Fatalities per 100m VMT)



Source: Kansas Department of Transportation

FIGURE 3.30: Number of Total Injury Crashes and 5-Year Rolling Averages



Source: Kansas Department of Transportation

Along with fatal crashes, a national goal is to reduce the number of serious (disabling) injury crashes that occur on roadways. On average, 34 serious injury crashes occur each year in the City of Topeka and 16 occur outside the City within Shawnee County. Figure 3.31 shows the number of serious injury crashes and the types of roadways where they occurred in the City of Topeka.

The *Kansas Motor Vehicle Accident Report Coding Manual (May 2014)* defines a serious (disabling) injury as “any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities he/she was capable of performing before the injury occurred. Includes severe lacerations, broken or distorted limbs, skull or chest injuries, abdominal injuries, unconsciousness at or when taken from the accident scene, or inability to leave the accident scene without assistance.”

Figure 3.32 shows the number of serious injury crashes and the types of roadways where they occurred in Shawnee County outside the city limits of Topeka.

FIGURE 3.31: Serious Injury Crashes in the City of Topeka 2011-2015

Functional Classification	2011	2012	2013	2014	2015	Total	5-Year Average
Local Road	9	9	7	5	2	32	6.4
Minor Collector	0	0	1	1	0	2	0.4
Major Collector	5	1	2	0	3	11	2.2
Minor Arterial	7	6	6	5	3	27	5.4
Principal Arterial	17	14	18	7	14	70	14
Freeway / Expressway	2	2	1	1	0	6	1.2
Interstate Highway	5	4	7	7	0	23	4.6
Total	45	36	42	26	22	171	34.2

Source: Kansas Department of Transportation

FIGURE 3.32: Serious Injury Crashes in Shawnee County 2011-2015 (excluding City of Topeka)

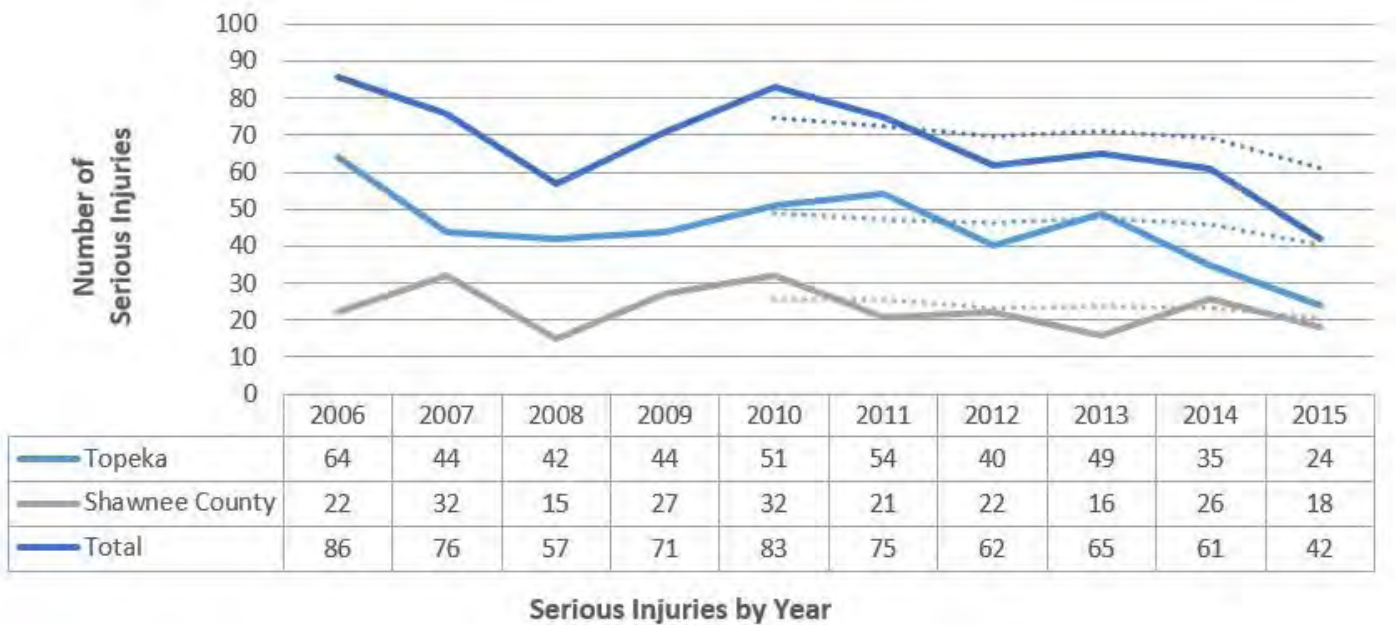
Functional Classification	2011	2012	2013	2014	2015	Total	5-Year Average
Local Road	5	4	2	5	2	18	3.6
Minor Collector	0	0	1	2	0	3	0.6
Major Collector	6	4	3	6	5	24	4.8
Minor Arterial	1	1	0	2	0	4	0.8
Principal Arterial	1	1	0	2	2	6	1.2
Freeway / Expressway	0	0	4	3	4	11	2.2
Interstate Highway	4	5	2	0	3	14	2.8
Total	17	15	12	20	16	80	16

Source: Kansas Department of Transportation

Figure 3.33 shows the number of serious injuries that have occurred over the years 2006 to 2015 in the City of Topeka, Shawnee County (excluding Topeka), and the combined total. The dotted lines show “rolling” five year averages with the year shown being the final year of the 5-year period. The rolling average method is used to smooth variations in the data and provide a better understanding of how the number of serious injuries is changing over time.

Over the years 2006 to 2015, the number of serious injury crashes in Topeka and in Shawnee County has been decreasing. During the period 2006-2010, the City of Topeka averaged 49.0 serious injuries per year. This decreased to an average of 40.4 injuries per year for the period 2011-2015. In the County, serious injuries decreased from 20 per year for 2006-2010 to 13 per year for 2011-2015.

FIGURE 3.33: Number of Serious Injuries and Five Year Rolling Averages



Source: Kansas Department of Transportation

The Kansas SHSP has set a goal to halve the number of serious injuries over a 20-year period ending in the year 2029. For Shawnee County (including Topeka) this means reducing the number of serious injuries to an average of 36 per year. The values shown in Figure 3.34 are “rolling” five year averages with the year shown being the final year of the 5-year period. The rolling average method is used to smooth variations in the number of serious injuries and provide a better understanding of how this number is changing over time. The blue bars represent the yearly targets to reach the goal. The orange bars in the figure show the average number of roadway-related serious injuries occurring in Shawnee County (including Topeka) for the periods ending in 2011, 2012, 2013, 2014, and 2015.

The trend line for these years shows the number of serious injuries to be decreasing and on track to reach the goal of reducing serious injuries to 36 per year.

Serious injury rates are calculated as the number of serious injuries that occur per 100 million vehicle-miles traveled. The values for serious injury rate shown in Figure 3.35 are “rolling” five year averages with the year shown being the final year of the 5-year period.

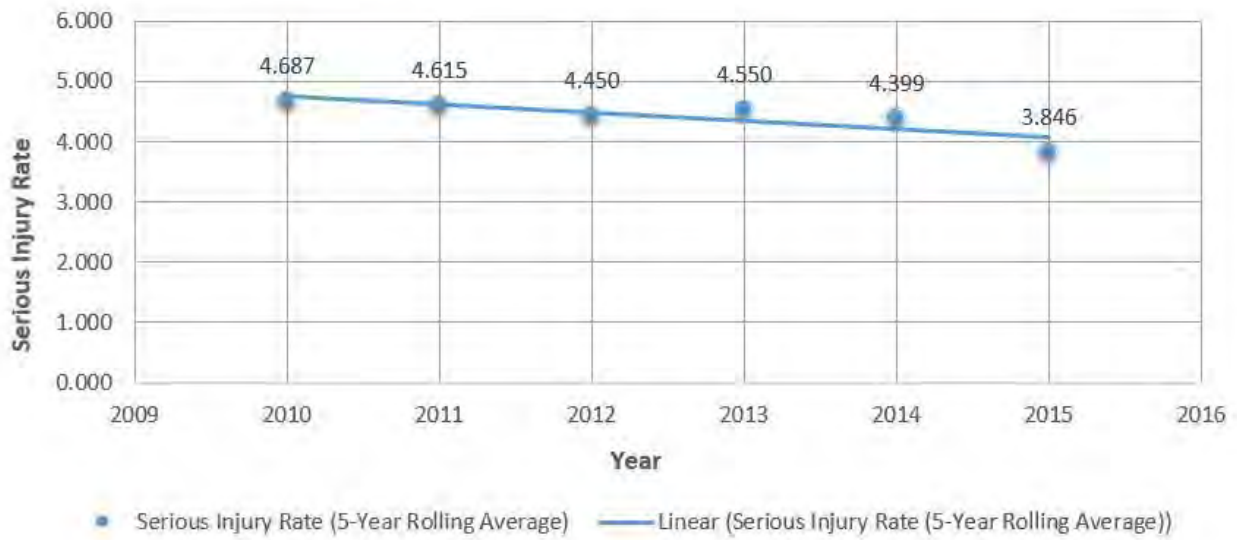
The Kansas SHSP goal for serious injury rate is to reduce the number of serious injuries to 2.435 per 100 million VMT by the year 2029. This goal is adopted for the region. The blue bars in Figure 3.36 represent the yearly targets to reach the goal. The orange bars show the 5-year rolling average serious injury rate for all roadways in Shawnee County (including Topeka) for periods ending in 2011, 2012, 2013, 2014, and 2015. The trend line shows the rate of serious injuries to be decreasing and on track to reach the Kansas goal of reducing serious injuries to 2.435 per 100 million VMT.

FIGURE 3.34: Performance Measure – Number of Serious Injuries



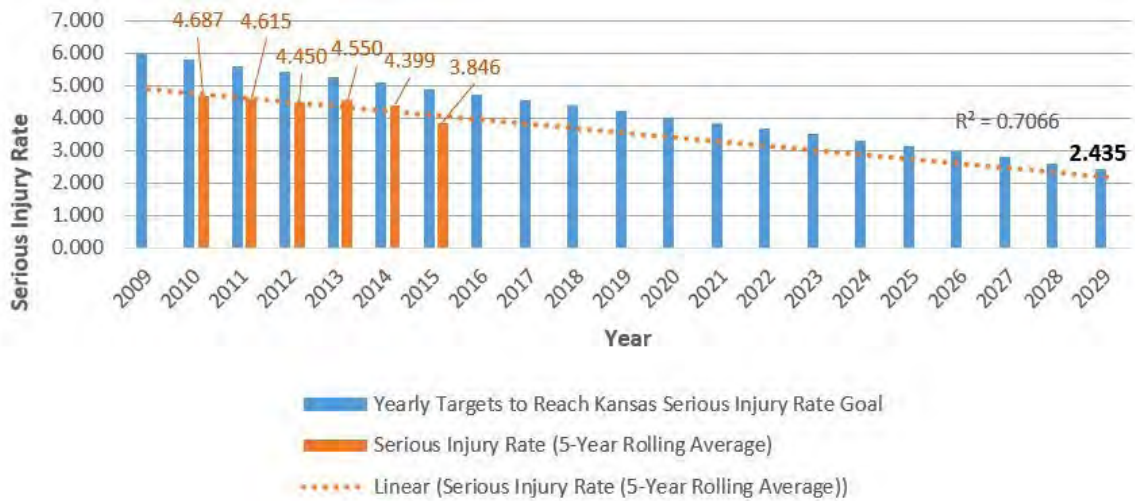
Source: Kansas Department of Transportation

FIGURE 3.35: Serious Injury Rate (5-Year Rolling Average)



Source: Kansas Department of Transportation

FIGURE 3.36: Performance Measure – Serious Injury Rate (Number of Serious Injuries per 100m VMT)



Source: Kansas Department of Transportation

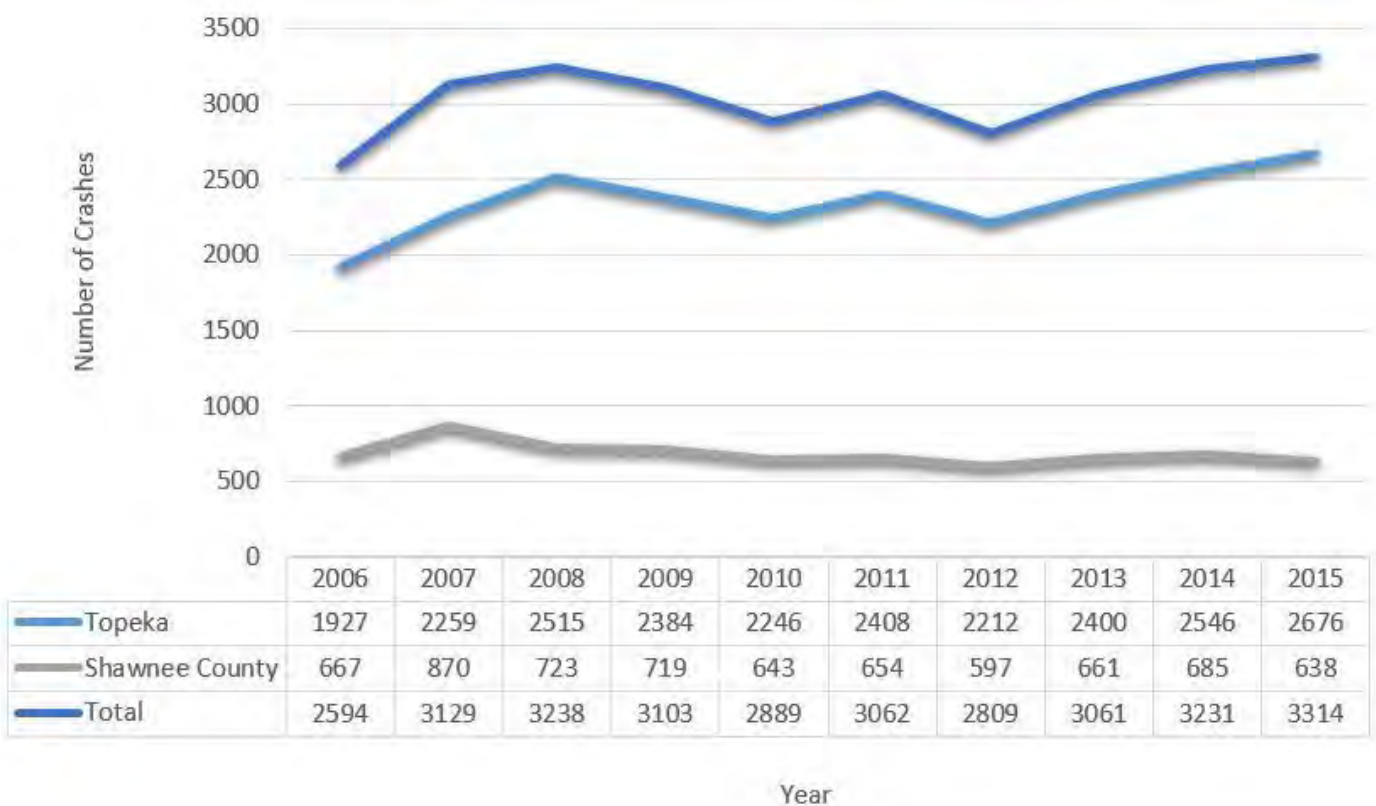
PROPERTY DAMAGE ONLY (PDO) CRASHES

The previous sections have focused on crashes that affect human health and life. A third type of crash is property damage only (PDO), meaning that no one is injured or died in the crash, but that property damage of at least \$1000 occurred. PDO crashes account for the largest percentage of the overall number of crashes. Figure 3.37 shows that PDO crashes have been increasing in the City of Topeka between the years 2006 and 2015. A slight decreasing trend is noted for Shawnee County.

ALCOHOL-RELATED CRASHES

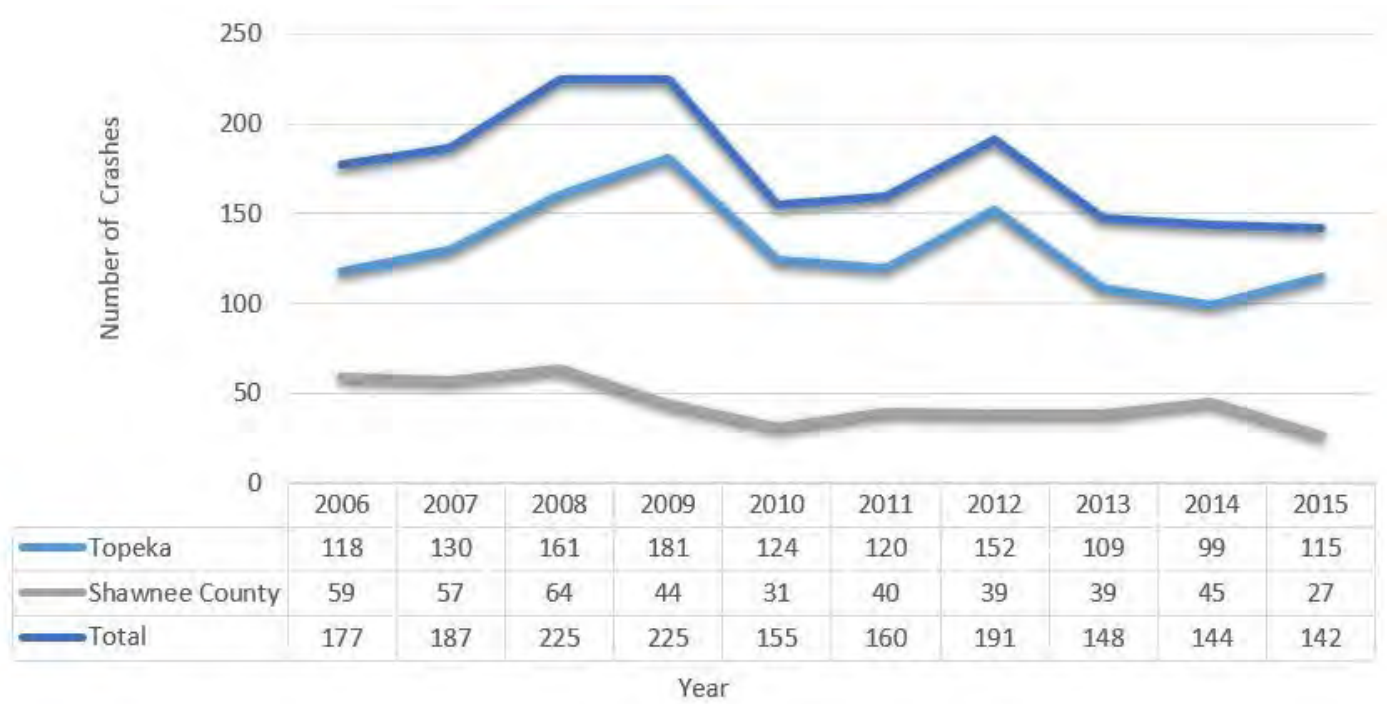
Alcohol is frequently a contributing factor in crashes. Driving while impaired drastically reduces drivers' motor skills, judgment, and physical ability to react. Law enforcement agencies, alcoholic beverage distributors and manufacturing companies, departments of transportation, and other groups have increased efforts to curb this cause through increased advertisement, increased penalties, and educational efforts. Figure 3.38 displays the number of alcohol related crashes that have occurred during the years 2006 to 2015. The trend for both the City of Topeka and Shawnee County shows that the number of alcohol related crashes is decreasing.

FIGURE 3.37: Property Damage Only Crashes



Source: Kansas Department of Transportation

FIGURE 3.38: Alcohol-Related Crashes



Source: Kansas Department of Transportation

Roadways Studies and Projects

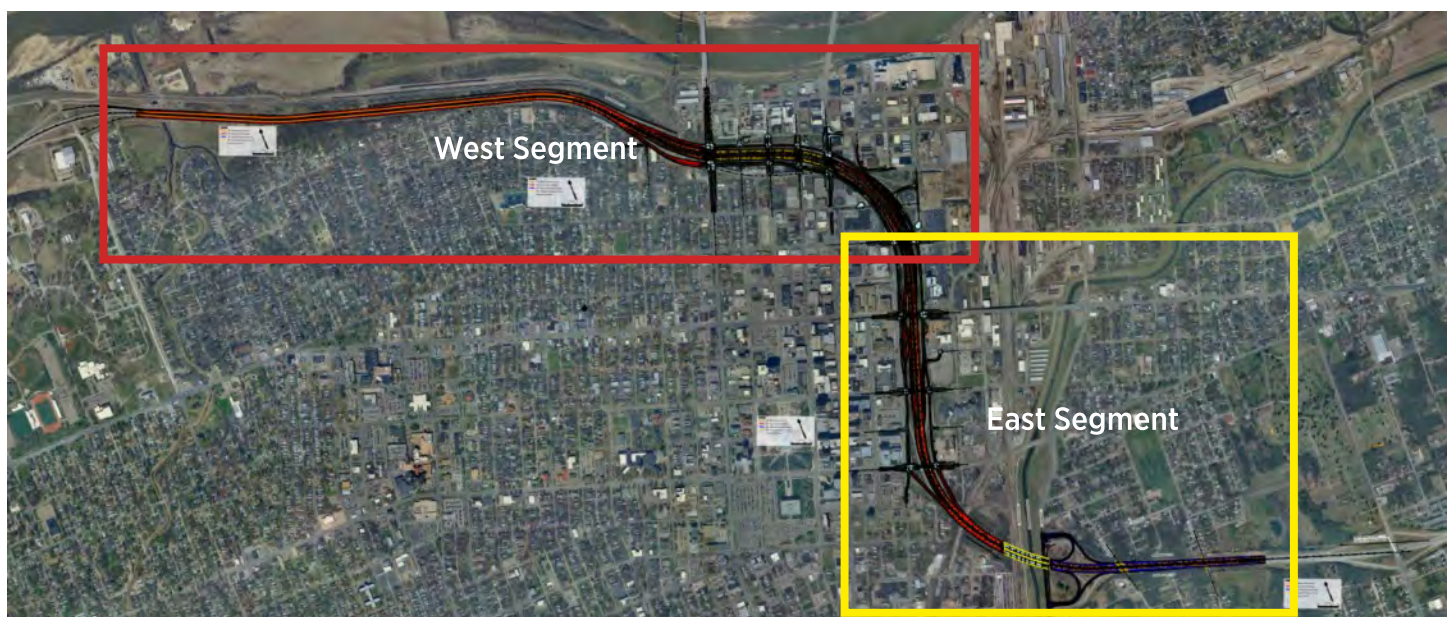
I-70 POLK-QUINCY VIADUCT CORRIDOR STUDY AND DESIGN

KDOT, the City of Topeka, and the MTPO completed a concept study that explored options to improve I-70 from MacVicar Avenue, through downtown, to east of the Adams Street interchange. The study and design were initiated to address the age and condition of the viaduct, the number and types of crashes that are occurring, growing congestion during peak periods, and to update the geometric characteristics of the highway. In addition, more logical connections between I-70 and the city street system have been recommended, which will support continued economic development.

The preferred alternative recommended reconstructing I-70 to meet current highway design criteria, improve traffic flow, improve safety, and provide more logical connections to city streets serving Downtown, the Riverfront Area, North Topeka, and East Topeka. The preferred alternative would reconstruct the I-70 Polk-Quincy Viaduct on an offset alignment allowing traffic to continue to use the existing viaduct during construction.

Construction plans have been developed to “field check” stage (preliminary design is complete) and the project design has been put on hold until funding can be identified for construction. Construction funds are not included in the current 10-year T-WORKS transportation plan. When construction occurs, the roadway improvements will likely be broken into two projects: MacVicar Avenue to 5th Street shown in the red box in Figure 3.39 and from 5th Street to east of Adams Street, shown in the yellow box. The west segment including the viaduct would likely be constructed first.

FIGURE 3.39: I-70 Polk-Quincy Viaduct Corridor – MacVicar Avenue to East of Adams Street



Source: Polk-Quincy Viaduct Corridor Study

DOWNTOWN CIRCULATION STUDY UPDATE

The purposes of the Downtown Circulation Study Update were to update the City’s traffic model of the CBD for evaluation of current traffic conditions in the CBD and to identify potential traffic impacts that could result from the following: (a) future land use and development changes in the CBD, (b) Capital District Project of changing the typical street section on Kansas Avenue and on 8th Street, and (c) change of CBD access to I-70.

Working in partnership with the City staff, the consultant updated the City’s traffic model. Based on a comparison of the 2011 and 1998 traffic count data, the overall traffic volume in the CBD has declined by 13 percent during the morning peak hour, 7 percent during the mid-day peak hour, and 7 percent during the afternoon peak hour. The results of the analysis of the existing CBD traffic operation indicate that all the signalized intersections are operating at an acceptable level of service.

HUNTOON/ARVONIA/SOUTHBOUND I-470 EXIT RAMP INTERSECTION STUDY

The City of Topeka initiated a study of traffic congestion issues in an area bounded by SW Arvonias, Huntoon, Wanamaker Road, and 17th Street. Current traffic data and forecasted future traffic (year 2040) were used to analyze current and future traffic operations at six intersections. Suggested improvements included added lanes, traffic signals, or roundabouts at:

- The intersection of Huntoon and Wanamaker Road
- The intersection of Huntoon and Arvonias/Southbound I-470 Exit Ramp
- The intersection of Arvonias and Winding Road
- The intersection of 17th Street and Arvonias
- The intersection of Wanamaker Road and Winding Road/Southbound I-470 Entrance Ramp
- The intersection of Wanamaker Road and the Northbound I-470 Exit Ramp

The top priorities are the Huntoon/Arvonias/SB I-470 Exit Ramp intersection and the intersection of Arvonias and Winding Road. These are highlighted in red and green in Figure 3.41. The City is working with the Kansas Department of Transportation to identify potential funding.

FIGURE 3.40: I-470/Huntoon/Winding Ramp

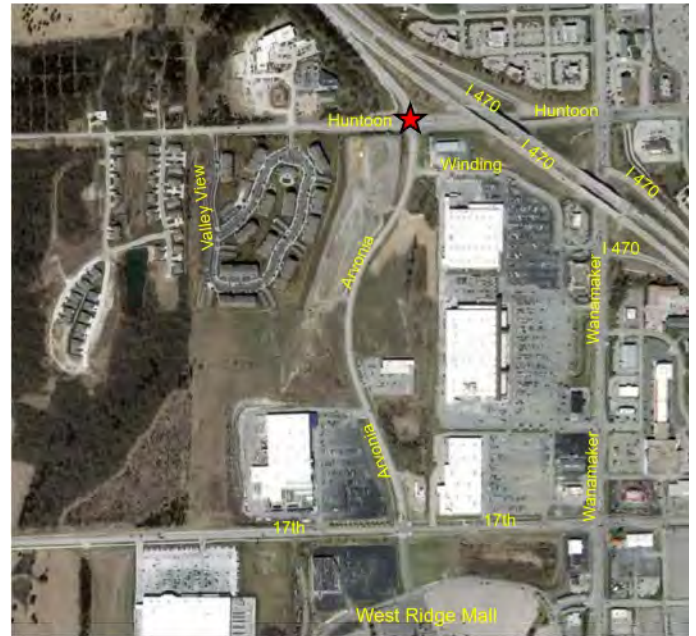
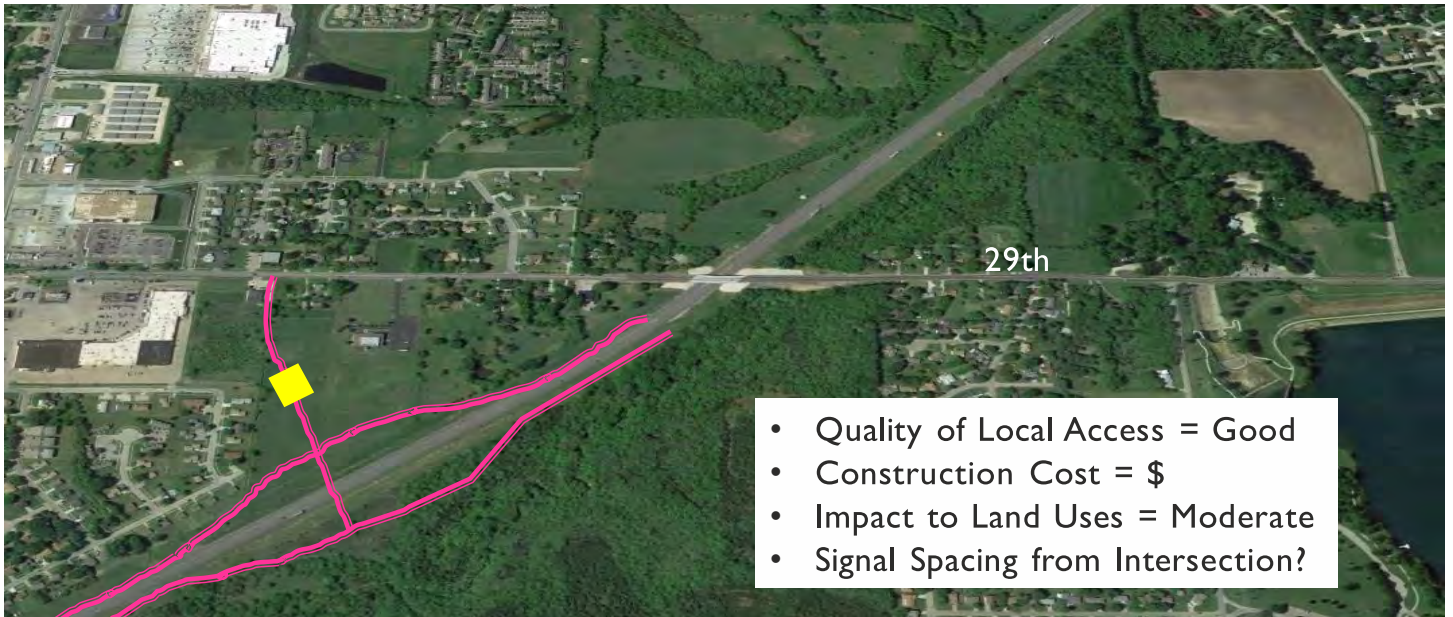


FIGURE 3.41: Construction Sequencing of Huntoon/Arvonias Intersection



FIGURE 3.42: Potential Interchange on the Kansas Turnpike (I-470) in Southeast Topeka: SE 29th “Offset” Diamond



Source: Presentation to City Council for the KTA/I-470 Interchange Concept Study

FIGURE 3.43: South Kansas Avenue



Source: City of Topeka Website

SOUTHEAST TOPEKA KTA INTERCHANGE STUDY

The City of Topeka has been working with the Kansas Turnpike Authority (KTA) to construct an additional interchange on the southeast side of the city that would provide access to the I-470 Turnpike. KTA partnered with the City on a \$20,000 preliminary engineering Interchange Concept Study. The City was presented with 4 design/location options. The Topeka’s Governing Body unanimously voted on October 20, 2015 to proceed with a study of Option 2 (Figure 3.42) which was ultimately estimated by KTA to cost \$16-\$23 million. The study indicated there was insufficient revenue from the new toll booth to cover the cost of construction by KTA but that it could cover the cost of operations.

KANSAS AVENUE BETWEEN 6TH AND 10TH AVENUES

In December 2012, the Topeka City Council approved a multi-million dollar improvement project along South Kansas Avenue between 6th and 10th Avenues as seen in Figure 3.43. The project redesigned South Kansas Avenue from five lanes to three lanes with a northbound, southbound and center turn lane. Pavement, medians, sidewalks and concrete curbs and gutters were replaced.

Sidewalk space has expanded, offering side paths and allowing businesses to offer patio seating and space for sidewalk sales. The project also included new pocket parks,

mid-block arches, pavilions and art work throughout South Kansas Avenue. More than \$2 million in private investments were contributed toward the amenities, pocket parks and aesthetics. Donors include Burlington Northern Santa Fe Railway, Security Benefit, Capitol Federal, Westar Energy and Hill’s Pet Nutrition.

WAYFINDING STUDY

The wayfinding program supports a branding, destination development and marketing plan initiated by Visit Topeka. In addition to the primary goal of improving visitor navigation through the City and to its destinations, the program will help establish aesthetic features that celebrate the Topeka brand and unify the entire region as a definitive class one destination. This includes specific design, location, and message schedule for vehicular guide signs, gateway signs, public parking signs, and pedestrian guide signs in the downtown area produced. The signs are also designed to be more durable and legible than the City’s existing wayfinding signage, and they will meet the standards of the Manual on Uniform Traffic Control Devices.

In total, implementing the Wayfinding Study is expected to cost \$583,800 in two phases. This includes \$117,500 for 9 gateway signs, \$26,600 for 14 parking signs, and \$439,700 for 127 wayfinding signs. Figure 3.44 shows the final designs for the new signage.

FIGURE 3.44: Family of Sign Types



Source: City of Topeka Wayfinding: Design Intent; December 14, 2016

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Intelligent Transportation Systems (ITS) is a variety of technologies to monitor, evaluate, operate, and manage transportation systems to enhance efficiency, reliability, and safety. ITS encompasses the planning, design, integration and deployment of systems and applications to manage traffic and transit, improve safety, provide environmental benefits, and maximize the efficiency of surface transportation systems.

In 2014, the MTPo updated their Regional ITS Architecture for Topeka/Shawnee County. The document describes the region's ITS plans and how future projects will integrate and interoperate with existing systems. The goal of the architecture update project is to use ITS to provide cost-effective and practical technologies that improve the safety, capacity, and efficiency of moving people and goods on the area's roadways.

Sequenced ITS projects for the Topeka/Shawnee County region can be seen in Figure 3.45, including their timeframes and estimated costs. The architecture was developed with a twelve-year-plus time horizon, as reflected by the project time frames of near- (zero to three years), medium- (three to seven years) and long-term (more than seven years).

The Topeka/Shawnee County Regional ITS Architecture is a living document that should be modified as the region's plans and priorities change, ITS projects are implemented, and ITS needs and services evolve. When the architecture is updated, the project's timeframes will be extended further into the future. Maintaining the architecture allows the MTPo to keep an up-to-date Regional ITS Architecture accessible and easily used for deploying ITS in the Topeka/Shawnee County Region.

FIGURE 3.45: Topeka/Shawnee County Candidate ITS Projects

Near-Term <i>(planned to be deployed in the next three years)</i>	City of Topeka Traffic Camera Upgrade	\$60,000 to \$100,000
	Regional Incident Coordination	\$100,000
	KDOT Dynamic Message Signs and Cameras South Expansion	\$400,000
	TMTA Automatic Vehicle Location	\$344,000 to \$645,000
Total Estimated Near-Term Cost		\$904,000 to \$1,245,000
Medium-Term <i>(planned to be deployed in three to seven years)</i>	City of Topeka Traffic Control Upgrade	\$900,000 to \$1,200,000
	KDOT Dynamic Message Signs and Cameras North Expansion	\$300,000 to \$400,000
	Increased Emergency Signal Preemption - Phase 1	\$81,000 to \$330,000
	Regional Data Warehouse	\$800,000 to \$2,000,000
	Real-Time Bus Arrival Information	\$200,000
Total Estimated Medium-Term Cost		\$2,281,000 to \$4,130,000
Long-Term <i>(planned to be deployed in more than seven years)</i>	Transit Signal Priority	\$87,000 to \$303,000
	Regional Traveler Information	\$500,000 to \$1,500,000
	Increased Emergency Signal Preemption - Phase 2	\$60,000 to \$240,000
Total Estimated Long-Term Cost		\$647,000 to \$2,043,000
Total Cost of All Projects		\$3,832,000 to \$7,418,000

TRANSIT

Introduction

Public transportation in the Topeka MPA is provided by the Topeka Metropolitan Transit Authority (TMTA), also called the Topeka Metro. Formed in 1972 to plan, operate and maintain public transit services, Topeka Metro's operational area covers the City of Topeka and a 90-mile radius from city limits, allowing the possibility of operating future intra-city commuter bus service to neighboring communities, like Manhattan, Lawrence, Kansas City and other population centers in eastern and north-central Kansas. TMTA is overseen by a seven-member Board of Directors appointed by the Mayor of Topeka and approved by the Topeka City Council. Board members serve four year terms. TMTA's professional staff of about 80 full time employees including administrators, maintenance, and bus operators are responsible for the daily operations of fixed route and paratransit services.

The following section provides an assessment of current transit infrastructure, a review of bicycle and ridership, on-time performance, and coverage, and a summary of existing plans and efforts.

Transit System

TRANSIT ROUTES

As of 2016, Topeka Metro operates 12 fixed routes and two 'special' routes for a total of 14 fixed routes in the City of Topeka. Generally, fixed route transit is provided on weekdays between 5:40 AM to 7:30 PM and from 8:15 AM to 6:10 PM on Saturdays. There is currently no fixed route transit service operated on Sundays.

Headways on the 12 regularly schedule fixed routes are a combination of 30 or sixty 60. Routes 4 – California, 10 – West 10th, 12 – Huntoon, 17 – West 17th, 21 – West 21st, and 29 – West 29th offer 30 minute headways in the morning and afternoon peak periods with 60-minute mid-day service. Fixed route service details are presented in Figure 3.46.

FIGURE 3.46: Topeka Metro Fixed Route Operational Summary

	Weekdays			Saturday	
	Route Name	Span	Headway	Span	Headway
1	Oakland	5:52a - 7:34p	60 min.	8:15A - 6:10P	60 min.
2	North Kansas	6:13a - 7:17p	60 min.	8:45A - 6:40P	60 min.
3	East 6th	6:15a - 7:03p	30 min.	8:15A - 6:10P	30 min
4	California	5:45a - 7:15p	30 min. Peak / 60 min. Off-Peak	8:15A - 6:10P	60 min.
5	Indiana	5:45a - 7:34p	60 min.	8:15A - 6:10P	60 min.
6	West 6th	5:45a - 7:15p	30 min.	8:15A - 6:10P	60 min.
7	Washburn	5:45a - 7:13p	60 min.	8:45A - 6:40P	60 min.
10	West 10th	6:15a - 7:15p	30 min. Peak / 60 min. Off-Peak	8:15A - 6:10P	60 min.
10 S	West 10th Special	PM Tripper	Single PM Trip	X	X
12	Huntoon	5:41A - 7:12P	30 min. Peak / 60 min. Off-Peak	8:15A - 6:10P	60 min.
17	West 17th	5:15A - 7:12P	30 min. Peak / 60 min. Off-Peak	8:15A - 6:10P	60 min.
21	West 21st	5:43A - 7:13P	30 min. Peak / 60 min. Off-Peak	8:15A - 6:10P	60 min.
29	West 29th	5:38A - 7:13P	30 min. Peak / 60 min. Off-Peak	8:15A - 6:10P	60 min.
29 S	West 29th Special	AM Tripper	Single AM Trip	X	X

The current TMTA fixed route system is based on a radial pulse structure where all routes meet at a Quincy Street Station to facilitate transferring between all routes before departing. The system is set up on a 60-minute pulse, making expansion of the fixed route system difficult as vehicles can only travel a limited distance before needing to return to the transit center to meet the pulse with other routes. The full system map of all Topeka Metro routes is shown in Figure 3.48.

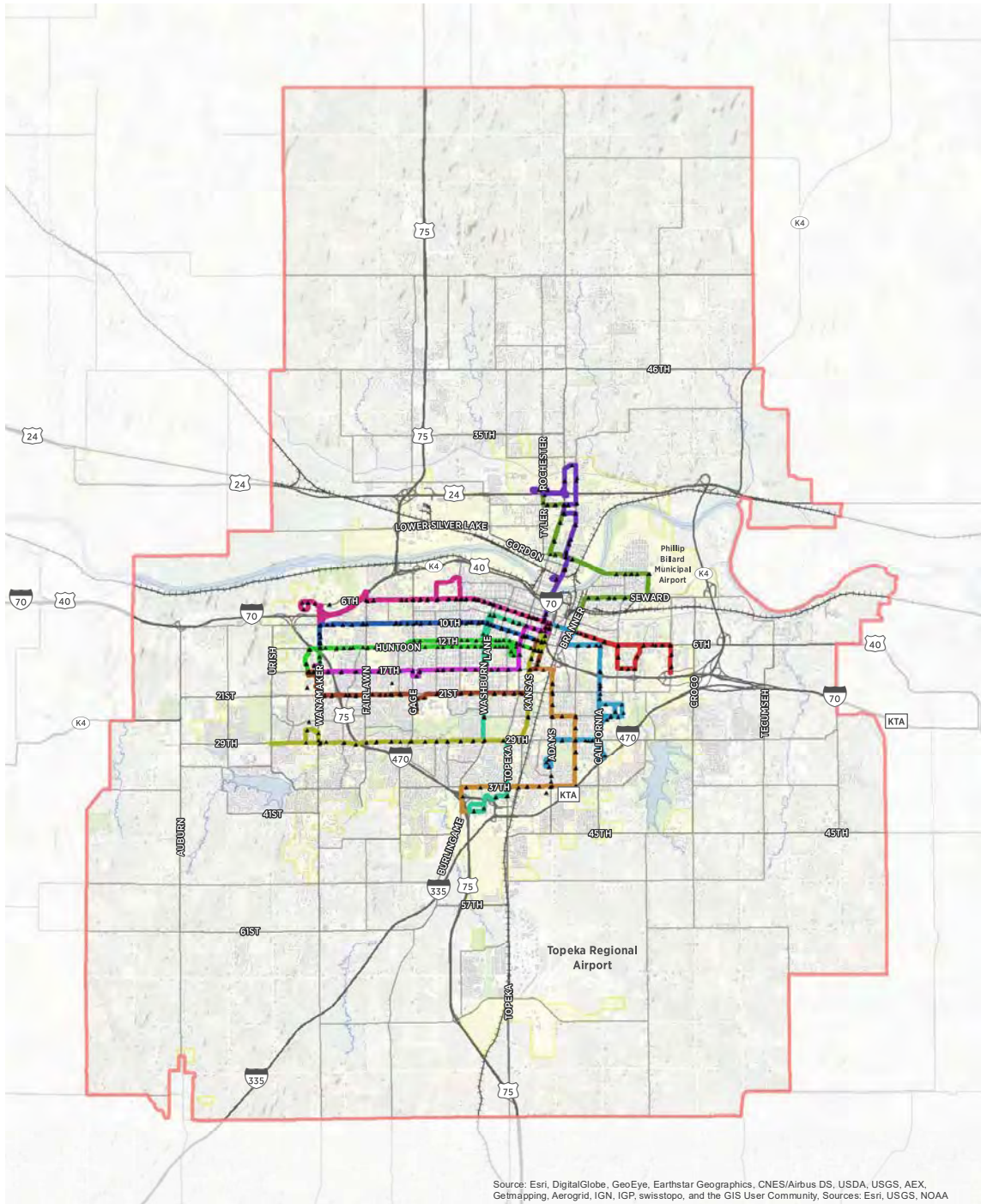
Topeka Metro offers a variety of methods to pay transit fares at multiple locations. Passes are available for sale online, the Quincy Street Station and Hy-Vee and Dillon's grocery stores. Reduced fares are offered for students, seniors, those with a disability, and those who have lower income. In April 2017, Topeka Metro eliminated transfers in lieu of the establishment of the 24-hour pass. Benefits of the 24-hour pass include unlimited rides during a 24-hour window (as opposed to day passes that expire at midnight) and reduced wear and tear on fare boxes. The full fare schedule is detailed in Figure 3.47.

Cash fares may be paid onboard all vehicles. The base cash adult fare is \$2.00. Topeka Metro also offers a 31-day pass for \$50.00. The Annual Bus/Bike Pass will provide customers with unlimited bus rides and bikeshare trips for 12 months from the initiation date.

The Lift is Topeka Metro's paratransit service providing mobility options for those with disabilities that cannot access the Topeka Metro's fixed route services. Paratransit services are required for qualified customer's residents within $\frac{3}{4}$ of a mile of a fixed transit route under the Americans with Disabilities Act (ADA). The Lift is an origin to destination demand response service where customers schedule by 5:00 p.m. the day prior to their trip or up to a week in advance. Paratransit services are operated during the same hours as fixed route transit service, approximately 5:35 am to 7:35 pm Monday through Friday and 8:15 am to 6:40 pm on Saturdays. The fare for The Lift paratransit service are \$4.00 per trip or \$40.00 for a ten-ride ticket book.

