Transportation

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Transportation 2040

Metropolitan Transportation Plan
Lawrence - Douglas County

March 15, 2018

Draft | **Final** | Amended

LAWRENCE - DOUGLAS COUNTY
MPO
METROPOLITAN PLANNING ORGANIZATION

Adopted by:

Lawrence / Douglas County MPO Policy Board	March 15, 2018
	Resolution 2018-01

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Prepared by the Lawrence - Douglas County Metropolitan Planning Organization

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What we heard:

"**Bikeable** *and* **walkable** *neighborhoods make for an* **equitable** *and* **livable city**"

Chapter 1
Overview

1. Overview

A. Introduction

Transportation 2040 (T2040) is the blueprint for our future transportation system; it is a vision for a healthy, safe, and efficient transportation system which adequately serves the metropolitan region that includes Lawrence, Eudora, Baldwin City, Lecompton and all remaining unincorporated areas of Douglas County into the future.

The plan identifies future transportation needs, investments, and improvement strategies for all forms of transportation (automobile, public transit, bicycle, pedestrian, etc.) necessary to meet the transportation needs of the region through 2040. Financial resources available to implement T2040 have also been identified to ensure the plan is financially realistic, and that projects selected for implementation can reasonably be afforded.

Since 2013, the Lawrence and Douglas County Commissions formally acknowledged the latest Metropolitan Planning Organization (MPO) approved Metropolitan Transportation Plan (MTP) as the transportation chapter of the Lawrence-Douglas County Comprehensive Plan This means that T2040 serves as the transportation chapter in the Comprehensive Plan for Unincorporated Douglas County & The City of Lawrence .

Populations of Douglas County

Total Douglas County:	119,440
Lawrence:	95,358
Eudora:	6,379
Baldwin City:	4,677
Lecompton:	638

Source: 2016 American Fact Finder

B. What is the Lawrence - Douglas County Metropolitan Planning Organization (MPO)?

MPOs provide a comprehensive, cooperative, and continuous transportation planning process for urbanized areas with a population of 50,000 or greater. The MPO serves all of Douglas County including all the municipalities in the County - Baldwin City, Eudora, Lawrence, and Lecompton - because transportation issues don't stop at city limits.

The MPO brings together residents, local governments, state, federal departments of transportation, and other interested persons and organizations in order to create policy and develop plans that reflect our vision for transportation.

What is a Metropolitan Planning Organization (MPO)?

A Metropolitan Planning Organization (MPO) is defined as a federally funded transportation policy-making organization that represent local, state, and national interests.

Source: Federal Transit Administration

C. MPO Area

The Lawrence-Douglas County Metropolitan Planning Area (MPA) includes the census defined urbanized area and unincorporated areas in Douglas County which are expected to become urbanized during the next 20 years. This MPA boundary includes the Urban Area Boundary (UAB) as defined by the Lawrence - Douglas County MPO. In addition to the MPA and UAB, the urban area, through the land use planning efforts, is embodied in the Comprehensive Plan for Unincorporated Douglas County & The City of Lawrence (Plan 2040). The locally defined urbanized growth areas (UGA) is subject to change as local conditions warrant. In addition, the MPA takes into account other statutory boundaries as defined by the U.S. Census Bureau.

Lawrence is the largest urban place in the region and the only urbanized area (UZA), but the county has three other cities: Baldwin City, Eudora, and Lecompton. Baldwin City and Eudora meet the US Census Bureau definition of urban cluster (UC) (which categorizes UC of at least 2,500 and less than 50,000 people). Baldwin City, Eudora, and Lecompton are all located along important transportation routes including state highways and a Kansas River bridge. The rural areas of Douglas County have been sparsely populated historically and today.

T2040 addresses transportation issues and needs throughout Douglas County. However, the primary emphasis is on the urbanized area including and immediately surrounding the City of Lawrence. Figure 1.1 identifies the various planning areas and boundaries affecting the development of T2040.

What is a Metropolitan Planning Area (MPA)?

A Metropolitan Planning Area is the census defined urbanized area plus contiguous areas that are expected to become urbanized in 20 years.
Source: Cornell Law School

What is an Urbanized Area (UZA) and an Urban Cluster (UC)?