FIGURE 3.47: TMTA Fare Schedule - 2016

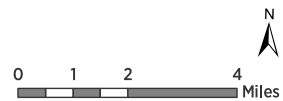
	Full	Youth (Ages 5-18)	Reduced (Senior/Disabled/Medicare/ Income)	Lift Paratransit
Cash Fare	\$2.00	\$1.50	\$1.00	\$4.00
24-Hour Pass	\$4.00	\$3.00	\$2.00	N/A
10 - Ride Card	\$18.00	\$15.00	\$9.00	N/A
Ticket Strip (10)	N/A	N/A	N/A	\$40.00
31 - Day Pass	\$50.00	\$40.00	\$25.00	N/A
Children Under 5	FREE			
Annual Bus/Bike	\$300.00			



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Sources: Esri, USGS, NOAA

Topeka Metropolitan Transportation Plan

- Plan Boundary
 - Railroad Lines
 - Water Bodies
 - Parks
 - City Limits
 - ▲ Designated Bus Stops
- | | | |
|-------------------|---|--|
| Bus Routes | — 4 | — 12 |
| | — 5 | — 17 |
| | — 6 | — 21 |
| | — 7 | — 29 |
| | — 10 | |



Source: TMTA

FIGURE 3.48: Topeka Metro Transit System Map

TRANSFER FACILITIES

The primary transit center for the Topeka Metro transit system is the Quincy Street Station (QSS). This facility was constructed in 2003 and can accommodate 12 full time routes and two specials. Because the Topeka Metro transit system is scheduled on a pulse, all routes meet at QSS at the same time to allow passengers to transfer between all routes before departing. The QSS has indoor waiting facilities and an information window staffed by TMTA personnel. Topeka Metro offers passes for sale and other services within the QSS.

Topeka Metro has multiple locations where passengers may transfer between routes outside of the downtown Quincy Street Station. The primary transfer location outside of downtown is adjacent to the south side of Wal-Mart located along Wanamaker. At this location, Routes 6- West 6th, 10 - West 10th, 12 - Huntoon, and 17 - West 17th make timed connections creating a secondary pulse at the outer end of these routes. This arrangement allows for greater connectivity for riders so they are not forced to travel out of direction to downtown for portions of their trip to make transfer connections.

Another transfer point is located just south of the Wanamaker Wal-Mart on the North side of West Ridge Mall. This location brings together Routes 10 - West 10th, 12 - Huntoon and 21 - West 21st. Topeka Metro is seeking alternatives to improve the passenger amenities at these key transfer nodes to improve the rider experience and make the waiting environment more comfortable.

QUINCY STREET STATION



BUS STOPS

The Topeka Metro bus system currently has 638 bus stops planned or deployed across all its fixed routes. Most (443) bus stops have limited passenger amenities and consist of a sign and post only. Recently TMTA has converted the entire system from a 'flag stop' system to fully fixed stops. Today buses will only board and alight passengers at marked bus stops. Today, 87 bus stops are equipped with a shelter to help protect waiting passengers from the elements. As of fall 2016, another seven bus stops are installing shelters, and 16 others are stops awaiting approval for shelter installation in addition to concrete bus pads.

WAL- MART TRANSFER LOCATION



BUS STOP WITH SHELTER



Transit Use and Efficiency

ANNUAL RIDERSHIP

In 2008 ridership reached a record annual total for Topeka Metro with almost 1.8 million trips. 2008 coincided with fuel costs in the United States near, or above \$4.00 per gallon. Much like Topeka Metro, transit systems across the United States experienced similar increased ridership trends in 2008 as citizens looked for ways to save money and limit their personal transportation costs.

As the Great Recession began in late 2008 and into 2009 two events happened to Topeka Metro that led to a steep drop in annual transit ridership.

1. Operational budgets cuts for Topeka Metro caused significant transit service reductions. These service cuts had the greatest impact on Topeka residents that had limited means of transportation other than public transit.
2. Unemployment grew because of the recession.
3. Since transit service reductions in 2009 and 2010 annual ridership totals have generally stabilized and have begun to grow again after 2012. In 2015, TMTA provided 1,172,596 trips on public transit. Figure 3.49 shows the ten-year annual ridership trend for TMTA fixed route services.

Topeka Metro's Reduced Income pass has been highly successful. In 2016, the Reduced Income pass accounted for over 150,000 trips on the system. Another program called the 'Freedom Pass' is used by ambulatory ADA passengers who can ride on the fixed route TMTA system at no cost. The

Freedom pass was used for nearly 7,500 trips in 2016. TMTA has established pass programs with both USD 501 and Washburn University to allow students access to bus routes using their student identification cards. These two partnerships saw over 130,000 trips taken of TMTA routes in 2016. TMTA also provides a free summer transit pass for kids which has been very successful in providing mobility for kids in the Topeka area. The Kids Summer Pass was used to make almost 37,000 trips in the summer of 2016.

Unlike fixed route services, Paratransit Ridership has continued to decline dramatically since the cuts in 2009. Declining every year, paratransit ridership has dropped by some 37 percent. The ridership decline is attributable to many coinciding issues. In October 2011, TMTA raised the fare for paratransit service to \$4.00, and in November they reduced the paratransit area to the required $\frac{3}{4}$ mile area around a fixed transit route, excluding route 29S. In October 2012, they expanded paratransit coverage to city limits for a \$15 premium fee. A final issue decreasing paratransit ridership was the provision of Medicaid trips provided by the State of Kansas to reach medical services and new paratransit service providers in the region. Fortunately, as fixed route stops continue to become more handicap accessible, those who previously used paratransit services can shift to fixed-route bus service. The ten-year ridership trend can be seen in Figure 3.49 below.

FIGURE 3.49: TMTA Annual Ridership 2006 - 2015

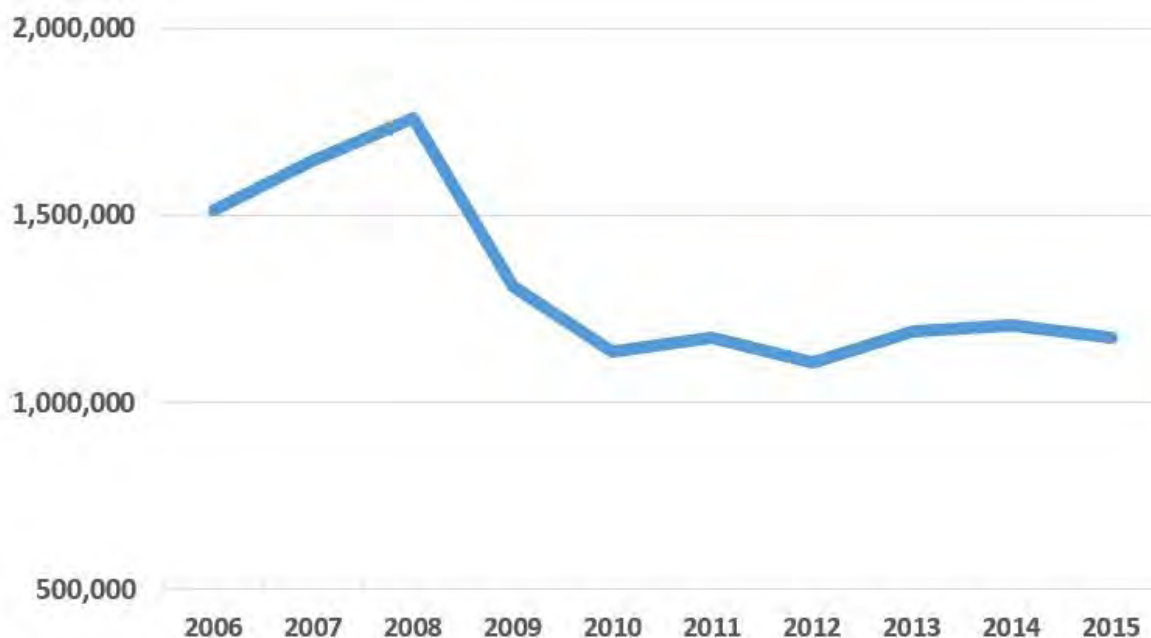
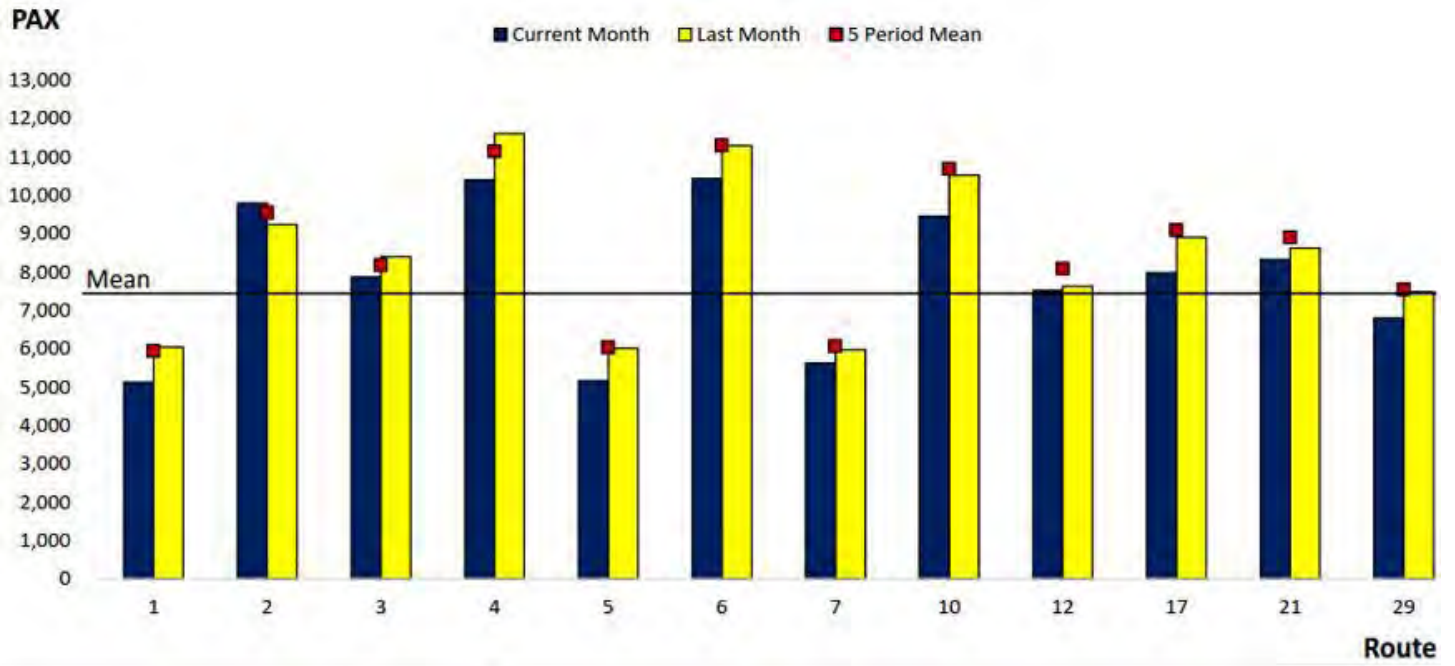
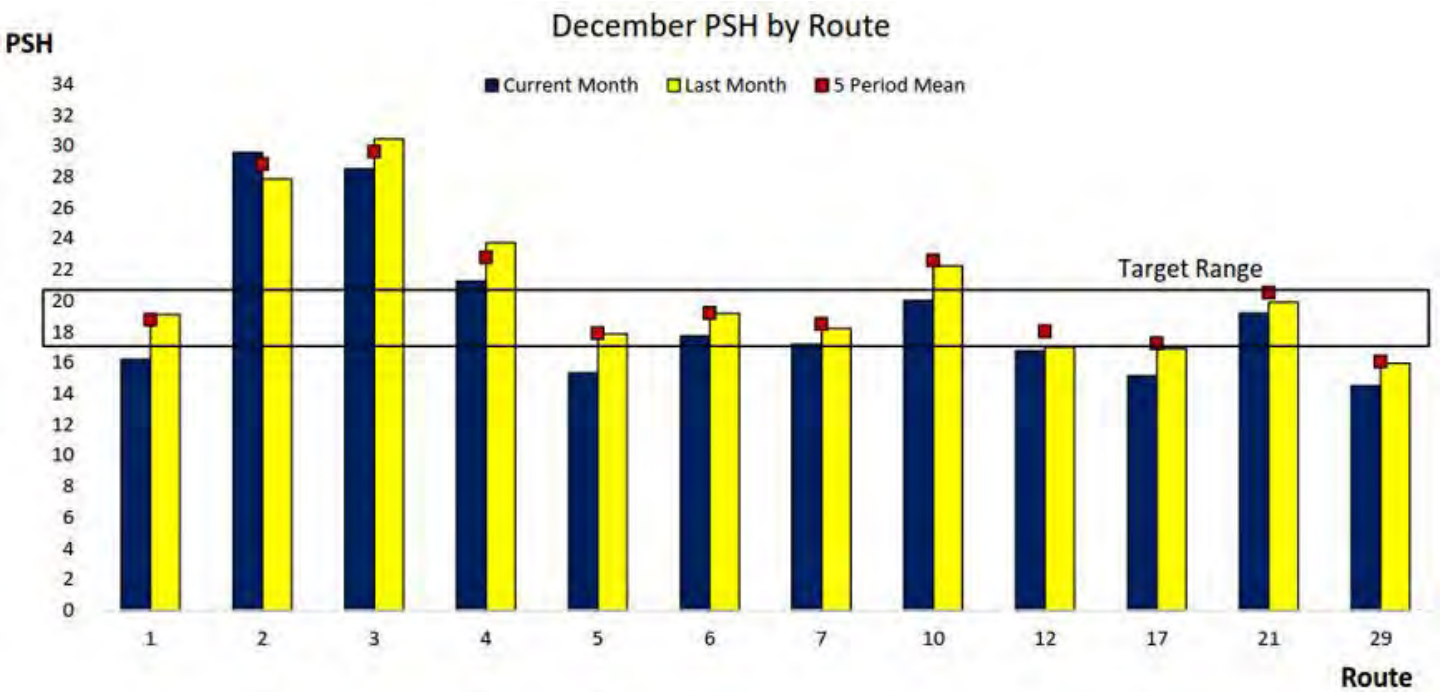


FIGURE 3.50: TMTA December 2016 – Total Passengers (PAX) Per Route



Source: TMTA, 2016

FIGURE 3.51: TMTA December 2016 – Passenger Per Service Hour (PSH) by Route



Source: TMTA, 2016

New and expanding opportunities for Topeka Metro are coming through highly effective partnerships with Topeka Unified School District (USD) 501, Washburn University and the Veterans Administration Hospital. Topeka Metro has contracted with USD 501 to provide bus passes to students living outside of a 2.5-mile busing corridor. As part of this ongoing partnership Topeka Metro Staff holds ‘How to Ride Clinics’ for students to teach them how to use the transit system and answer any question. This partnership with USD 501 accounts for over 10,000 trips per month and is helping to teach upcoming generations about the benefits of public transit use. In much the same way Topeka Metro has forged a partnership for students attending Washburn University. Students enrolled at Washburn can ride Topeka Metro buses for free by showing a current student identification card.

ON-TIME PERFORMANCE

Currently TMTA does not track OTP on a regular basis or on a route by route level. In the coming year TMTA is installing Automatic Vehicle Location (AVL) devices on all fixed route buses in its fleet giving the agency the ability to monitor OTP and down to the route level of detail.

In September, 2016 TMTA conducted an OTP sampling to check measure schedule adherence. Over the course of seven

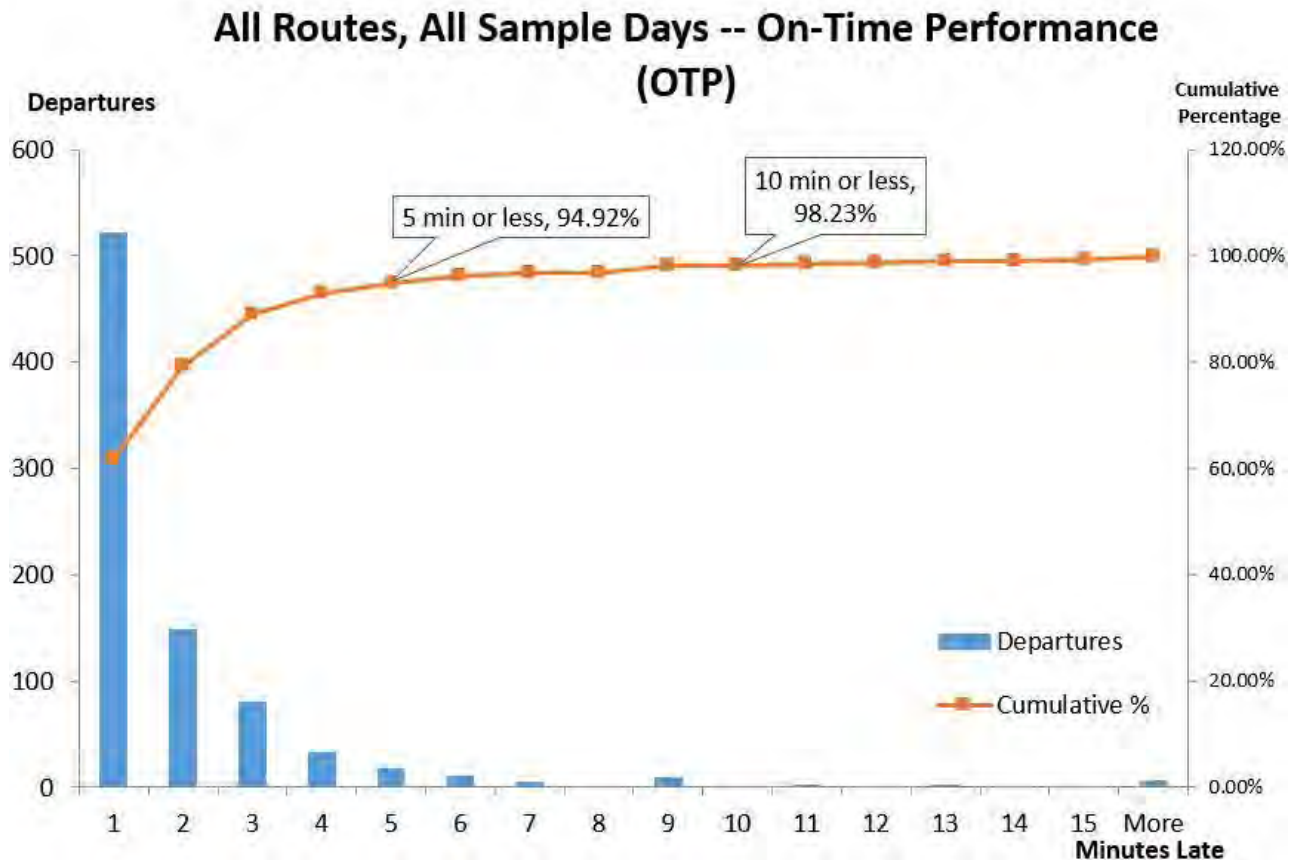
operational days of fixed route service a TMTA staff member recorded the arrivals and departures of all buses/routes at the Quincy Street Station transit center. The survey observed nearly 1,700 arrivals and departures and found that 95% of trips were considered ‘on time’. For a trip to be considered ‘on time’ the bus cannot arrive more than one minute early or five minutes late from its posted schedule. Findings from the OTP survey are presented in Figure 3.52. Through this survey of arrivals and departures, TMTA showed that the fixed route system has excellent service reliability for its riders.

SERVICE COVERAGE

The City of Topeka has good coverage from fixed route public transit services when operating. The 2010 US Census places the total population of the City of Topeka was 127,473. Studies have shown that most people are willing to walk 5 minutes or ¼ mile to reach a bus stop. Overall, approximately 93,510 residents live within a ¼ mile from a bus route, or about 73.4 percent of Topeka’s 2010 population.

While most people will walk 5 minutes, 10 minutes or a ½ mile is typically the furthest most people will walk to access a transit route. Approximately 108,673 of Topeka’s residents live within a ½ mile of a fixed transit route. This means that TMTA’s current fixed route transit network’s ½ mile transit-shed includes about 85.3% of Topeka’s population.

FIGURE 3.52: TMTA Fixed Route OTP Survey



Source: TMTA, 2016

FIGURE 3.53: TMTA Fixed Route Service Coverage ¼ Mile

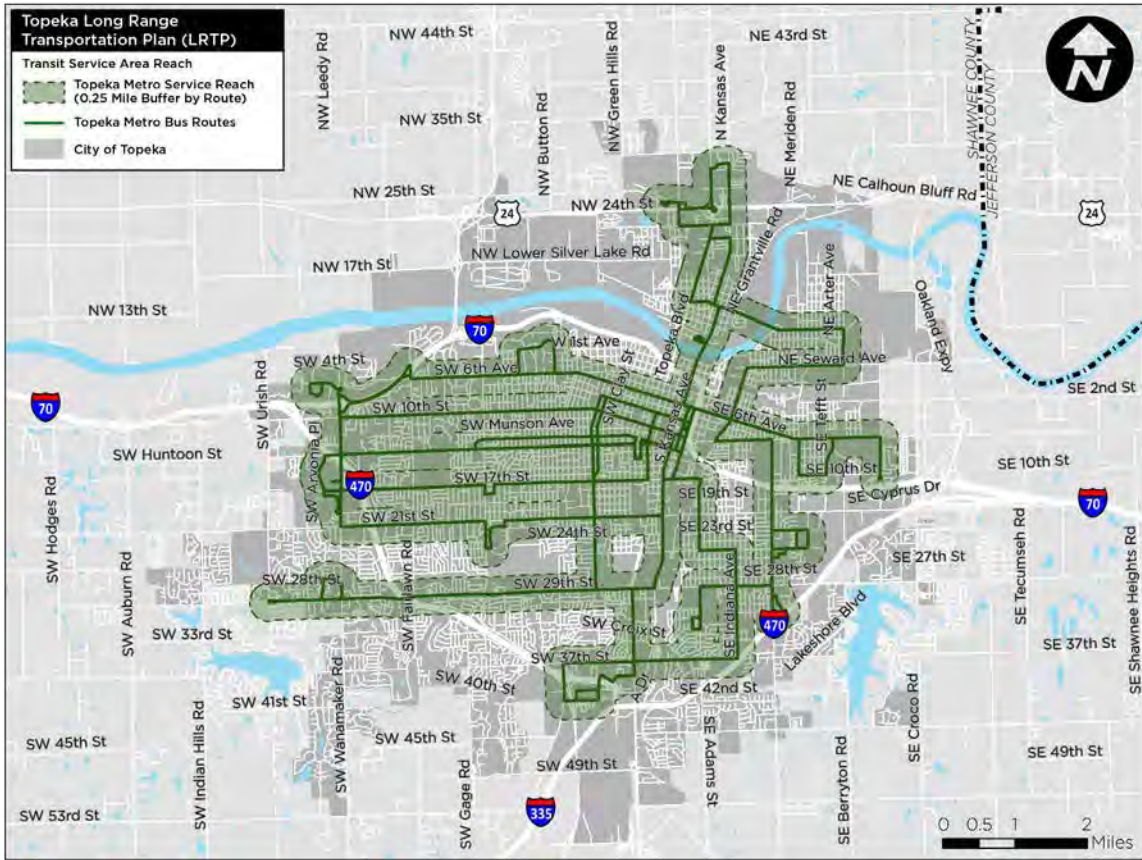
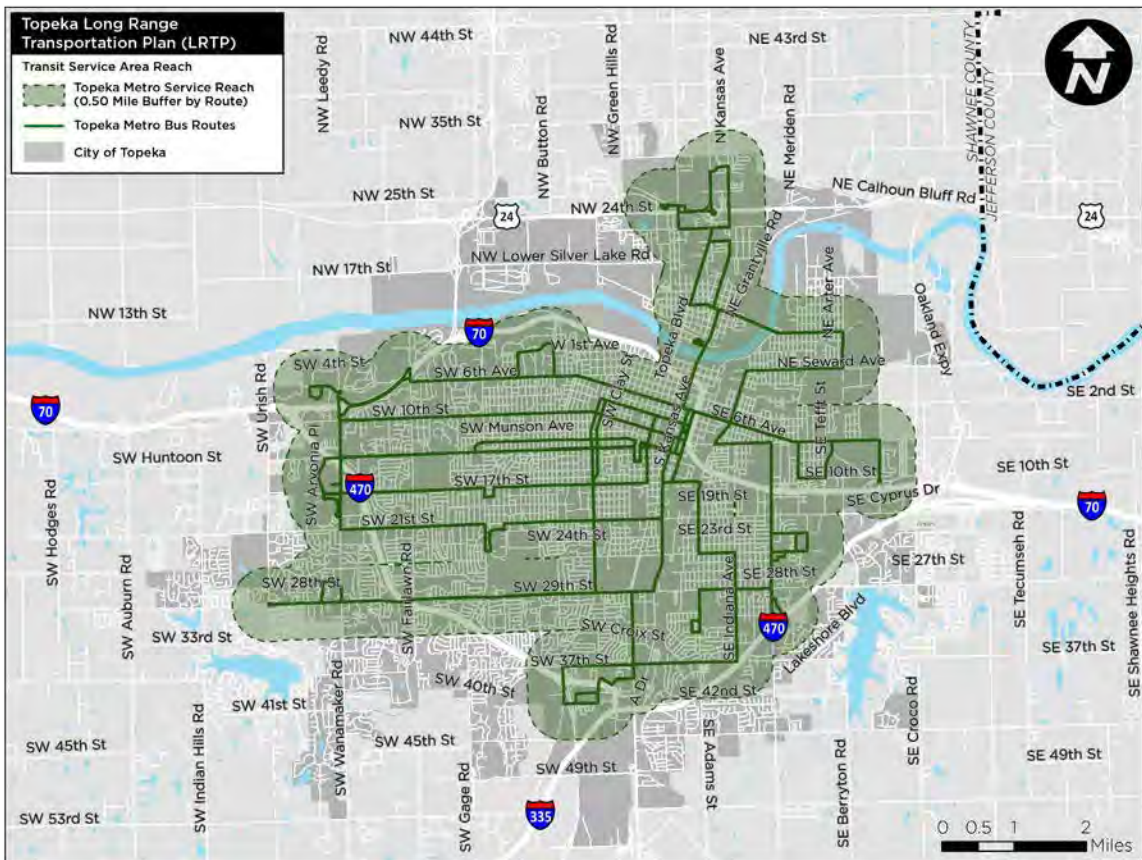


FIGURE 3.54: TMTA Fixed Route Service Coverage ½ Mile



Because the MTPO plans for transportation and mobility for all members of the region, it is important to assess the proximity of the current transit system to Environmental Justice (EJ) populations. For EJ analyses, block groups with the following characteristics are considered EJ areas:

1. With more than the County average of non-white/Hispanic population (25.2%) – 2015 ACS
2. With more than twenty percent of families in poverty – 2015 ACS
3. With more than 50 percent of the population in LMI households – 2015 HUD standards

Using 2010 Census block data, the number and percentage of people living within ¼ and within ½ mile of bus routes could be identified for the entire MPA. This was compared to the number and percentage of people living within ¼ and within ½ mile of bus routes for EJ areas further evaluate transit coverage.

Within the MPA, approximately 57 percent of the population can walk 5 minutes to reach a fixed bus route. Meanwhile, approximately 80 percent of those living within EJ areas can reach a bus route in 5 minutes. When the range is increased to a 10-minute walk, approximately 66 percent of the population can reach a bus route, compared to 89 percent of those living within EJ areas.

The better coverage of bus routes in EJ areas represents the fact that EJ areas tend to be in older parts of the City. In addition, many higher income individuals tend to live further from the City center. The fact that transit routes serve EJ areas better than non-EJ areas is fitting as transit drastically improves mobility for low income populations who may not be able to afford a car. EJ areas that do not have access to fixed-route bus service within a 10-minute walk include areas to the south (such as Montara), areas to the northwest (primarily industrial land), areas to the northeast, and around Lake Shawnee.

FIGURE 3.55: Percentage of Population Within ¼ and ½ Mile of Fixed Bus Routes

	MPA	EJ Areas
Persons Within ¼ mile of bus routes	93,510	68,974
Persons Within ½ mile of bus routes	108,673	76,929
Total Population within Areas	168,235	86,371
Percent of Population within ¼ of Bus Routes	55.6%	79.9%
Percent of Population within ½ of Bus Routes	64.6%	89.1%

Source: 2010 Census Block Data

Transit System Condition

FLEET CONDITION

Topeka Metro’s fixed route transit services utilize a fleet of 29 heavy-duty transit buses. Each of these vehicles are 35 feet long. They have approximately 32-37 seats and can accommodate another 6-19 standees. All buses are ADA compliant with wheelchair ramps and space onboard to secure two wheelchairs.

The most recent vehicle purchase occurred in 2014 when TMTA received ten new buses. Information relating to fixed route bus fleet for TMTA is provided in Table X.

- The average age of vehicles in the fleet is four years as of 2016.
- Average mileage for vehicles in the fixed route fleet is 144,233 miles.
- Vehicles 351, 362, 363, 364, and 365 have been recently removed from active service and are being used for spare parts for other active vehicles in the fleet as necessary. According to the Federal Transit Administration Circular 5010.1D the minimal transit asset useful life for a 35-foot heavy duty transit vehicle is 12 year or 500,000 miles.

In the TMTA fleet, buses are more likely to reach the 12-year age long before the 500,000-mile threshold for useful life. Due to a large infusion of American Reinvestment and Recovery Act (ARRA) funds for vehicle purchase the TMTA fleet age is relatively low as of 2016. 62% of the fleet is 5 years old and 38% of the fleet is 2 years old. While not a current critical issue, by 2026 the entire TMTA bus fleet will have reached or exceeded the end of its FTA useful life and will need replacement.

FIGURE 3.56: Topeka Metro Transit Vehicle



Federal funding availability for transit agencies across the United States to purchase new buses has become more constrained in the last five to ten years. For TMTA to avoid a situation where most its fleet needs to be replaced at the same time, the Authority should attempt to replace 4-5 vehicles every other year to help spread the cost of vehicle replacement over several years if funding can be secured. Demand responsive transit services, such as The Lift, operated by Topeka Metro use a fleet of ten Glaval buses equipped with ramps or wheelchairs lifts. All current demand responsive fleet was purchased in 2013. Average mileage for this fleet is 74,823 miles as of 2016. These vehicles have a 5-year useful life or 150,000 miles. Many of the demand response fleet will be reaching its FTA minimum useful life in 2018 if not sooner.

TRANSIT CENTER, BUS STOPS, AND TRANSFER FACILITIES CONDITIONS

Improving the infrastructure at and near bus stops is a concern for Topeka Metro. In the fall of 2013, TMTA began improving its several most heavily used stops with the installation of new transit shelters. A continuing challenge is the connectivity of bus stops to nearby sidewalks or connecting bus stops from the back of the curb to nearby sidewalks through grass. Topeka Metro is continuing to work with the City of Topeka to find strategies that will improve sidewalk connectivity along transit routes and to make all bus stop compliant with the requirements set forth in the Americans with Disabilities Act.

FIGURE 3.57: 2016 TMTA Fixed Route Bus Fleet Age and Mileage

Vehicle Number	Vehicle Type	Annual Total	Odometer Reading	Vehicle Age
351	1998 Gillig 35'	0	416,671	
366	2011 Gillig 35'	32,143	174,668	5
367	2011 Gillig 35'	29,308	171,647	5
368	2011 Gillig 35'	33,782	177,537	5
369	2011 Gillig 35'	33,857	168,704	5
370	2011 Gillig 35'	30,953	171,905	5
371	2011 Gillig 35'	35,646	176,009	5
372	2011 Gillig 35'	32,667	169,116	5
373	2011 Gillig 35'	35,186	173,052	5
374	2011 Gillig 35'	34,613	166,071	5
375	2011 Gillig 35'	31,740	176,507	5
376	2011 Gillig 35'	33,699	173,987	5
377	2011 Gillig 35'	27,428	170,350	5
378	2011 Gillig 35'	33,954	174,495	5
379	2011 Gillig 35'	30,484	177,326	5
380	2011 Gillig 35'	28,089	168,375	5
381	2011 Gillig 35'	33,889	174,108	5
382	2014 Gillig 35'	34,723	51,570	2
383	2014 Gillig 35'	33,585	49,627	2
384	2014 Gillig 35'	34,533	51,398	2
385	2014 Gillig 35'	37,618	55,404	2
386	2014 Gillig 35'	36,303	53,691	2
387	2014 Gillig 35'	32,775	49,099	2
388	2014 Gillig 35'	35,564	52,296	2
389	2014 Gillig 35'	35,998	51,572	2
390	2014 Gillig 35'	36,390	53,739	2
391	2014 Gillig 35'	29,091	42,961	2

OPERATIONS

Following budget reductions in 2008 and 2009, operational funding for Topeka Metro has remained flat, while operation costs have continued to rise. Past budget reductions led to service cutbacks that have limited some mobility options for residents of the Topeka area. A major operation issue identified is the short span of transit service operations in the evening on weekdays. Currently transit service is ended by approximately 7:30 PM. This early stop time for transit service limits many employment opportunities for retail, restaurant, or those working a 3rd shift. Topeka Metro recognizes that this is an issue and is looking for opportunities to expand hours of service later into the evening. The eventual goal would be to end transit service between 10:30 and 11:00 PM if new operational funding were to become available. Limited funding and the lack of significant growth of operating funding remains an overarching issue limiting Topeka Metro's ability to provide expanded services in the region.

Transit Studies and Projects

IMPROVING BUS STOPS

Since 2014 Topeka Metro has been aggressively working to improve passenger amenities by deploying more passenger shelters to those bus stops with the highest need. While Topeka Metro has made many improvements to bus stops across the Topeka area much work remains to be completed. TMTA has begun a process to install multiple concrete waiting pads at bus stops to keep passengers out of grass, mud while waiting for the bus. Overall the clear majority of bus stops are not compliant with the Americans with Disabilities Act (ADA). It is Topeka Metro's goal to have all bus stops in their network fully compliant with ADA standards by 2020.

One significant issue to the accessibility of bus stops in Topeka is a lack of consistent sidewalk connections. In many instances bus stops are in the grass behind the curb with no concrete waiting pad, sidewalks or curb ramps for those with limited mobility to safely wait at the stop. Topeka Metro is continuing to work with the City of Topeka and others to help in addressing these issues to improve transit access for all passengers.

INSTALLING AVL

TMTA is currently in the process of deploying Automatic Vehicle Location (AVL) devices on all fixed route buses in its fleet. This will allow the agency to track buses in real-time and provide the agency with a great source of operational data including a better ability to track on-time performance to the route level of detail.

COORDINATED PUBLIC TRANSIT-HUMAN SERVICE TRANSPORTATION PLAN

TMTA is also in the process of doing a coordinated public transit-human service transportation plan to collect and analyze meaningful organizational and consumer information to create a plan for future coordination and improvement of transportation services in Shawnee County. A consultant was selected in early 2017 to update the original 2007 plan.

PEDESTRIAN MOBILITY STUDY

In 2016 the MPO, along with Topeka Metro and other stakeholders, developed the Topeka Pedestrian Master Plan. The plan's vision was to make Topeka a walkable city where people of all ages and abilities can safely and comfortably travel on foot. The Pedestrian Master Plan detailed where sidewalks are lacking and made recommendations to prioritize pedestrian improvements for the greater Topeka area. One of the primary goals of the plan is to complete the pedestrian network and fill gaps in the system. This included a focus on sidewalks to transit stops.

OPERATIONS STUDY

TMTA is currently conducting a high-level analysis for future planning efforts over a seven-year planning horizon. The effort includes conceptual planning and an implementation plan for the following priorities:

- Cost-neutral service planning for east-west and north-south crosstown routes, rapid service from downtown to Wanamaker, and express connections between Lawrence and Topeka;
- South Topeka transportation options including an assessment of modes of transportation and a Transportation Demand Management assessment;
- A greyhound station relocation plan;
- An assessment of electric vehicles;
- A plan for ADA accessible bus stops for the entire system; and
- And identification of administrative and operations efficiencies.

This assessment and overview will include a prioritized implementation plan for the seven-year planning horizon and a timeline and high level cost ranges for each of the improvements.

ACTIVE TRANSPORTATION

Introduction

Active transportation, that is movement by non-motorized means, provides a basic yet important component of urban mobility. Typically consisting of walking and biking, active transportation also provides additional benefits, including reduced carbon dioxide emissions, increased physical activity, and a higher quality of life through community-building. Furthermore, it is cost-effective for moving short distances. Improving the active transportation system especially helps people too young to drive, those who cannot afford a car, seniors, and the disabled. Even for drivers, most trips begin and end with walking, such as to and from a parking spot.

MTPO, Topeka, and Shawnee County have recently begun emphasizing active transportation as a part of their Complete Streets initiatives which consider the needs of all road users in each road project. This includes the more than 83,100 pedestrian and bicycle trips that occur in Topeka daily, beyond the additional car and transit trips which are usually considered. Evidence of this new focus can be seen in two recent planning efforts: the Topeka Bikeways Master Plan and the Topeka Pedestrian Master Plan.

Compared to other concerns, new pedestrian facilities ranked third, with 244 out of 613 respondents (39.8%) naming it as one of their top three priorities. Respondents preferred improving intersections for pedestrians over more sidewalks. New bike facilities were rated lower in surveys with comments indicating that because progress is being made, they prioritize it less. Active transportation accommodations, often mentioned with each other and transit, was often mentioned as some of the region's most important transportation projects. However, maintenance of existing facilities – streets, sidewalks, and trails – was rated above new facilities.

The following section provides an assessment of current active transportation infrastructure and policy, a review of bicycle and pedestrian use data, an analysis of relevant safety information, and a summary of existing plans.

Active Transportation System

PEDESTRIAN FACILITIES

Walking, the most basic form of transportation, is an integral part of every city, and like many other cities, the Topeka metropolitan area is increasingly trying to increase its walkability. Pedestrian trips are generally made over short distances, making the proximity of destinations and the availability of adequate pedestrian accommodations important. Access to safe sidewalks and roadways allows residents to walk to nearby shops, schools and parks.

The MPA's pedestrian system includes 669.0 miles of sidewalk, including a mix of old and new facilities. Most neighborhoods in the city's core were constructed with sidewalks because car ownership was less common at the time. Some historic neighborhoods retain brick sidewalks while others were retrofitted with American with Disabilities Act (ADA) accessible ramps. Neighborhoods developed around the core from 1950 through 1970 generally did not include sidewalks as they were not required and cars were commonplace. Many county subdivisions also do not have sidewalks, even where there are urban densities, because regulations did not require sidewalks until recently. Figure 3.58 depicts existing sidewalks.

Since the 1980's, sidewalks have again become commonplace, but past development patterns have led to a disjointed and unconnected regional sidewalk network. Historic development patterns also made the region more dependent on motorized transportation, making active transportation more challenging today because of increased trip distances and roadways that can discourage bicycles or hinder pedestrians. Overall, about 40 percent of city streets and most rural subdivisions lack sidewalks.¹ Newer residential subdivisions typically have concrete sidewalks and ramps, due to current city and county policies, including sidewalk requirements and Complete Street policies.

The lack of a continuous sidewalk network is also an obstacle to multi-modal connections throughout the region, especially for transit riders and those in rural subdivisions. Through public outreach, participants expressed concerns regarding the poor condition or absence of sidewalks, though they approved of the city's recent efforts to prioritize sidewalks and TMTA's goal to make all bus shelters ADA accessible. Beyond that, participants indicated the need for accessible curb and better signal timing for pedestrians. They also noted the importance of accommodating active transportation by encouraging the incorporation of transit into developing areas.

To further these goals, The MPTO recently began emphasizing Complete Streets in response to interest in bicycle and pedestrian facilities. As the bicycle and pedestrian network has improved, the number of those using those facilities has also increased. Pedestrian facilities typically include sidewalks and curb cuts. Bicycle infrastructure includes both on-street and off-street infrastructure. Multi-use trails are used by both pedestrians and cyclists. A more detailed map of the sidewalk network can be seen below.

¹ Topeka Pedestrian Master Plan, adopted 2016, p. 17

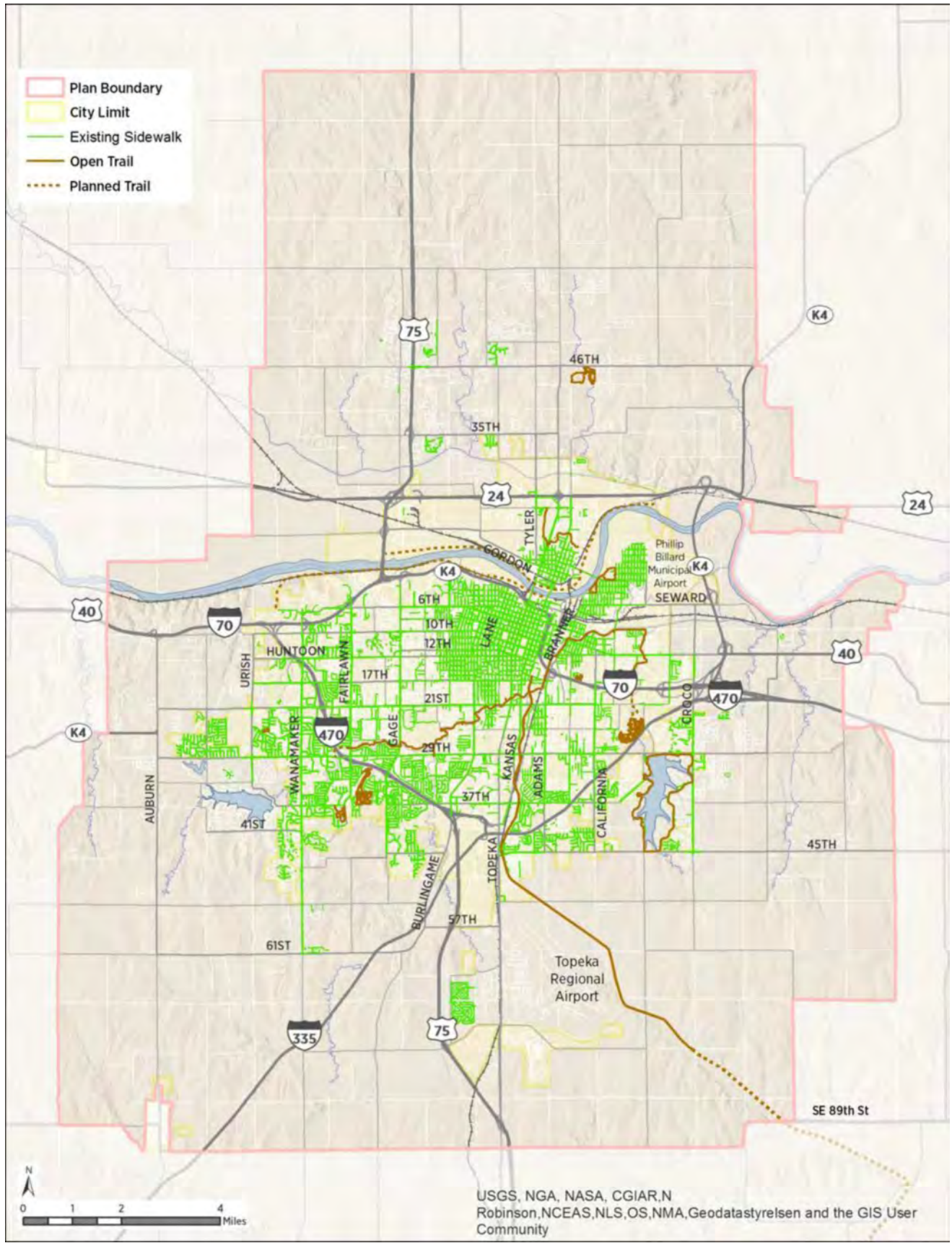


FIGURE 3.58: Existing Pedestrian Infrastructure

BICYCLE FACILITIES

Bicycling, another cost-effective method of non-motorized transportation, has had a long history in Topeka. Starting as early as the 1970's with the organization of the Topeka Wheelmen, now the Kaw Valley Bicycle Club, residents recognize the importance of biking. Because of faster speeds and a relatively flat topography, Topeka is well-suited for trips by bicycle.