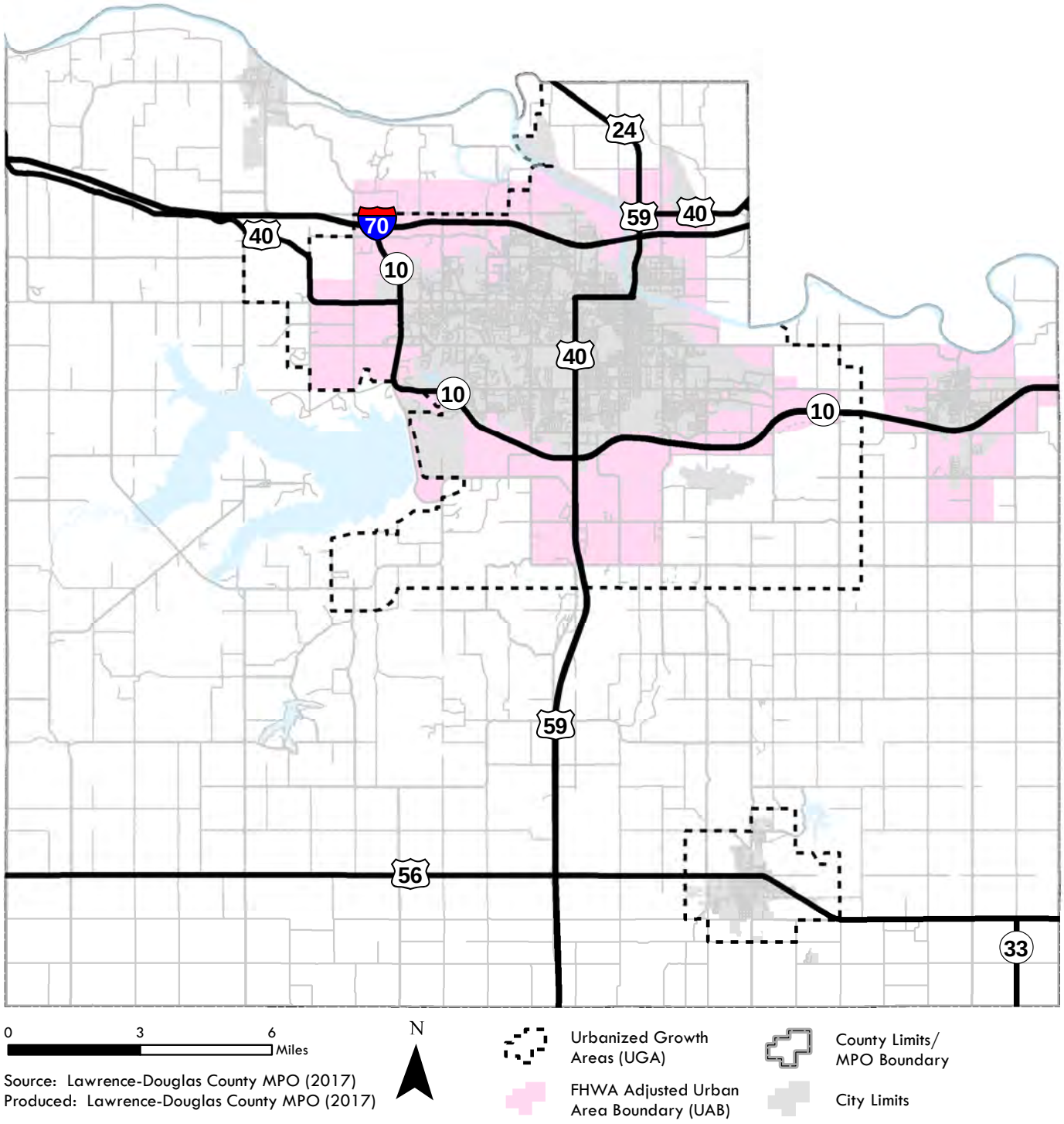
An Urbanized Area is a city with a population of 50,000 people or more. An Urban Cluster is a city with a population of at least 2,500 people, but less than 50,000 people.
Source: U.S. Census

What is an Urbanized Growth Area (UGA)?