Starting in 2011, the MTPO began constructing bicycle facilities across the region. Guided by the Bikeways Master Plan, Topeka implemented its first "sharrows," bicycle symbols painted on the road to indicate that motorists should share the road with bicyclists, about five years ago, and has added bike lanes since then. These shared streets have low traffic volumes so cyclists and motorists can operate in common in the right-of-way. The City has also coordinated pavement markings with its street rehabilitation and resurfacing program to help cyclists, such as striped parking lanes. As of the writing of this plan, Phase I of the plan was completed while Phase 2 has been funded and is in progress. This has resulted in about 35.7 miles of bicycle infrastructure

In the spring of 2015 TMTA initiated the Topeka Metro Bikes (TMB) bike share program, the first bike sharing program in the state of Kansas. Topeka Metro Bikes is a distributed, self-serve public transportation network managed by the Topeka Metro Transit Authority. The network comprises bicycles distributed throughout the community, at 17 main stations and an additional 120+ in-network community bicycle-parking hubs, including standard bike racks in schools, parks, and commercial districts. TMB has 200 red bicycles in the program with bike share station at ten locations across Topeka located at: Washburn University: Law School, Memorial Union, Henderson Learning Center and Bennett Computer Campus

- Topeka and Shawnee County Public Library
- Visit Topeka, Inc.
- Brown v. Board National Historic Site
- Quincy Street Station
- Gage Park
- Lake Shawnee

Users of the bike share system establish an account via a mobile app where they may sign up for an hourly or annual plan. Subscribers are given a four digit personal identification number that can be entered into a key pad on all TMB bikes to release the bike from the station. The TMB Program has helped to extend the reach of public transit as well as provided many Topeka Residents with another mobility option to move throughout the city.

Since its inception in April of 2015, Topeka Metro Bikes (TMB) has served more than 3,000 people in the Topeka and Shawnee County area. Registration is required to use the bikes, and costs \$2.50 per hour of riding time, or \$25

for a year membership, which includes two hours of free riding time per day. Washburn University students have the option for discounted annual membership at \$20, or monthly membership at \$5.

In 2016, TMB riders made 15,393 trips, covering a total of 29,390 miles. Weekends see more ridership than weekdays, with higher average trips per bike per day, and longer average trip lengths in terms of both distance and time. Washburn riders make as many as half of the trips during the university schoolyear, whereas recreational riders at Lake Shawnee make nearly half of the trips on summer weekends while school's out.

The TMB system spans the city and beyond, with a coverage area greater than 60 square miles. This is larger than the networks in all but the very biggest systems in the world. New York City's bikeshare system only surpassed the 60 square mile area mark in 2016. By coordinating the TMB network with almost all of Topeka's existing bike parking infrastructure, a bike trip can start at any main station, and end almost anywhere in town. It's a far more flexible arrangement for truly meeting the "last-mile" needs of personal transportation. However, despite the system's existing strength, without more bikes, it still won't meet the "first-mile" needs of transportation customers. Topeka Metro's goal is to add more bikes and more stations, so the distribution across the area may be more consistent and more equitable.

The current bicycle system can be seen in Figure 3.59.

MULTI-USE FACILITIES

Another important part of the active transportation system for both pedestrians and bicyclists are multi-use trails, separated from streets and exclusively for non-motorized users. In Topeka, multi-use trails typically follow waterways, like the Shunga and Soldier Creek Trails, abandoned railroads, like the Landon Trail, and greenways or parks. When they run along streets, they are separated from the roadway and only encounter motorists at surface intersections. Because they allow pedestrians, cyclists, and skaters, they require that differing users share the space. The current trail system is a part of the bicycle system which can be seen above.

Currently the MPA's system of increasingly interconnected multi-use trails serve recreational and transportation functions well. Current trails or greenways link many of Topeka's parks, connect the city's west and east sides with downtown, and extend through southeast Topeka into the county. Other trails serve individual areas such as Lake Shawnee or north Topeka but will eventually be connected to the rest of the system. Additional multi-use trails are being planned using streets, levees, greenways, drainageways, parks and open spaces, and other opportunities to expand the reach and function of these trails to serve destinations in the city. A summary of the area's primary trails includes:

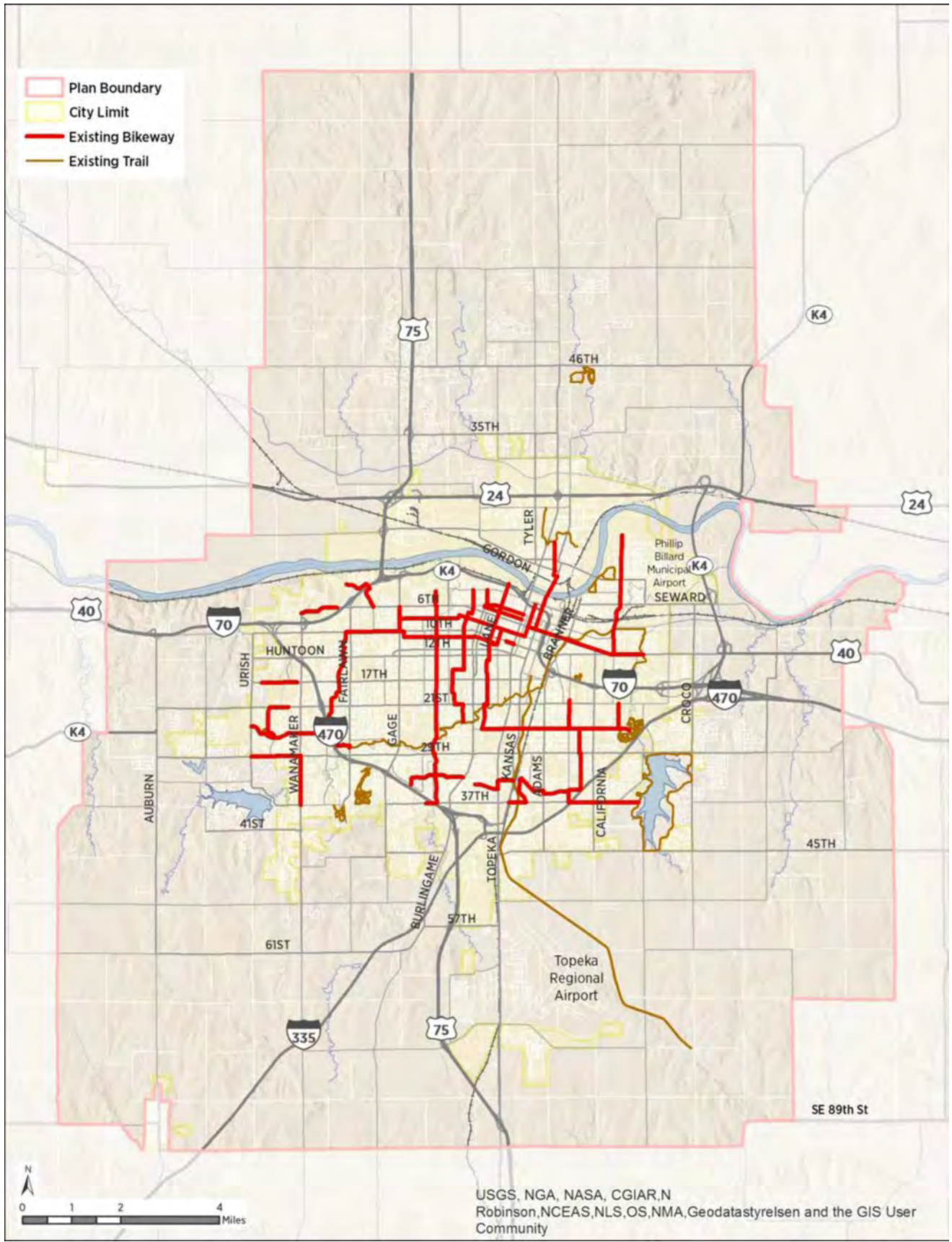


FIGURE 3.59: Existing Bicycle System

- **Shunga Trail:** Topeka’s premier trail extends almost 8 miles along Shunganunga Creek from Crestview Park near SW 27th and SW Fairlawn, east to SE Golden. The trail connects several major parks and provides access to downtown along routes like Van Buren and 10th Streets. The trail is planned to extend west under I-470, using trail and on-street routes.
- **Landon Trail:** This regional trail built on abandoned railroad right-of-way extends south from 15th Street, east of Kansas Avenue, connects to the Shunga Trail, and continues roughly 12 miles to SE 89th Street near Ratner Road. The trail is paved within city limits. Eventually, the trail will extend more than 38 miles to join the Flint Hills Nature Trail.
- **Lake Shawnee Trail:** This 7-mile recreational trail circles Lake Shawnee. Currently, it is not joined with the rest of the trail system, but planned extensions will more directly connect it.
- **Deer Creek Trail:** Found in East Topeka, the 2-mile Deer Creek Trail follows Deer Creek from SE Golden to SE 10th Street, joining the Shunga Trail at the north. This concrete trail is planned to extend south to the Lake Shawnee Trail.
- **Soldier Creek Trail:** The Soldier Creek Trail in North Topeka is a nearly 2-mile concrete bicycle and pedestrian trail that joins Garfield Park to NE Lyman Road.

Including other trails throughout the MPA, there are approximately 49.3 total miles of trails.

REGULATION

Numerous laws have been established at the federal, state, and local levels to promote and enhance the movement of active transportation. Bicycle- and pedestrian-related laws from the Kansas State Statutes (KSS), City of Topeka Code (CTC), and Shawnee County Code (SCC) are summarized below.

Kansas Regulations

Bicycles are vehicles under Kansas Law (KSS 8-1485) and must follow Kansas traffic laws if they are using the roadway, including signaling turns (KSS 8-1587 & KSS 8-1550). Cyclists should also ride as near to the right side of the roadway as practicable, but they may ride two abreast on any road at any time and may use the full lane on narrow width lanes (KSS 8-1590). More recent legislation includes the 3-foot bicycle passing rule and the dead red law. The 3-foot rule requires that drivers who overtake bicycles in the same direction must pass at least three feet away, only moving right again after safely clearing the bicycle. Drivers may pass bicycles in a no-passing zone if safely executed (KSS 8-1516). The dead red law means that a bicyclist facing a red light that does not change because it fails to detect the bicycle may proceed after yielding to vehicles in or approaching the intersection and pedestrians in adjacent crosswalks (KSS 8-1508).

Topeka Regulations

In Topeka, bicyclists may ride on sidewalks and in pocket parks except within 4th and 11th Streets and SW Jackson and SE Quincy Avenues. Users on sidewalks must yield to pedestrians, give a signal before passing them, and travel at reasonable speeds under existing conditions (CTC 10.35.030). Areas for exclusive use by pedestrians and bicyclists include the top of Oakland Unit of the levee system, in areas designated by appropriate signage, and on multi-use trail segments identified in the Topeka Bikeways Master Plan (CTC 10.35.020). Where the Topeka-Shawnee County trails and greenways plan identifies a planned trail within a proposed subdivision, the developer shall dedicate that portion for a public trail easement or right-of-way, in return for a credit as specified in the City Code (CTC 18.40.130(g)).

Regarding sidewalk construction and maintenance, entry walks cannot cover utility pipes or lines. Owners must repair abutting sidewalks in the right-of-way after approval by the City engineer with the cost levied on abutting lots. If a sidewalk becomes inadequate or unsafe, the city may condemn it and construct a new sidewalk (CTC 12.35-38). Owners or occupants of abutting properties may not allow anything to accumulate on a sidewalk or to become unsuitable. This includes snow, which must be removed within 48 hours for residential properties and 24 hours for nonresidential properties (CTC 12.40.010). Similarly, obstructing right-of-ways is illegal (CTC 12.10.010).

Shawnee County Regulations

Shawnee County has fewer regulations about pedestrians and bicyclists. Shawnee County’s Chapter 29, Article XI adopts the Topeka-Shawnee County Regional Trails and Greenways Plan which provides long-range guidance for the future growth and development of regional greenway and trail systems. However, developers are not required to follow the plan.

Regulations adopted by City and County

Both the City and County require that all subdivisions have sidewalks on both sides of all streets within the subdivision, though the City requires that sidewalks completion be guaranteed before all lots are developed (through installation with the street network, credit, or another method). Sidewalks shall also be provided on all street improvement projects initiated by the council or any public body (CTC 18.45.020(a) and Shawnee County Subdivision Regulations Sec. 4-2(1)). Proposed street, sanitary or storm sewer, and sidewalk improvements installed by a developer must first be approved by the city or county engineer (CTC 18.45.080 and Shawnee County Subdivision Regulations Sec. 4-8).

The City and County also recently adopted complete streets policies requiring that construction or reconstruction of rights-of-way will implement complete streets to the extent financially feasible, defined as following design principles promoting safe network access for pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. This

includes reasonable accommodations for accessibility, sidewalks, curb ramps and cuts, signage and bike lanes and by maximizing walkable and bikeable streets. (City Council Res. 8222 and County Commission Res. 2016-65).

Active Transportation Use and Efficiency

Since September 2013, Topeka joined with other cities nationwide in participating in annual bike counts, using a standardized National Bicycle and Pedestrian Documentation method. The methodology allows Topeka to estimate existing and future bicycle and pedestrian demand and activity by conducting counts and surveys in a consistent manner consistent with motor vehicle models. Dates for conducting counts were chosen based on the National Bicycle and Pedestrian Documentation Project's recommended September count weeks. Site locations were chosen based on:

- Locations where new or improved bicycle or pedestrian facilities will be/have been constructed
- Along existing corridors and trails
- Locations where there are high numbers of bicycle or pedestrian collisions
- High activity corridors for bicyclists and pedestrians such as downtown, parks and near schools

Sites were endorsed by the Complete Streets (formerly Bicycle) Advisory Committee. These bicycle and pedestrian counts are the best information to make decisions for bicycle and pedestrian infrastructure. Figure 3.60 shows the total counts conducted each year at select locations from 2013 to 2016. In areas across the City that were consistently counted,

the total active transportation activity amounted to 431,400 in 2013; 344,900 in 2014; 517,700 in 2015; and 491,600 in 2016. Despite drops in 2014 and 2016, this data suggests a positive trend overall.

PEDESTRIAN TRIPS

As one of the larger metro areas in Kansas, Topeka similarly sees more than an estimated 73,600 pedestrian trips every day thanks to a mix of commuters, students, and other trips such as those to local stores or for recreation. While Topeka has a smaller share of commuters walking to work compared to Kansas, this is partially explained by the relatively low density of city.

Utilizing pedestrian counts collected by the City, Topeka has seen a relatively steady increase in pedestrian activity over the past few years since it began measuring it. In areas consistently counted between 2013 and 2016, Topeka has seen pedestrian counts increase from approximately 223,900 in 2013 to 312,600 in 2016. Pedestrians tended to outnumber bicyclists in most areas, with the exception of along the Landon Trail.

Area's that show the most pedestrian activity include 10th and Topeka and along the Shunga Trail. East 6th Street is another heavy pedestrian corridor. 19th and Washburn University, while it does not have a high number of pedestrians, is also notable because nearly 86 percent of all active transportation traffic at that area was pedestrian.

FIGURE 3.60: Annual Pedestrian and Bicycle Counts at Select Locations

	2013	2014	2015	2016	Ave. Change 2013-2016	Gains & Losses
# 1 - North Topeka, Central Avenue	20,568	34,741	7,620	31,052	+3,495	+ - +
# 2 - East 6th St	41,852	60,238	81,927	94,904	+17,684	+ + +
# 3 - East 25th and Landon	20,224	21,246	54,628	10,026	-3,399	+ + -
# 4 - 10th and Topeka	152,109	-	165,716	204,990	+17,627	+ +
#5 - Gage Park	31,253	18,628	14,237	34,031	+926	- - +
#6 - Clay St/Central Park	45,661	14,800	24,578	20,539	-8,374	- + -
#7 - 19th and Washburn U	31,367	39,466	37,813	27,357	-1,337	+ - -
#8 - Randolph	10,513	3,524	16,299	27,930	+5,806	- + +
#9 - Belle	7,964	16,840	8,966	11,831	+1,289	+ - +
#10 - 29th and Fairlawn	10,227	14,095	28,589	26,956	+5,576	+ + -
#11 - Shunga Trail	194,906	103,095	216,563	181,672	-4,411	- + -
#12 - Landon Trail	75,797	-	69,781	63,766	-4,010	- -
#13 - 8th St	16,844	18,183	26,469	25,266	+2,807	+ + -
#14 - East 37th/Lake Shawnee	8,422	5,638	6,016	-	-1,203	- +
# 15 - West 37th	-	2,114	-	-	-	

Source: City of Topeka Bicycle and Pedestrian Documentation Data, 2013, 2014, 2015, 2016

FIGURE 3.61: Annual Pedestrian Counts at Select Locations

	2013	2014	2015	2016	Ave. Change 2013-2016	Gains & Losses
# 1 - North Topeka, Central Avenue	10,596	19,301	6,235	18,378	2,594	+ - +
# 2 - East 6th St	31,072	54,289	51,122	71,819	13,582	+ - +
# 3 - East 25th and Landon	7,829	3,035	11,326	2,674	-1,718	- - -
# 4 - 10th and Topeka	138,799	-	135,122	170,608	10,603	- +
#5 - Gage Park	25,125	13,412	7,119	25,523	133	- - +
#6 - Clay St/Central Park	27,150	11,981	16,816	9,628	-5,841	- + -
#7 - 19th and Washburn U	26,348	38,761	32,141	19,454	-2,298	+ - -
#8 - Randolph	4,947	2,114	9,508	20,482	5,178	- + +
#9 - Belle	6,739	11,715	6,897	9,202	821	+ - +
#10 - 29th and Fairlawn	1,805	1,409	14,627	13,807	4,001	- + -
#11 - Shunga Trail	72,523	59,602	111,354	106,497	11,325	- + -
#12 - Landon Trail	6,891	-	6,826	5,427	-488	- -
#13 - 8th St	9,752	8,659	13,970	15,159	1,802	- + +
#14 - East 37th/Lake Shawnee	5,053	4,933	4,679	-	-187	- -
# 15 - West 37th	-	704	-	-	-	

Source: City of Topeka Bicycle and Pedestrian Documentation Data, 2013, 2014, 2015, 2016

FIGURE 3.62: Annual Bicycle Counts at Select Locations

	2013	2014	2015	2016	Ave. Change 2013-2016	Gains & Losses
# 1 - North Topeka, Central Avenue	9,972	15,440	1,385	12,674	901	+ - +
# 2 - East 6th St	10,780	5,949	30,805	23,085	4,102	- + -
# 3 - East 25th and Landon	12,395	18,211	43,302	7,352	-1,681	+ + -
# 4 - 10th and Topeka	13,310	-	30,594	34,381	7,024	+ +
#5 - Gage Park	6,128	5,216	7,118	8,508	793	- + +
#6 - Clay St/Central Park	18,511	2,819	7,762	10,911	-2,533	- + +
#7 - 19th and Washburn U	5,019	705	5,672	7,903	961	- + +
#8 - Randolph	5,566	1,410	6,791	7,448	627	- + +
#9 - Belle	1,225	5,125	2,069	2,629	468	+ - +
#10 - 29th and Fairlawn	8,422	12,686	13,962	13,149	1,576	+ + -
#11 - Shunga Trail	122,383	43,493	105,209	75,175	-15,736	- + -
#12 - Landon Trail	68,906	-	62,955	58,339	-3,522	- -
#13 - 8th St	7,092	9,524	12,499	10,106	1,005	+ + -
#14 - East 37th/Lake Shawnee	3,369	705	1,337	-	-1,016	- +
# 15 - West 37th	-	1,410	-	-	-	

Source: City of Topeka Bicycle and Pedestrian Documentation Data, 2013, 2014, 2015

BICYCLE TRIPS

Topeka similarly sees more than an estimated 9,500 bicycle trips every day thanks to a mix of commuters, students, and other trips such as those to local stores or for recreation. Topeka has relatively small share of commuters bicycling to work compared to Kansas.

Utilizing bicycle counts collected by the City, Topeka had a major drop in bicycle activity from the 2013 to the 2014 count, but it rebounded in 2015 in areas consistently counted. 2016 saw another drop, but overall, the trend has been positive growth. In 2013, Topeka had approximately 207,500 bicycles counted in select locations, dropping to 120,578 in 2014. In 2015, it increased beyond to a new height of 236,600 and decreased again to 178,900 in 2016. Overall this suggests a slight positive trend. Counts for individual locations can be seen below.

Overall, bicyclists are outnumbered by pedestrians, making up only 42 percent of active transportation users counted. However, some areas drew many bicyclists, especially along the Shunga and Landon Trails. The 10th and Topeka, E. 6th Street, and Clay Street/Central Park locations also drew many cyclists. This reflects the use of bicycles within Topeka for recreational purposes, a sentiment reflected in the Bicycle Master Plan.

COVERAGE

Pedestrian Infrastructure

Overall, about 40 percent of city streets and most rural subdivisions lack sidewalks. Within the City itself, approximately 70 percent of major thoroughfares have sidewalks on both sides of the street, which will increase to 78 percent by 2031 as current road reconstruction projects add sidewalks. The goal for major thoroughfares is to have 95 percent built with sidewalks on both sides. Meanwhile, approximately 48 percent of all streets have sidewalks on both sides, which should increase to 51 percent with currently planned projects by 2025.²

Regarding the number of people with access to sidewalks, about 116,353 people or 69.2 percent of the population has access to sidewalks on their block. Within EJ areas, 72,073 or 83.4 percent have a sidewalk on their block. While these numbers do not speak to the coherency, distribution, or ease of use of the sidewalk system, it does indicate that many people can reach sidewalks.

Bicycle Infrastructure

The MPA contains approximately 35.7 miles of bicycle infrastructure and 49.3 miles of trails. To determine access to the bicycle system, buffers of ¼ and ½ miles are used to determine proximity to the onstreet bicycle system and to trails. For the purposes of this section, trails are considered part of the bicycle system.

Within the MPA, approximately 71,200 residents are within ¼ mile or 3-4 minute bike ride from a the bicycle system.

This amounts to 42 percent of the MPA’s population. When the distance is increased to ½ mile or a 6-8 minute bike ride, approximately 105,100 people are within range of bicycle facilities. This amounts to 63 percent of the MPA’s population. EJ areas tend to have better access to the bicycle system. 58 percent of EJ areas are within ¼ mile of a bike route or trail and 82 percent of EJ areas are within a ½ mile.

Because of the large number of people who bicycle recreationally, the trails have also been separated from the general bicycle system in order to understand their coverage. Within the MPA, approximately 27,200 residents are within ¼ mile or 3-4 minute bike ride from a trail. This amounts to 16 percent of the MPA’s population. When the distance is increased to ½ mile or a 6-8 minute bike ride, approximately 54,400 people are within range of a trail. This amounts to 32 percent of the MPA’s population. EJ areas tend to have better access to trails. 23 percent of EJ areas are within ¼ mile of a bike route or trail and 45 percent of EJ areas are within a ½ mile.

This analysis suggests that there are no outstanding EJ issues regarding sidewalks, trail, or the bicycle system as many EJ areas tend to be older and denser. That means on one hand, they were built with sidewalks, and on the other, that providing bicycle and trails is often easier to reach more people. While sidewalk facilities in historic areas tend to be older, and therefore require more improvements, they have better overall coverage. Overall, this will continue to have a positive effect on EJ populations.

FIGURE 3.63: Sidewalk Coverage

	No.	Pct.
Total Population with Sidewalks on Block	116,353	69.2%
EJ Population with Sidewalks on Block	72,073	83.4%

FIGURE 3.64: Distance from the Bicycle System

	Total Population		EJ Population	
	No.	Pct.	No.	Pct.
1/4 mile of bicycle system	71,184	42.3%	50,406	58.4%
1/2 mile of bicycle system	105,076	62.5%	71,110	82.3%

FIGURE 3.65: Distance from Trails

	Total Population		EJ Population	
	No.	Pct.	No.	Pct.
1/4 mile of trail	27,168	16.1%	19,815	22.9%
1/2 mile of trail	54,353	32.3%	39,231	45.4%

² Topeka Pedestrian Master Plan, adopted 2016

Active Transportation System Condition

Sidewalks are a major infrastructure investment in Topeka. Sidewalks can last 50 years if properly maintained, and maintenance can prevent rebuilding if problems are caught early on. Maintained sidewalks also facilitate the safe mobility of pedestrians and reduce the risk of liability for property owners (who are responsible for sidewalk maintenance) and the City of Topeka (which oversees sidewalk repairs). In an online survey conducted for the Pedestrian Master Plan in 2015, bumpy sidewalks were rated as the item that they least liked about walking in the City with some 98 percent agreeing. The next thing they liked least about walking in the City was the lack of sidewalks.

Sidewalk surface repairs are currently the responsibility of Topeka property owners. The public may suggest repairs by submitting a complaint if a property owner has not kept their sidewalk in good repair. The Topeka Public Works Department evaluates the complaint's merit after visiting the sidewalk and evaluating its condition. If the sidewalk surface is found deficient, the property owner must perform the repairs. Older sidewalks with brick surfaces pose a unique challenge due to their higher density of cracks. Topeka has policies to preserve brick sidewalks. However, most brick sidewalks needing repair are in low and moderate income areas of the city. This provides challenges for low income property owners that need to make repairs.

Topeka's 50/50 program also helps residents pay for the costs of removing and replacing defective concrete and brick sidewalks through a cost-sharing plan of 50% paid by the City of Topeka and 50% paid by the property owner. Funding is limited and is available on a first come, first serve basis.

Approximately 435 of these projects could be geolocated since it began in 2010. Of these projects, about 41 percent occurred in the EJ area. However, projects in EJ areas accounted for more than 51 percent of the amount of total investment in sidewalk improvements and nearly 53 percent of the feet of sidewalk improved. While the cost and square footage of projects in EJ areas is higher, it is still much lower than the proportion of EJ population to the City's population.

Unfortunately, EJ areas tend to be in the older areas of the City, which require more investment, and are most in need of financial assistance. This need for more investment is corroborated by the higher cost per project in EJ areas. Overall, the City should strive to ensure that the number of 50/50 projects in EJ increases to match their proportion of the population, actively engaging with residents of EJ areas.

Other active transportation infrastructure is relatively new and as such, is in relatively good condition. This includes areas that are designated bike routes and the several trails across the City. As such, condition is not a major concern presently so long as they are actively maintained to expand their life.

FIGURE 3.66: 50/50 Cost Share Program

	EJ Areas	City-Wide	Pct. EJ Areas
Total Population within Areas	82,238	127,806	64.3%
No. of Projects	179	435	41.1%
50/50 Sidewalk Investment	\$191,405	\$372,198	51.4%
50/50 Sidewalk Projects Square Feet	32,137	60,981	52.7%

Source: MTPO

Active Transportation Safety

PEDESTRIAN CRASHES, FATALITIES, AND INJURIES

Nationally, pedestrian fatality crashes accounted for about 15% of total traffic related deaths in 2014. Roughly 78% of the fatalities occurred in an urban area with a large percentage (72%) occurring at night and at non-intersection locations (76%). Alcohol involvement by either pedestrian or motorist was reported in about half (48%) of pedestrian fatalities.³

Statewide, the number of pedestrian crashes decreased over the past five years by approximately 6.6%. The number of accidents in Topeka involving bicyclists also generally decreased from 2011 to 2015 due to major decreases at the beginning of the decade. Meanwhile, pedestrian accidents increased in Shawnee County outside of Topeka, though they are still relatively low at less than 5 deaths annually.

Figure 3.67 shows the number of pedestrian fatalities that have occurred over the years 2006 to 2015 in the City of

Topeka, Shawnee County (excluding Topeka), and the combined total. The dashed line below indicates the “rolling” five-year average of the total number of fatalities with the year shown being the final year of the 5-year period. The rolling average method is used to smooth variations in the data and provide a better understanding of how the number of fatalities is changing over time.

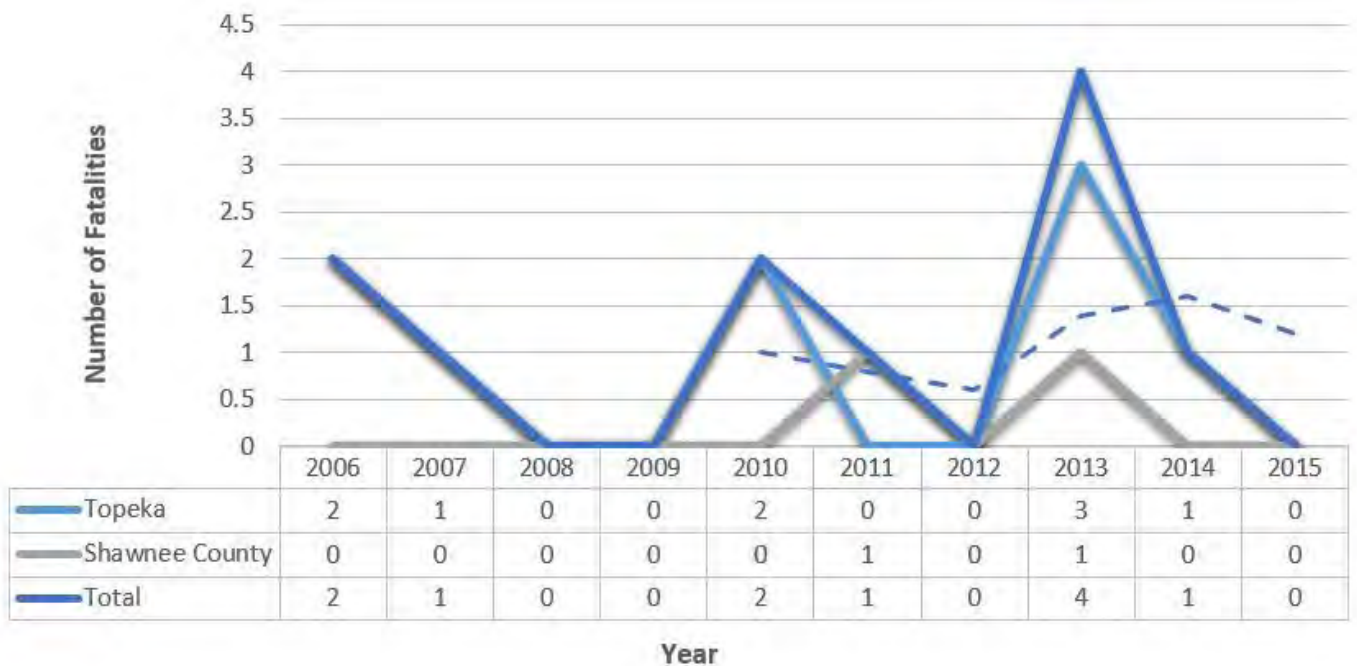
The trend in the five-year average shows the number of pedestrian fatalities to be slowly increasing since 2006. During the period 2006-2010, the City of Topeka averaged 1 fatality per year. This increased to a peak of 1.2 fatalities per year for the period 2010-2014, but it has declined to 0.8 fatalities per year for the total period of 2011-2015. In the County, fatalities steadily increased, reaching 0.4 fatalities per year from 2011-2015 from 0 fatalities per year from 2006-2010. In total, the total annual number of pedestrian fatalities has not exceeded 4 deaths in a single year over the past decade.

FIGURE 3.67: Number of Accidents Involving Pedestrians

	2011	2012	2013	2014	2015	Change	Percentage Change
Kansas	457	552	458	466	427	-30	-6.6%
Topeka	52	38	31	42	36	-16	-30.8%
Shawnee County (excluding Topeka)	3	0	3	4	5	2	66.7%

Source: Kansas Department of Transportation

FIGURE 3.68: Number of Pedestrian Fatalities and Total 5-Year Rolling Average



Source: Kansas Department of Transportation

³ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812270>

Figure 3.69 shows the total number of pedestrian injuries occurring in the City of Topeka, Shawnee County (excluding Topeka), and total. From 2006 to 2015, the number of pedestrian injuries in Topeka and in Shawnee County slightly increased. During 2006 to 2010, the City of Topeka averaged 35.6 injury crashes per year, increasing to an average of 41.6 injury crashes per year from 2011 to 2015. In the County, pedestrian injuries remained consistently between 1.4 and 2 for its five-year rolling averages.

Overall, the number of both pedestrian fatalities and injuries has increased in the MPA. This is likely accounted for by increasing interest in walking in the region. As to where these accidents occur, approximately 93 percent of accidents from 2011 to 2015 happened in Topeka City limits. Over that same time, 95 percent of pedestrian injuries occurred in Topeka, yet only 67 percent of pedestrian deaths occurred in Topeka. This likely reflects two factors:

1. Higher speeds in Shawnee County mean accidents involving pedestrians are more deadly
2. Shawnee County lacks safe pedestrian infrastructure to allow pedestrians to safely travel

Together, these trends point to an increased need to provide safe pedestrian infrastructure, both within the City of Topeka and within Shawnee County.

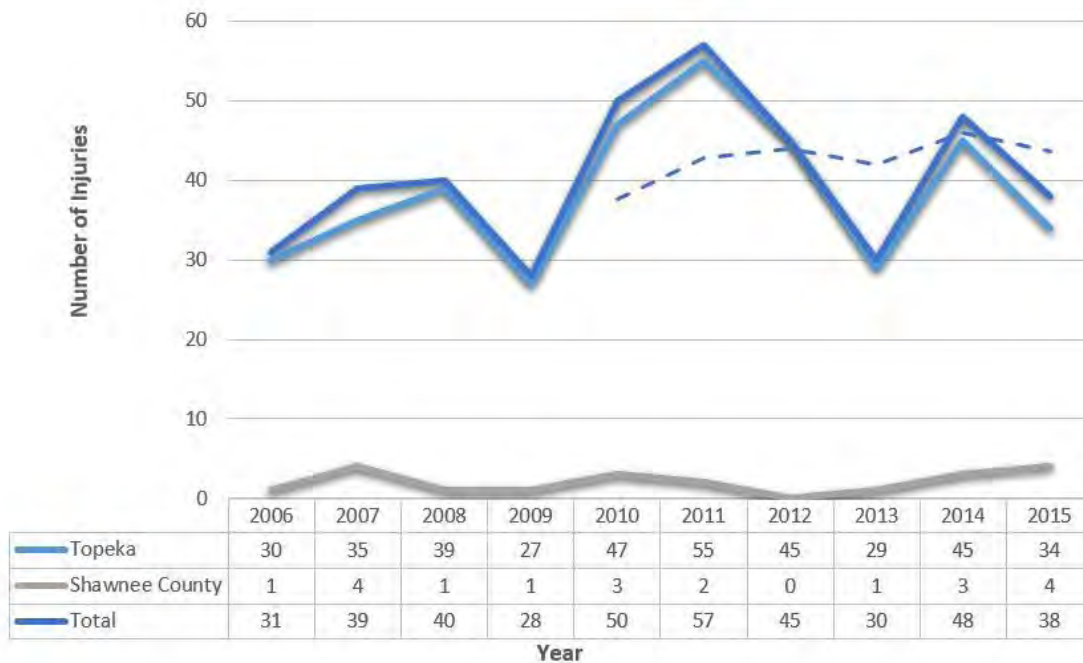
BICYCLIST CRASHES, FATALITIES, AND INJURIES

In 2014, 726 bicyclists were killed and 50,000 were injured nationwide. Bicycle crashes account for roughly 2% of all motor vehicle traffic deaths with alcohol impairment contributing in about 35% of bicycle crashes resulting in fatality.⁴ In Kansas, the number of bicycle injury crashes reported between 2011 and 2015 declined by 1.

Statewide, the number of pedestrian crashes decreased over the past five years. The number of accidents in Topeka involving bicyclists also decreased from 2011 to 2015 due to major decreases at the beginning of the decade. Meanwhile, pedestrian accidents increased in Shawnee County outside of Topeka, though they are still much lower in the County.

Over this same time, the MPA saw more injury bicycle-related crashes, averaging about 32 per year. Shawnee County reported 7 bicycle-related injury crashes from 2011 to 2015 while Topeka had 153. In Topeka and Shawnee County, there was only 1 bicycle-related fatality. This same five year period had 25 bicycle-related fatalities in the State of Kansas.

FIGURE 3.69: Number of Pedestrian Injuries and Total 5-Year Rolling Average



Source: Kansas Department of Transportation

FIGURE 3.70: Number of Accidents involving Bicyclists

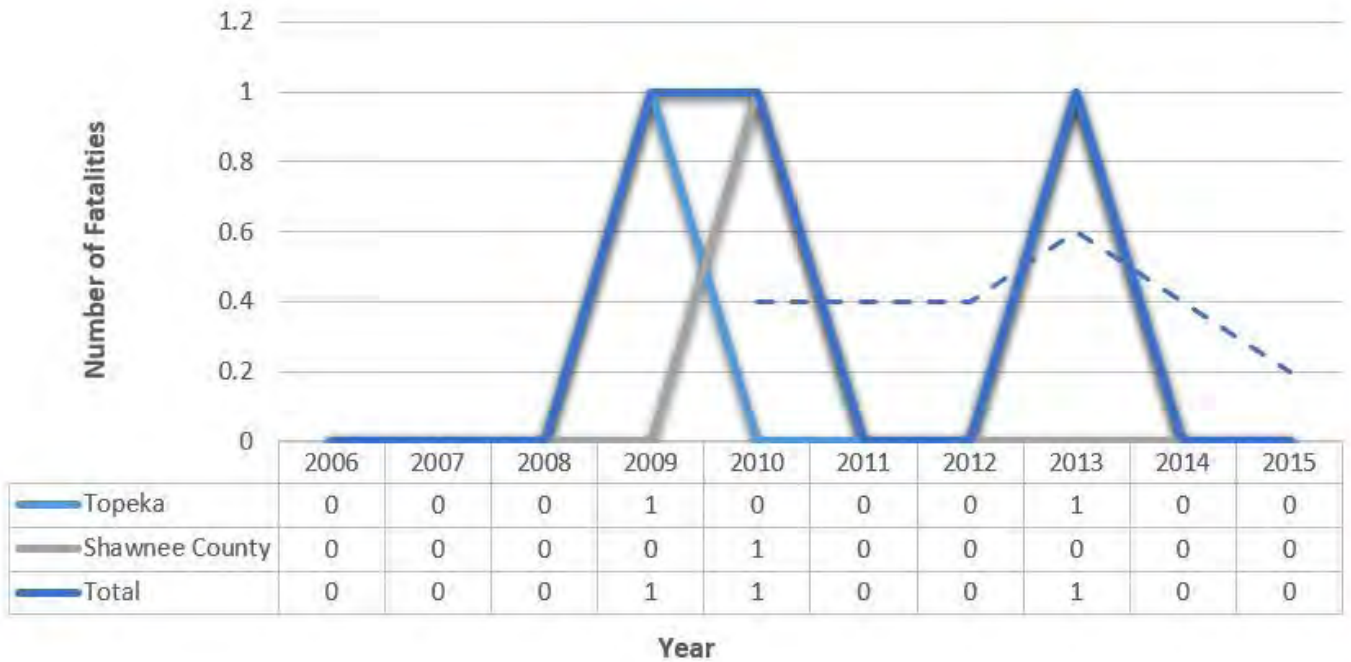
	2011	2012	2013	2014	2015	Change	Percent Change
Kansas	328	369	356	322	327	-1	-0.3%
Topeka	21	36	41	30	31	10	47.6%
Shawnee County (excluding Topeka)	0	1	2	2	2	2	-

⁴ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812282>

Figure 3.71 shows the number of fatalities that have occurred over the years 2006 to 2015 in the City of Topeka, Shawnee County (excluding Topeka), and the combined total. The dashed lines below show the “rolling” five year averages with the year shown being the final year of the 5-year period. The rolling average method is used to smooth variations in the data and provide a better understanding of how the number of fatalities is changing over time.

The trend in both figures shows the number of fatalities slowly increasing. From 2006 to 2010, the City of Topeka averaged 6.4 fatalities per year. This increased to an average of 8.6 fatalities per year from 2011 to 2015. In the County, fatalities slightly decreased from 7.6 per year for 2006 to 2010 to 7.0 per year for 2011 to 2015.

FIGURE 3.71: Number of Bicycle Fatalities and Total 5-Year Rolling Average



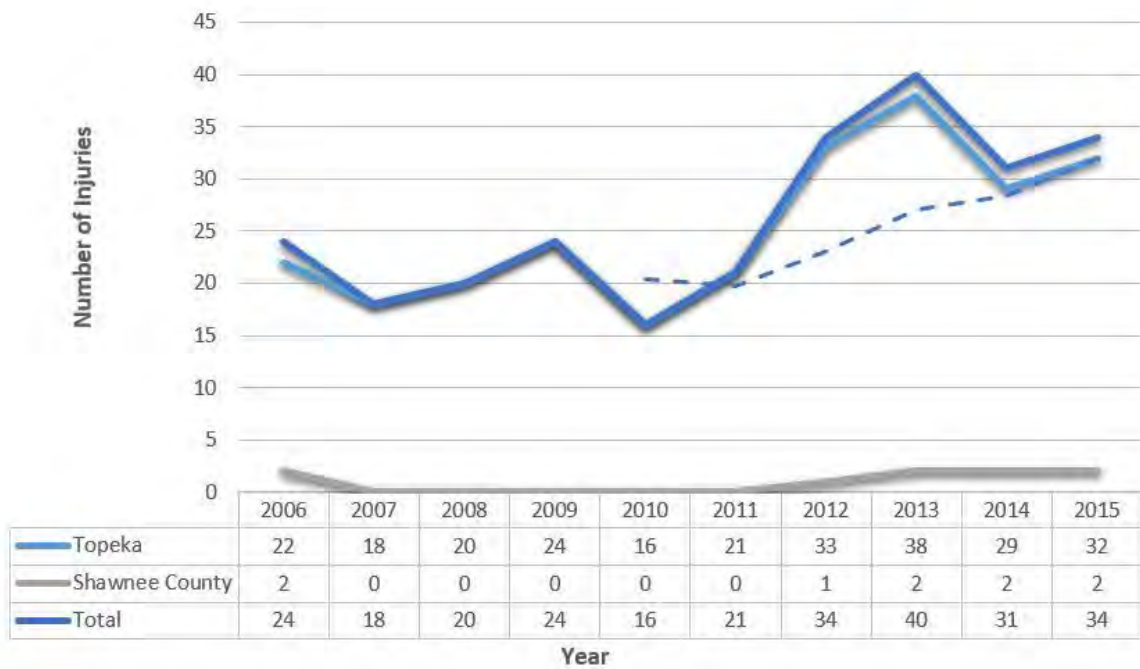
Source: Kansas Department of Transportation

Figure 3.72 shows the total number of injury crashes occurring in the City of Topeka, Shawnee County (excluding Topeka), and the overall total. Over the years 2006 to 2015, the number of injury crashes in Topeka and in Shawnee County is slightly decreasing. During the period 2006-2010, the City of Topeka averaged 785 injury crashes per year. This decreased to an average of 767 injury crashes per year for the period 2011-2015. In the County, injury crashes decreased from 200 per year for 2006-2010 to 164 per year for 2011-2015.

TOTAL FATALITIES PLUS SERIOUS INJURIES

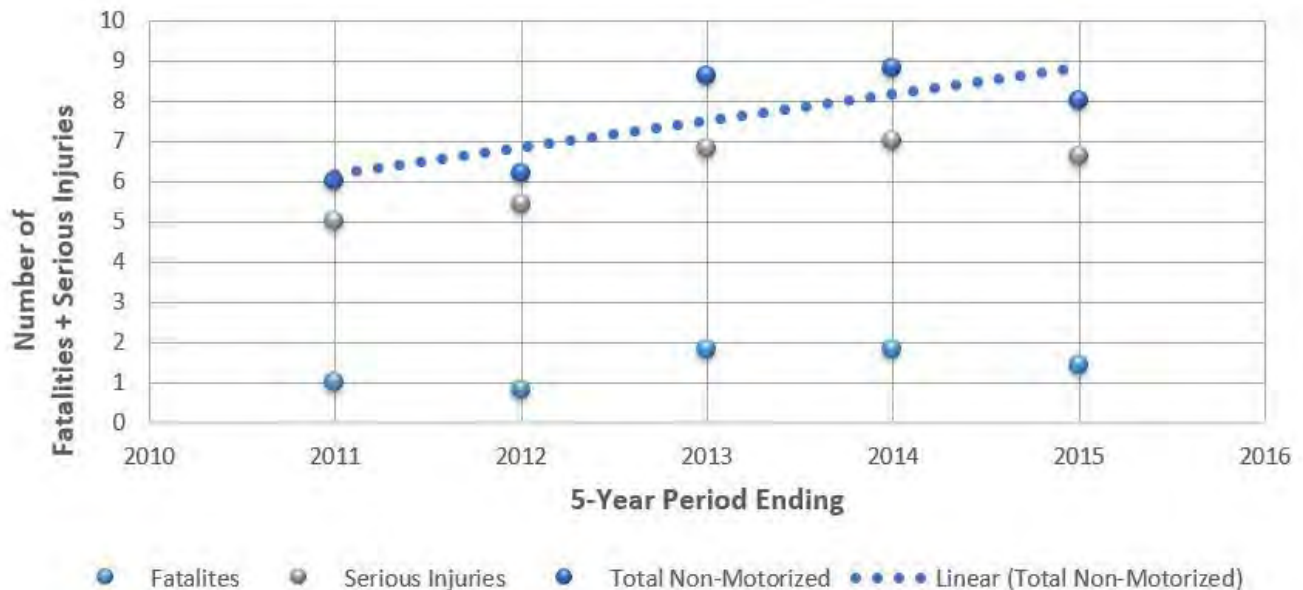
Active Transportation fatalities and serious injuries are totaled for bicyclists and pedestrians involved in a collision with a motor vehicle. The values shown in Figure 3.73 are “rolling” five year averages with the year shown being the final year of the 5-year period. The rolling average method is used to smooth variations in the number of combined fatalities and serious injuries and provide a better understanding of how this number is changing over time.

FIGURE 3.72: Number of Bicycle Injuries and Total 5-Year Rolling Average



Source: Kansas Department of Transportation

FIGURE 3.73: Non-Motorized Fatalities + Serious Injuries 5-Year Rolling Averages



Source: Kansas Department of Transportation

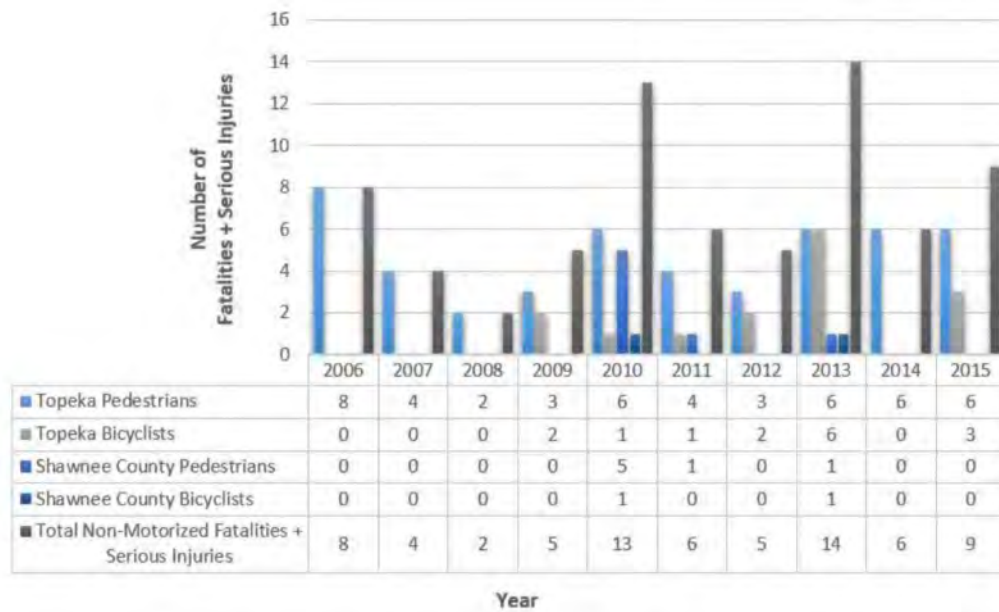
The average number of non-motorized fatalities plus serious injuries appears to be increasing over time. It should be noted that with the low numbers there is considerable variability in the data year to year.

Figure 3.74 provides a breakdown of pedestrian and bicyclist fatalities and serious injuries in the City of Topeka and Shawnee County (excluding Topeka). The region’s goal for the combined number of non-motorized fatalities and serious injuries is to maintain the average number from the period 2009 to 2015. On average, seven non-motorized fatalities plus serious injuries occurred each year over this period. Observations indicate that the number of miles traveled by

bicyclists and pedestrians is increasing, therefore maintaining the current average is a reasonable goal.

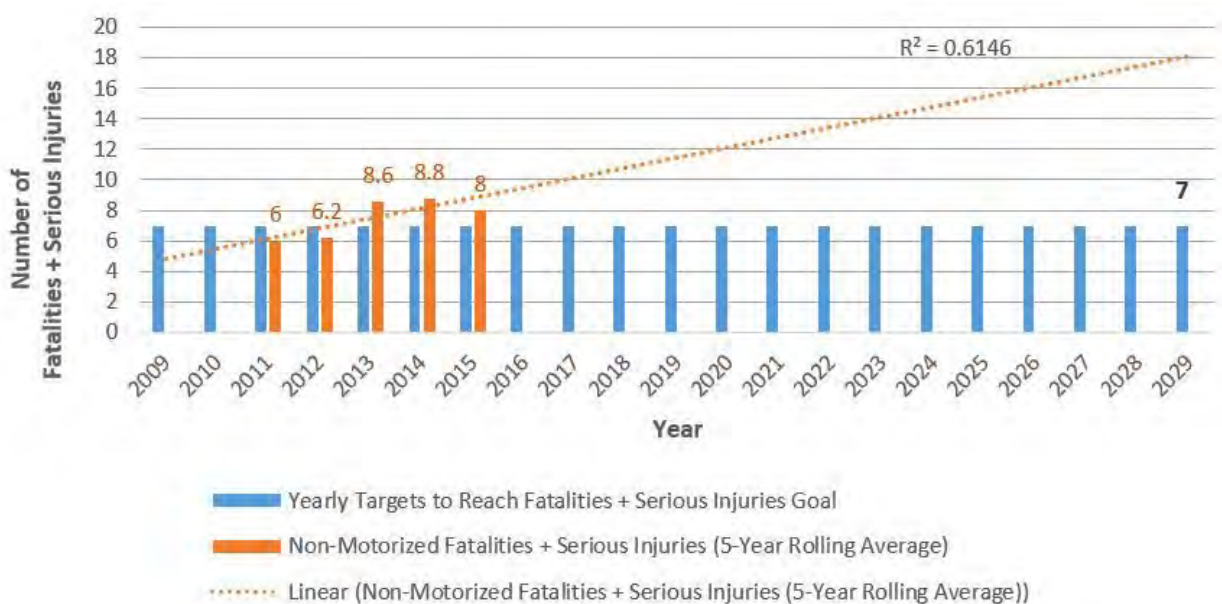
The blue bars in Figure 3.75 represent the yearly targets to reach the goal. The orange bars show the average combined number of non-motorized fatalities plus serious injuries occurring in Shawnee County (including Topeka) for the periods ending in 2011, 2012, 2013, 2014, and 2015. The trend line shows an increasing number of non-motorized fatalities plus serious injuries, however note that the numbers are low and a small change in the numbers could result in a significant change in the trend.

FIGURE 3.74: Non-Motorized Fatalities + Serious Injuries



Source: Kansas Department of Transportation

FIGURE 3.75: Performance Measure – Non-Motorized Fatalities + Serious Injuries



Source: Kansas Department of Transportation

Active Transportation Studies and Projects

TOPEKA BIKEWAYS MASTER PLAN

In 2012, MPTO adopted the Topeka Bikeways Master Plan which outlines a five-phase plan for the city to establish bike lanes on specific routes and develop a Topeka Bikeway System over a 15-year period. Built of eight trails and 25 “routes,” Topeka’s plan sought to accomplish six goals:

1. Increase the number of people who use the bicycle for transportation as well as recreation. Topeka’s multi-use trails are well-utilized and provide transportation, but they are largely used for recreation. Increasing the percentage of trips for other purposes would indicate success.
2. Improve bicycle access to key community destinations. A bicycle transportation system should get people comfortably and safely to where they want to go, so Topeka’s system is destination-based, providing clear and direct connections to key community features.
3. Improve access to the city’s pathway system by connecting trails to neighborhoods. Topeka’s trails serve most bicycle trips, but the city’s emerging trail system can connect to more neighborhoods using streets and other development opportunities as linkages.
4. Use bicycling to make Topeka more sustainable. Bicycling promotes sustainability at three levels. Globally, bicycle travel reduces fossil fuel use and greenhouse gas emissions. Community-wide, bicycle transportation systems can decrease road maintenance costs, promote a healthier environment, and build community. Individually, physical activity as a daily routine makes people healthier, reducing obesity, improving wellness, and lowering health care costs.
5. Increase roadway safety for motorists, bicyclists, and pedestrians. Good infrastructure reduces crashes and increases comfort for all users of the transportation network with research indicating that more cyclists leads to fewer bicycle crash rates. Infrastructure must be supported by education, enforcement, and encouragement, as measured by regular evaluation.
6. Capitalize on economic development benefits of a destination-based bicycle transportation system. Topeka has many attractive features: Brown v. Board of Education historical site, Gage Park with its zoo and Discovery Center, the Kansas History Center, the State Capitol, and distinctive commercial districts, among others. As a bicycle-friendly community, Topeka can add to visitors’ experiences, attracting new residents and investment.

The full bicycle route and its infrastructure can be seen in Figure 3.76.

To measure the success of its goals and evaluate the components and effectiveness of the network, criteria were developed from the Netherlands’ Centre for Research and Contract Standardization in Civil and Traffic Engineering, one of the world’s leading authorities in the design of bicycle-friendly infrastructure. Using these standards, Topeka’s bicycle network should generally fulfill six requirements:

- Integrity: Topeka’s bikeway network should form a coherent system throughout its evolution, linking starting points with destinations, being understandable to its users, and fulfilling a responsibility to convey them continuously on their paths.
- Directness: Topeka’s bikeway network should offer cyclists as direct a route as possible with minimum detours or misdirection.
- Safety: Topeka’s bikeway network should maximize bicycle safety, minimize or improve hazardous conditions and barriers, and improve safety for pedestrians and motorists.
- Comfort: Most bicyclists should view the network as within their capabilities without mental or physical stress. As the system grows, it will comfortably meet more types of users’ needs.
- Experience: The Topeka bicycle network should offer its users a pleasant and positive experience that capitalizes on the city’s built and natural environments.
- Feasibility: The Topeka bicycle network should provide more benefits than costs and should be a wise investment of resources, capable of developing in phases and growing over time.

A phased plan was developed to ensure that it could be carried out as funding became available. A pilot system comprised of approximately 30 miles of adapted streets, 2.7 miles of route-related pathways, and 1.8 miles of trails could be developed for \$2.5 million. So far Phase I is complete, Phase II is in the process of being completed, funded from the Countywide ½ Cent sales tax, allocated every other year. Funding is programmed at \$500,000 in FY18 and every other year until 2030. Adding another bicycle connection across the Kansas River will require partnering with KDOT on the US-75 bridge, including connections on both sides of the river.

Recognizing these improvements, the League of American Bicyclists named Topeka a bronze-level Bicycle Friendly Community in 2016, rating Topeka’s public education and bike events as very good and its bicycle-friendly laws and ordinances as good.

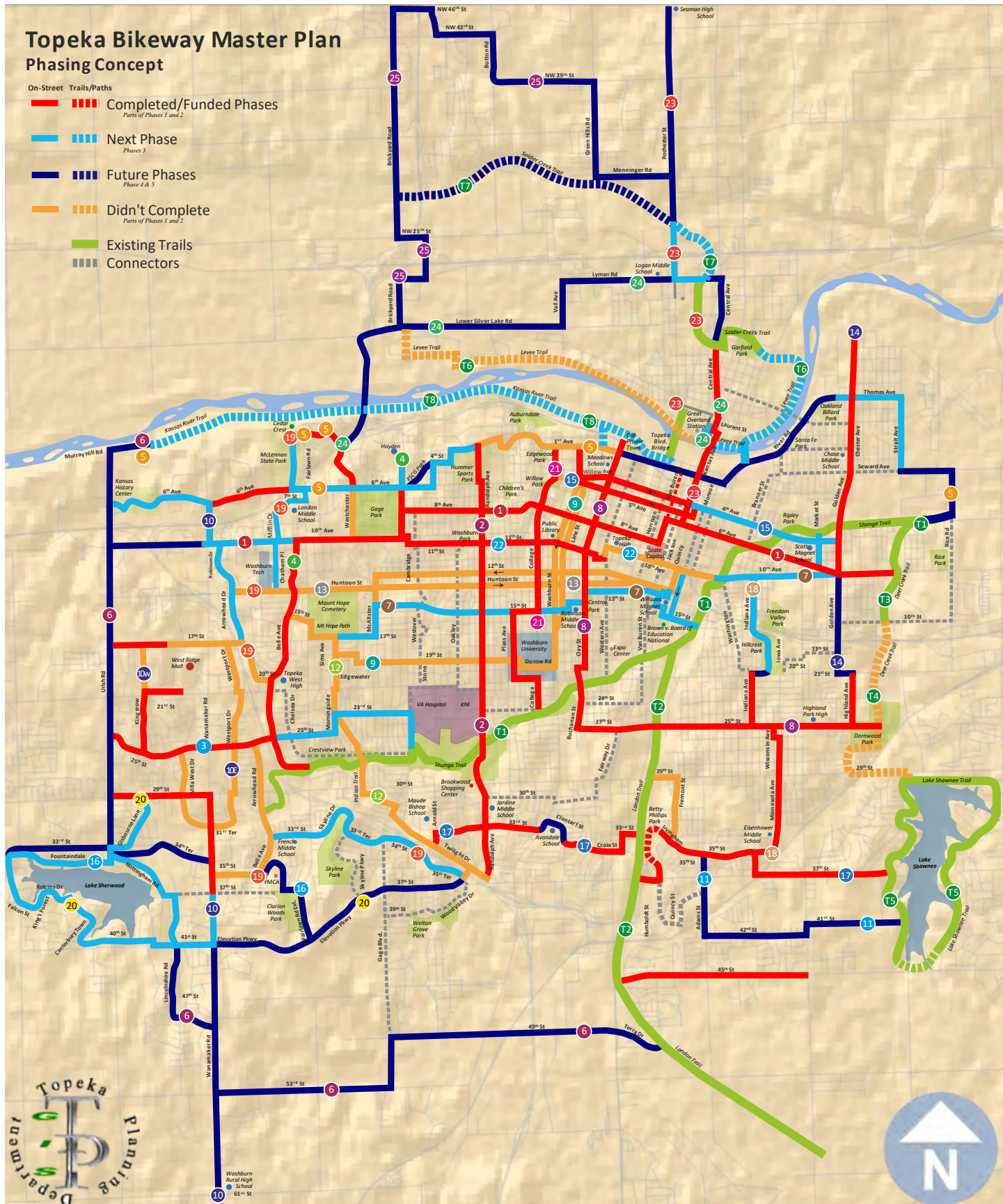


FIGURE 3.76: Topeka Bikeways Master Plan by Infrastructure

Topeka Pedestrian Master Plan

In 2016, the City adopted the Topeka Pedestrian Master Plan to make “Topeka...a walkable city where people of all ages and abilities can safely and comfortably travel on foot.” The plan outlines the development of the area’s pedestrian network that was not planned consistently despite being part of the city since its inception. Following public involvement efforts, the plan recommended four goals:

- **A Complete Pedestrian Network Connecting All Neighborhoods.** Sidewalks improve the safety and comfort of Topekans who walk, and a complete pedestrian network connecting all parts of the city will better facilitate the ability of people to travel by foot, especially to schools, bus stops, community centers, senior centers, and parks and trails.
- **Maintained Sidewalks.** Sidewalks are a major infrastructure investment and maintenance can prevent expensive reconstructions. Maintained sidewalks also safely facilitate the mobility of pedestrians including children, the elderly, and people using assistive devices to travel.
- **Safety and Comfort.** Sidewalks are enhanced by features that improve the safety and comfort of pedestrians. Whether it’s a crosswalk, a bench, or a curb ramp, the details matter, allowing sidewalks to be friendly to everyone who uses the system.
- **A Culture of Walking.** The value that a community places on walking plays a role in determining how likely it is someone will travel as a pedestrian. The more perceptions and the physical environment supports and allows walking, the more walking becomes a part of everyday life.

To focus resources on the most important areas for pedestrians, projects were prioritized based on community input. Eighteen focus areas received field inventories to examine the presence and condition of sidewalks, the quality of corner curb ramps, and the need for crosswalks. Proximity to bus routes, “Intensive Care” neighborhoods, parks and trails, public and private elementary and middle Schools, and streets without sidewalks were most important. Factors considered less important included proximity to arterial and collector streets, commercial areas, community and senior centers, high density residential areas, major destinations, and “At Risk” neighborhoods. These several “high pedestrian demand” neighborhoods were delineated and their improvement costs were compared with available funding. These neighborhoods were further sorted by whether they contained schools. Groups included:

Group A: High pedestrian demand with schools
Funding from 2016-2020

Group B: High pedestrian demand without schools
Funding from 2021-2023

Group C: Low pedestrian demand with schools
Funding from 2024-2025

Group D: Low pedestrian demand without schools
Funding beyond 2025

A fifth group (Group E) also consisted of corridors, complete street linkages, and future areas to complete the network to be improved throughout the process connecting different neighborhoods.

The overall pedestrian plan funding goal is 10 years from adoption, or 2025, including approximately 47 miles of sidewalks, 1,800 curb ramps, and 350 crossings. Funding for pedestrian improvements is expected to come from \$7.7 million in the Capital Improvement Program funds, \$9 million in ½ cent sales tax funds starting in 2020, and \$4.5 million in other local and State grant funds. Upon the complete of the Pedestrian Master Plan, Topeka has begun funding proactive sidewalk repair in the highest priority areas of the city.

To help property owners fund improvements, Topeka uses a voter-approved sales tax to fund the 50/50 Sidewalk Cost Share Program. Each year, funds are set aside to match the cost of sidewalk repairs made by property owners. When a sidewalk in disrepair is the subject of a citizen complaint, the City notifies the property owner of eligibility for the Sidewalk Cost Share Program.

The city’s focus on implementing the Pedestrian Master Plan includes a goal of lining arterials with sidewalks to promote transportation between areas of the City and into the county which will space sidewalks at approximately 1-mile distances across the City. This includes the reconstruction of some arterials that extend into the county which has begun creating the backbone of an MPA-wide active transportation network, as seen south on Wanamaker Street.

Overall, the hope is to provide a bicycle and pedestrian system that proves safe routes to schools, parks, jobs, shopping, and service.

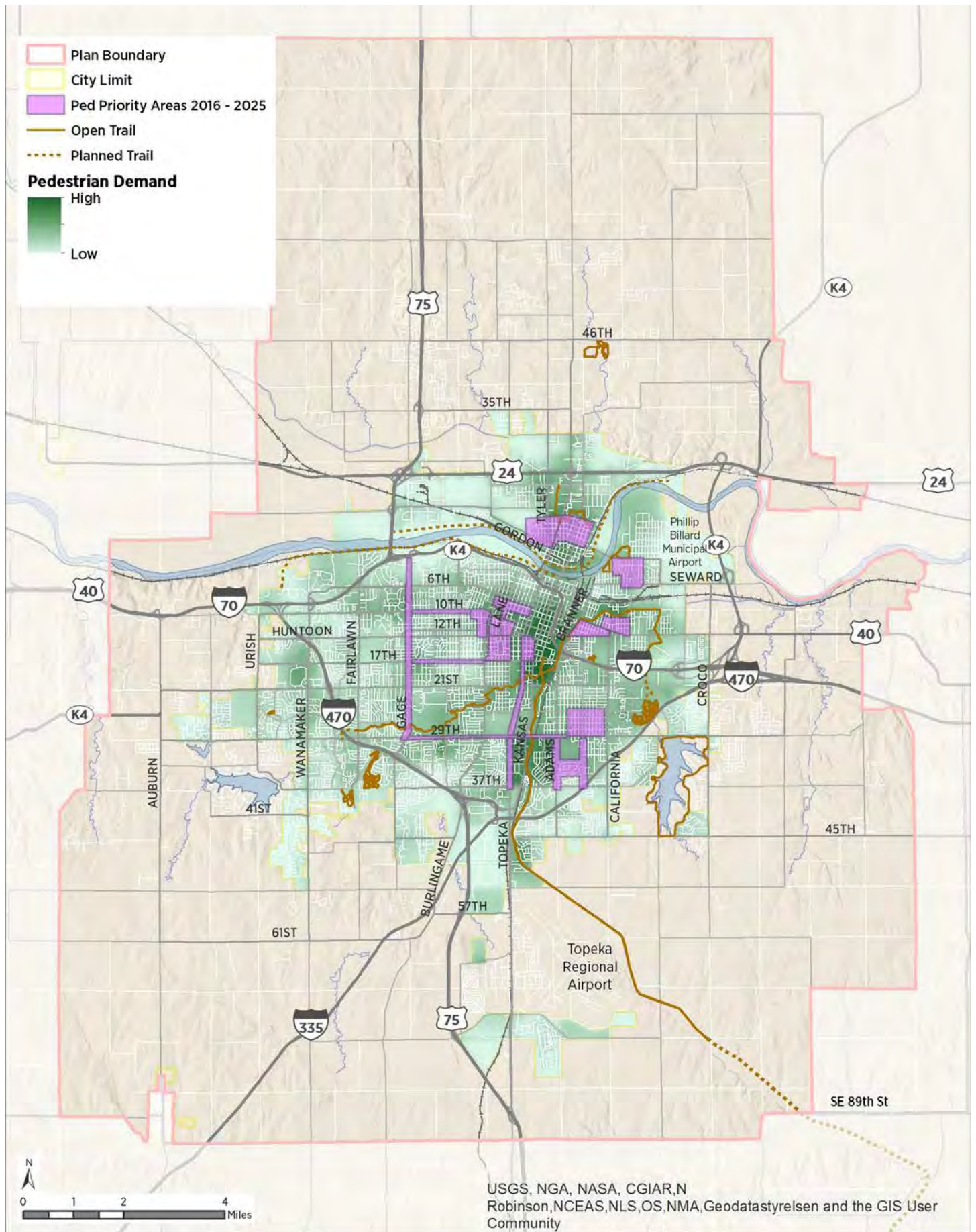


FIGURE 3.78: Pedestrian Master Plan High Demand Focus Areas

FREIGHT AND INTERMODAL CONNECTIVITY

The increasing economic competitiveness among regions within the United States and globalization of the economy has amplified the importance of a metropolitan freight transportation infrastructure. The deregulation of freight transportation dramatically changed business practices and created new competitive opportunities across modes. The changing nature of business practices, with an emphasis on reliable, just-in-time delivery, places a premium on the efficient operation of the freight transportation system. At the same time, the safe and efficient movement of goods increases the burden on the regional infrastructure making maintenance and safety a priority.

Comments from local businesses suggest their primary concern is maintaining the existing transportation infrastructure to support the safe and efficient movement of goods within and through the region.

Globalization of the economy has also changed the transportation and service requirements of shippers, and receivers. Manufacturers can serve markets globally, but this requires a greater reliance on, and greater efficiencies in, the transportation system. The following subsections highlight the current freight transportation environment within the region.

Waterways

Topeka is located in the Kansas/Lower Republican Basin on the banks of the Kansas River. While the flow from the Kansas/Lower Republican Basin discharges into the Missouri River Basin, only the Missouri River is navigable for freight transport in Kansas.

Truck Flows

I-70 is the major freight highway in the Metropolitan Topeka Region. The FHWA Freight Performance Measurement: Travel Time in Freight-Significant Corridors report notes that I-70 runs a total of 2,153 miles connecting ten states through the midsection of the continental United States from Cove Fort, Utah to Baltimore, Maryland. I-70 passes through Denver, CO; Topeka, KS; Kansas City and St. Louis, MO; Indianapolis, IN; Dayton and Columbus, OH; Wheeling, WV; and Hagerstown and Frederick, MD. The western half of I-70, including Topeka, is overwhelmingly rural except for Denver. By contrast, the eastern half, stretching from Kansas City to Baltimore has more closely spaced urban areas and is part of a relatively dense network of Interstates and other major highways. Here traffic volumes and problems caused by intersecting highways are more likely to slow trucks. The stretch of I-70 between Denver and Kansas City, including Topeka, has none of these problems and, therefore, relatively high average truck speeds as seen in Figure 3.79.

Figure 3.80 and 3.81 illustrate the recent (2011) and future year (2040) average daily long-haul freight truck traffic on the National Highway System. Long-haul freight trucks typically serve locations at least 50 miles apart, excluding trucks that are used in movement by multiple modes and mail. While I-70 plays a major role in moving freight across the country, generally truck traffic volumes on I-70 are significantly lower compared to parallel interstate facilities located in Nebraska (I-80) and Oklahoma (I-40).

The 2040 projections anticipate growth in the I-80 and I-40 corridors while I-70 is projected to see a slightly lower growth. Furthermore, I-70 west of Topeka toward Denver is not anticipated to see as significant increase in truck volumes as most of the growth in east-west freight movement is accommodated in the I-80 corridor.

FIGURE 3.79: Average Truck Speeds Along the I-70 Corridor



Source: FHWA Freight Performance Measurement: Travel Time in Freight-Significant Corridors (2006)

FIGURE 3.80: Average Daily Long-Haul Truck Traffic on the National Highway System: 2011



Source: U.S. Department of Transportation, FHWA Office of Freight Management and Operations, Freight Analysis Framework

FIGURE 3.81: Average Daily Long-Haul Truck Traffic on the National Highway System: 2040



Source: U.S. Department of Transportation, FHWA Office of Freight Management and Operations, Freight Analysis Framework

Approximately 60 miles east of Topeka, the Kansas City area serves as one of the nation's leading centers for freight distribution; located at the crossroads of I-70, I-35, and I-29. Figure 3.82 shows the freight delivery times from the region and the importance of the Kansas City/Topeka area.

Major delivery zone cities in Zone 1 include Chicago, Memphis, Omaha, Denver, Des Moines, Minneapolis/St. Paul, Dallas/Fort Worth, and Indianapolis.

Figure 3.83 shows the average annual daily traffic volumes (AADT) on state highways in the region. The top number in each set is the total daily traffic and the bottom number represents commercial truck traffic.

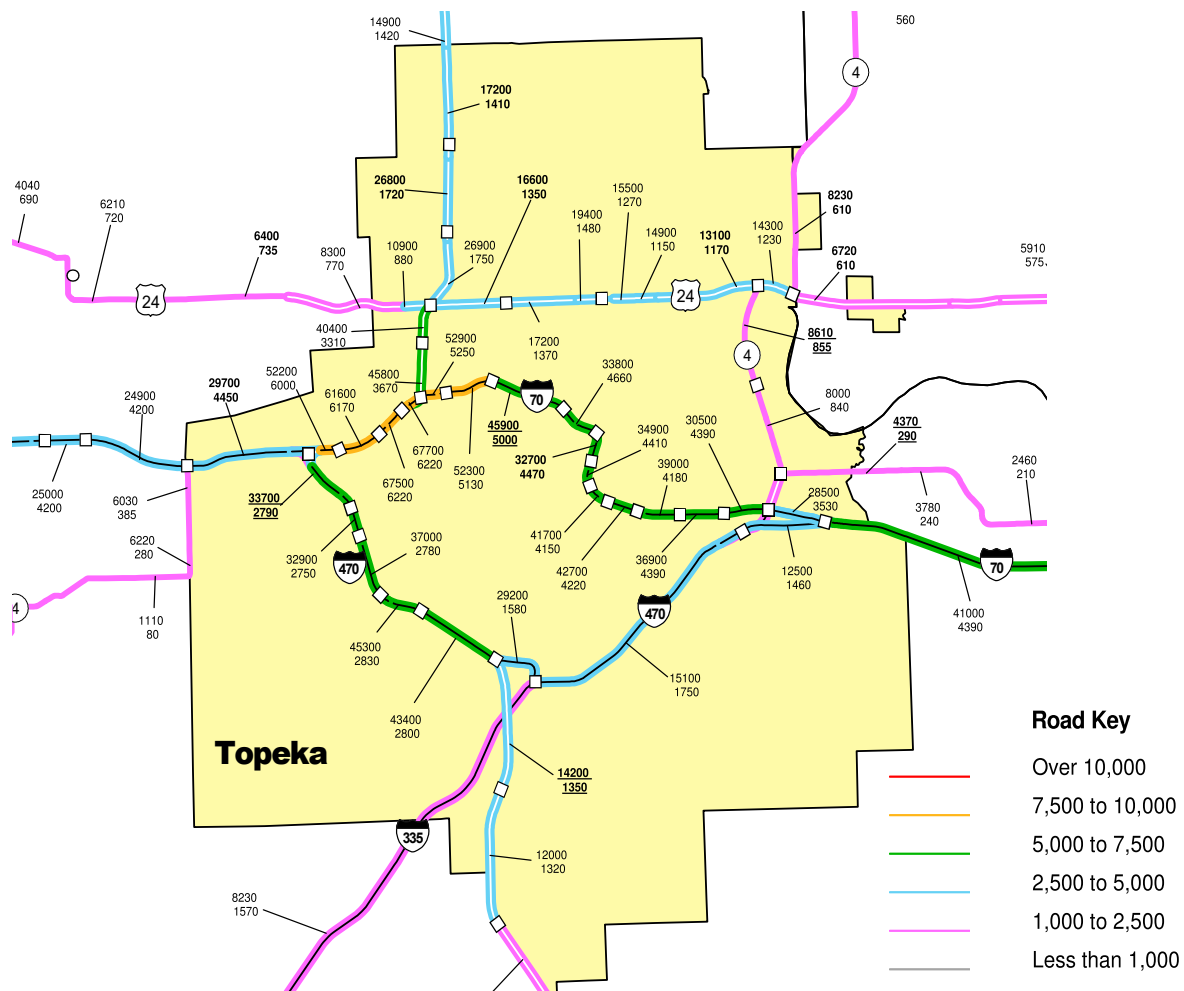
Within Topeka and Shawnee County, I-70 carries the heaviest truck volumes. The highest truck volumes on I-70 occur between I-470 and US-75 with over 6200 heavy commercial vehicles per day. Through downtown Topeka, over 4400 trucks per day travel I-70; similar truck volumes are seen on I-70 east and west of Topeka. The Kansas Turnpike (I-335) south of Topeka carries 1570 commercial vehicles per day while 1720 trucks per day travel US-75 north of Topeka.

FIGURE 3.82: Average Truck Speeds Along the I-70 Corridor



Source: Kansas Department of Commerce

FIGURE 3.83: 2016 Traffic Flow Map (Average Annual Daily Traffic)



Source: Kansas Department of Transportation



Source: City of Topeka, Kansas

FIGURE 3.84: Current and Future Industrial Areas

Figure 3.84 illustrates current and planned industrial land uses with the Topeka Metropolitan Area. The map highlights the important link between current and future freight generators in relationship to the transportation system. As the region grows, achieving greater efficiency in freight movement will support both existing and future economic activity within the region.

As noted in the earlier section on Mobility, congestion on the highway routes used by commercial vehicles is minor and limited to the peak hour (commuting) periods of the day. Travel time reliability is not an issue for the Topeka Metropolitan Area. To see congestion within Topeka’s highways, view Figure 3.85.

In the future, more significant congestion will begin to develop along I-70, especially between I-470 and US-75, as well as near downtown. A more detailed study for the area along I-70 between I-470 and US-75, including US-75 north across the Kansas River, is needed to determine recommended actions. The I-70 Polk-Quincy Viaduct Corridor project, when constructed, will address future congestion near downtown. Note that there also may be demand for a truckstop in Shawnee County in the future.

Rail Freight

The Surface Transportation Board (STB) separates commercial railroad companies into three classes based on adjusted annual operating revenues for three consecutive years:

1. The largest railroad systems are classified as Class I railroads which are the major, main, and branch line operators that have revenues of \$250 million or more per year.
2. Class II railroads average between \$20 and \$250 million in revenue per year.
3. Class III railroads, also known as short-line railroads, have average revenues less than \$20 million per year.

Kansas ranks in the top ten in the United States in railroad mileage, despite the loss of track miles due to abandonments each year. The state’s line-haul railroads totaled 4,776 miles. This total excludes double trackage, spur and business tracks, sidings and yards, and privately owned “not-for-hire” railroads. Railroad miles owned and operated by Class I carriers totaled 2,790 miles, while Class III carriers own and operate 1,986 miles in Kansas.

The region has long been a railroad center and at one time had four different railroad stations in Topeka (Union Pacific, Santa Fe, Missouri-Pacific, and Rock Island). Currently, the region is crisscrossed with mainline track belonging to the Union Pacific (UP) and the Burlington Northern-Santa Fe (BNSF) systems. UP operates a transcontinental corridor through the northeastern corner of the state with as many as 60 trains per day between Topeka and Kansas City. Rail freight services are provided by both railroads operating in

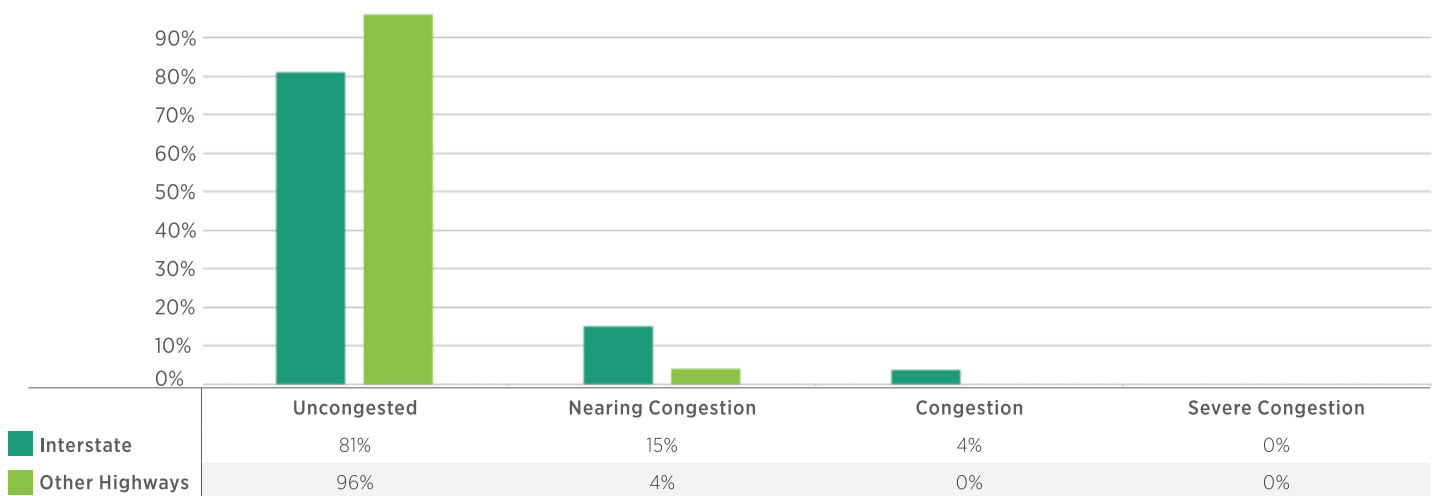


FIGURE 3.85: Freight Movement on Interstate and Other Highways

the region and service is provided to most industrial sites in the area including the grain elevators in North Topeka and the industrial sites near Topeka Regional Airport. The active railroad lines in the region are displayed in Figure 3.86, along with the track mileage in Kansas for the BNSF and UP railroads. The BNSF rail yard is located adjacent to the passenger station. The UP rail yard is located in North Topeka along Gordon Street.

Airport Facilities

Topeka Regional Airport (formerly Forbes Field) is located south of Topeka and east of Topeka Boulevard. The airport has two runways: Runway 13-31 which is 12,802 feet in length and the crosswind runway, which is 7,000 feet in length. The main runway can accommodate virtually any U.S. military or civilian aircraft. A full range of Fixed Base Operator (FBO) services and other services including fuel, maintenance, charter, flight instruction, air ambulance, and freight services are available at Topeka Regional Airport.

HISTORIC TRAIN AT GREAT OVERLAND STATION



Ground transportation to and from Topeka Regional Airport is provided by way of South Topeka Boulevard and the nearby Kansas Turnpike and US-75. Topeka Boulevard is the road that provides direct access to the airport. Near the airport, Topeka Boulevard is a four-lane divided and is classified as a principal arterial street. It provides access to the terminal, civilian aviation areas, and the industrial areas via the airport's local street network. Currently, there is no transit service to the station. Should passenger service be provided, transit connections should be determined.

FIGURE 3.86: Class I Railroads in the Metropolitan Topeka Region



Source: Kansas Department of Transportation



CHAPTER FOUR **FUTURE CONDITIONS**

This chapter investigates future conditions of Topeka, including population, household, and employment projections, future needs for all modes of transportation, and potential transportation investments. To forecast the future, several future transportation scenarios were modeled to investigate a variety of future scenarios. Three select link analyses were also conducted to investigate the impacts of specific connections in the transportation system, and any potential effects on the environment, Environmental Justice (EJ) populations, and land use were also explored for the region.

PROJECTED POPULATION AND EMPLOYMENT GROWTH

Looking forward, the MTPO projected the MPA’s population through 2040. They estimated a 2040 population of 197,942 within the MPA, representing a 27,073 person or 15.8 percent increase from 2015. Of that increase, approximately 14,000 would occur in current city limits and another 6,000 occurring in the City’s Urban Growth Area (UGA) which is intended to be part of the future city limits. That would leave roughly 7,000 people added to the MPA outside the current or future city limits. According to the City’s LUGMP, 11,000 of that population growth is supposed to happen within Topeka’s existing boundaries and UGA. Even though the 2040 estimates for this plan almost double those LUGMP estimates, they are in keeping with the new infill policy re-alignment established by the City’s LUGMP that should result in a higher population growth within the existing/future city limits served by municipal services.

These aggressive estimates are good for modeling purposes so that street capacity issues can be identified better by applying pressure to the system. Even as a robust projection, it is still similar to historic rates in the County during the 2000s. That being said, RTP projections may differ from any official City population estimates in their comprehensive planning efforts, but they do align with their overall adopted policies at a macro level. It is recommended that future

population models for transportation purposes be further fine-tuned using REMI software so that policy implications of the LUGMP can be a substantial influence on population outcomes at the TAZ level as compared to the influence of past population trends, property values, income values, and availability of land.

The MTPO also projected the MPA’s household growth through 2040, estimated to reach 84,594 households in 2040. This represents a 9,647 household or 12.9 percent increase from 2015. Because population is projected to increase at a higher rate than the number of households, the average person per household is expected to increase. This could occur as the Millennial generation has more children.

Figure 4.1 displays projected population change from 2015 to 2040. Assuming the MPA boundaries remain consistent, the population increase will cause the MPA’s population density to raise from 596 to 690 persons per square mile. The greatest increase is projected to occur east of Topeka Boulevard and south of I-470. Significant population increases are also projected for the west side of Topeka, generally extending west of Wanamaker Road, and a few areas north of Topeka. These patterns generally reflect those from the last transportation plan. Some growth areas fall outside the current designated MPA, and as they develop, additional transportation improvements may be needed to accommodate the growth.

FIGURE 4.1: 2040 Topeka MPA Population and Households Estimate

	2015 Estimate	2040 TDM Projection	Change	% Change	Annual Rate of Growth
Population	170,869	197,942	27,073	15.8%	0.59%
Population Density (Pop. / Square Mile)	595.9	690.3			
Households	74,947	84,594	9,647	12.9%	0.49%
Household Density (HH / Square Mile)	261.4	295.1			
Average Household Size (Pop. / HH)	2.28	2.34			

Source: MTPO Estimates by Traffic Analysis Zone

FIGURE 4.2: 2040 Topeka MPA Employment Estimate

	2015 Estimate	2040 TDM Projection	Change	% Change	Annual Rate of Growth
Total Jobs	111,574	129,330	17,756	15.9%	0.59%
Retail Jobs	19,724	27,977	8,253	41.8%	1.41%
Non-Retail Jobs	91,850	101,353	9,503	10.3%	0.39%
Area (Mi2)	389.1	451.1			
Density (Jobs / Mi2)	0.653	0.653			
Jobs Per Person	0.637	0.653			

Source: MTPO Estimates by Traffic Analysis Zone

The MTPO also projected the MPA's employment through 2040, showing an estimated 129,330 jobs in the 2040 MPA. This represents a 17,756 job or 15.9 percent increase from 2015 to 2040. The number of jobs per person is expected to remain consistent through 2040. Another scenario was developed with a more conservative approach to employment growth. That will be described in more detail in the scenarios section of this chapter.

Figure 4.2 displays the projected change in employment from 2015 to 2040. Over this time, the number of jobs per person is estimated to remain relatively constant. The largest job gains are expected to occur along Wanamaker in southeast Topeka. Other employment gains are expected to occur along S Topeka Boulevard and in Topeka UGA. It reflects expected changes in population as much of the growth is expected to occur on the city's fringe.

The trend of fringe development in Topeka has several implications for the transportation system. First, it is more expensive to service lower density development on the fringe as there are fewer taxpayers to cover the costs of their street maintenance. Second, lower density development makes it difficult to provide non-automobile modes of transportation including transit and active transportation infrastructure. This has been more of a problem for the MPA in the past, but with new City policies, these issues can begin to be addressed in a systematic manner.

TRAVEL DEMAND MODELING AND BASELINE CONGESTION

A regional travel demand model (TDM) was developed as an analysis tool to identify where congestion is likely to occur or increase. The model includes all of Topeka and a portion of Shawnee County. The model road network includes highways, arterial streets/roads and collector streets/roads. Projected household and employment data shown previously are used to estimate the number and type of trips on the road network, as well as the routes used.

Traffic volume data from the travel demand model, along with roadway characteristics, such as the number of lanes or functional classifications, are used in defining the quality of traffic operations or level of service (LOS) along a roadway. For LOS, an "A" represents the best rating and "F" the worst. General descriptions of six traffic operation conditions are provided in Figure 4.3. The table also notes the traffic volume-to-capacity ratios used for this RTP and how they correspond to each LOS. The capacity of a roadway is the maximum volume that can be carried during a defined period.

FIGURE 4.3: Traffic Operation Conditions (LOS)

Level of Service	Volume to Capacity	Description
A	0.00-0.60	Represents free flow, the least congested condition. Individual users are virtually unaffected by the presence of others in the traffic stream. Allows users to select desired speeds and to maneuver freely within the traffic stream.
B	0.61-0.70	Within the range of stable flow, but the presence of others in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A.
C	0.71-0.80	Within the range of stable flow, but LOS C marks the beginning of flow in which the operation of individual users becomes affected by interactions with others in the traffic stream.
D	0.81-0.90	LOS D represents high-density, but stable flow. Speed and freedom to maneuver are restricted, and the driver experiences a poor level of comfort and convenience.
E	0.91-1.00	LOS E represents operating conditions at or near capacity (maximum traffic) levels. Freedom to maneuver within the traffic stream is difficult. Comfort and convenience levels are poor and driver frustration is high.
F	>1.00	LOS F is used to define forced or breakdown flow, the most congested condition. It exists when the amount of traffic desiring to use a roadway exceeds the maximum volume that can be accommodated during a given period of time.