An Urbanized Growth Area includes more area surrounding the existing incorporated cities to plan for future development of these areas.
Source: Horizon 2020

Figure 1.1: Douglas County Planning Area Boundaries

Click below to view an interactive map



D. Legislative Requirements

The current federal surface transportation legislation is called the Fixing America's Surface Transportation (FAST) Act. It is a five year (FFY 2016-2020) transportation program signed into law by President Obama on December 4, 2015. MPOs are required to develop a Metropolitan Transportation Plan that is fiscally constrained, contains performance measures, goals, and targets to identify needed transportation improvements and project selection.

1. FAST Act Planning Factors

The FAST Act includes 10 planning factors to be incorporated into transportation planning nationwide. The metropolitan planning process for a metropolitan planning area shall provide for consideration of projects and strategies that will:

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 non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and 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 storm water impacts of surface transportation; and
10. Enhance travel and tourism.

How does the MPO incorporate the FAST ACT?

The T2040 Plan addresses these Planning Factors by incorporating these into T2040's Goals and Objectives, and throughout the text of the Plan.

2. Environmental Justice (EJ)

EJ provisions (Executive Order 12898) require agencies to take steps to identify and address disproportionately high and adverse impacts on minority and/or low-income populations through the development and implementation of T2040. Title VI of the 1964 Civil Rights Act requires that no person be excluded from participation in, denied benefits of, or be subjected to discrimination by any federal aid activity. An EJ profile review is found in Chapter 2. Whenever possible data is delineated by EJ and non EJ area throughout Chapter 2. Chapter 7 includes a full EJ analysis.

E. National and Community Identified Issues

National Issues

Fuel availability and price

Alternative fuels

Vehicle fuel efficiency

Air pollution

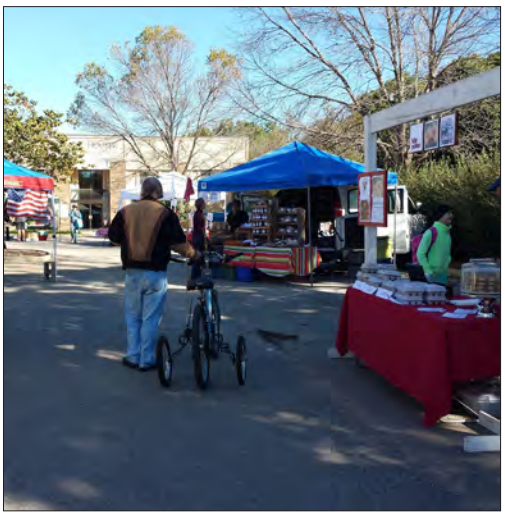
Development of autonomous vehicles/self-driving cars

Transportation needs for the aging population

The planning process considered both national and community identified issues that impact transportation. National issues are noted in the sidebar. Many community issues were brought forth for consideration during the T2040 public involvement process including:

- Maintaining connected networks (roads, sidewalks, bikeways) that are comfortable for all ages, abilities, and all residents regardless of socioeconomic status.
- Enhancing transit service and amenities.
- Providing transportation choices (transit riding, biking, walking, and driving) for all ages and abilities.
- Improving travel times using intelligent transportation systems (ITS).
- Providing access and options for commuters within Lawrence, Douglas County, and other destinations.
- Planning for the efficient movement of freight.
- Utilizing environmental sensitive design when developing projects.
- Reducing reliance on fossil fuels.

These national trends and community identified issues guided plan development.



F. Inventory

Table 1.1 is an inventory of existing infrastructure within Lawrence, Baldwin City, Eudora, Lecompton, and unincorporated Douglas County. This data is shown as a summary, while Chapter 2 provides more detail for each form of transportation. The Environmental Justice (EJ) zone is located within the City of Lawrence. The sidewalk miles, curb ramps, roadway miles, average 2016 PCI, number of bridges, and various bikeway miles are split into EJ and non EJ areas. As shown, there are fewer sidewalk miles, but more roadway miles and bike lanes within the EJ areas.