2040 Baseline: Existing Road Network Plus Committed Projects

Future conditions were determined using the regions year 2040 travel demand model. The 2040 “Existing + Committed Projects” (E+C) model incorporated the forecasted socioeconomic data for 2040 and the following changes to the roadway network:

- Widen Urish Road from 17th to Huntoon - 2 lanes to 4 lanes
- Widen Deer Creek Bridge on SE 29th Street NW end of Shawnee Lake - 2 lanes to 4 lanes
- Widen SE California Avenue between SE 29th Street and 33rd Street - 2 lanes to 4 lanes
- Widen SW 37th St. between Scapa Place and Burlingame Road - 2 lanes to 4 lanes

Figure 4.4 notes the changes in miles traveled each day, hours traveled, and the expected delays to motorists that can be expected in the year 2040 for the E+C roadway network.

Delay on area roads is expected to more than double between the years 2015 and 2040, growing from 2,384 hours of delay per day in 2015 to 5,641 hours of delay in 2040. By the year 2040, I-70 and many of the region’s arterial streets will become more congested. Of particular concern, is I-70 between I-470 and MacVicar Avenue as well as I-70 through downtown Topeka. In fact, Interstates alone account for 58 percent of the expected increase in delay

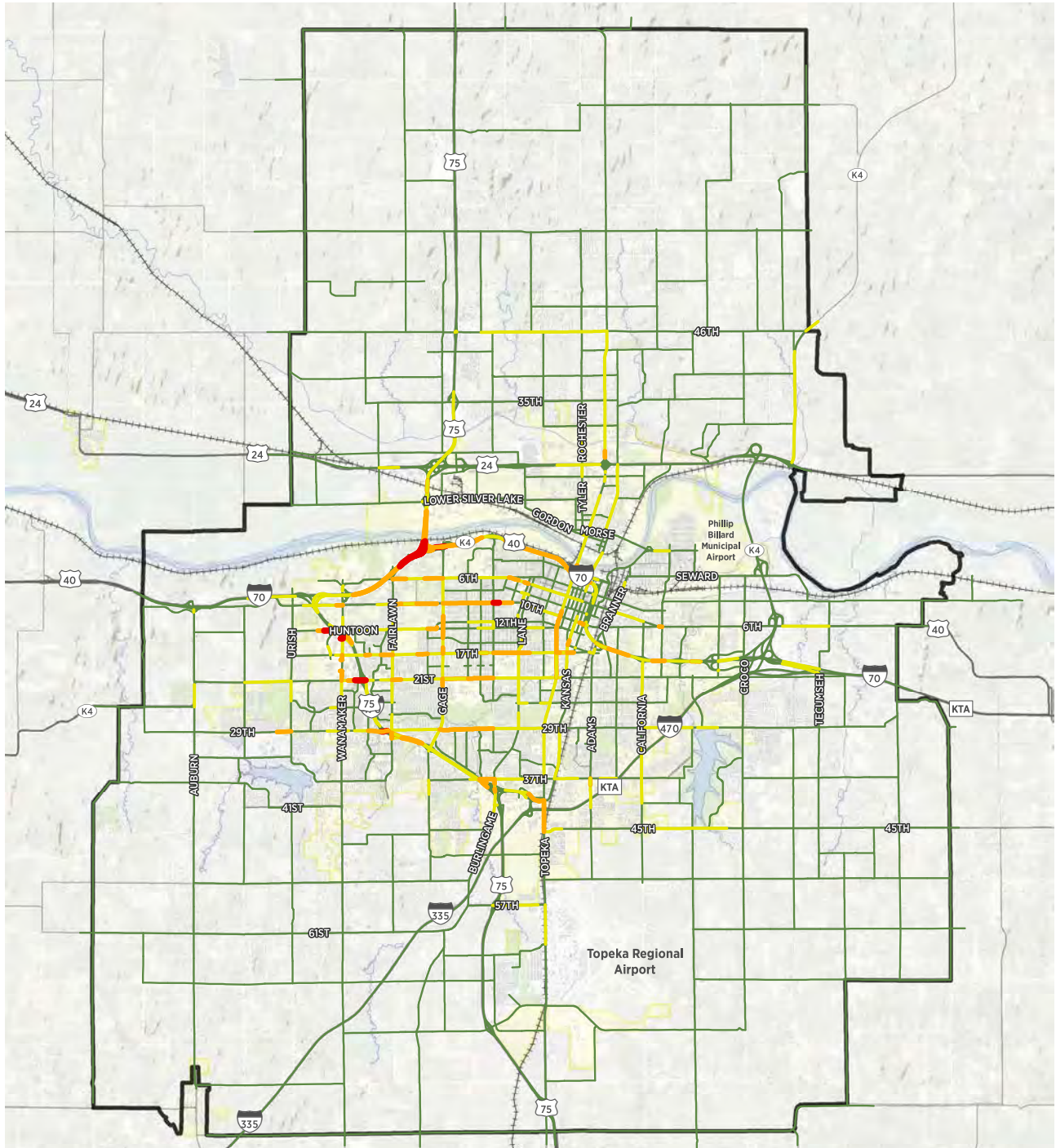
VMT and VHT are also expected to increase by 31.1 percent and 31.6 percent respectively. This suggests that VMT and VHT will increase at approximately double the rate of the new population and jobs.

Figure 4.5 shows the year 2040 traffic conditions for the existing roadway network plus any roadway capacity improvements for which funding is currently committed. It also uses the projected 2040 population and employment estimates. The 2040 E+C road network indicates worsening congestion on I-70, portions of I-470, and several arterial streets including Wanamaker Road, Gage Boulevard, Topeka Boulevard, 6th Street, 10th Street, 17th Street, 21st Street, and 29th Street.

FIGURE 4.4: 2040 E+C Road Network Traffic Conditions

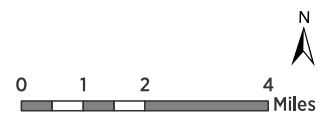
Roadway Type	VMT (Miles)	VHT (Hours)	Lane Miles	Delay (hours)
Interstate	1,413,961	24,673	169	3,047
Expressway	690,342	11,237	115	98
Major Arterial	1,260,877	33,486	267	1,794
Minor Arterial	845,460	21,597	267	662
Collector	447,426	10,898	459	40
Total	4,658,066	101,891	1,277	5,641

Source: Regional Travel Demand Model



Topeka Regional Transportation Plan

- Plan Boundary
- Railroad Lines
- Water Bodies
- Parks
- City Limits
- 2040 Road Network
- Volume over Capacity
- 0.00 - 0.59
- 0.60 - 0.79
- 0.80 - 0.99
- 1.00 - 1.33



Source: Regional Travel Demand Model

FIGURE 4.5: Estimated Congestion, Existing + Committed Roadway Network

POTENTIAL CAPACITY EXPANSION PROJECTS

Several projects have been identified as potential improvements that could be made to the Topeka MPA's streets to improve traffic congestion. Projects were chosen based off existing projects lists, projected congestion, and other similar factors. All expand the capacity of certain roads. While other projects are also considered later in this document, these were the ones that would affect capacity. Projects identified as potential improvements include:

- Widen I-70 to 6 lanes from I-470 to NW Topeka Boulevard
- I-70 Polk-Quincy Viaduct Corridor
 - » Incorporate the preferred alternative from I-70 Polk-Quincy Viaduct Corridor Study
 - » Construct the “west project” of the I-70 Polk-Quincy Viaduct Corridor, that includes widening I-70 to 6 lanes from NW MacVicar Avenue to NW Topeka Boulevard
- Widen the WB I-70 to I-470 ramp to 2 lanes and the I-470 ramp to EB I-70 to 2 lanes
- Widening US-75 to 6 lanes between I-70 and US-24
- Widen the US-75 to WB I-70 ramp to 2 lanes and EB I-70 ramp to US-75 to 2 lanes
- Remove Danbury Lane exit on I-70
- Widen 10th Street - from SW Chatham Place to SW Mulvane Street - 2 lanes to 4 lanes
- Widen 17th Street - from SW Urish Road to SW MacVicar Avenue (not including the north side of Washburn campus) - 2 lanes to 4 lanes
- Widen 29th Street - from SW Arrowhead Road to SW Burlingame Road - 4 lanes to 6 lanes
- Widen Topeka Boulevard - from SE 10th Street to SE 17th Street and from Kansas Avenue/KTA Toll Plaza access to SE 45th Street - 4 lanes to 6 lanes
- Construct the Southwest Parkway - from SW 41st Street/ SW Wanamaker Road to SW 37th Street/SW Gage Blvd - new 2 lane arterial, with a connection to SW Fairlawn Road

These were then tested through three different scenarios.

FUTURE PROJECT SCENARIOS

Three roadway project scenarios were analyzed and compared to the 2040 “Existing Road Network plus Committed Projects” (E+C) results to determine the extent to which they reduce delays.

2040 Alternative 1: Highway Scenario

The first scenario focused on improvements to the highway system alone to determine whether increased capacity in selected locations would address the expected congestion on these routes as well as have a positive impact on arterial streets. Scenario 1 updated the 2040 Existing + Committed highway network to include:

- Widen I-70 to 6 lanes from I-470 to NW Topeka Boulevard
- Incorporate the preferred alternative from I-70 Polk-Quincy Viaduct Corridor Study
- Widen the I-70 westbound to I-470 ramp to 2 lanes and the I-470 ramp to eastbound I-70 to 2 lanes
- Widening US-75 to 6 lanes between I-70 and US-24
- Widen the US-75 to westbound I-70 ramp to 2 lanes and eastbound I-70 ramp to US-75 to 2 lanes
- Remove Danbury Lane exit

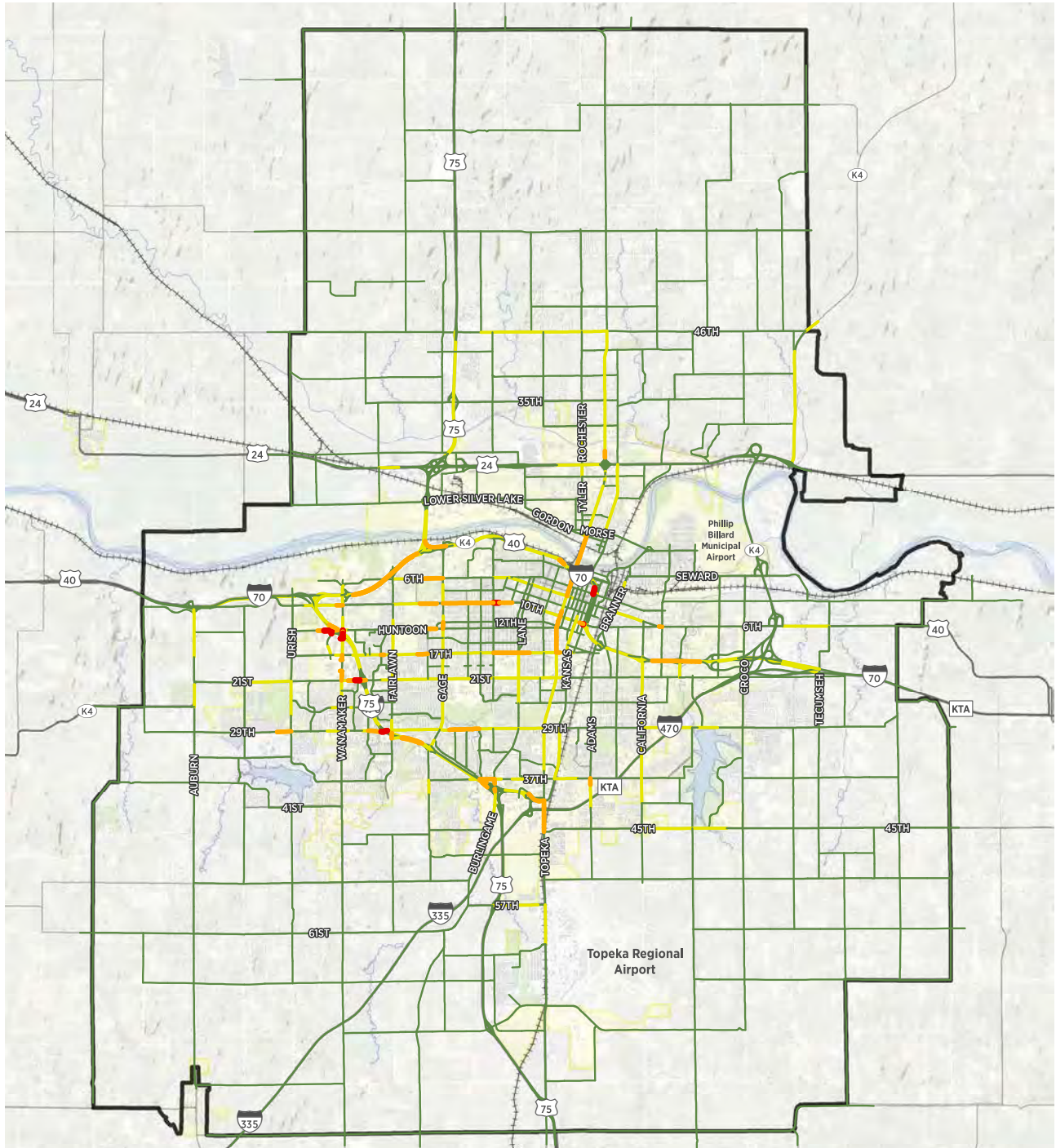
Figure 4.7 shows the levels of congestion that would be expected with Scenario 1.

This scenario reduces congestion on the Interstate highways, especially I-70. Daily hours of delay on these highways are reduced by approximately 26 percent. It also benefits arterial streets by reducing delay by over 17 percent. However, it increases VMT by 0.9 percent, resulting in additional driving. Figure 4.6 notes miles traveled each day, hours traveled, and the delays to motorists that can be expected in the year 2040 if the improvements assumed in Scenario 1 were constructed. This scenario reduces the overall daily delay to motorists from 5,641 hours expected in the year 2040 (2040 E+C) to 4,399 hours.

FIGURE 4.6: 2040 Alternative 1 (Highway Scenario) Traffic Conditions

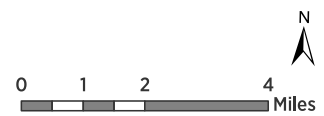
Roadway Type	VMT (Miles)	VHT (Hours)	Lane Miles	Delay (hours)
Interstate	1,551,407	26,023	184	2,247
Expressway	687,141	11,106	118	22
Major Arterial	1,209,673	31,804	267	1,486
Minor Arterial	814,825	20,576	267	538
Collector	439,056	10,691	463	106
Total	4,702,103	100,200	1,299	4,399

Source: Regional Travel Demand Model



Topeka Regional Transportation Plan

- Plan Boundary
- Railroad Lines
- Water Bodies
- Parks
- City Limits
- 2040 Road Network Alternative 1
- Volume over Capacity
- 0.00 - 0.59
- 0.60 - 0.79
- 0.80 - 0.99
- 1.00 - 1.36



Source: Regional Travel Demand Model

FIGURE 4.7: Alternative 1 (Highway) Projected Congestion

2040 Alternative 2: Arterial Scenario

The second scenario focused on improvements to the arterial street network in the City of Topeka. This scenario investigated whether improvements to city arterial streets would address those facilities as well as provide alternatives to highway travel for some trips, thereby improving traffic flow on the highways. Scenario 2 updated the 2040 Existing + Committed roadway network to include:

- Widen 10th Street - from SW Chatham Place to SW Mulvane Street - 2 lanes to 4 lanes
- Widen 17th Street - from SW Urish Road to SW MacVicar Avenue (not including the north side of Washburn campus) - 2 lanes to 4 lanes
- Widen 29th Street - from SW Arrowhead Road to SW Burlingame Road - 4 lanes to 6 lanes
- Widen Topeka Boulevard - from SE 10th Street to SE 17th Street and from Kansas Avenue/KTA Toll Plaza access to SE 45th Street - 4 lanes to 6 lanes
- Construct the Southwest Parkway - from SW 41st Street/ SW Wanamaker Road to SW 37th Street/SW Gage Boulevard - new 2 lane arterial, with a connection to SW Fairlawn Road

Figure 4.8 shows the levels of congestion that would be expected with Scenario 2.

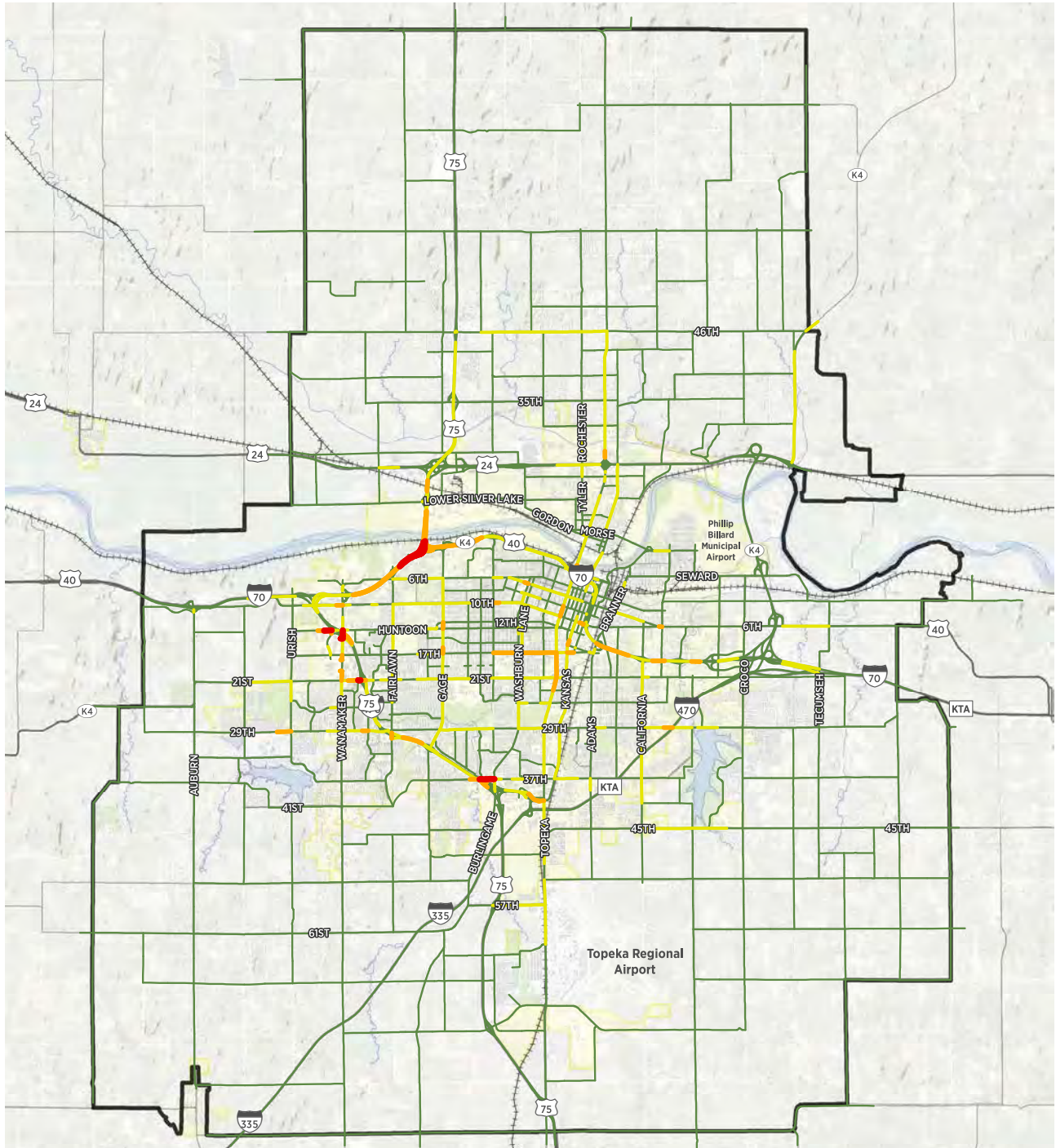
Figure 4.9 notes miles traveled each day, hours traveled, and the delays to motorists that can be expected in the year 2040 if the improvements assumed in Scenario 2 were constructed. This scenario reduces the daily delay to motorists from 5,641 hours expected in the year 2040 (2040 E+C) to 4,858 hours.

This scenario reduces delays on arterial streets by 21 percent and reduces delays on Interstate highways by 8 percent. It also results in effectively no additional VMT.

FIGURE 4.8: 2040 Scenario 2 (Arterial Streets Scenario) Traffic Conditions

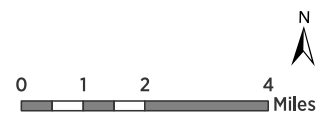
Roadway Type	VMT (Miles)	VHT (Hours)	Lane Miles	Delay (hours)
Interstate	1,400,212	24,200	169	2,791
Expressway	685,606	11,158	115	97
Major Arterial	1,260,911	33,037	275	1,347
Minor Arterial	880,375	22,375	287	586
Collector	431,443	10,482	459	37
Total	4,658,546	101,252	1,305	4,858

Source: Regional Travel Demand Model



Topeka Regional Transportation Plan

- Plan Boundary
- Railroad Lines
- Water Bodies
- Parks
- City Limits
- 2040 Road Network Alternative 2
- Volume over Capacity
- 0.00 - 0.59
- 0.60 - 0.79
- 0.80 - 0.99
- 1.00 - 1.30



Source: Regional Travel Demand Model

FIGURE 4.9: Alternative 2 (Arterial) Projected Congestion

2040 Alternative 3: Hybrid Scenario

The third scenario incorporates elements from Scenarios 1 and 2. This scenario investigated whether selected projects from the first two scenarios could have a higher impact on congestion and delay. Scenario 3 updated the 2040 Existing + Committed roadway network to include:

- Construct the “west project” of the I-70 Polk-Quincy Viaduct Corridor, that includes widening I-70 to 6 lanes from NW MacVicar Avenue to NW Topeka Boulevard
- Widen 10th Street - from SW Chatham Place to SW Mulvane Street - 2 lanes to 4 lanes
- Widen 17th Street – from SW Urish Road to SW MacVicar Avenue (not including the north side of Washburn campus) - 2 lanes to 4 lanes
- Widen 29th Street - from SW Arrowhead Road to SW Burlingame Road - 4 lanes to 6 lanes
- Widen Topeka Boulevard - from SE 10th Street to SE 17th Street and from Kansas Avenue/KTA Toll Plaza access to SE 45th Street - 4 lanes to 6 lanes
- Construct the Southwest Expressway - from SW 41st Street/SW Wanamaker Road to SW 37th Street/SW Gage Blvd - new 2 lane arterial, with a connection to SW Fairlawn Road

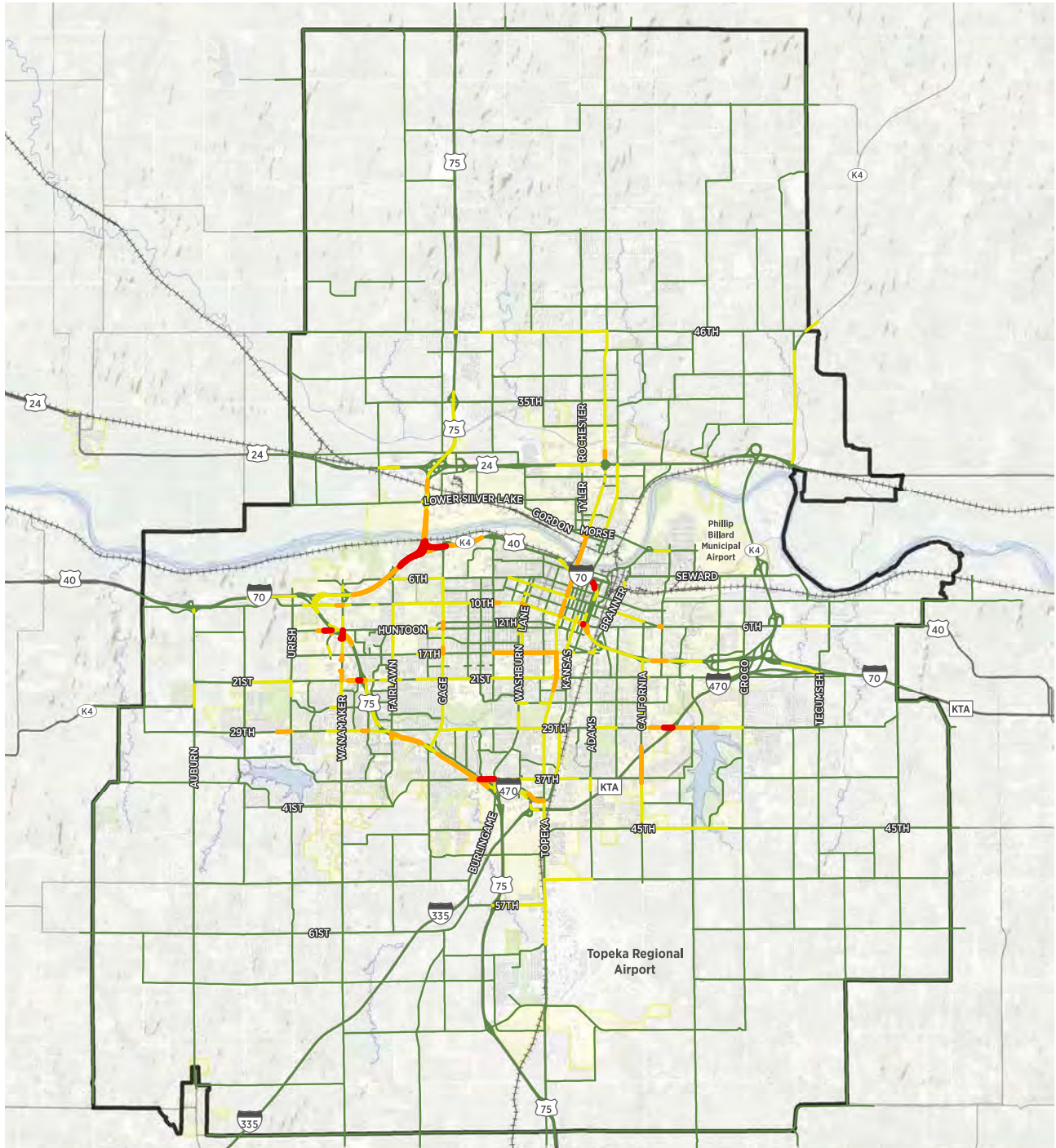
Figure 4.10 notes miles traveled each day, hours traveled, and the delays to motorists that can be expected in the year 2040 if the improvements assumed in Scenario 3 were constructed. This scenario reduces the daily delay to motorists from 5,641 hours expected in the year 2040 (2040 E+C) to 4,894 hours.

Figure 4.11 shows the levels of congestion that would be expected with Scenario 3. This scenario reduces delays on arterial streets by 18 percent and reduces delays on Interstate highways by 11 percent. While it does increase VMT, it does so by only 0.1 percent.

FIGURE 4.10: 2040 Scenario 2 (Arterial Streets Scenario) Traffic Conditions

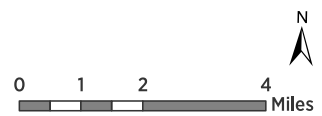
Roadway Type	VMT (Miles)	VHT (Hours)	Lane Miles	Delay (hours)
Interstate	1,442,313	24,740	176	2,717
Expressway	676,267	10,998	115	95
Major Arterial	1,244,137	32,616	275	1,422
Minor Arterial	868,344	22,033	287	582
Collector	429,389	10,428	464	76
Total	4,660,449	100,816	1,317	4,894

Source: Regional Travel Demand Model



Topeka Regional Transportation Plan

- Plan Boundary
- Railroad Lines
- Water Bodies
- Parks
- City Limits
- 0.00 - 0.59
- 0.60 - 0.79
- 0.80 - 0.99
- 1.00 - 1.30



Source: Regional Travel Demand Model

FIGURE 4.11: Alternative 3 (Hybrid) Projected Congestion

FIGURE 4.12: Comparison of Miles Traveled, Hours Traveled and Delay for each of the Model Runs

2015 Base Year	1,660	3,783,586	85,669	2,384
2040 Existing + Committed Projects (E+C)	1,664	4,968,213	113,042	5,641
2040 Alternative 1 - Highways Scenario	1,685	5,010,452	111,030	4,399
2040 Alternative 2 - Arterials Scenario	1,692	4,961,995	112,125	4,858
2040 Alternative 3 - Hybrid Scenario	1,703	4,967,643	111,674	4,894
Collector	429,389	10,428	464	76

Source: Regional Travel Demand Model

FIGURE 4.13: Comparison of Delay for each Model Run by Road Type

Roadway Type	Daily Delay (Hours)			
	2040 E+C	Highway Scenario	Arterial Scenario	Hybrid Scenario
Interstate	3,047	2,247	2,791	2,717
Expressway	98	22	97	95
Major Arterial	1,794	1,486	1,347	1,422
Minor Arterial	662	538	586	582
Collector	40	106	37	76

Source: Regional Travel Demand Model

FIGURE 4.14: Environmental Impacts

	1 - Highways Scenario	2 - Arterials Scenario	3 - Hybrid Scenario
Air Quality	-	+	0
Water Quality	0	0	0
Soil Quality	0	-	-
Economic Vitality	++	+	++
Land Use Impacts	-	+	0
Aesthetic Value	+	-	+
Noise pollution and Vibration	0	-	0
Displacement	-	0	-
Community Cohesion	0	0	0
Traffic Congestion	++	+	+
Impacts on EJ population	0	+	+

Source: Regional Travel Demand Model

Scenario Comparison

Table 4.12 provides a summary of information for the 2015 Base Year, the 2040 E+C network, and the three alternative roadway network scenarios. Figure 4.13 compares traffic delay in the year 2040 for the E+C network and each of the three alternatives.

The Hybrid Scenario results in the most total lane-miles, though all scenarios increase them over the baseline. When it comes to VMT, the highway scenario adds the most, while both the Arterials and Hybrid Scenarios reduce VMT. All scenarios reduce VHT, but the Arterials Scenario reduces it the most, followed by the Hybrid Scenario. While the Highways Scenario reduces it the most, both the others also reduce delay.

In terms of road types, the Highway Scenario brings drastic reductions to Interstate and Expressway delay, followed by the hybrid scenario which has more modest gains. The Arterial Scenario reduces delay in major arterials and collectors the most, followed by the Hybrid Scenario. Overall, the Hybrid Scenario brings modest gains in all categories other than collector streets.

In support of linking planning and NEPA, the MTPO evaluated each of the roadway projects included in the RTP for potential impacts to the environment and community. The broad environmental categories considered for each of the projects are listed below:

- Environmental Factors
- Economic Factors
- Quality of Life Factors
- Effect on EJ Populations

For this broad environmental evaluation, the MTPO identifies potential impacts only using data from the Travel Demand Model and related studies. This analysis is general, and project sponsors are still responsible for environmental clearance documentation to comply with appropriate environmental regulations where applicable.

These factors are described in more detail below. Note that these impacts are considered for the purposes of identifying a preferred scenario. There is no formalized scoring system, however. In addition, the temporary slowing or removal of traffic from construction areas are not considered as they are not permanent effects. In the futures, projects could be rated on a project-by-project basis.

Environmental factors include:

- **Air Quality:** For transportation systems, automobile emissions have the largest impact on air quality. The Highways Scenario is expected to increase VMT by 0.9 percent over the 2040 baseline, a relatively minor increase in driving. The Arterials Scenario decreases VMT over the baseline, by 0.1 percent. The Hybrid Scenario results in no real change in VMT. Overall, minor differences in air quality are expected from these three scenarios.
- **Water Quality:** No scenario is expected to have a substantial impact on water quality. Impacts on flood plains should be examined as projects move forward.
- **Soil Quality:** The Highway Scenario is unlikely to have substantial impact on soil quality as most projects are within previously developed areas. The same is true of the Arterial and Hybrid Scenario, except that the SW Connector will be constructed on previously undeveloped ground. This will likely have a slight impact on soil quality in the area.

Economic Factors include:

- **Economic Vitality:** All scenarios have the potential to improve economic vitality by increasing mobility. The Highways and Hybrid scenario would also improve important truck routes, likely leading to more improvements for economic vitality than for the Arterial Scenario.
- **Land Use Impacts:** Improving high speed roadways like highways may induce sprawl further from the City. This is a possible impact of the Highway Scenario. Meanwhile, the Arterial Scenario improves access within the City which is unlikely to induce sprawl. However, the SW Connector will likely allow the conversion agricultural-transition land to residential land. This is likely a positive impact as it is contiguous with existing residential land uses. However, improvements are located within the developed area and do not fundamentally change any land uses

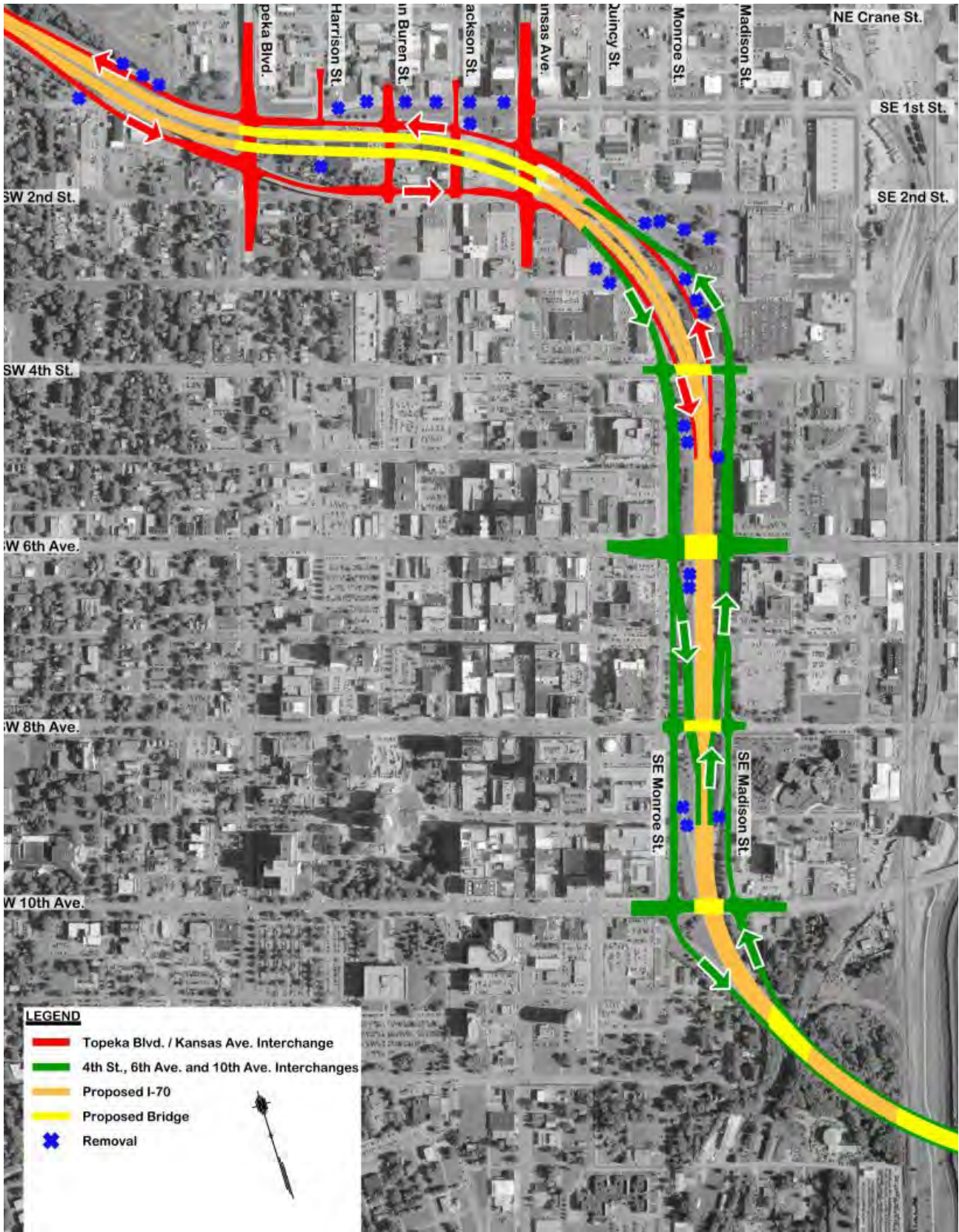
Quality of Life Factors include:

- **Aesthetic Value:** Improvements to I-70, as would occur in the Highways and Hybrid Scenario have the potential to improve aesthetics of highways. Some arterial improvements as would occur in the Arterials and Hybrid Scenario may impact the aesthetics of smaller roadways as they are widened; however, the role of roads will not change, meaning relatively little overall aesthetic impact is expected.
- **Noise pollution / Vibration:** Noise pollution and vibration can be approximated by expected speeds and VMT. The Highway Scenario decreases VMT on all roads but Interstates. Since these already have high traffic volumes and high speeds, no additional impact is expected. The Arterials Scenario increases VMT on minor arterials, but decreases VMT per lane mile. VMT also decreases or has similar VMT for other road types. As a result, it is expected to have a minor negative impact. Finally, the Hybrid Scenario suggests that there will be increases in VMT on highways and minor arterials, but decreases VMT per lane mile on minor arterials. Again, this is expected to have a minor negative affect.
- **Displacement:** The only expected displacement impacts expected are for the Polk Quincy Viaduct project. According to the I-70 Polk-Quincy Viaduct Concept Design Study, 45 properties and 9 residences may be impacted by the project. Most other projects should have limited affect. As a result, only the Highway and Hybrid Scenarios are expected to have any displacement impact.
- **Community Cohesion:** No scenario is expected to impact community cohesion as most projects are either reconstructing existing facilities or improve the connectivity of the city's roadway system.
- **Traffic Congestion:** All projects are expected to reduce congestion and delays. The Highways Scenario reduces delay by 22 percent. The Arterials and Hybrid Scenarios decrease delay by 14 and 13 percent respectively.
- **EJ Impacts:** To investigate impacts for EJ populations, congested roads (defined as an LOS of D or lower) in EJ areas is compared as a proportion of congested roads in the entire system. The 2040 Baseline shows 59.3 percent of the congested roadways are found in EJ areas. While this suggests that minority and low income populations may be disproportionately impacted by congestion in 2040, this is because they tend to be areas with higher densities of jobs and residences.
 - » The Highways Scenario: reduces the mileage of congested roads in the total system and in EJ areas. However, non-EJ areas of the City benefit more from reductions in congested roads, causing the percentage of congested roads in EJ areas to increase compared to the entire system. This is not a disproportionate negative impact, but it does indicate that non-EJ areas disproportionately benefit from a Highway Scenario.
 - » The Arterials Scenario: also reduces congested roadways in both EJ areas and in the total system. Overall, EJ areas benefit more from the improvement of arterials compared to the total system, with the percent of congested roadways in EJ areas decreasing.
 - » The Hybrid Scenario: also reduces congestion in both EJ areas and in the total system, although to a lesser extent. However, improvements again benefit EJ more than in the baseline, reducing the percentage of congested roads to 57 percent of the systems' roads.

FIGURE 4.15: EJ Scenario Comparison


	2040 Baseline	1 - Highways Scenario	2 - Arterials Scenario	3 - Hybrid Scenario
Congested Roads in EJ Areas (in miles)	15.24	10.5	8.71	11.39
Congested Roads in Entire System (in miles)	25.72	16.54	15.55	19.89
Percent of Congested Roadways in EJ Areas	59.3%	63.5%	56.0%	57.3%

Source: Regional Travel Demand Model



Source: I-70 Topeka Polk-Quincy Viaduct Concept Design Study

FIGURE 4.16: Map of the Proposed Polk-Quincy Viaduct Realignment, Including Potentially Affected Properties



CHAPTER FIVE

FINANCIAL ANALYSIS

To ensure that the projects selected for the Regional Transportation Plan (RTP) are financially feasible, the plan is fiscally constrained to align the estimated costs of selected projects with the region's anticipated funding. This chapter provides necessary background information and revenue projections to demonstrate that there are available funds to cover the costs of this plan. The chapter includes sources of revenue, the revenue forecasting methodology, and the amount of funding expected for the Metropolitan Topeka Planning Organization (MTPO) to improve the region's transportation system through 2040. However, actual funding for transportation projects depends on future decisions made at the national, state and local levels.

KDOT FUNDING REVENUE HISTORY AND PROJECTIONS

In May 2010, the Kansas Legislature passed the transportation program, Transportation Works for Kansas (T-WORKS) that covers a 10- year period from FY 2011 through FY 2020. Under the direction of T-WORKS, KDOT developed a more strategic approach to highway project selection. In T-WORKS, while engineering factors are still used to select projects, they have been augmented with economic impact evaluation and/or local input whenever practical.

Under T-WORKS construction projects are categorized into four core programs:

- **Preservation:** engineering factors are an effective evaluation method for project selection and remain the sole factor used for selecting projects in this program to maintain and preserve the “as built” condition of highways and bridges.
- **Modernization:** project selection combines historically strong engineering-based formulas with regional priorities to improve highways to meet current design guidelines. Projects under this program are designed to enhance safety and/or improve roadways by adding shoulders, flattening hills, straightening curves and upgrading intersections on already existing roadways.
- **Expansion:** project selections combines engineering factors with regional priorities and economic impacts to expand and enhance the transportation system. Projects in this program concentrate on improving access by adding new lanes or interchanges, reducing commute time and improving air quality by relieving congestion and enhancing economic development in a region by selecting projects with high economic impact.
- **Local Construction:** focuses on improvements to city or county roads. The work encompassed by this program is varied in nature ranging from safety oriented, to maintenance of existing roadway, to small-scale expansion type projects. Cities and counties work in partnership with KDOT to utilize state and federal funds.

source: KDOT 2016 Annual Report (Appendix)

KDOT MAJOR PROJECT CATEGORIES:

PRESERVATION

Projects that maintain the existing infrastructure.

MODERNIZATION

Projects that address vertical and horizontal alignment issues.

EXPANSION

Projects that add lanes or new interchanges.

Historic Data for Preservation, Modernization and Expansion (PM&E)

Revenue projections for the Kansas Department of Transportation (KDOT) are based on historic and estimated data provided by KDOT for the years 1979 through 2020 for all Shawnee County. From 1979 through the T-WORKS, the current state transportation program, KDOT invested \$553.1 million in preserving, modernizing and expanding the state highway system throughout Shawnee County, including its several cities.

Figure 5.1 displays the total actual dollars spent on the state highway system in Shawnee County from 1979 through 2016 and estimated project costs from 2017 through 2020. Historic spending levels are reported as to which state program they were part of without differentiating between federal and state funding for projects. Average annual funding for state highway projects varies greatly between programs with the fluctuation in total dollars attributed to funding large scale projects on an as needed basis. In T-WORKS, the program from 2010 to 2020, KDOT committed to spending \$144.9 million on projects in Shawnee County, averaging to \$13.2 million annually.

Revenue Projection for Preservation, Modernization and Expansion (PM&E) Projects

Projections for the RTP use the average annual historic spending by KDOT in Shawnee County from 1980 through 2020, inflated by a one percent (1%) linear growth of \$168,233 per year. For convenience, the financial forecast summarized in Figure 5.2 was aggregated into 5-year blocks, except for the years from 2017 through 2020 which represent 4-years or the remainder of T-WORKS. A complete year-by-year table can be found in the Appendix.

The \$52.7 million for 2017 to 2020 have already been committed to projects as part of T-WORKS. Subtracting this from the total leaves an estimate of \$461,150,000 for future preservation, modernization and expansion projects between 2021 and 2040.

FIGURE 5.1: Historic Data for State Highway PM&E Projects (1990-2020)

State Program	Fiscal Years	Program Total	Annual Average
Comprehensive Highway Program	1990-1997	\$196,800,000	\$24,600,000
Interim Program	1998-1999	\$57,000,000	\$5,181,818
Comprehensive Transportation Program	2000-2009	\$106,000,000	\$10,600,000
T-Works	2010-2020	\$144,900,000	\$13,172,727
Amount Invested		\$504,700,000	\$13,388,636

Source: Kansas Department of Transportation

FIGURE 5.2: KDOT Highway Future PM&E Funds Forecast (2017-2040)

2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
\$52,690,909	\$178,518,000	\$165,036,900	\$58,040,500	\$59,554,600	\$513,840,909

Source: Kansas Department of Transportation

Historic Data for Operations and Maintenance (O&M)

KDOT provided historical operating and maintenance (O&M) costs which are summarized in Figure 5.3. KDOT spent an annual average of \$1,639,337 on O&M activities, including pavement work, shoulder work, drainage improvements, roadside maintenance, bridge maintenance, snow and ice removal, and traffic guidance.