Table 1.1: Infrastructure Inventory

	Sidewalk Network		Roadway Network			Bikeway Network			
	Sidewalk Miles	Curb Ramps	Roadway Miles	2016 % Good	Bridges	Bike Lanes	Bike Routes with Paved Shoulder	Shared Lane Markings	Shared Use Paths
Lawrence	391.9	8,260	494.0	67% (A) & 79% (C)	87	15.9	38.6	4.9	47.5
Lawrence - EJ	176.1	4,070	292.0	62% (A) & 74% (C)	68	9.0	22.8	3.4	20.8
Lawrence - Non EJ	203.3	4,190	202.1	66% (A) & 81% (C)	19	6.9	15.8	1.5	26.7
Baldwin City	17.5	220	30.2	NA	2	0	0	0	1.0
Eudora	17.1	310	34.5	78%	10	0	0	0	1.4
Lecompton	1.5	8	6.7	NA	2	0	0	0	0.0
Unincorporated Douglas County	NA	NA	229.5	88%	192	0	4.0	0	NA
Total	427.9	8,798	794.9	NA	293	15.9	42.6	4.9	49.9

Note: (A) - Arterials and (C) - Collectors. Bridges do not reflect ownership, rather the number of bridges within the jurisdiction/EJ Zone, which does not exactly match with the Lawrence city limits.
Source: Lawrence-Douglas County MPO (2017)

What we heard:

"Transportation system success can be seen with **accessibility**, *increased* **usage**, *public* **support**, *& support from* **local government**"

Chapter 2
Existing Conditions

2. Existing Conditions

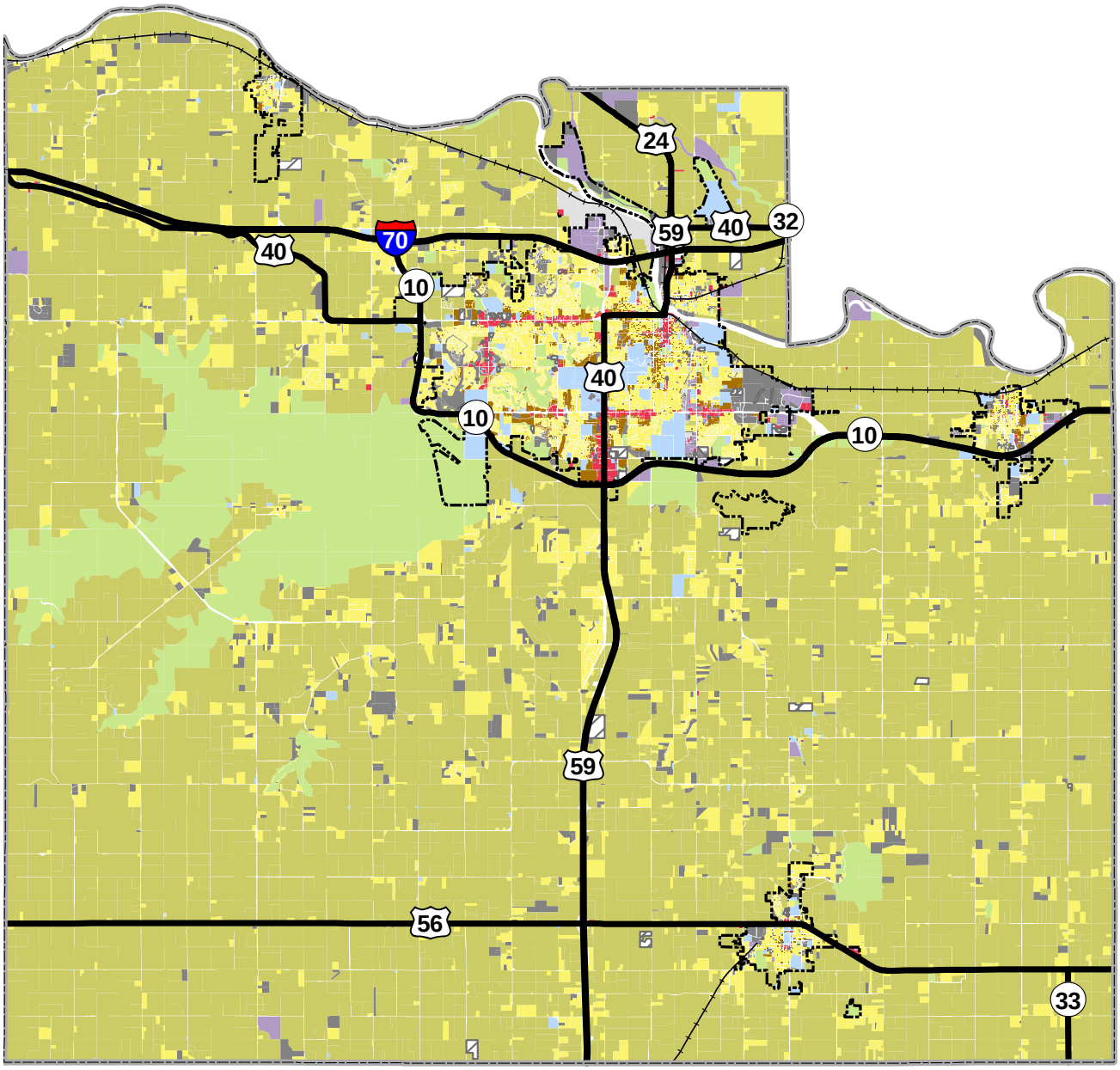
The existing and future projected land use, the environment, the geographic socioeconomic characteristics, and multimodal existing conditions are important to assess transportation needs and develop a long range transportation plan. This chapter describes those relationships and overarching transportation planning considerations.