Revenue Projection for Operations and Maintenance (O&M)

As previously mentioned, KDOT spent an annual average of \$1.64 million from 2013 through 2015 on operations and routine maintenance activities. These activities, and costs, will continue to be covered by KDOT as part of future year routine maintenance work.

Projections inflate the historic 3-year average spending by KDOT in Shawnee County by two and a half percent (2.5%) using a linear growth of \$40,983 per year. For convenience, the financial forecast summarized in Figure 5.4 was aggregated into 5-year blocks, except for the years from 2017 through 2020 which represents 4-years or the remainder of T-WORKS.

It is important to note that KDOT includes system preservation projects with other major projects, not with Operations & Maintenance Activities.

FIGURE 5.3: Historic Data for KDOT O&M Activities (2013-2015)

Activity	2013	2014	2015	3-year Average
Pavement	\$146,020	\$166,286	\$242,532	\$184,946
Shoulders	\$95,981	\$55,499	\$48,391	\$66,624
Drainage	\$144,871	\$10,064	\$75,812	\$76,916
Roadside	\$499,994	\$415,433	\$424,917	\$446,781
Bridge	\$47,134	\$61,045	\$16,952	\$41,710
Snow & Ice	\$361,029	\$648,200	\$625,622	\$544,950
Traffic Guidance	\$296,265	\$283,552	\$252,412	\$277,410
Total	\$1,591,294	\$1,640,079	\$1,686,638	\$1,639,337

Source: Kansas Department of Transportation

FIGURE 5.4: KDOT O&M Activities Funds Forecast (2017-2040)

2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
\$7,156,386	\$9,867,610	\$10,892,196	\$11,916,781	\$12,941,367	\$52,774,339

Source: Kansas Department of Transportation

Kansas Turnpike Authority

The Kansas Turnpike Authority (KTA) is also responsible for maintaining the turnpike segments through the Topeka MPA. This includes sections of I-335, I-470, and I-70 (KTA mile marker 167 to mile marker 184) within the MPA. As part of Futures2040, the KTA identified planned preservation projects through the year 2040 and planned operational improvements at the two Topeka toll plazas.

FIGURE 5.5: KTA Financial Forecast (2017-2040)

	2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
KTA Pavement Rehabilitation Program	\$-	\$7,400,000	\$-	\$9,176,000	\$10,360,000	\$26,936,000

Source: Kansas Turnpike Authority

FIGURE 5.6: KTA Financial Forecast (2017-2040)

	2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
KTA Interchange Enhancements	\$38,000,000	\$-	\$-	\$-	\$-	\$38,000,000

Source: Kansas Turnpike Authority

CITY OF TOPEKA REVENUE HISTORY AND PROJECTIONS

The City of Topeka has a variety of funding sources available to be spent on road and bridge projects.

Funds Programmed in the City’s Capital Improvements Program 2017 through 2021

Revenue projections for the City of Topeka are based on data included in the city’s capital improvements program for the years 2017 through 2021. Figure 5.7 below identifies dollar amounts by year and funding source from the city’s current capital improvements program.

KANSAS MOTOR FUELS TAXES

Kansas motor fuels tax revenue received through the Special City and County Highway Fund (SCCHF) is a source of transportation funds for local units of government. On average, about 35.6 percent of the statewide Motor Fuels Tax receipts go to the SCCHF. It provides about \$160 million per year to local units of government. The SCCHF is distributed directly to cities and counties quarterly by the State Treasurer.

LOCAL FEDERAL AID PROJECTS

Local units of government are provided federal aid for surface transportation project. All federal aid projects in the City of Topeka must be programmed in the Transportation Improvement Program (TIP) developed by the Metropolitan Topeka Planning Organization (MTPO).

Revenue Projections for Topeka

Available historic funding data for federal aid, GO Bonds, City Half-Cent Sales Tax, and County Half-Cent Sales Tax projects were reviewed. Projections were developed by averaging available historic data and inflating the averages by one percent (1%) using linear growth through 2040. It was assumed that both the City Half-Cent Sales Tax and the County Half-Cent Sales Tax will be renewed. It was assumed that KDOT would continue to share federal aid with Topeka at the same rate as the historic average and that federal funding would continue at the same levels. For convenience, the financial forecast summarized in Figure 5.10 was aggregated into 5-year blocks. A complete year-by-year table can be found in the Appendix. Projects have already been selected for the County Half-Cent Sales Tax through 2031.

FIGURE 5.7: Topeka Capital Improvement Program Summary

	2017	2018	2019	2020	2021	Total
General Obligation (GO) Bond	\$4,810,000	\$3,590,000	\$4,285,000	\$6,375,000	\$4,875,000	\$23,935,000
Citywide half cent sales tax	\$13,500,000	\$13,635,000	\$13,771,350	\$ -	\$ -	\$40,906,350
Countywide half cent sales tax	\$3,766,666	\$9,266,667	\$3,966,667	\$5,900,000	\$6,940,000	\$29,840,000
TOTAL	\$22,076,666	\$26,491,667	\$22,023,017	\$12,275,000	\$11,815,000	\$94,681,350

Source: City of Topeka

FIGURE 5.8: Kansas Motor Fuels Taxes

	2012	2013	2014	2015	2016	Annual Average
Topeka	\$3,297,376	\$3,234,273	\$3,292,510	\$3,321,105	\$3,352,952	\$3,299,643

Source: Kansas Department of Transportation

FIGURE 5.9: Federal Aid Funds Provided to Topeka

Federal Program	Fiscal Years	Program Total	Annual Average
ISTEA	1992-1997	\$7,000,000	\$1,166,667
TEA-21	1998-2003	\$ 8,600,000	\$1,433,333
SAFETEA-LU	2004-2012	\$17,900,000	\$1,988,889
MAP-21	2013-2014	\$2,700,000	\$1,350,000
FAST Act	2015-2020	\$9,000,000	\$1,500,000
Total		\$45,200,000	\$1,614,286

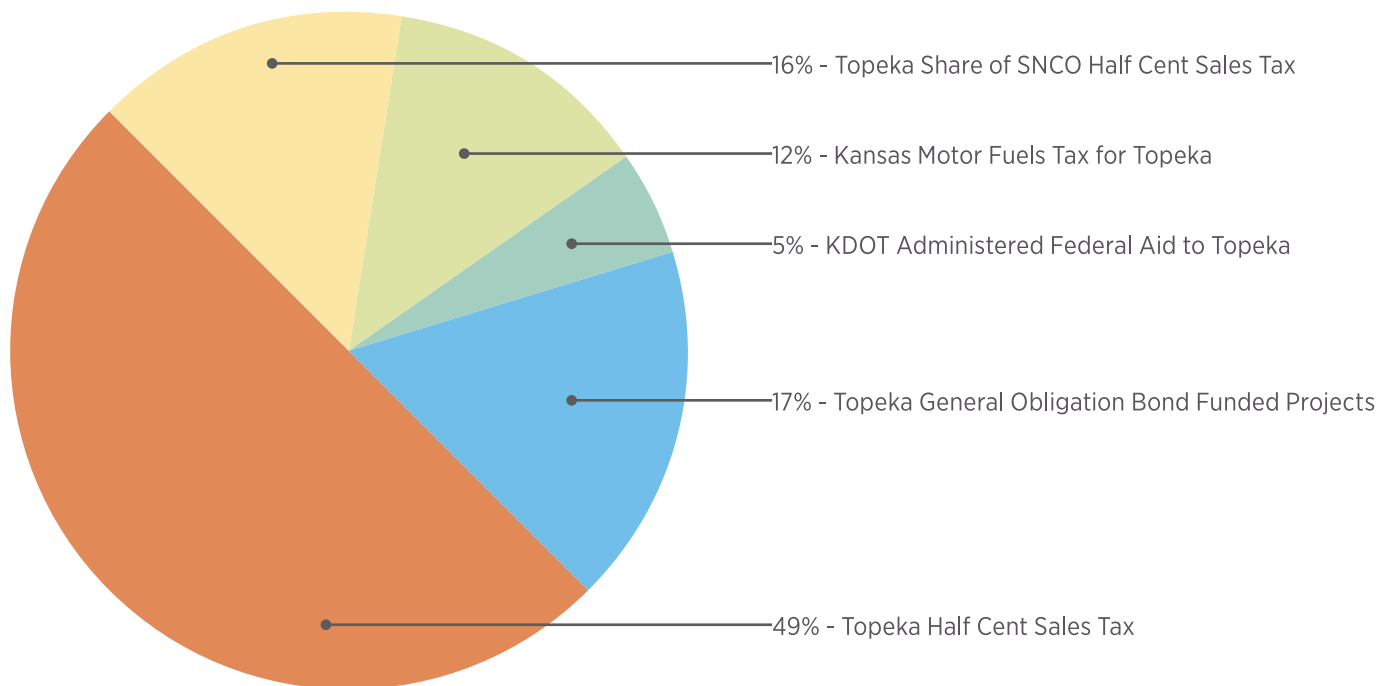
Source: Kansas Department of Transportation

FIGURE 5.10: Topeka Financial Forecast

	2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
Kansas Motor Fuels Taxes	\$13,747,103	\$17,938,293	\$18,776,531	\$19,614,769	\$20,453,007	\$90,529,704
Federal Aid	\$6,000,000	\$7,725,000	\$8,100,000	\$8,475,000	\$8,850,000	\$39,150,000
Competitive Grants	\$600,000	\$600,000	\$733,333	\$-	\$-	\$1,933,333
GO Bonds	\$19,060,000	\$24,501,700	\$25,610,450	\$26,807,200	\$28,003,950	\$123,983,300
City 1/2 Cent Sales Tax	\$54,678,155	\$70,904,340	\$74,313,203	\$77,722,065	\$81,130,928	\$358,748,690
County 1/2 Cent Sales Tax	\$22,900,000	\$23,372,800	\$21,442,800	\$22,444,800	\$23,446,800	\$113,607,200
TOTAL	\$116,985,258	\$145,042,133	\$148,976,317	\$155,063,834	\$161,884,685	\$727,952,227

Source: RDG Planning & Design

FIGURE 5.11: Topeka Transportation Funding Forecast 2017-2040



SHAWNEE COUNTY REVENUE HISTORY AND PROJECTIONS

Shawnee County has a variety of funding sources available to be spent on road and bridge projects.

Funds Programmed in County Capital Improvements Program 2017 through 2021

Revenue projections for the Shawnee County are based on data included in the County’s capital improvements program for the years 2017 through 2021. Figure 5.12 below identifies dollar amounts by year from the county’s current capital improvements program. These funds are limited to those projects located within the Metropolitan Planning Area (MPA).

KANSAS MOTOR FUELS TAXES

Kansas motor fuels tax revenue received through the Special City and County Highway Fund (SCCHF) is a source of transportation funds for local units of government. On average, about 35.6 percent of the statewide Motor Fuels Tax receipts go to the SCCHF. It provides about \$160 million per year to local units of government. The SCCHF is distributed directly to cities and counties quarterly by the State Treasurer. These funds are for all Shawnee County, not just the portion of the county located within the Metropolitan Planning Area (MPA).

LOCAL FEDERAL AID PROJECTS

Local units of government are provided federal aid for surface transportation project. Some, but not all, federal aid projects in Shawnee County must be programmed in the Transportation Improvement Program (TIP) developed by the Metropolitan Topeka Planning Organization (MTPO). These funds are for all Shawnee County, not just the portion of the county located within the Metropolitan Planning Area (MPA).

SHAWNEE COUNTY MAJOR PROJECTS FUNDING

Countywide Half-Cent Sales Tax: This is funded by a voter approved half-cent sales tax initiative. Funding has already been committed to specific projects through 2031. This revenue forecast assumes that the half-cent sales tax will be renewed after 2031.]

Revenue Projections for Shawnee County

Available historic funding data for federal aid and County half cent sales tax projects were reviewed. Projections were developed by averaging available historic data and inflating the averages by one percent (1%) using linear growth through 2040. It was assumed that the County Half-Cent Sales Tax will be renewed. It was assumed that KDOT would continue to share federal aid with Shawnee County at the same rate as the historic average and that federal funding would continue at the same levels. For convenience, the financial forecast summarized in Figure 5.15 has been aggregated into 5-year blocks. A complete year-by-year table can be found in the Appendix.

FIGURE 5.12: Shawnee County Major Projects

	2017	2018	2019	2020	2021	Total
TOTAL	\$673,000	\$2,969,000	\$3,230,000	\$ -	\$ -	\$6,872,000

Source: Shawnee County

FIGURE 5.13: Kansas Motor Fuels Taxes

	2012	2013	2014	2015	2016	5-year average
Shawnee County	\$4,713,790	\$4,612,921	\$4,699,777	\$4,661,237	\$4,692,842	\$4,676,113

Source: Shawnee County

FIGURE 5.14: Federal Aid Funds Provided to Shawnee County

Federal Program	Fiscal Years	Program Total	Annual Average
ISTEA	1992-1997	\$4,400,000	\$733,333
TEA-21	1998-2003	\$7,600,000	\$1,266,667
SAFETEA-LU	2004-2012	\$12,800,000	\$1,422,222
MAP-21	2013-2014	\$2,700,000	\$1,350,000
FAST Act	2015-2020	\$7,800,000	\$1,300,000
Total		\$35,300,000	\$1,260,714

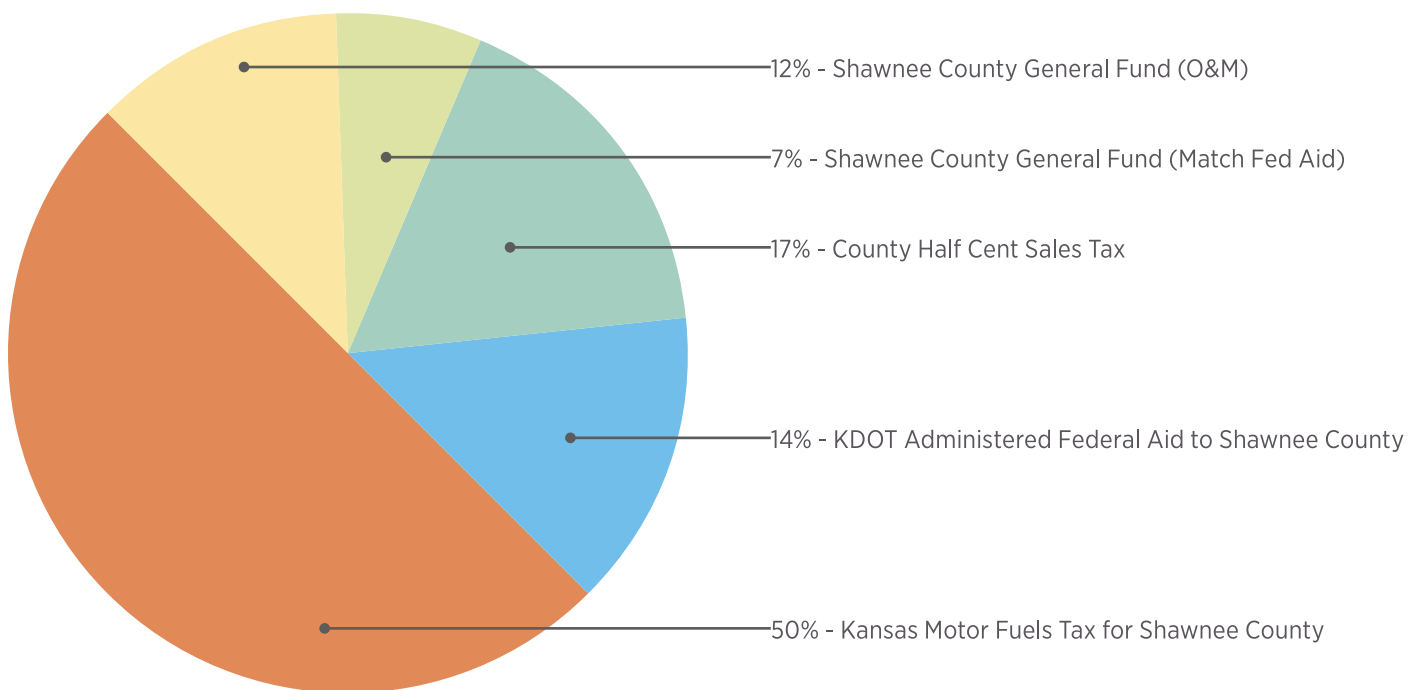
Source: Kansas Department of Transportation

FIGURE 5.15: Shawnee County Financial Forecast

	2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
Kansas Motor Fuels Tax	\$19,240,652	\$25,106,705	\$26,279,915	\$27,453,126	\$28,626,336	\$126,706,734
Federal Aid	\$5,200,000	\$6,695,000	\$7,020,000	\$7,345,000	\$7,670,000	\$33,930,000
County ½ Cent Sales Tax	\$7,800,000	\$10,596,000	\$31,904,000	\$18,356,091	\$21,416,818	\$90,072,909
General Fund (Match Fed Aid)	\$2,600,000	\$3,250,000	\$3,500,000	\$3,500,000	\$3,500,000	\$16,350,000
Operations & Maintenance	\$12,533,876	\$16,361,956	\$17,133,747	\$17,905,537	\$18,677,328	\$82,612,444
TOTAL	\$47,374,528	\$62,009,661	\$85,837,662	\$74,559,754	\$79,890,482	\$349,672,087

Source: Kansas Department of Transportation

FIGURE 5.16: Shawnee County Transportation Funding Forecast 2017-2040



TOPEKA METRO TRANSIT AUTHORITY (TMTA) REVENUE HISTORY AND PROJECTIONS

TMTA receives annual funding from a number of sources that fund the agency and transit initiatives in Topeka.

Topeka Metro Transit Authority (TMTA) Revenue History and Projections

Annual funding for TMTA comes from several sources including fares, local mill levy, State of Kansas, and federal government. According to the National Transit Database (NTD) 2014 TMTA agency profile, the largest source of

operational funds came from the local mill levy (42 percent of operational funds) as shown in Figure 5.17 and 5.18.

Following 2009 funding for Topeka Metro began a decline through 2011. It must be noted that in 2011 TMTA was awarded an approximate \$4.5 million grant through the American Reinvestment and Recovery Act (ARRA) for bus fleet vehicle replacement. This infusion of capital funds was greatly needed to help TMTA replace several buses that had exceeded their useful life, but also skewed the downward annual funding trend in 2011. The historic annual revenue trend can be seen in Figure 5.19. Since 2011 annual revenues for transit in Topeka have begun to increase, but not at the same rate as operational cost have risen over the same time. Annual operating cost trends can be shown in Figure 5.20.

FIGURE 5.17: 2014 TMTA Operational Funding Sources

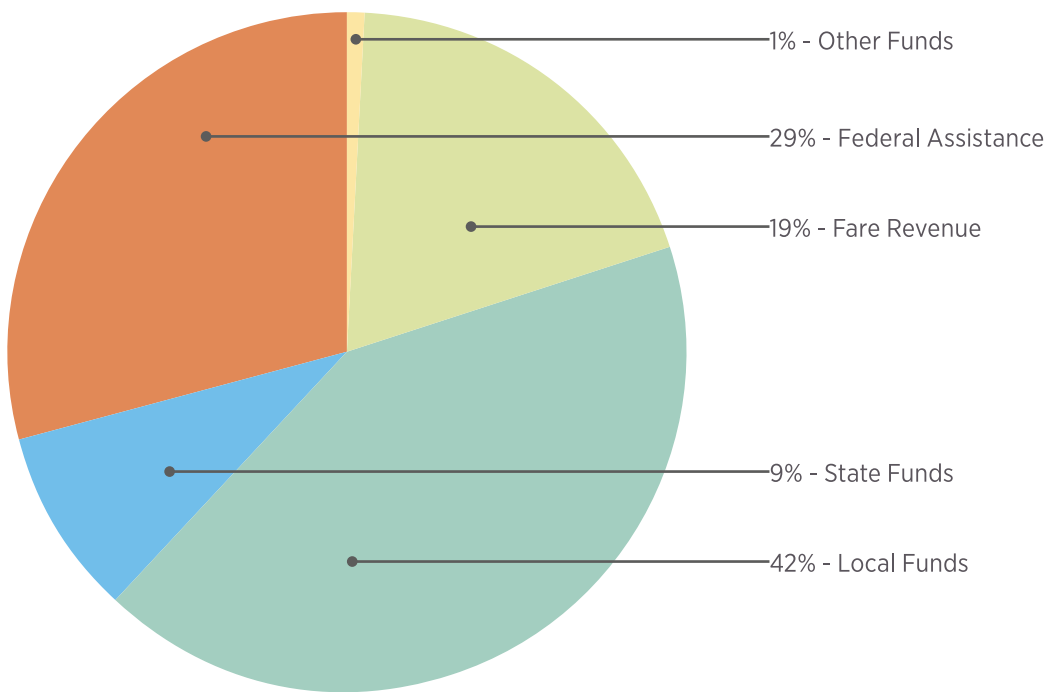
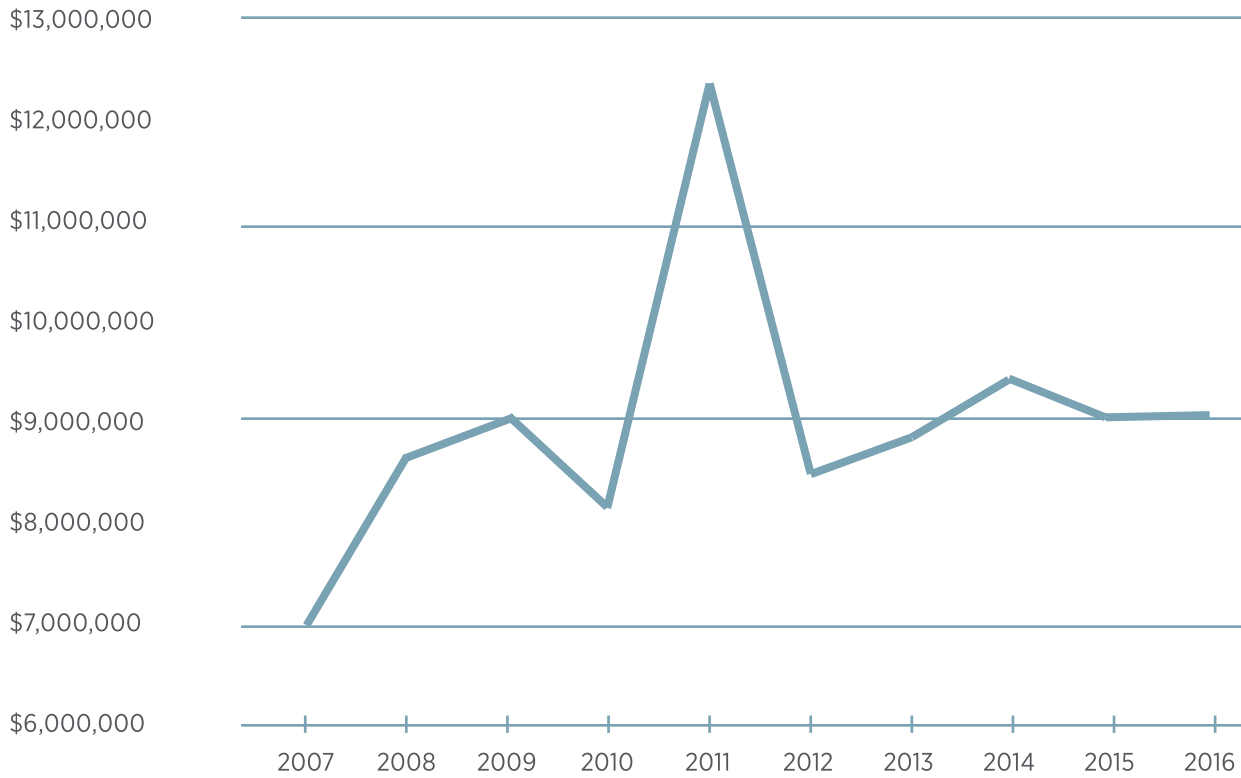


FIGURE 5.18: TMTA Programmed Funds

	2017	2018	2019	2020
Mill Levy	4,754,835	4,800,000	4,850,000	4,900,000
Federal 5307	2,200,000	2,250,000	2,300,000	2,350,000
State	728,074	730,000	740,000	750,000
Fares	1,287,180	1,200,000	1,200,000	1,250,000
All Other	486,407	500,000	500,000	500,000
Total	9,456,496	9,480,000	9,590,000	9,750,000

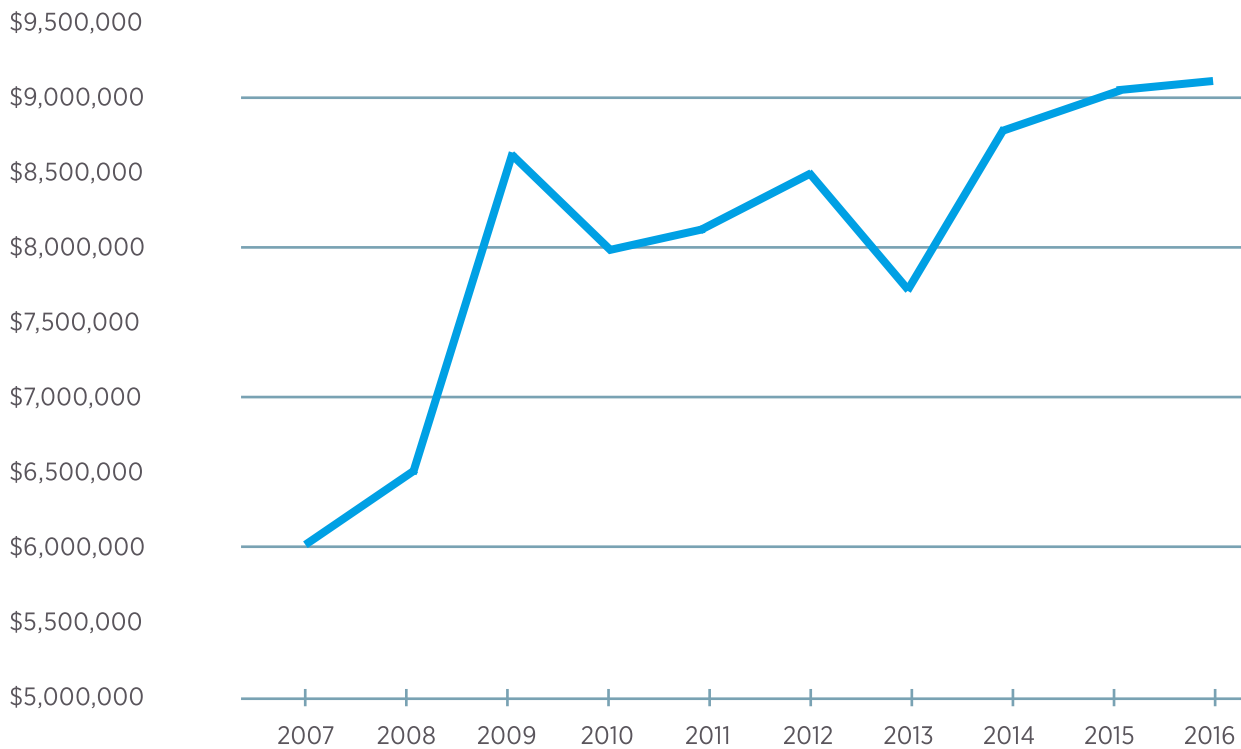
Source: TMTA

FIGURE 5.19: TMTA Annual Revenue 2007 - 2016



Source: TMTA

FIGURE 5.20: TMTA Operating Costs 2007 - 2016



Source: TMTA

SECTION 5307 FORMULA GRANT

The Section 5307 (49 U.S.C. § 5307) formula grant provides capital, operating, and planning assistance for mass transportation in urbanized areas. Initiated by the Surface Transportation Act of 1982, it became FTA’s primary transit assistance program in FY1984. Funds are apportioned based on population, population density, and other factors associated with transit service and ridership. Section 5307 is funded from General Revenues and Trust Funds. Section 5307 funds transit improvements for 34 urbanized areas over 1 million population, 91 urbanized areas with populations between 200,000 and 1 million, and 283 urbanized areas between 50,000 and 200,000 population. For urbanized areas over 200,000 in population, funds flow directly to the recipient. For areas under 200,000, the funds are apportioned to the Governor of each state for distribution.

beginning July 2013, or state FY2014), a more regional approach to rural transit service provision, and a revision to the urban funding formula that places an increased emphasis on ridership, revenue miles and population.

Revenue Projections for TMTA

Projections for all sources of funding for TMTA were developed using the average annual funds programmed by the County from 2017 through 2024, and inflating those average numbers by one percent (1%) using linear growth. For convenience, the financial forecast summarized in Figure 5.21 has been aggregated into 5-year blocks. A complete year-by-year table can be found in the Appendix.

STATE TRANSIT FUNDING

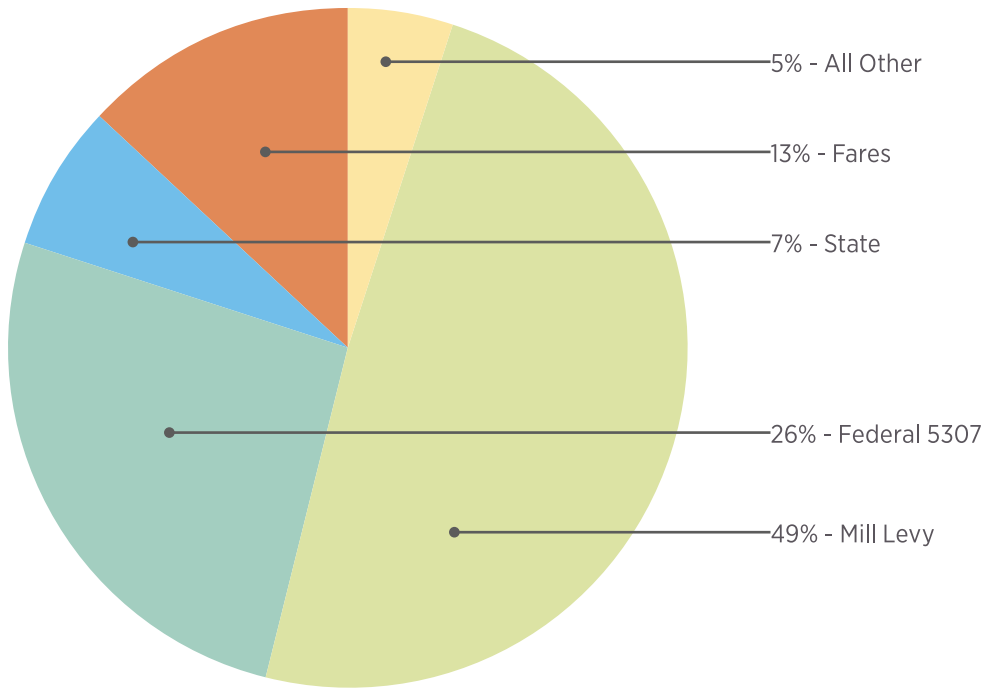
The total amount of KDOT transit funding assistance increased substantially with the passage of T-WORKS. The T-WORKS Transit Program includes an increase in previous annual funding levels (from \$6 million to \$11 million statewide

FIGURE 5.20: TMTA Financial Forecast

	2017-2020	2021-2025	2026-2030	2031-2035	2036-2040	TOTAL
Mill Levy	\$19,304,835	\$25,249,309	\$26,486,186	\$27,718,918	\$28,951,650	\$127,710,898
Federal 5307	\$9,100,000	\$12,500,000	\$13,750,000	\$15,000,000	\$16,250,000	\$66,600,000
State	\$2,948,074	\$3,898,847	\$4,126,931	\$4,348,096	\$4,569,260	\$19,891,208
Fares	\$4,937,180	\$6,558,974	\$6,929,486	\$7,153,843	\$7,378,200	\$32,957,683
All Other	\$1,986,407	\$2,501,942	\$2,538,837	\$2,587,384	\$2,635,930	\$12,250,500
Total	\$38,276,496	\$50,709,072	\$53,831,440	\$56,808,241	\$59,785,040	\$259,410,289

Source: RDG Planning & Design

FIGURE 5.21: TMTA Funding Forecast



Conclusion

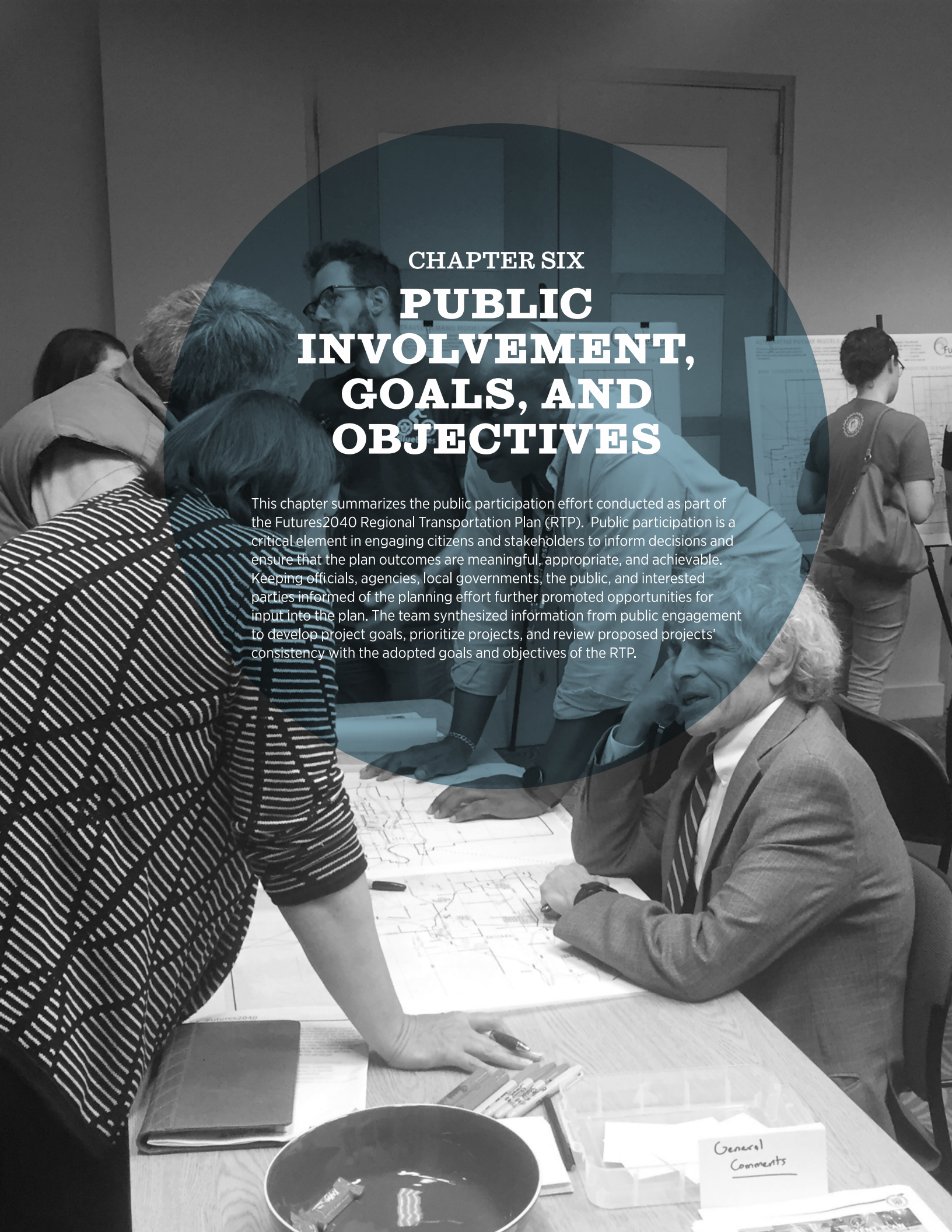
The financial analyses project just under \$1.88 billion in funds from federal, state and local sources will be available between 2017 and 2040 for surface transportation spending. This assumes that the county and city-wide voter initiative sales tax continues. The fiscally constrained list of projects included in Chapter 7 identifies just under \$1.86 billion in transportation projects by all project sponsors between 2017 and 2040. Thus, there appears to be adequate financial resources available to implement this plan.

It is important to note that spending priorities with Futures2040 Regional Transportation Plan have shifted from the last Long Range Transportation Plan adopted five years ago. This plan places much greater emphasis on system preservation and on other modes of transportation, particularly the active modes of transportation. The City of Topeka in particular may need to pursue additional funding resources to be better able to improve pavement conditions over time.

FIGURE 5.22: Grand Total Revenues

DOT Funds	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	TOTAL
Highway Construction	\$52,690,909	\$312,799,000	\$165,036,900	\$58,040,500	\$59,554,600	\$421,121,909
Operations and Maintenance	\$7,156,386	\$9,867,610	\$10,892,196	\$11,916,781	\$12,941,367	\$52,774,339
Subtotal	\$59,847,295	\$95,666,610	\$175,929,096	\$69,957,281	\$72,495,967	\$473,896,248
KTA Funds	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	TOTAL
Pavement Projects	\$0	\$7,400,000	\$0	\$9,176,000	\$10,360,000	\$26,936,000
Interchange Enhancements	\$38,000,000	\$0	\$0	\$0	\$0	\$38,000,000
Subtotal	\$38,000,000	\$7,400,000	\$0	\$9,176,000	\$10,360,000	\$64,936,000
Topeka Funds	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	TOTAL
Kansas Motor Fuels Tax for Topeka	\$13,747,103	\$17,938,293	\$18,776,531	\$19,614,769	\$20,453,007	\$90,529,704
KDOT Administered Federal Aid to Topeka	\$6,000,000	\$7,725,000	\$8,100,000	\$8,475,000	\$8,850,000	\$39,150,000
KDOT Administered Competitive Grants	\$600,000	\$600,000	\$733,333	\$0	\$0	\$1,933,333
Topeka General Obligation Bonds	\$19,060,000	\$24,501,700	\$25,610,450	\$26,807,200	\$28,003,950	\$123,983,300
Topeka Half Cent Sales Tax	\$54,678,155	\$70,904,340	\$74,313,203	\$77,722,065	\$81,130,928	\$358,748,690
Topeka Share of SNCO Half Cent Sales Tax	\$22,900,000	\$23,372,800	\$21,442,800	\$22,444,800	\$23,446,800	\$113,607,200
Subtotal	\$116,985,258	\$145,042,133	\$148,976,317	\$155,063,834	\$161,884,685	\$727,952,227
Shawnee County Funds	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	TOTAL
Kansas Motor Fuels Tax for Shawnee County	\$19,240,652	\$25,106,705	\$26,279,915	\$27,453,126	\$28,626,336	\$126,706,734
KDOT Administered Federal Aid to Shawnee County	\$5,200,000	\$6,695,000	\$7,020,000	\$7,345,000	\$7,670,000	\$33,930,000
County Half Cent Sales Tax	\$7,800,000	\$10,596,000	\$31,904,000	\$18,356,091	\$21,416,818	\$90,072,909
Shawnee County General Fund (Match Fed Aid)	\$2,600,000	\$3,250,000	\$3,500,000	\$3,500,000	\$3,500,000	\$16,350,000
Shawnee County General Fund (O&M)	\$12,533,876	\$16,361,956	\$17,133,747	\$17,905,537	\$18,677,328	\$82,612,444
Subtotal	\$47,374,528	\$62,009,661	\$85,837,662	\$74,559,754	\$79,890,482	\$349,672,087
TMTA Funds	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	TOTAL
Mill Levy	\$19,304,835	\$25,249,309	\$26,486,186	\$27,718,918	\$28,951,650	\$127,710,898
Federal 5307	\$9,100,000	\$12,500,000	\$13,750,000	\$15,000,000	\$16,250,000	\$66,600,000
State	\$2,948,074	\$3,898,847	\$4,126,931	\$4,348,096	\$4,569,260	\$19,891,208
Fares	\$4,937,180	\$6,558,974	\$6,929,486	\$7,153,843	\$7,378,200	\$32,957,683
All Other	\$1,986,407	\$2,501,942	\$2,538,837	\$2,587,384	\$2,635,930	\$12,250,500
Subtotal	\$38,276,496	\$50,709,072	\$53,831,440	\$56,808,241	\$59,785,040	\$259,410,289
GRAND TOTAL	\$300,483,577	\$360,827,476	\$464,574,515	\$365,565,110	\$384,416,174	\$1,875,866,851

Source: RDG Planning & Design



CHAPTER SIX **PUBLIC INVOLVEMENT, GOALS, AND OBJECTIVES**

This chapter summarizes the public participation effort conducted as part of the Futures2040 Regional Transportation Plan (RTP). Public participation is a critical element in engaging citizens and stakeholders to inform decisions and ensure that the plan outcomes are meaningful, appropriate, and achievable. Keeping officials, agencies, local governments, the public, and interested parties informed of the planning effort further promoted opportunities for input into the plan. The team synthesized information from public engagement to develop project goals, prioritize projects, and review proposed projects' consistency with the adopted goals and objectives of the RTP.

General
Comments

PUBLIC INVOLVEMENT PROCESS

A Public Involvement Process (PIP) was prepared at the beginning of the development process of the RTP to identify the outreach efforts and techniques that would be appropriate to use to ensure officials, agencies, local government, the public and interested parties would have adequate opportunities to provide their input into the development of the RTP. A copy of the PIP is available at the MTPO website and a hard copy is available from the MTPO upon request.

Steering committee meetings and public engagement efforts began in May of 2016 and continued through plan adoption. The following summarizes the Futures2040 public engagement efforts during which more than 950+ individual contacts with the public were made.

Media Outreach

Key components of the public engagement effort were typically advertised through traditional media sources, including:

- Local newspaper
- Television
- Magazine
- Radio outlets
- Extensive promotion on the City's website
- City Social Media Outlets including NextDoor,

A project website, www.topekampo.org/futures-2040.html, also provided up-to-date information about progress on the plan. The full results of all public input activities are included in the Appendix.

Public Outreach

Key components of this outreach included:

- Steering Committee
- Stakeholder Interviews
- Traditional and Social Media Outreach
- Community Survey
- Public Meetings
- Public Comment

Because the MTPO plan for transportation and mobility is for all members of the community at the regional level, the team actively engaged Environmental Justice (EJ) populations in accordance with the National Environmental Policy Act (NEPA) of 1969, Executive Order 12898, and the Title VI Civil Rights Legislation. This ensured the full and fair participation by all potentially affected communities in the transportation decision-making process regardless of race, color, national origin, or income to avoid disproportionately high and adverse human health or environmental effects. To do so, the MTPO reached out to underserved communities through Topeka JUMP, hosted public meetings at multiple times across the City with consideration given to EJ areas, and considered available transit service. EJ planning was also applied throughout the process.



Steering Committee and Technical Advisory Committee

The MTPO Policy Board established a steering committee to provide overall direction to the consultant team and MTPO staff in the process to develop the RTP. The steering committee was comprised of members of the MTPO Technical Advisory Committee (TAC) and several additional subject matter experts and stakeholders. The consultant team met with the steering committee and/or TAC on the following dates:

- May 26, 2016
- June 9, 2016
- August 11, 2016
- October 13, 2016
- February 9, 2017
- March 9, 2017
- April 6, 2017
- May 26, 2017
- June 8, 2017 (recommended for approval by Policy Board)

MTPO Policy Board

The consultant team met with the MTPO policy board five times during the process. On May 26, 2016, the consultant team met with the policy board to officially start the RTP plan development process. On August 25, 2016, the consultant team met with the policy board to discuss public engagement activities undertaken to date and discuss preliminary findings. On December 1, 2016, the consultant team met with the policy board to review progress in developing the RTP. The consultant team met with the policy board on May 26, 2017 to discuss comments and June 22, 2017 to review and approve the plan. This occurred at regular policy board meetings at the end of the process to allow final opportunities for public comment.

Public Meetings

Public open houses were held on August 18, 2016: one from 12:00 pm to 2:00 pm and the other from 5:30 pm to 7:30 pm at the Topeka and Shawnee County Public Library. Another was held May 3, 2017 at the Topeka and Shawnee County Public Library. Each meeting began with a brief presentation about the project, informational posters describing specific aspects of the project and transportation planning that had previously occurred, maps on which participants could draw what they liked and disliked about the city's transportation system. The final meeting also shared the recommendations of the plan to jump start the public comment period. In total, more than 55 members of the public and local officials attended these public open houses.

AUGUST 2016 OPEN HOUSE

The August 2016 open houses focused on identifying transportation and mobility issues that exist within the Topeka Metropolitan Planning Area (MPA). The primary purpose of the meetings were to have an open-ended discussion with participants to so they could share their concerns directly with staff and the project team. Comment cards and surveys were also provided. City4 TV was at this open house and recorded part of the presentation and interviewed Thomas Dow, project leader from RDG and Bill Fiander, City Planning Director about the public process.

MAY 2017 OPEN HOUSE

The May 2017 open house focused on plan recommendations and to generate public comment. The project team set up boards throughout the room to display recommendations, and to illustrate how these recommendations offer potential improvements for the various transportation modes. Open House attendees asked questions throughout the meeting and left written comments.

Quadrant Workshops

To determine more localized priorities across the region, four additional public design neighborhood open houses were held in four separate geographic focus areas during November 2016. These meetings offered another forum for the public to identify other projects and issues in their local areas and discuss them with staff and the project team. The meetings highlighted transportation projects already funded in that area, the outcomes of the Travel Demand Model for the city with two future potential improvement scenarios, expected future projects. The schedule for the four neighborhood meetings was as follows:

- Central & South – 5:30 to 7:30 p.m. on November 2, 2016 at Topeka & Shawnee County Public Library, 1515 SW 10th Street, Topeka
- North – 5:30 to 7:30 p.m. on November 3, 2016 at Garfield Community Center, 1600 NE Quincy Street, Topeka
- Southeast – 5:30 to 7:30 p.m. on November 9, 2016 at Highland Park High School, 2424 SE California Street, Topeka
- Southwest – 5:30 to 7:30 p.m. on November 16, 2016 at Washburn Tech, 5726 SW Huntoon Street, Topeka

In total, 36 attendees joined for the first meeting, 20 for the second, 19 for the third, and 21 for the fourth, totaling some 96 attendees total, excluding the project team.



Stakeholder Interviews

Stakeholder interviews were conducted during July 2016 and at during the final plan recommendation period in April 2017. The MTPO staff identified 11 stakeholder groups comprising more than 50 individual stakeholders to participate. The focus group format consisted of four questions asked by the facilitator intended to start discussions, after which conversations about transportation issues could continue naturally. The four questions asked at the first meeting were:

1. There are four modes of transportation necessary for a balanced transportation network: walking, biking, riding transit and driving cars and trucks. All are needed for a healthy transportation system. What should the region focus on? Why?
2. Transportation significantly impacts regional land use patterns, public health, the regional economy, social justice, urban design and the environment. What should the region focus on? Why?
3. Your organization is responsible for _____. How is the mission of your organization affected by the transportation policy and funding decisions made by the City of Topeka, Shawnee County, TMTA and KDOT?
4. Will you and your organization commit to assisting MTPO further by asking your membership to complete an on-line survey and use Instagram to take pictures of transportation issues and concerns? Will you help us get your membership to the public meetings?

Question asked at the final Stakeholder Meetings included: The stakeholder responses were summarized in a memo that is included as an appendix to this report. The responses were utilized by the project team to help identify existing and future year issues to address in developing the 2040 LRTP update.

Additional informal discussions with MTPO staff, local agencies, transit providers, KDOT, FHWA, FTA and other necessary local, state, and federal agencies also occurred throughout the process. These further added to information collected during stakeholder interviews.



Community Survey

A public survey was conducted from July 10 through September 5, 2016. The purpose of the survey was to gather public input regarding general transportation and mobility issues within the region. In total, 775 surveys were completed online and in hard copy form. The survey results were used by the project team to help identify existing transportation concerns within the Topeka Metropolitan Planning Area and to help prioritize goals for the plan. Survey results are presented throughout the remaining chapters of the RTP. It should be noted that the survey was intended to gather information and was not a statistically valid survey.

Public Comment

As part of the LRTP update process, the MTPO is required to make a draft of the LRTP available for a 30-day public review period. The draft LRTP was made available beginning on April 20, 2017 and was available for review until May 22, 2017. The draft document was made available for public review through the placement of paper copies at the following locations:

- Shawnee County Library
- The City Clerk's Office
- The City of Topeka Planning Department; and,
- Quincy Street Station (Downtown Bus Depot)

Electronic copies were placed on the City of Topeka and the MTPO (www.topekampo.org) website. MTPO staff contact information was included with the draft document in case there are any further questions. Notice of document availability is provided through announcements posted on the website, and sent to public agencies, neighborhood groups, and other organizations that have expressed interest in the document. Copies were also sent to stakeholders for specific review.

In total, more than 430 public comments were received during the 30-day public review period. The general theme of the comments was in support of the plan. Other substantive comments are included in Appendix B.

WHAT WE HEARD

The public involvement process helped drive the recommendations of Futures2040. Early in the process, the community survey gave a large swathe of the population a voice in the process. This was then refined through individual contact and discussions with stakeholders and the public. This section discusses the overall results of the survey, followed by general themes which emerged during the public involvement process.

Community Survey Results

First and foremost, residents within the Topeka MPA prioritized infrastructure maintenance over the development of new infrastructure, including existing streets, bridges, sidewalks, and trails. In the Community Survey, more than 63 percent of respondents stated that as their number one priority for funding and another 81 percent indicated that it was very or extremely important.



FIGURE 6.1: We asked: please rank the importance of spending money available to the region on the following items

(1 being most important, 8 being least important)

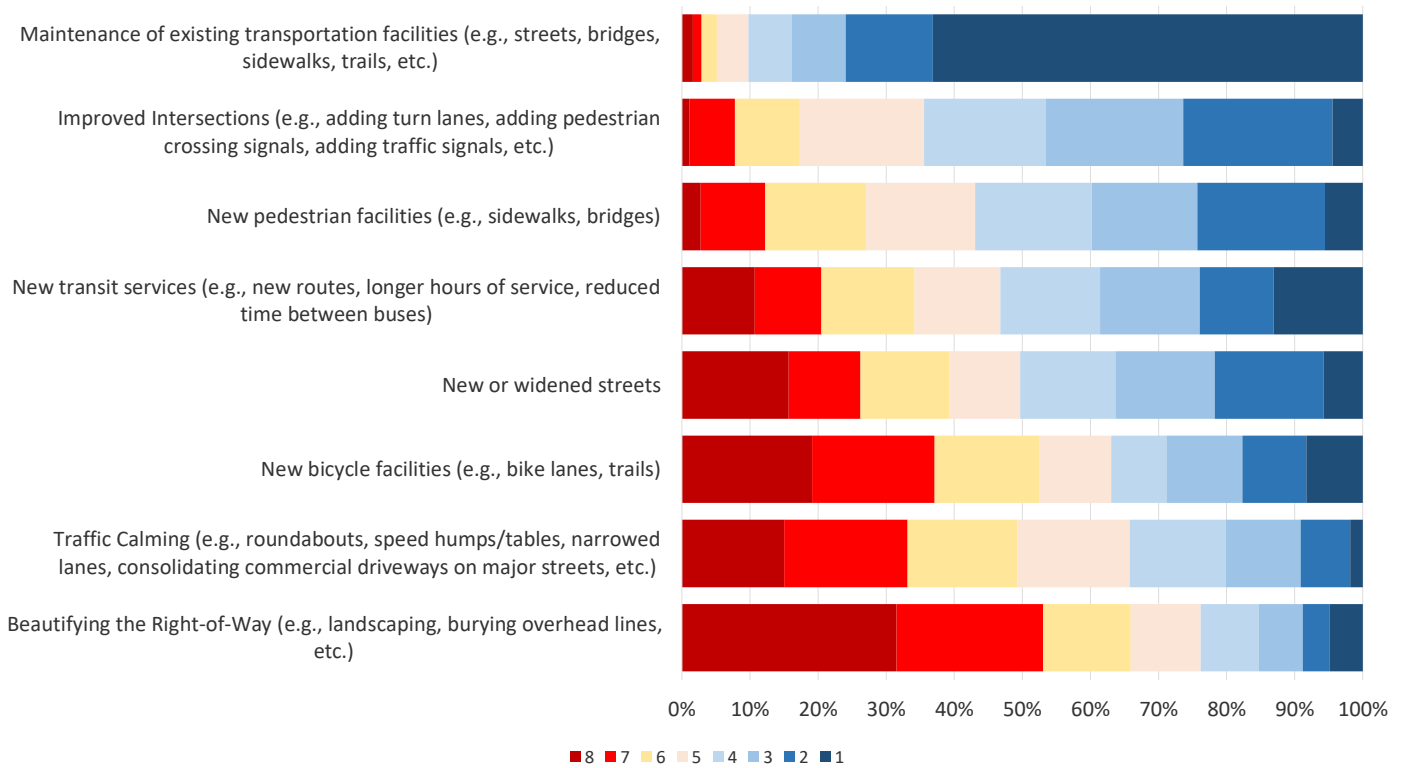


FIGURE 6.2: We asked: how important are the following improvements

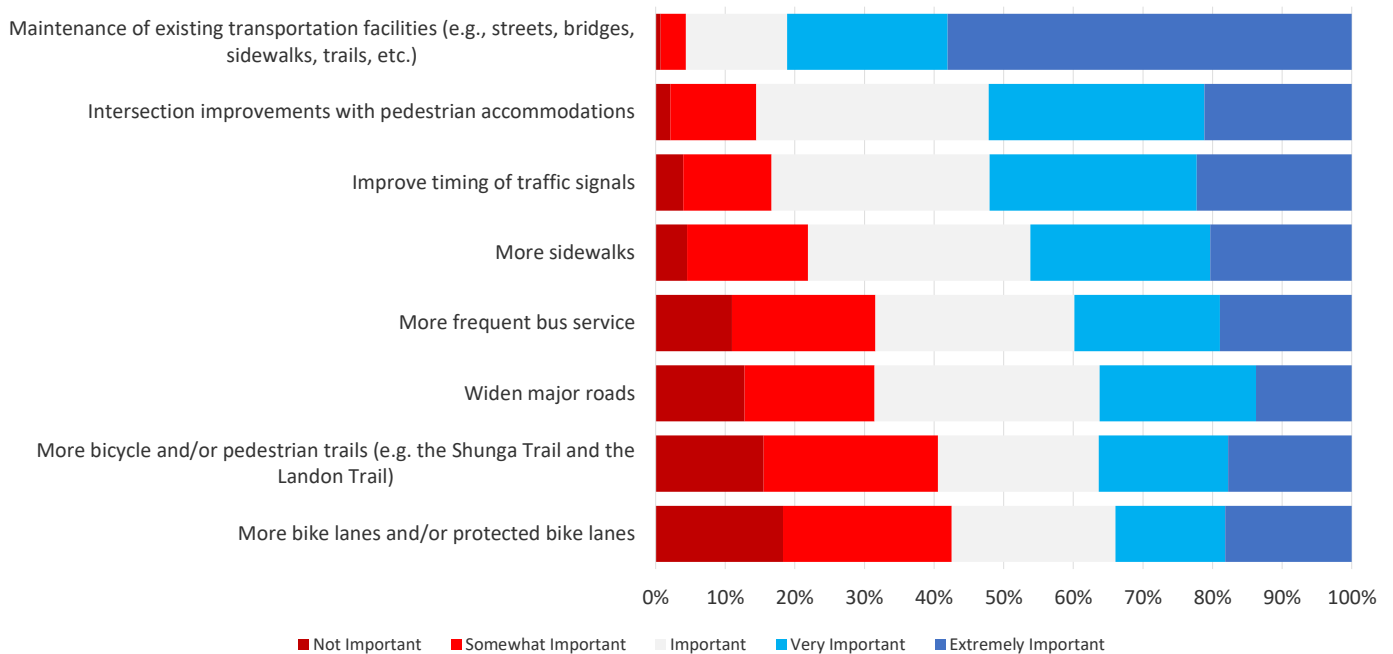
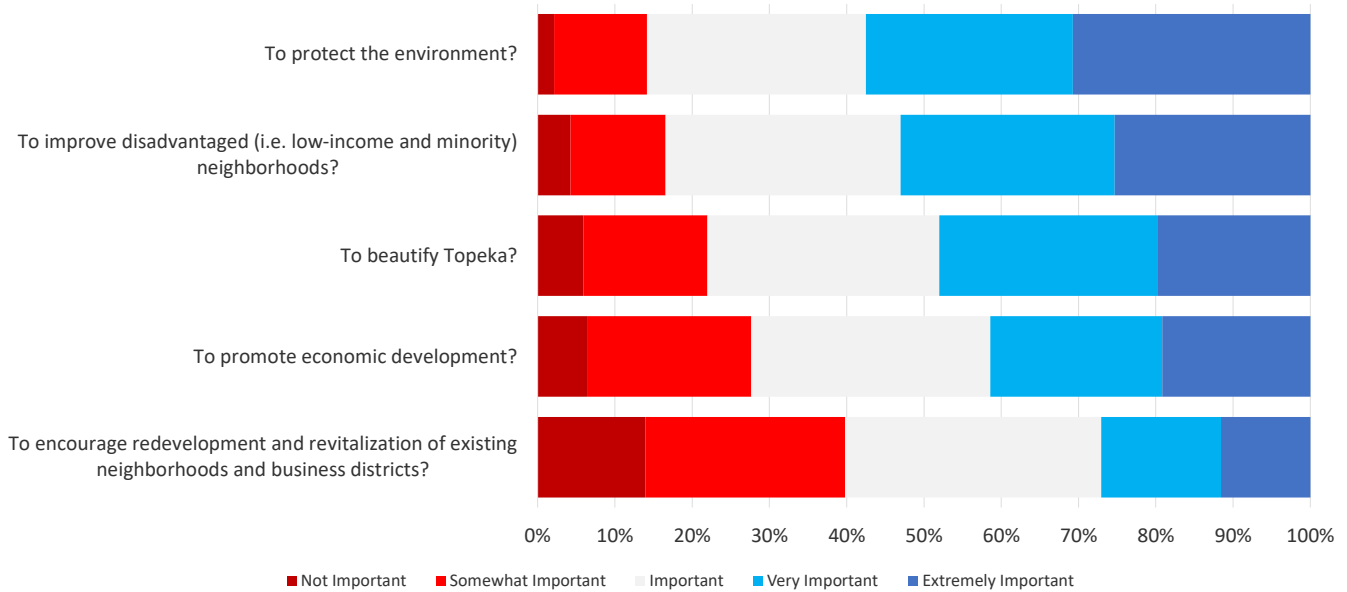


FIGURE 6.3: We asked: how important is it to use transportation investments for the following purposes?



Public Involvement Themes

Discussions with stakeholders and members of the public during public meetings allowed a more in-depth investigation into these ideas. The following are the primary themes which came out of face-to-face communications, further reinforcing the online survey. These themes directly lead into the goals considered for this plan as well.

MAINTAIN EXISTING INFRASTRUCTURE

First and foremost, residents within the Topeka MPA prioritized infrastructure maintenance over the development of new infrastructure, including existing streets, bridges, sidewalks, and trails. In the Community Survey, more than 63 percent of respondents stated that as their number one priority for funding and another 81 percent indicated that it was very or extremely important.

The emphasis on infrastructure maintenance was also reflected in steering committee and public meetings with attendees noting that the poor conditions of streets showed disinvestment in older neighborhoods, gave a poor impression to visitors, and proved damaging to vehicles. This priority is further reflected in current City efforts to counteract maintenance issues through the Half-Cent Sales Tax which mainly funds street maintenance and the Pavement Management Study which seeks to guide funding to the most deteriorated streets.

IMPROVE MOBILITY AND ACCESS

For the most part, those who participated in the planning process were happy with the Topeka transportation system. However, some complaints about improving mobility and access within the MPA exist. There are gaps in connectivity of some major routes through the City. One gap is traveling west on SW 37th Street past Gage Boulevard. Other complaints include access to I-470 in southeast Topeka. North Topeka also has some connectivity issues with the rest of the City.

Access to transit has also proved challenging within the City. While TMTA has expanded service hours, there are still issues with mobility as service is needed after 10:30 pm and on Sundays. This is an especially salient issue in connecting workers to area jobs in second and third shifts. Furthermore, because TMTA is only funded by the City, it does not provide service in the County. Consequently, those within the MPA but outside of the City do not have transit access including neighborhoods like Montara or major employers like Mars. Another issue important to the public was the need to make transit stops ADA accessible, a process that is currently occurring over the next couple of years.

Several other issue also affected mobility in Topeka, including the timing of traffic signals. Congestion, while viewed as an issue at some areas near 29th and Fairlawn, was not a majority concern for mobility and access.

INCREASE SAFETY FOR ALL TRANSPORTATION MODES

Improving intersections for increased mobility was important to participants, but so was increasing intersection safety for pedestrians. To that end, most respondents believed that pedestrian accommodations were very or extremely important for intersections, and many noted the importance of pedestrian and bicycle infrastructure that kept people separate from the street improved safety. For those bicycles that do remain on the street, an informational campaign was seen as necessary to inform drivers and bicyclists of their duties on the road to improve safety.

Safety was also indicated as important for some large projects such as the Quincy-Polk Viaduct project. The S-curve through downtown was noted as being a particularly dangerous place for vehicles, with the need to improve that section noted frequently. Lighting issues at some intersections and along some areas with sidewalks were also noted as important to improve visibility and therefore safety.

ENHANCE QUALITY OF LIFE

Enhancing quality of life for neighborhoods was also another major theme of these public meetings. While raising quality of life would result from any of the previously mentioned themes, some very specific ideas also came out including the importance of using investment in disadvantaged neighborhoods to improve quality of life, using transportation investments to improve the environment, and improving and expanding neighborhood infrastructure.

Using transportation infrastructure to protect the environment was one of the most important purposes rated for transportation investments with nearly 58 percent of participants saying it was either very or extremely important. This echoed the desire of some to see bicycle and pedestrian improvements, as well as a desire to educate newcomers of the areas transit services and to develop infill sites instead of allowing development to continue expanding outward. The next most important purpose of transportation was rated as improving the quality of life for disadvantaged areas and groups (53 percent). This can be seen in the importance placed on making sidewalks and areas of the City ADA accessible as well as focusing funds on deteriorated local streets in areas that had experienced disinvestment.

Finally, neighborhood and trail infrastructure was noted as important to improving quality of life for existing residents as well as being a way to attract new residents. Neighborhood infrastructure was typically described as local segments of sidewalk that were missing to connect areas with the larger active transportation network. If these connections could be made, this would allow residents to overcome natural barriers such as creeks, gaps in the network, or other issues. This was noted as especially important in the MPA outside of the City, such as expanding some pedestrian infrastructure to the north, because these areas had developed outside of Topeka. While many of them are not currently part of Topeka or within the Growth Area, it offers an opportunity for jurisdictions to work together to ensure this can occur. Trails were also important.

PROMOTE ECONOMIC DEVELOPMENT

Economic development and aesthetic improvements were also noted as important. Improving the appearance of gateways to the City or unattractive corridors was a valid goal as was reducing the continued sprawl of businesses outside of current transit and utility service. Other transportation ideas included a truck stop which might help curb issues with trucking in the region, both in terms of trucks parking where they should not be and in terms of giving truckers a place to rest. However, these topics were rated as less important than those previously mentioned, leading the team to recommend focusing on higher priorities first but keeping an eye out for ways to improve these issues.

GOALS AND OBJECTIVES

While the goals were largely derived from public input, a review of federal goals and past goals for the region were also considered important. This ensures consistency between agencies, in addition to providing continuity.

FAST ACT – Federal Transportation Planning Factors

In December 2015, the Fixing America’s Surface Transportation Act or “FAST Act” strengthened the focus on performance-based approaches in transportation planning. The law establishes the scope for metropolitan transportation planning support. The FAST Act’s ten planning factors to be considered are listed below:

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

MPTO 2040 LRTP Goals

This section summarizes the past MTPO 2040 Long Range Transportation Plan goals and objectives. The goals are listed below with each of their objectives:

1. Cultivate, Maintain, and Enhance the Region’s Economic Vitality
 - a. Encourage the coordination of land use and transportation planning to ensure that developments are adequately connected by the region’s transportation system and appropriately located to preserve the quality of life in surrounding areas.
 - b. Encourage transportation investments and policies that facilitate sustainable business growth and tourism growth in the region which are consistent with local and regional comprehensive plans and the Topeka/ Shawnee County Economic Development Plan.
 - c. Encourage investment and reinvestment of transportation resources into the City of Topeka’s existing neighborhoods and defined growth management areas as a critical component to the overall economic health of the region.
2. Increase the Safety and Security of the Region’s Transportation System
 - a. Reduce transportation related crashes, injuries, and fatalities using current design standards, advanced technologies, and education.
 - b. Collaborate with local and state lawenforcement agencies, first responders, and health agencies to develop appropriate emergency and disaster plans and other security related plans for the region.
 - c. Encourage transportation investments and policies that result in a higher level of personal security for pedestrians, cyclists, motorists, and users of transit.
3. Increase Accessibility and Mobility Choices in the Region
 - a. Improve transit route coverage and service hours so that people can reach job sites and return home conveniently, and so that employers can hire workers to work when needed (e.g., for weekend and evening work).
 - b. Support a complete streets policy that promotes the use of alternative transportation modes including pedestrians, bicyclists, and transit users. Improvements could include new or improved sidewalks, bicycle routes or other accommodations, bus pullouts, and other facilities/improvements) as part of future roadway construction/reconstruction and private development projects.
 - c. Improve access to transit for senior citizens and those with disabilities.

- d. Support local incentives to encourage employers to allow transit operations on their property, to encourage employees to consider transit as a commuting option, and to encourage Transit Oriented Development (TOD).
 - e. Encourage public transportation services – such as commuter services, park and ride lots, ridesharing, and carpooling programs – which help reduce the number of single occupancy vehicle trips within the region.
4. Protect, Preserve, and Enhance the Social, Historical, and Natural Environments of the Region
- a. Coordinate roadway and infrastructure projects with guidelines established by federal, state, and local historic preservation planning agencies and the principles of context sensitive solutions (CSS) treatments.
 - b. Pursue public transportation projects and other transportation related technologies that result in positive benefits to improved air quality and energy efficiency. Encourage transportation investments that reduce greenhouse gases, and other emissions, and support the reduction of single occupancy vehicle trips.
 - c. Encourage land use policies and transportation investments that are consistent with the City of Topeka Downtown Redevelopment Plan and Land Use & Growth Management Plan as a means of promoting in-fill, redevelopment, and the utilization of existing urban land and its infrastructure capacity over low density sprawl or density levels in locations where appropriate urban services are not planned or available.
 - d. Ensure that transportation decisions in the region are made with full consideration of the requirements of Title VI and Environmental Justice provisions.
 - e. Encourage transportation investments that support sustainable development, enhance quality of life, and promote healthy communities.
5. Promote Efficient System Management and Operation
- a. Encourage the use of Transportation System Management (TSM) principles to mitigate capacity deficiencies on congested roadways and at intersections.
 - b. Encourage greater use and acceptance of access management policies and devices (e.g. medians, turn restrictions, combined entrances) to maintain adequate transportation system capacity and to enhance safety for the traveling public.
 - c. Support the deployment of appropriate Intelligent Transportation Systems (ITS) investments according to the Regional ITS Architecture as a means of achieving better management and operations of the existing transportation system.
6. Enhance Integration and Connectivity of the Transportation System Across and Between Modes
- a. Integrate land use planning and transportation project planning – utilize the Land Use & Growth Management Plan and neighborhood plans to ensure greater consideration of land use changes and new development relative to existing transportation infrastructure and/or the need for new transportation infrastructure. The planning process for new development and redevelopment must consider walkability, bicyclist, and transit access issues in the design of each project.
 - b. Consistent with complete streets principles, retrofit existing transportation facilities, where possible, to accommodate pedestrians, bicyclists, and transit users to enhance connectivity between modes.
 - c. Improve capacity, pavement maintenance, and design of roadways and bridges that connect Forbes Field, Philip Billard Airport, and other significant industrial park sites throughout the Metropolitan Planning Area with key corridors in the region to accommodate higher traffic flows, especially for shippers and haulers.
 - d. Encourage the City and County Planning Commissions to require that appropriate transportation infrastructure is in place prior to approving proposed development.
7. Emphasize Maintenance and Preservation of the Existing Transportation System
- a. Invest resources so that preservation of existing system assets (roads, bridges, transit vehicles, etc.) in all modes receives the highest priority in annual and multi-year budgeting and programming processes.
 - b. Implement funding mechanisms capable of providing ample funds for the preservation of existing transportation facilities and services throughout the region at current quality and service levels, and to improve the facilities and services in the regional transportation system in accordance with the recommendations of this Plan.

Futures2040 Goals and Objectives

Based on federal goals, public input, and an analysis of other transportation plans in the region, including the last RTP, five general goals emerged to guide this plan’s decision-making. Generally, they match or include all eight federal goal areas and they follow the general themes heard throughout the public engagement process. In order to assure that these goals are being met, several performance measures were also selected to determine progress.

This set of goals was deliberately meant to be simpler than the past plan’s goals. This makes the goals of the plan easier to communicate with the public, and it better resonates with the public’s general concerns. In order of importance, this plan’s goals are as follows:

1. Maintain Existing Infrastructure
2. Improve Mobility and Access
3. Increase Safety for All Modes of Transportation
4. Enhance Quality of Life
5. Promote Economic Development

The ways in which these goals correspond to federal planning factors can be seen in Figure 6.4. Performance measures that can help accomplish these goals can be seen on the following page.



FIGURE 6.4: Futures2040 Planning Goals

	Economic Vitality	Safety	Security	Accessibility and Mobility	Quality of Life	Integration and Connectivity	System Management	Preservation	Resiliency and Reliability	Travel and Tourism
System Preservation								X		
Improve Mobility and Access within the Topeka MPA				X		X	X			
Increase Safety for Users of all Transportation Modes		X	X				X			
Enhance Quality of Life					X				X	X
Promote Economic Development	X									X

PERFORMANCE MEASURES

National performance measures required the MTPO to increase its use of data and performance measures within planning. Communication about this data has occurred through visualization, scenario planning, and other tools to communicate performance information throughout the planning process. The Federal Highway Administration requires specific performance-based transportation planning measures to be analyzed:

1. Pavement Condition
 - a. KDOT (p. 74): interstate highways 85% in good condition, non-Interstate highways 80% in good condition. As of 2016 prior to the I-70 overlay, these goals are not being reached with interstate highways being 30% in good condition and non-interstate highways being 58% in good condition.
 - b. City of Topeka (p. 75): the City Council is discussing the average Pavement Condition Index (PCI) that should be their goal. A performance measure will be finalized soon. Currently their PCI is at 55. The City has a goal of reaching a PCI of 60 in 10 years and eventually reaching a PCI of 70.
 - c. County (p. 77): the County aims to keep all their roads in good condition. When a road segment falls below a good rating, an action is programmed.
2. Bridge Condition (p. 77) – no performance measures have been established. Currently, 63% are in good condition.
3. System Reliability/Mobility (p. 73) – no performance measures have been established. Currently, less than 0.3% of all roadway types have less than severe congestion and less than 4.1% are congested.
4. Freight Movement (p.130)– no performance measures have been established. Currently only 3.7% of freight movement is congested.
5. Safety Performance
 - a. Number of fatalities (p. 82) – adopted the Strategic Highway Safety Plan (SHSP) for Kansas goal of cutting the number of fatalities that occurred in 2009 by 50% by the year 2029. Rolling 5-year averages are used. As of 2015, fatalities are above what is desired at 15.6 average over 5 years; this goal is currently not being reached.
 - b. Fatality rate (p. 85)– adopted SHSP goal of 0.575 fatalities per 100 million vehicle-miles traveled by the year 2029. Rolling 5-year averages are used. As of 2015, the 5-year average fatality rate was 0.983, within the standard set for the goal.

- c. Number of serious injuries (p. 88) – adopted the Strategic Highway Safety Plan (SHSP) for Kansas goal of cutting the number of serious injuries that occurred in 2009 by 50% by the year 2029. Rolling 5-year averages are used. As of 2015, there was a 5-year average of 61 injuries, within the standard set for the goal.
- d. Serious injury rate (p. 88) – adopted SHSP goal of 2.435 serious injuries per 100 million vehicle-miles traveled by the year 2029. Rolling 5-year averages are used. As of 2015, there was a 5-year average of 3.846 injuries per 100 million VMT, within the standard set for the goal.
- e. Non-motorized fatalities + serious injuries (p. 121) – set a goal of maintaining the existing number. Rolling 5-year averages are used. As of 2015, there was a 5-year average of 8 fatalities + serious injuries per year, above the goal.

The Federal Transit Administration is also currently identifying performance measures that must be analyzed. Currently, it is in the process of determining which performance measures it will choose. Possible measures include:

1. Riders Per Service Hour (p. 101) – As of 2015, TMTA had 21 RPSH
2. Population Within ½ Mile of Fixed Route Service (p. 103): 85.3% of Topeka residents
3. On-Time Performance (p. 103) – As of a 2016 7-day survey, 95% of observed trips were on time
4. Fleet Age (p. 103) – As of 2016, the fixed route bus fleet averaged 5 years of age

In addition to performance measures required by federal law, additional benchmarks were identified to help the Topeka MPA reach its planning themes. These benchmarks and their current situation can be seen below:

1. Pedestrian Counts (p. 113): As of 2015, 285,800 pedestrians were counted in select locations.
2. Presence of sidewalks on both sides of major thoroughfares (p. 115): As of 2015, 69% have sidewalks on both sides. The Pedestrian Master Plan set a goal of increasing that to 95%
3. Bicyclist Counts (p. 115): As of 2015, 237,900 bicyclists were counted in select locations.
4. Population within ¼ mile of the bicycle system (p. 115): As of 2016, 58.4% of the MPA was within ¼ miles of the bicycle system.

While these benchmarks are not performance measures and will not be collected regularly, they will be periodically reviewed to ensure the plan is having its intended effects.



CHAPTER SEVEN

RECOMMENDATIONS

Based on outcomes of the Travel Demand Model Scenarios, the Financial Forecast, and the five themes of this transportation plan, recommended projects were identified for all modes of transportation. To ensure a fit with existing revenues, projects costs were also evaluated for every project. This chapter concludes with a comparison of the project expenditures of recommended projects and projected revenues through 2040.

Making Great Streets in Topeka

The American Planning Association has developed a list of the characteristics of Great Streets. The twelve characteristics of great streets is an excellent guide for the City of Topeka, Shawnee County and the Kansas Department of Transportation to consider during project development for roadway projects inside the Topeka Metropolitan Planning Area.

Following the APA's guidelines for Great Streets will build upon Great Streets already being enjoyed in the region. Some examples are:

- **Topeka Boulevard Bridge.**
- **Kansas Avenue from 6th to 10th Street.**
- **Washburn Lane Parkway from 6th to 21st Street.**
- **17th Street from Washburn Lane Parkway to MacVicar.**



Topeka Boulevard Bridge



Washburn Lane Boulevard

12 CHARACTERISTICS OF GREAT STREETS

- The street provides orientation to its users, and connects well to the larger pattern of ways.
- The street balances the competing needs of the street — driving, transit, walking, cycling, servicing, parking, drop-offs, etc.
- The street fits the topography and capitalizes on natural features.
- The street is lined with a variety of interesting activities and uses that create a varied streetscape.
- The street has urban design or architectural features that are exemplary in design.
- The street relates well to its bordering uses — allows for continuous activity, doesn't displace pedestrians to provide access to bordering uses.
- The street encourages human contact and social activities.
- The street employs hardscape and/or landscape to great effect.
- The street promotes safety of pedestrians and vehicles and promotes use over the 24-hour day.
- The street promotes sustainability through minimizing runoff, reusing water, ensuring groundwater quality, minimizing heat islands, and responding to climatic demands.
- The street is well maintained, and capable of being maintained without excessive costs
- The street has a memorable character

List courtesy of the American Planning Association.



Kansas Avenue

There are several factors that should be considered in designing Great Streets in Topeka. These include giving consideration to design elements that can either enhance or detract from the roadway.

Streetscape Elements. Streetscape features, such as street lights, trees and landscaping, and street furniture can contribute to the unique character of key corridors around Topeka. Additionally, streetscapes have been proven to calm traffic and encourage bicycle and pedestrian traffic by creating safe spaces. Enhancements to the streetscape such as special paving treatments and street furnishings can contribute to the experience for pedestrians and help define neighborhood character. Well-designed streetscapes can support activities in neighborhood business districts, and make walking an attractive choice for getting around the city. Some additional factors leading to Great Streets might include:

Completing the Streets. As previously mentioned, Topeka, Shawnee County and MTPO have all adopted Complete Streets policies. Together, these policies will over time make the region safer and more enjoyable by all roadway users, including pedestrians, cyclists, transit riders and people driving passenger vehicles.

Burying Overhead Power Lines. Many of the major streets in the region have overhead power lines that significantly contribute to the visual blight along these corridors. Often these power lines are located inside the publicly-owned rights-of-way or in utility easements adjacent to the rights-

of-way. The major challenge is the high cost of converting existing facilities to underground electrical systems. Underground power lines can be between five to 10 times more expensive than systems using overhead power lines and wood poles or steel towers. However, it may be possible when road construction projects require utilities to be relocated to work with the utility provider to bury overhead power lines in strategic locations.

Designing with Nature. Even in a highly urban context like downtown Topeka, it is possible to introduce nature into the streetscape. Several years ago, a project on Jackson Street north of 7th Avenue removed a traffic lane to improve storm drainage and mitigate run-off. Another benefit can be achieved by properly locating street trees along the roadside and in medians to enhance safety for both pedestrians and motorists by creating well-defined roadside edges that encourage motorists to pay more attention while driving.

Celebrating with Public Art. Public art is a means of beautifying the streetscape and expressing the identity of places. Topeka has done a fantastic job integrating public art on Kansas Avenue, in NOTO, and at Washburn University. One advantage of this streetscape element is that it presents opportunities for public and private partnerships. The public can provide the space in which to display the art. The private sector can raise the funds needed to purchase the art. Together, the public and private sectors can craft the themes that will be addressed by the public art in high profile public locations.



Overhead Power Lines on Wanamaker Avenue



Stormwater Mitigation on Jackson Street

The plan recommends that Great Streets Plans be developed for several key corridors in the Topeka region, including:

- Topeka Boulevard from US-24 Highway south to US-75 Highway.
- Kansas Avenue from Gordon Street south to Topeka Boulevard.
- SE 29th Street from Topeka Boulevard east to SE Adams Street.
- SE 6th Street from I-70 east to SE 10th Street.
- SW Wanamaker Road from I-70 south to SW 21st Street.
- US-24 Highway from K-4 Highway west to US-75 highway.
- SW 12th Street & SW Huntoon Complete Street Evaluation.

The plan recommends \$100,000 for each of the five-year periods to prepare Great Streets Plans to identify what types of streetscape elements and Great Street characteristics should be included in the design of future roadway improvements on selected corridors.

Topeka, Shawnee County, and KDOT should consider including streetscape elements and determine which Great Streets characteristics should be incorporated into the design of other roadways in the MPA as projects are selected and preliminary engineering commences.



FIGURE 7.1: Great Streets and Great Street Planning Priorities

RECOMMENDATIONS FOR ROADWAYS

The recommended roadway plan focuses on preservation of the existing transportation infrastructure, reconstruction of a portion of I-70, and a continued focus on providing a safe and efficient roadway network to meet the current and future year needs of area residents and the regional economy.

During the issues identification and data collection stage of developing the Regional Transportation Plan, the project team confirmed that the top priority of residents and transportation stakeholders was to maintain and repair existing roads, bridges, sidewalks, and trails. The second highest priority was to improve traffic operations at intersections by providing additional turn lanes, traffic signals, or other improvements that benefited motorists, bicyclists and pedestrians.

The analysis of existing and expected future traffic operations showed that the region does not experience high levels of severe traffic congestion, despite using an aggressive model to put unexpected pressure on the system. Congestion that does occur on city streets is primarily due to the design and operation of the intersections rather than the need for additional lanes along a corridor. Analysis does show congestion occurring and increasing along sections of I-70 that will need to be addressed.

The existence of two local sales taxes, a ½ cent City sales tax and a ½ cent County sales tax, demonstrates that local government agencies and the public understand the importance of continuing to improve the current roadway infrastructure within the region. The 2040 Futures Plan supports the on-going efforts of local agencies to improve the overall safety and efficiency of traffic operations within the region.

Highways:

In reviewing the current and expected future traffic conditions, it is apparent that I-70 should be the focus of the recommended highway reconstruction. System preservation of existing highways is a priority.

The I-70 Polk-Quincy Viaduct Corridor Concept Study has identified needed improvements to I-70 from the MacVicar Avenue interchange east through downtown to a point between the Adams Street and California Avenue interchanges. Construction plans have been developed to the “field check” (preliminary design) stage and final design plans will ultimately be developed to reconstruct this section of I-70. This project is a priority due to the condition of the I-70 Polk-Quincy Viaduct which is nearing the end of its design life.

Travel forecasting and modeling have identified a potentially greater need from a traffic flow standpoint. The travel demand model for the year 2040 shows the segment of I-70 between I-470 and MacVicar Avenue as the most congested portion of this highway. This includes the section of roadway where highways I-70 and US-75 overlap; a key connection for motorists as well as freight movement.

The Plan recommends:

- Finalize plans and construct the first phase of the I-70 Polk-Quincy Viaduct Corridor project. This phase would include replacing the Polk-Quincy Viaduct, realigning and replacing the I-70 pavement from the MacVicar Avenue interchange to approximately 5th Street, relocating several ramps to provide connections to city streets that better support current and future land uses, and increasing the design speed of the curve near 3rd Street. This project would be included on the list of funded projects.
- Finalize plans for the second phase of the I-70 Polk-Quincy Viaduct Corridor project. This phase improves I-70 from 5th Street to east of the Adams Street interchange, replacing the I-70 pavement, relocating several ramps, and improving the curve near 10th Street. This project would be placed on the illustrative projects list and constructed if additional funding becomes available.
- Study the section of I-70 from I-470 to MacVicar Avenue and the segment of US-75 from I-70 to US-24 to determine appropriate improvements that will address the expected growth in traffic. This study is included on the list of funded projects.

Pavement condition is also a focus area for highways. Overall the condition of highway pavements appears to be declining.

The Plan recommends:

- Continue pavement rehabilitation and replacement for existing highways.

The Kansas Turnpike Authority has current projects that will improve traffic operations and safety at the South Topeka and East Topeka toll plazas. Planning will continue for a potential new KTA interchange at SE 29th Street.

The Plan includes:

- Construction at the south terminal during 2017 and 2018 that will re-deck and widen the turnpike bridges over Topeka Boulevard and the railroad, improve the ramps, and replace the toll plaza. This project is included on the list of funded projects.
- Construction during 2018 will replace the East Topeka toll plaza and allow “open road” tolling – drivers will no longer be required to stop; tolling will take place electronically. This project is included on the list of funded projects.

- Resurfacing of the turnpike will take place periodically and is included on the funded list.

The plan includes a minimum of \$500,000 in funding for partial preliminary engineering (PE) for a new interchange on I-470 at SE 29th Street which would provide the only break within a 6-mile stretch of Turnpike on the City’s east/southeast side primarily serving a large EJ population. At this time, no construction funding was identified for this project because the estimated cost (\$16-\$23 million) was not affordable to the region without undermining the Plan’s system preservation priorities. In addition, the project is not feasible either for the Kansas Turnpike Authority who’s own revenue analysis showed it would not sufficiently cover their cost to construct (it would cover operational costs though). Therefore, it would benefit the region’s stakeholders to initiate PE work and advance it to the point where enough design is complete to position the project as “shovel ready” and seek other local, state, or federal transportation/ economic development dollars for construction purposes.

FIGURE 7.2: State Highway Costs

State Highway Projects		2017-2020	2021-2025	2025-2030	2030-2035	2035-2040
KDOT-1	Polk-Quincy Viaduct Phase 1 (PE)		\$10,240,000			\$10,240,000
KDOT-2	Polk-Quincy Viaduct Phase 1 (R/W, Utilities & Construction)		\$306,640,000			\$306,640,000
KDOT-3	Polk-Quincy Viaduct Phase 2					Illustrative
KDOT-4	I-70 & US-75 Corridor Study		\$500,000			\$500,000
KDOT-5	I-70 widen from 4-lanes to 6-lanes from MacVicar west to I-470					Illustrative
KDOT-6	I-70 & I-470 interchange capacity enhancement					Illustrative
KDOT-7	US-75 widen from 4-lanes to 6-lanes from I-70 north to US-24					Illustrative
KDOT-8	System Preservation Projects (I-470, US-24, US-75)			\$50,000,000	\$50,000,000	\$50,000,000
KDOT-9	O&M	\$7,156,386	\$9,867,610	\$10,892,196	\$11,916,781	\$12,941,367
KTA-1	KTA South Topeka Toll Plaza Operational Improvements	\$20,000,000				\$20,000,000
KTA-2	KTA East Topeka Toll Plaza Operational Improvements	\$18,000,000				\$18,000,000
KTA-3	Resurfacing Program		\$7,400,000		\$9,176,000	\$10,360,000
	Sub-Total	\$52,317,386	\$152,767,610	\$142,892,196	\$71,092,781	\$73,301,367
						\$26,936,000
						\$492,371,340

Topeka Streets and Bridges:

During the time period covered by this Plan, projects should focus on system preservation (pavement rehabilitation or replacement) rather than expansion (new streets or street widening). The City is taking an in-depth look at the condition of street pavements with a goal of maintaining or improving existing conditions. In addition, the City's Complete Streets Policy will address the needs of transit, bicyclists, and pedestrians as well as that of motorists.

The Plan recommends:

- Pavement reconstruction projects based upon the outcome of the City's analysis of pavement conditions on city streets. These projects are included on the funded projects list.
- Traffic signal replacement projects as determined by the City. These projects are included on the funded projects list.
- Intersection capacity improvement projects as determined by the City. These projects are included on the funded projects list.
- Traffic safety projects as determined by the City. These projects are included on the funded projects list.
- Bridge rehabilitation and replacement projects as determined by the City. These projects are included on the funded projects list.
- Study the possible conversion of SW Huntoon and SW 12th Street to one traffic lane plus a protected bicycle lane between Gage Boulevard and Topeka Boulevard. This study is included on the funded projects list.
- New road: Southwest Parkway from Wanamaker Road to Gage Boulevard/37th Street. This project is included on the illustrative list of projects and could be constructed if additional funds become available to the region.
- New interchange on I-470 (Kansas Turnpike) at SE 29th Street. This project is included on the illustrative list of projects and could be constructed if additional funds become available to the region as further detailed and recommended on page 185.

FIGURE 7.3: Topeka Roadway Project Costs

Topeka Roadway Projects		2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	
Topeka-1	Southwest Parkway						Illustrative
Topeka-2A	Preliminary Engineering for New Interchange on I-470 (Kansas Turnpike) at SE 29th		\$500,000				\$500,000
Topeka-2B	New Interchange on I-470 (Kansas Turnpike) at SE 29th						Illustrative
Topeka-3	SW Huntoon & SW 12th from Topeka Blvd west to Gage Blvd - STUDY	\$50,000					\$50,000
Topeka-4	Pavement Rehabilitation & Reconstruction Projects (Various Locations)	\$65,800,000	\$104,500,000	\$114,000,000	\$123,500,000	\$133,000,000	\$540,800,000
Topeka-5	Traffic Signal Replacement (Various Locations)	\$2,560,000	\$4,867,500	\$5,310,000	\$5,752,500	\$6,195,000	\$24,685,000
Topeka-6	Traffic Safety Projects (Various Locations)	\$740,000	\$1,210,000	\$1,320,000	\$1,430,000	\$1,540,000	\$6,240,000
Topeka-7	Intersection Improvements (Various Locations)	\$6,120,000	\$11,000,000	\$12,000,000	\$13,000,000	\$14,000,000	\$56,120,000
Topeka-8	Bridge Maintenance & Replacement (Various Locations)		\$17,500,000	\$17,500,000	\$17,500,000	\$17,500,000	\$70,000,000
Topeka-9	Streetscape Design Plans (various locations)	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000
Topeka-10	Arvonía from Winding to 17th (widening 3-lanes to 5-lanes)		\$2,200,000				\$2,200,000
	Sub-Total	\$75,270,000	\$141,777,500	\$150,130,000	\$161,182,500	\$172,235,000	\$701,095,000

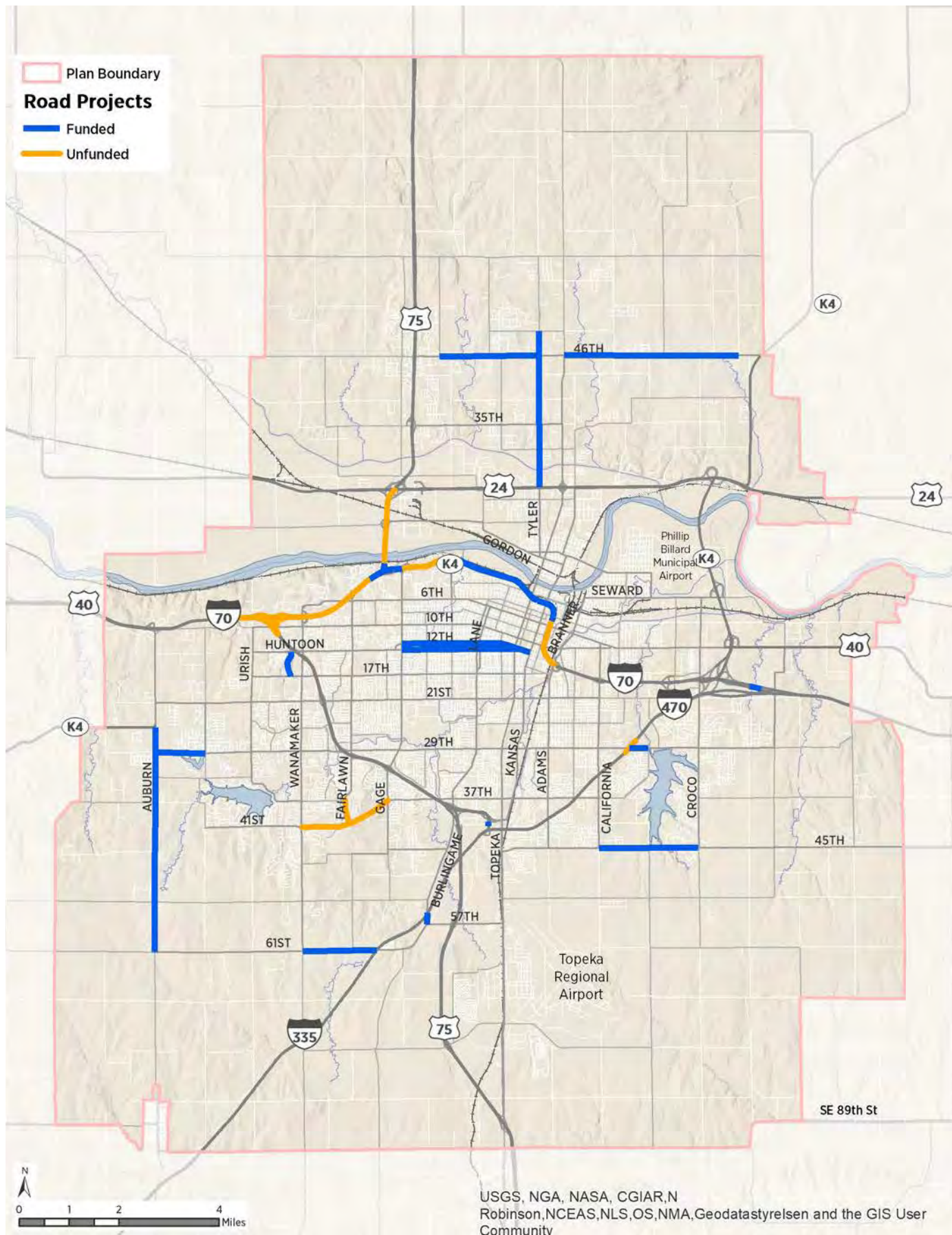


FIGURE 7.4: Planned Roadway and Highway Projects

County Roads and Bridges:

During the time period covered by this Plan, projects should focus on system preservation (pavement rehabilitation or replacement) rather than expansion (new roads or road widening to add through lanes). The County has an effective pavement maintenance and rehabilitation process that has maintained county roads in good condition.

The projects listed on Figure 7.5 are pavement reconstruction projects. These projects also add a center turn-lane, which primarily increases safety for users while provided some improvements in flow. Most are two-lane to three-lane projects. One project is four-lane to five-lane.

The Plan recommends:

- Pavement replacement projects as noted in Figure 7.5.
- Pavement resurfacing and rehabilitation projects recommended by the County's pavement management process.
- Bridge rehabilitation and replacement projects as determined by the County. These projects are included on the funded projects list.

FIGURE 7.5: Shawnee County Roadway Project Costs

Shawnee County Roads		2017-2020	2021-2025	2025-2030	2030-2035	2035-2040
SNCO-1	NW 46th Street (Button - Rochester)		\$846,000	\$8,454,000		\$9,300,000
SNCO-2	NW Rochester (Hwy 24-NW 50th)			\$13,700,000		\$13,700,000
SNCO-3	SE 29th Street Bridge over Deer Creek along with improvements to SE 29th/Westedge Road (3 to 5 lanes)	\$3,680,000				\$3,680,000
SNCO-4	SE 45th (California - Berryton)		\$3,000,000			\$3,000,000
SNCO-5	SE 45th (Berryton - Croco)		\$3,000,000			\$3,000,000
SNCO-6	SW 29th (Indian Hills - Auburn)		\$3,300,000			\$3,300,000
SNCO-7	SW Auburn (K-4 - 37th)			\$4,500,000		\$4,500,000
SNCO-8	NE 46th (Topeka - Indian Creek)			\$3,000,000		\$3,000,000
SNCO-9	SW Auburn (37th - 45th)			\$3,000,000		\$3,000,000
SNCO-10	SW 61st (Wanamaker - KTA Bridge)				\$6,000,000	\$6,000,000
SNCO-11	NE 46th (Indian Creek - Meriden)				\$3,000,000	\$3,000,000
SNCO-12	SW Auburn (45th - 53rd)				\$3,000,000	\$3,000,000
SNCO-13	SW Burlingame (57th - KTA Bridge on SW 61st)					\$1,500,000
SNCO-14	NE 46th (Meriden - Kincaid)					\$4,500,000
SNCO-15	SW Auburn (53rd - 61st)					\$3,000,000
SNCO-16	Bridge Maintenance & Replacement (Various Locations)	\$7,800,000	\$9,750,000	\$9,750,000	\$9,847,500	\$9,945,000
SNCO-17	O&M	\$39,574,528	\$51,413,661	\$53,933,662	\$56,203,663	\$58,473,664
	Sub-Total	\$51,054,528	\$71,309,661	\$96,337,662	\$78,051,163	\$77,418,664

RECOMMENDATIONS FOR TRANSIT

Public transportation in the Topeka MPA is vital to connecting thousands of citizens to education, employment, health care, and many other needs every year. The Topeka Metropolitan Transit Authority (TMTA) provides an efficient and effective means of linking people and destinations with a service coverage area reaching over 80% of Topeka's population. Looking to the future, public transit will face several challenges and have many opportunities to improve services for its riders and the community.

The primary challenge that will continue to face TMTA, and its ability to provide mobility within the MPA, will be constrained operational funding. It is unlikely that TMTA will see a significant increase in its operational revenue for the foreseeable future to allow for an expansion of fixed route bus service to new areas, extended hours of service, or improved headways.

However, TMTA also has many opportunities to develop how it operates as an agency and improve its multi-modal mobility services which fall into three general areas: Policy Changes, Operational Improvements, and Capital Improvements. Recommendations were developed using public and stakeholder input, along with input from TMTA staff.

Policy Recommendations

IMPROVED COORDINATION WITH CITY OF TOPEKA

TMTA should continue collaborating with the City of Topeka to coordinate planning and development efforts and better integrate public transit needs into future adopted plans and requirements for new development or reconstruction projects. Connectivity to bus stops and meeting American with Disabilities Act requirements remain a challenge for transit riders. Sidewalks do not exist along all transit routes, and where sidewalks have been constructed, they may not connect to the curb where transit boarding and alighting take place. TMTA should coordinate with the City of Topeka to construct these connections between sidewalks and transit stops as street repairs, mill and overlay projects are conducted. Incorporating these connectivity improvements when construction crews are mobilized make improvements more cost efficient. In the plan review process for new developments, accommodations for sidewalks and where necessary, connections for public transit, should be considered. City Planning and TMTA staff should establish a formalized plan review process that addresses public transit needs as new development is considered.

CONTINUED AND IMPROVED COORDINATION WITH RURAL TRANSIT PROVIDERS AND KDOT

The City of Topeka and Shawnee County are currently in Coordinated Transit District (CTD) 1, known as the 'Urban Corridor' along with Douglas, Johnson and Wyandotte

Counties. Currently their Coordinated Transit Plans are being updated. TMTA should continue its efforts to efficiently and effectively coordinate with rural transportation providers the CTD and assist KDOT in the development of the revised plan.

PURSUE GRANT OPPORTUNITIES FOR CAPITAL IMPROVEMENTS

To help meet the needs for improvement of TMTA's capital assets, the agency should continue to aggressively pursue grant opportunities from federal and other sources. TMTA should seek projects and opportunities that align with these and future competitive grant programs as they change over the coming years.

FOCUS ON EDUCATIONAL AND WORKFORCE CONNECTIONS

Transit services in the Topeka MPA should provide effective transportation services that connect citizens to educational and employment opportunities. TMTA should build on existing successful partnerships with USD 501 and Washburn University and develop similar partnerships with other community colleges or technical training institutions in the metro to provide transit passes to students at those institutions. Similar programs and partnerships could be developed with large employers in the region such as hospitals, Blue Cross/Blue Shield, and the City of Topeka among others.

SEEK OPPORTUNITIES FOR REGIONAL AND STATEWIDE PARTNERSHIPS

Over the coming years, TMTA should work with other fixed route transit providers to establish partnerships for purchasing heavy-duty transit vehicles. Currently KDOT manages a program for the purchase of smaller, light-duty transit vehicles, but not 35' – 40' transit buses. By collaborating with transit agencies in Wichita, Lawrence, Manhattan and others, cost savings may be found by placing larger orders for transit vehicles from manufacturers in the future. Along with collaboration and coordination of vehicle purchases, TMTA should advance efforts to for 'Mutual Aid' agreements with the other fixed route transit service providers in the state. These agreements would provide transit operators in Topeka and other areas of the state the ability to rapidly respond to natural disasters or other significant disruptions to regular transit service by establishing a system where partnering agencies may supply personnel and/or equipment to resume transit service in emergency situations

Operational Recommendations

INVESTIGATE SERVICE EXPANSION TO MAJOR EMPLOYERS

A significant short-term goal for TMTA is to provide alternative transportation solutions for employees traveling to and from the workforce center in South Topeka (area indicated in Figure 7.6). Seven of the largest businesses in the area currently employ more than 3,000 people.

In 2013, Topeka Metro began a planning process to understand the feasibility of providing transit service to South Topeka. During this process, TMTA surveyed 5 of the largest businesses to learn about shift changes, incentives and barriers to using transit, and zip code origins of employees. This data enabled TMTA to identify peak and non-peak hours with two primary models considered:

1. Bus service from an existing stop at Wal-mart South to South Topeka during peak morning and afternoon hours, with taxi service offered during non-peak hours.
2. All-day bus service from 6:45am – 6:30pm with taxi service outside of those hours. The all-day service model was projected to cost \$285,000 annually.

Go Topeka, the economic development arm of the Topeka Chamber of Commerce, identified a South Topeka workforce bus route as a possible transportation initiative. Due to TMTA's limited operational funding, financial support from the Chamber of Commerce would be a critical component of implementing transit service in this area.

With continued interest from Topeka Metro, Go Topeka, and the Joint Economic Development Organization, TMTA has restarted planning efforts in 2017 for transit service to this area. Seven South Topeka businesses have been approached for an updated survey, and TMTA will provide additional service models that may lower projected costs of implementation and adapt for changing transit needs throughout the day. Through this new process, TMTA is developing a diagnostic tool that will match workforce center conditions at different times of day to effective transit strategies that meet different levels of demand. By June 2017, TMTA plans to present a set of alternative implementation strategies to the Joint Economic Development Organization for discussion and consideration.

EXTEND SERVICE HOURS

As funding becomes available, TMTA should continue to seek ways to extend its hours of operation later into the evenings. Currently, transit services end by approximately 7:30pm. Extending the end of service to 10:00 or 11:00pm would provide many more employment opportunities for transit users working 3rd shifts or in retail industries that stay open later.

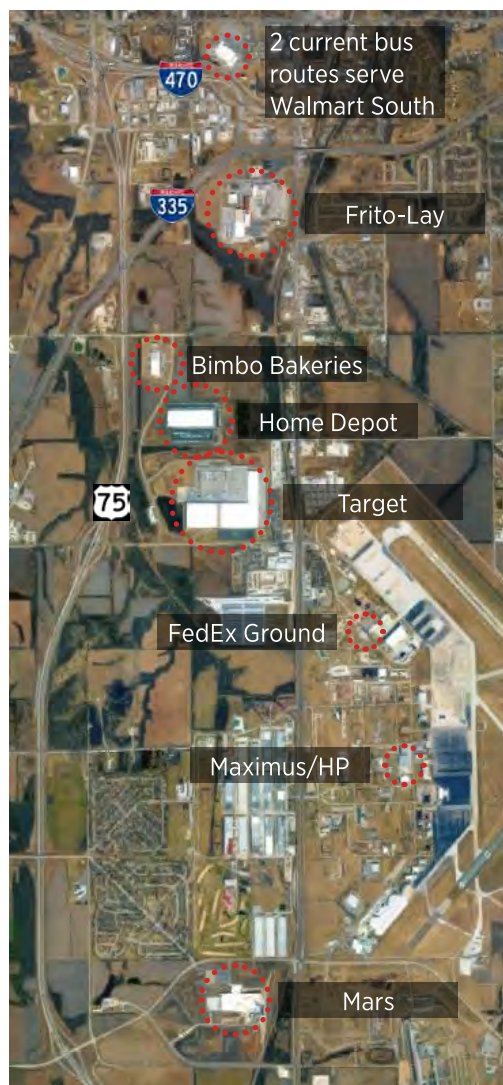
IMPLEMENTATION OF INTER-CITY BUS ROUTES

Building off the I-70 Corridor Transit Feasibility Study in 2014 and working with KDOT and transit service providers in Manhattan, Lawrence, Wyandotte County, Johnson County and the Kansas City Area Transportation Authority, TMTA should continue to move towards the implementation of an inter-city bus system that would connect daily commuters between these communities and better connect this region or northeastern Kansas.

INTERMODAL CONNECTIONS

TMTA should work with private inter-city bus providers such as Greyhound, Trialways, or MegaBus to create a stop at the Quincy Street Transit Center. This new connection would provide a second intermodal connection to supplement the Amtrak connection currently served. Along with the inclusion of Greyhound and Amtrak service coordination, TMTA should monitor commercial flight activity at the Topeka Metropolitan Airport to determine if transit service is warranted when more commercial flights serve the airport.

FIGURE 7.6: South Topeka Workforce Area



INTEGRATION OF TECHNOLOGY

TMTA is currently deploying Automatic Vehicle Location devices on its bus fleet. This will allow the agency to track buses in real-time and provide a great source of operational data, including a better ability to track on-time performance. TMTA should continue to integrate new technologies that makes transit usage more convenient for passengers such as real-time next bus arrival, bus tracking, and fare payment options. TMTA should investigate the costs associated with offering free Wi-Fi access onboard all buses. TMTA should also invest in technology improvements that support enhanced operations dispatching, planning, scheduling and fare collection. Technology improvements can make use of the transit system more convenient, reliable, and easy to understand for customers and make the operation of the system more efficient and effective for TMTA staff.

age, more mechanical failures are to be expected and costs rise to maintain vehicles. This can have a negative impact of the performance and reliability of the transit system. TMTA should work to stay ahead of its vehicle replacement needs to maintain its already strong system performance into the future.

Capital Improvement Recommendations

STAGGERED FLEET REPLACEMENT

As noted in Chapter 3, most of TMTA’s bus fleet will reach 12 years by 2024, defined by the FTA as the end of useful life. As funding for vehicle replacement has become more difficult to secure for smaller and mid-sized transit agencies, it will be unlikely that TMTA will have the funds necessary to replace most of its vehicle fleet in a single purchase. TMTA should develop a staggered vehicle replacement program aimed at purchasing 2-5 vehicles every 3-5 years. This staggered approach will help TMTA avoid a position where more buses need replacement than funds available. As transit vehicles

CLEAN / LOW EMISSION BUS FLEET

As TMTA’s bus fleet is replaced, the agency should investigate the conversion of the fleet to low or no-emission vehicles such as Hybrid diesel-electric or all electric vehicles. Deploying these types of vehicles provides two primary benefits, first in lower costs for fuel and second in improved air quality for the Topeka area. TMTA may need to conduct a cost benefit analysis to determine if the additional capital cost of low/no-emission vehicles would be off set in fuel savings and overall air quality improvements.

NEW TMTA OPERATIONS/MAINTENANCE FACILITY

As part of the Polk-Quincy Viaduct and other studies, several proposals for development of the Topeka riverfront area have been proposed. TMTA’s current office, maintenance and bus storage facility along the riverfront would require relocation if any of these redevelopment proposals were to advance toward implementation. TMTA should begin a conceptual planning process for the relocation and development of a new operations a maintenance facility in the central Topeka area. This analysis could include a conceptual needs assessment to determine space requirements and size of parcel necessary to support TMTA’s future operational requirements, an estimate of capital costs, an estimate of operational costs and identification of likely funding sources to construct a new facility.

FIGURE 7.7: Transit Projects Costs

Transit Projects		2017-2020	2021-2025	2025-2030	2030-2035	2035-2040
TMTA-1	Inter-regional Commuter Route to Lawrence					Illustrative
TMTA-2	Commuter Route to Lawrence - Service Development Plan (STUDY)	\$37,500				\$37,500
TMTA-3	South Topeka Blvd Employment Center Extension (STUDY)	\$25,000				\$25,000
TMTA-4	US-24 Highway Employment Center Extension (STUDY)		\$27,500			\$27,500
TMTA-5	Transit Capital Replacement	\$6,984,704	\$9,655,326	\$10,682,488	\$11,709,650	\$12,736,813
TMTA-6	Transit Operations	\$21,645,685	\$28,118,169	\$29,444,498	\$30,770,826	\$32,097,155
TMTA-7	Transit Administration	\$4,160,697	\$5,404,827	\$5,659,772	\$5,914,717	\$6,169,661
TMTA-8	Transit Maintenance	\$6,249,359	\$8,481,273	\$9,225,245	\$9,969,216	\$10,713,187
TMTA-9	Transit Maintenance Facility Relocation (STUDY)	\$50,000				\$50,000
	Sub-Total	\$39,152,945	\$51,687,095	\$55,012,002	\$58,364,409	\$61,716,816
						\$265,933,268

RECOMMENDATIONS FOR ACTIVE TRANSPORTATION

Pedestrian Recommendations

The Topeka Pedestrian Master Plan was completed to improve planning for the city’s multi-modal transportation system. It allows Topeka to focus on planning for non-motorized travel, specifically, Topeka’s pedestrian network. Quality of life can be greatly improved by making improvements to Topeka’s walking environment, leading to better safety and health amongst its residents, as well as community-building within neighborhoods and across the city. The following improvements are recommendations adapted from the Topeka Pedestrian Master, expanded by public and stakeholder input.

COMPLETE THE PEDESTRIAN NETWORK

Topeka’s currently has an extensive network of sidewalks in the middle of the city and on its outskirts, but there are large gaps in areas of the city. Even areas with sidewalks have a sporadic sidewalk network. Connecting sidewalks is important to mobility within neighborhoods, especially in areas where residents are more reliant on walking. It is not realistic to expect that every street in Topeka will have sidewalks, so routes to schools, bus stops, community centers, and parks should have higher priority, as should major thoroughfares since they have popular destinations and connect neighborhoods together. To help complete the pedestrian network, the pedestrian master plan should continue to receive funding for implementing sidewalks in high-priority areas.

Outside of Topeka, potentially important routes for more densely developed areas should be encouraged. For example, in Soldier Township, some subdivisions have sidewalks but do they do not connect to each other or to the broader pedestrian system. Larger extension along major arterials such as south along Washburn should be considered, especially near elementary and middle schools. These efforts are bolstered by Topeka’s and Shawnee County’s adopted “complete streets” policies requiring pedestrians to be considered in road reconstruction projects. New developments also need to consider developing the sidewalk network on an ongoing basis.

Note that implementing the current allocated funds are insufficient to reach the Pedestrian Plan within the timeframe of 2025. The plan estimate for required funds is \$21.2 million, compared to the \$5.2 million currently allocated.

MAINTAIN SIDEWALKS TO IMPROVE MOBILITY

Out-of-repair sidewalks in public streets are required to be repaired by abutting property owners. Many sidewalks need repair and there are surface inconsistencies throughout the system. The current complaint-based system for sidewalk issues does not allow proactive or prioritized maintenance until problems become severe. In addition, current private and public funding mechanisms for sidewalk repair are not adequate to address today’s maintenance needs. The City’s 50/50 cost share program for sidewalk repair needs to be altered so that it is more flexible and it also requires more funding. Property owners already must clear sidewalks of snow and ice 24 to 48 hours after weather events, but many are unaware of these requirements. Even more are unaware of the need for winter maintenance. A marketing campaign should encourage neighborly clearing of snow and ice to help children, seniors, people with disabilities and people without access to a car. In the county, most sidewalks are still relatively new, but regular maintenance should occur in order to prolong the life of the sidewalks.

CREATE A SAFE AND COMFORTABLE WALKING ENVIRONMENT

The pedestrian network is about more than sidewalks also includes other physical features such as crosswalks, street lights, benches, and curb ramps. Topeka has a robust network of pedestrian street crossings and uses signs, marked crosswalks, pedestrian warning lights, medians, and bump outs. Traffic engineers in the Topeka Public Works Department evaluate the merits of each possible crossing, but additional pedestrian features should be installed when warranted to improve safety. The need for pedestrian-focused lighting at night is an especially high priority. Street lights can be placed in ways that illuminate pedestrians better and keep them more visible for motorists. Efforts to remove obstructions should also continue to avoid making pedestrians difficult to see.

Wider buffer spaces between the sidewalk and the street translate to higher degrees of comfort for pedestrians, and

FIGURE 7.8: Pedestrian Project Costs

Pedestrian Projects		2017-2020	2021-2025	2025-2030	2030-2035	2035-2040
Ped-1	Sidewalk Construction & Repair	\$1,845,000				\$1,845,000
Ped-2	Sidewalk Construction & Repair		\$3,375,000			\$3,375,000
Ped-3	Sidewalk Construction & Repair			\$3,750,000		\$3,750,000
Ped-4	Sidewalk Construction & Repair				\$5,125,000	\$5,125,000
Ped-5	Sidewalk Construction & Repair					\$5,500,000
Sub-Total		\$1,845,000	\$3,375,000	\$3,750,000	\$5,125,000	\$5,500,000
						\$19,595,000

making larger buffers increases the safety of pedestrians. Benches on the street are also helpful for people who cannot walk or stand for great lengths of time, and their proper placement improves street life. Finally, features like curb ramps, truncated domes, and audible walk signals make it possible for people with disabilities to use the pedestrian network. New sidewalks should include these as they are constructed, and the City should continue retroactively improving the accessibility of the pedestrian network.

FOSTER A CULTURE OF WALKING

People love walking in the MPA, including Downtown Topeka, within neighborhoods, and through parks, but more can be done to improve the culture of walking in the MPA. Programming should be created for elementary and middle schools to allow children to safely and comfortably walk to school. The Public Works Department already supports walking to school through the maps. Detailed planning documents should be completed for each school, and “walking school buses” should be featured as part of these plans. Rural school districts should also consider safe ways to walk to school, especially in areas of the county where denser development patterns allow children to walk safely. Completing the pedestrian network will also support these efforts.

These efforts can be supported by the Complete Streets Committee which advises City staff on the implementation of the Pedestrian Master Plan, in addition to the Bicycle Master Plan. The development of neighborhood destinations also needs to be encouraged, so that Topekans have places to walk to, including stores, businesses, and restaurants.

Bicycle Recommendations

Topeka has completed major projects including recreational assets and Phases 1 and 2 of the Topeka Bicycle Master Plan, all steps towards a broader bicycle transportation system. This includes Shunga Trail (connecting the city’s east and west sides and downtown), the Landon Trail (serving southeast Topeka and the county), and Soldier Creek Trail (serving North Topeka). By continuing to modify streets, levees, greenways, drainageways, parks, open spaces, and other opportunities to expand and serve new destinations in the city, Topeka can further improve its bicycle system.

IMPLEMENT THE REMAINING PHASES OF THE TOPEKA BIKEWAYS MASTER PLAN

The Topeka destination-based bikeways system was designed to get people comfortably and safely where they want to go. For this reason, it features clear connections to key community features. The RTP recommends continuing the system’s development. While changing opportunities will modify the system’s phasing, steady progress should be made. This should be what most funding in Figure 7.11 is used to construct.

The bikeways plan starts with Phase 1 and 2 which are on reaching completion. Phase 1 used existing trails, easy street conversions, and gap-filling paths as a foundation for a comprehensive network. Phase Two fills out central, southwest, and southeast coverage, including connections to Lake Shawnee and on-street service parallel to Wanamaker. It anticipates the Levee Trail north of the Kansas River. The next three stages include:

- Phase 3: completes the on-street system that does not need major construction, including much of the west side’s bikeways street system, and limited service to the east. It anticipates the Kaw River Trail on the south bank and extension of the Levee Trail into North Topeka.
- Phase 4: adds some on-street connections, but assumes the bicycle mode share has increased to allow large capital projects, such as minor widening for bike lanes. Most Phase 4 projects are on the east and north peripheries of the city where rural road sections and development patterns encourage minor widenings. It may also enhance parts of the urban system. This Phase anticipates completion of the Polk/Quincy I-70 project and associated bike facilities.
- Phase 5: completes the system including major long-range projects that would be developed to complete street standards. Some of these projects (such as Urish Road) may be completed earlier in the process because of traffic and development demand, and phasing should adjust accordingly. This phase focuses on the north, west, and south peripheries of the city and may include upgrades of the in-city system to final design standards.

Note that as later stages are reached and the system extends into the County, the City and County will need to determine how to share the cost of those improvements.

ENCOURAGE PEOPLE TO USE THE BICYCLE FOR TRANSPORTATION AS WELL AS RECREATION

Topeka’s multi-use trails are well utilized and have a transportation function, but most users are recreational cyclists. Encouraging bicycling for trips for other purposes benefits the community in additional ways:

- Reduces fossil fuel use and greenhouse gas emissions, helping the city reduce its impact on the global environment and maintaining a healthy local environment.
- Marginally reduces road maintenance needs for heavily used systems.
- Builds community by enhancing the quality of civic life and causing people to interact; this in turn tends to attract people because of their community quality.
- Incorporated physical activity into normal routines, making the City healthier by reducing overweight and obesity rates, improving wellness, and lowering overall health care costs.

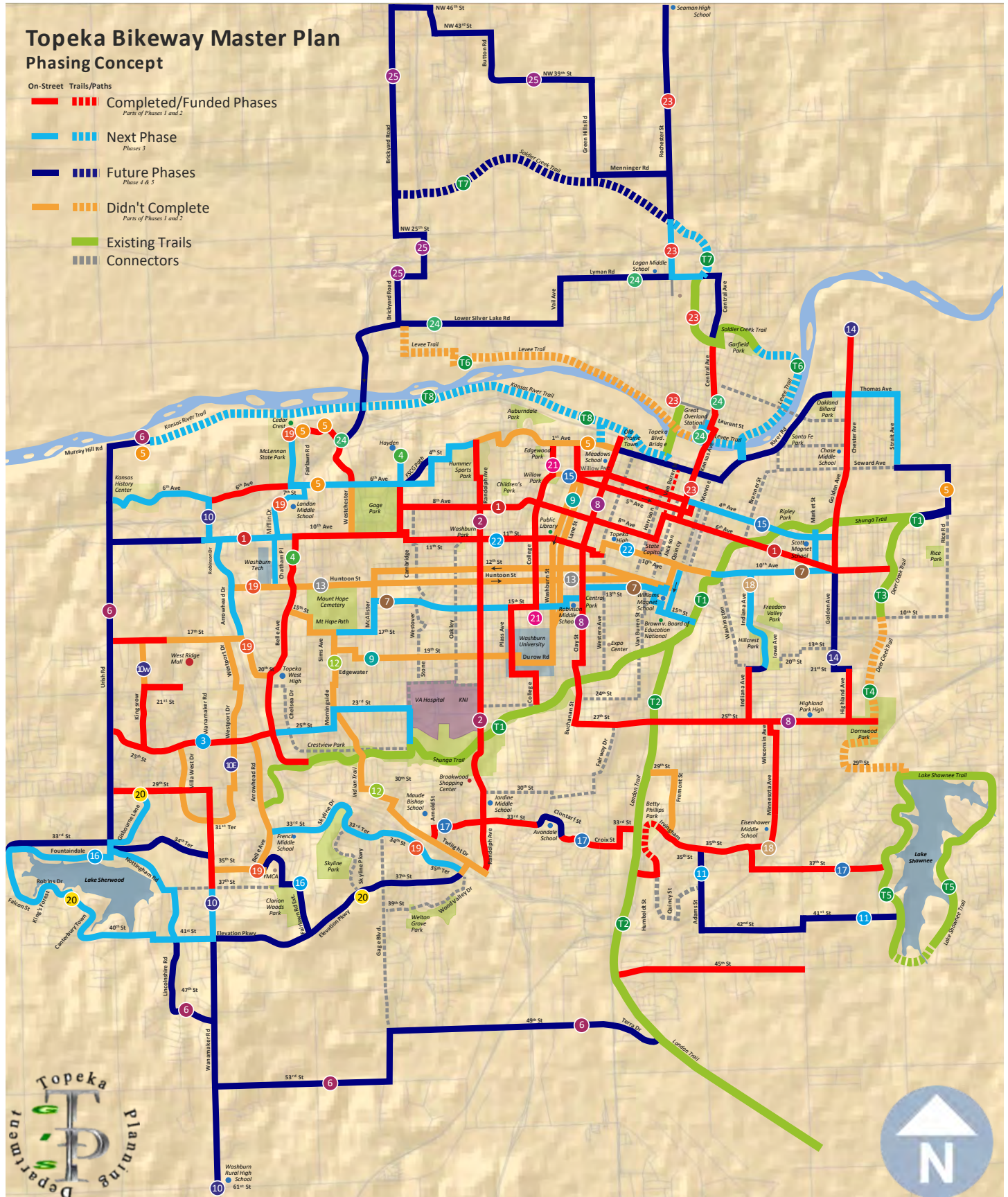


FIGURE 7.10: Existing Pedestrian Infrastructure and Priority Areas

For this reason, the plan recommends encouraging the use of bicycles by continuing to construct facilities that foster a safe and comfortable bicycling environment, as well as expanding participation in bicycle transportation through events, competitions, and education of people of all ages. Doing so can foster a culture of bicycling, which improves safety; national research indicates a strong relationship between the number of cyclists and bicycle crash rates, though it must be supported by education, enforcement, and encouragement programs.

PROMOTE ECONOMIC DEVELOPMENT THROUGH BICYCLE TRANSPORTATION

Topeka has many great features that appeal to visitors: the Brown v. Board of Education historical site, Gage Park with its zoo and the Discovery Center, the Kansas History Center, the State Capitol, distinctive commercial districts, and many other attractions. As a bronze level bicycle-friendly community, Topeka can add to the visitor experience and attract investment by encouraging the more intimate experience of exploring a city by bicycle. Encouraging the use of the Topeka Metro Bikes further promotes this idea.

Exploring the need for a unified wayfinding system for bicyclists may further improve the bikeway network in the future. Carefully designed identification and directional graphics can increase users’ comfort and ease of navigating the bikeways system. If pursued, sign clutter should be minimized and the system should generally follow the guidelines of the Manual of Uniform Traffic Control Devices. Types, including:

- Route identifier with a system logo and route number and name. These signs reassure users that they are on the right path.
- Intersection signs, indicating the intersection of two or more routes.
- Destination way finders, indicating the direction, distance, and time (using a standard speed, typically 9 miles per hour), to destinations along the route.

- Directional changes, signaling turns along a route. The graphic system should be modular to provide maximum flexibility and efficiency in fabrication. Signs should also use reflective material for night visibility. The Clearview font is recommended as a standard for text.

Many of these signs could be integrated into the City of Topeka Wayfinding Program or through other sources such as public-private partnerships.

Trail Recommendations

While many trail improvements are recommended as part of the Topeka Bikeways Master plan, several specific additional recommendations can be provided to the provision of trails. These recommendations are likely to be funded by budgets unrelated to transportation, such as Parks and Recreation. Some potential trails outside of those in the bicycle master plan include trails to Shawnee Counties other communities, in addition to trails taking advantage of unique natural features like the river. Another possibility are the two abandoned rail lines extending north from Topeka: one to Hoyt and the other to Meriden. These should be investigated for to see if trail development is possible. It would also provide an excellent connection to exurban development in Soldier Township within the MPA, a generally undeserved area for active transportation infrastructure.

ADD AMENITIES AND LOOP TRAILS

In the 2014 Topeka/Shawnee County Parks and Recreation Master Plan, one frequent response among focus groups was the need for additional trail development, specifically to add amenities along some of the longer trail system. These include resting points such as restroom facilities and benches, in addition to security measures such as the installation of additional quality lighting and emergency call boxes. Another frequent request was for loop trails in regional and community parks to encourage safe walking and running exercise opportunities for youth and adults. Expand trail connections outside of the Topeka Bikeways.

FIGURE 7.11: Bicycle Project Costs

Bicycle Projects		2017-2020	2021-2025	2025-2030	2030-2035	2035-2040
Bike-1	Topeka Bicycle Master Plan - Phase 2 Projects	\$1,500,000				\$1,500,000
Bike-2	Topeka Bicycle Master Plan - Phase 3 Projects		\$1,666,667			\$1,666,667
Bike-3	Topeka Bicycle Master Plan - Phase 4 Projects			\$2,500,000		\$2,500,000
Bike-4	Topeka Bicycle Master Plan - Phase 5 Projects				\$1,150,000	\$1,150,000
Bike-5	Maintenance of Bicycle Facilities					\$1,400,000
	Sub-Total	\$1,500,000	\$1,666,667	\$2,500,000	\$1,150,000	\$1,400,000
						\$8,216,667

General Recommendations

MASTER PLAN BOUNDARY AND MPA

2014 Topeka/Shawnee County Parks and Recreation Master Plan sets a goal of providing 150 miles of trails throughout Shawnee County. While much of this will occur within the boundaries of the Topeka Bikeways Master Plan, much of it should also occur outside this area. This includes the completion of the Landon Trail to the southeast, in addition to potential connections between the smaller communities of Shawnee County. Emphasis should be made on tying the disparate parts of the county together for an integrated system. This includes development along the river which is considered a valuable resource that is not currently being utilized.

MAINTAIN ADEQUATE ACTIVE TRANSPORTATION FACILITIES FOR EJ POPULATION

EJ populations are currently well-served by active transportation facilities. A high level of services should be maintained for EJ populations, especially as they are often more reliant on active transportation facilities than other groups. As downtown Topeka continues to be redeveloped, a focus on complete streets will help maintain these facilities. Additionally, the prevalence of 50/50 sidewalk projects outside of the EJ area suggests that many EJ areas are not receiving the same number of sidewalk upgrades, even though they receive similar amounts of money. A special emphasis should be placed on city-led repairs in the EJ area, or additional policies that could help lessen the financial burden for EJ populations to repair their sidewalks.

ENVIRONMENTAL JUSTICE AND ENVIRONMENTAL IMPACT ANALYSES

Futures2040 makes two major policy shifts. The first shift is away from projects that add roadway capacity toward projects that preserve the existing roadway system. The second shift is a significant increase in emphasis on both pedestrian and bicycle projects. Both of these policy shifts have been accompanied by a significant increase in funding.

Futures2040 recommends two capacity project for funding: Phase 1 of the Polk-Quincy Viaduct project and SW Arvon Place between 17th Street and SW Huntoon Street. The Polk Quincy Project has been selected by the Kansas Department of Transportation (KDOT) because of the condition of existing viaduct which is approaching the end of its useful life. This section of I-70 has 4-lanes. The project will widen the viaduct to 6-lanes and shift the alignment slightly to the north. KDOT completed a detailed socioeconomic and environmental impact analysis for the Polk-Quincy Viaduct Project as part of the preliminary engineering that has been completed to date. That analysis is included in an appendix to this plan. The SW Arvon project is a widening of SW Arvon Place from 3 lanes to 5 lanes between SW Winding Road and SW 17th Street.

Other capacity projects are included in Futures2040, but only as illustrative projects. No funding has been identified at this time for constructing these projects. One project, a new interchange on I-470 (Kansas Turnpike) at SE 29th Street has identified partial funding for preliminary engineering. Futures2040 recommends that environmental justice and environmental impact analyses be completed as a condition of moving these illustrative projects onto the funded project list.

The remaining projects included in Futures2040 and recommended for funding are 1) system preservation projects, 2) pedestrian and bicycle projects, and 3) public transit projects. The nature of these projects makes it much more difficult to identify environmental justice impacts at site specific locations. However, these impacts can be analyzed at the regional level or system-wide level.

ENVIRONMENTAL JUSTICE ANALYSES

- At this time, the City of Topeka has not identified specific streets for pavement rehabilitation/replacement. These projects are much more likely to occur in older neighborhoods as those tend to have older pavements. These locations are also highly correlated with where EJ populations tend to be concentrated. These projects are therefore deemed to have positive impacts to EJ populations.
- System preservation projects located in unincorporated Shawnee County are not located close to concentrations of EJ populations. As such, the Shawnee County projects are deemed to not impact EJ populations either positively or negatively.
- The City of Topeka has established criteria for the construction of new sidewalks and the rehabilitation/replacement of existing sidewalks as recommended in the Topeka Pedestrian Master Plan. Chief among these criteria are locations within neighborhoods that are considered to be “at-risk” or “intensive care” as defined by the city’s Neighborhood Health Index which looks at factors such as poverty, public safety, residential property values, housing tenure and building condition. These neighborhoods are highly correlated with low-income and minority neighborhoods. Other criteria include proximity to schools and transit stops. These projects are deemed to have significant positive benefits for EJ populations living in these areas as these projects significantly increase mobility options available to EJ populations.
- Construction of new bicycle facilities as recommended in the Topeka Bikeways Master Plan and included for full funding in Futures2040 are presumed to have significant positive benefits for all residents of the MPA, but particularly for EJ populations living, learning, shopping, working and playing throughout the MPA. These projects will significantly increase the mobility options available to EJ populations.
- Most of the City of Topeka is currently located within ½ mile of existing public transit routes. These routes provide significant mobility options for travel within Topeka, particularly for east-west travel. Futures2040 recommends funding for the existing routes to continue. The existing public transit service is deemed to provide significant positive benefits to EJ populations. Unfortunately, three major employment areas are not currently served by public transit. Futures2040 recommends funding to study the costs and benefits of extending service to these areas. It is recommended that the EJ impacts be assessed as part of these studies.
- The City of Topeka’s future project to widen SW Arvonian Pl. from SW 17th St. north to SW Winding Rd. from 3-lanes to 5-lanes is not located in or near an EJ

neighborhood. However, the project is in a commercial corridor where many retail stores and jobs are located. TMTA operates transit service on both SW 17th Street and on SW Arvonian Pl. Therefore, it is presumed that widening SW Arvonian place from SW 17th St. north to SW Winding Rd will provide at least modest benefits to EJ populations working and shopping in this commercial corridor.

ENVIRONMENTAL IMPACT ANALYSES

Again, the nature of these projects makes it much more difficult to identify environmental impacts at site specific locations. However, these impacts can be analyzed at the regional level or system-wide level.

- Topeka pavement preservation projects may incorporate complete streets features when appropriate. Even with complete streets features, the environmental impacts are deemed to be non-existent or negligible as the projects will occur on existing alignments on existing roadways.
- As described earlier, Shawnee County has identified specific roadways for pavement rehabilitation/replacement. Shawnee County has also indicated that these pavement projects are likely to incorporate a safety element that would add center turn lanes. In some instances, complete streets features may be incorporated as well. Environmental impacts are deemed to be negligible as these projects will occur on existing alignments of existing roadways.
- The environmental impacts of pedestrian and bicycle construction projects are deemed to be non-existent or negligible.
- The environmental impacts of continuing public transit service on existing routes are deemed to be beneficial to the region as it lessens the number of Vehicle Miles Traveled (VMT) in the region reducing air emissions. Futures2040 recommends the environmental impacts of extending service to new areas be determined as part of the studies described earlier.
- The City of Topeka’s future project to widen SW Arvonian Pl. from SW 17th St. north to SW Winding Rd. from 3-lanes to 5-lanes will occur on an existing roadway alignment in a largely developed corridor. No environmental impacts are anticipated. No planning level solutions are available to address the concerns of this project.

PROJECT EXPENDITURES AND REVENUES COMPARISON

Total projected costs vs revenues. The plan is fiscally constrained. Projects recommended for funding are estimated to cost less than the revenue that is estimated to be available. It is important to note that any excess revenue from the prior time period is carried over into the next time period. Thus, there is always an estimate of positive cash flow of revenues relative to expenditures. This can be seen in “Previous Period Difference” line in Figure 7.12.

Note that as discussed throughout the plan, the projects selected signify two major policy shifts. First a shift away from projects that add capacity to the roadway network to system preservation projects. Second, there is a significant increase in emphasis on active transportation projects. Comparing the funding from Futures2040 Regional Transportation Plan and the previous plan, 2040 Long Range Transportation Plan, these policy shifts are visible in commensurate shifts in project funding, as indicated by Figure 7.13



FIGURE 7.12: Financial Constraints - Expenses and Revenues

	2017-2020	2021-2025	2025-2030	2030-2035	2035-2040	Total
GRAND TOTAL REVENUES	\$300,483,577	\$360,827,476	\$464,574,515	\$365,565,110	\$384,416,174	\$1,875,866,851
+ PREVIOUS PERIOD DIFFERENCE		\$79,243,718	\$17,387,661	\$31,240,315	\$21,739,572	
GRAND TOTAL PROPOSED EXPENDITURES	\$221,239,859	\$422,683,533	\$450,721,861	\$375,065,853	\$391,671,847	\$1,861,382,953
DIFFERENCE BETWEEN REVENUES & EXPENDITURES	\$79,243,718	\$17,387,661	\$31,240,315	\$21,739,572	\$14,483,899	\$14,483,898

FIGURE 7.13: Comparison of Futures2040 and 2040 LRTP Funding by Category

	2040 LRTP	Futures2040	Factor of Difference
Capacity	\$278,951,499	\$132,965,613	0.48
System Preservation	\$249,884,299	\$1,026,229,767	4.11
Active Transportation	\$2,520,000	\$27,811,667	11.04

Note: Polk-Quincy Viaduct Project is assumed to be 2/3 system preservation and 1/3 capacity; Upgrades from 2 to 3 lanes is reported as 2/3 system preservation, 1/3 safety.