A. Land Use

The land uses and development patterns that make up a region provide insight into the community's economic health, environmental awareness, and transportation requirements. With regard to planning and providing for transportation facilities and services, activities that occur in each of the various land uses across Lawrence and the County form the basis of travel demand through the trips they generate. The transportation system provides the means through which this demand is met, and as such is the mechanism through which commerce flows and personal mobility occurs. Expanded or new transportation facilities and services, accompanied with other types of expanded or new infrastructure, allow a community to grow into new areas as development occurs. Land use and transportation are inextricably linked. Existing land uses in the Douglas County and the City of Lawrence are illustrated on Figures 2.1-2.4. As the figures suggest, the Lawrence city limits delineate the apparent boundary between the wider variety of land uses found within the city and the lower density residential and agricultural uses found in the unincorporated areas of Douglas County.

Figure 2.1: Douglas County Existing Land Uses

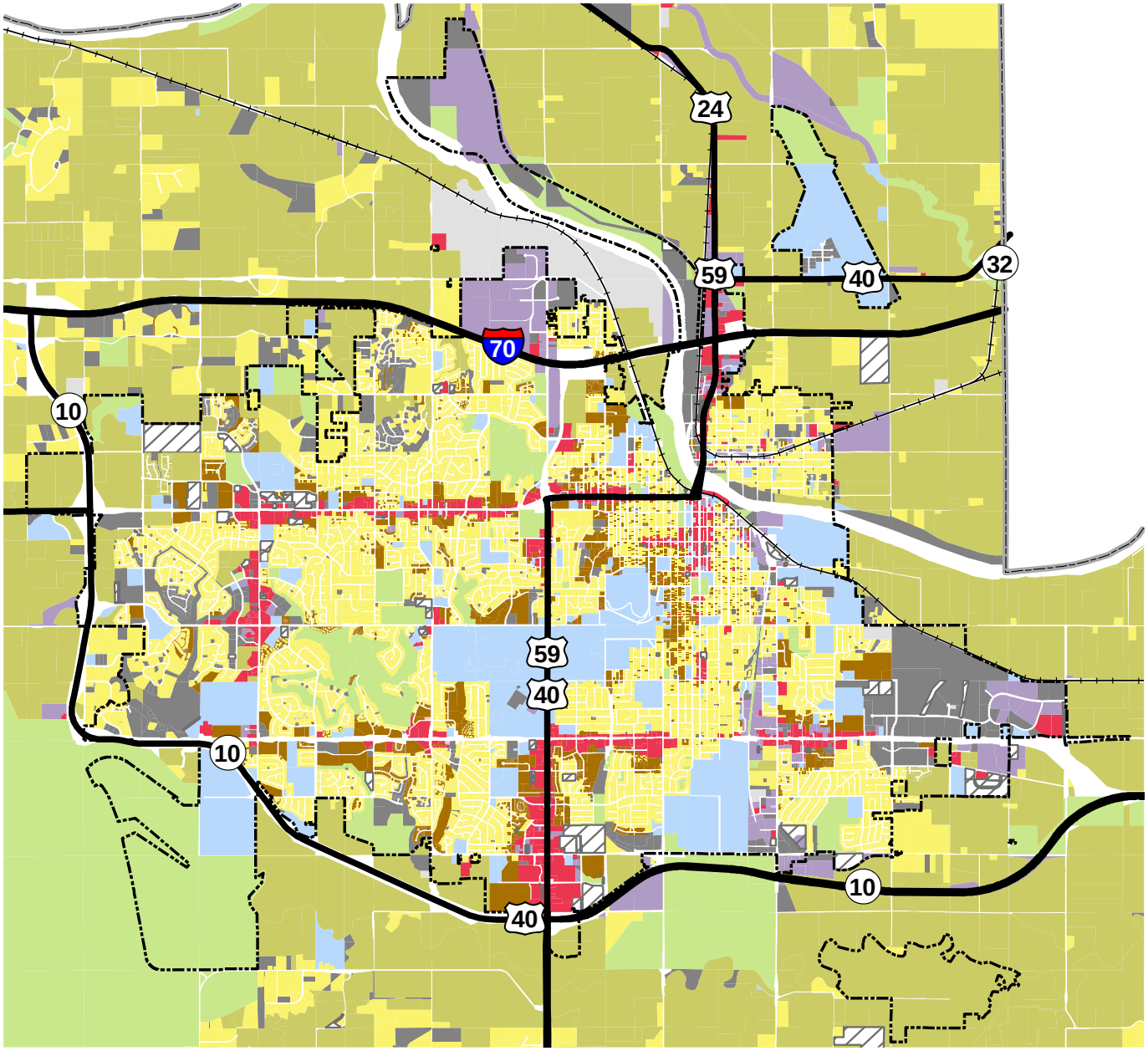
Click below to view an interactive map



Source: Douglas County Appraiser's Office (2014)
Produced: Lawrence-Douglas County Planning and Development Services (2017)

Figure 2.2: Lawrence Existing Land Uses

Click below to view an interactive map



Source: Douglas County Appraiser's Office (2014)
Produced: Lawrence-Douglas County Planning and Development Services (2017)

Figure 2.3: Unincorporated Douglas County Land Use Composition

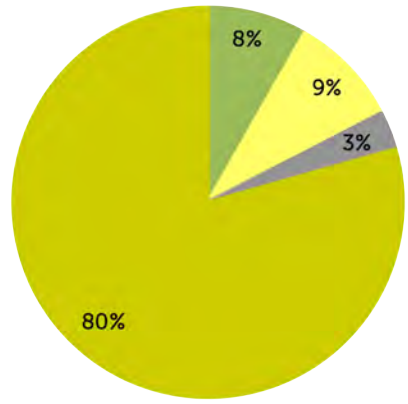
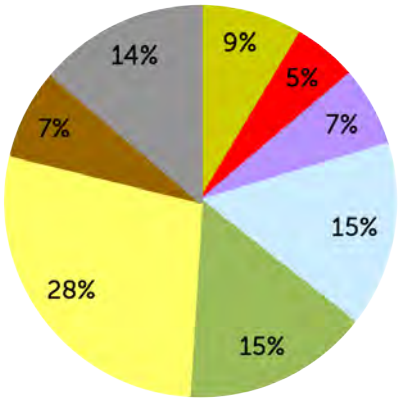


Figure 2.4: Lawrence Land Use Composition



- Agricultural
- Commercial
- Industrial
- Institutional
- Parks/Open Space
- Single Family Residential
- Multiple Family Residential
- Vacant/Other

Source: Lawrence-Douglas County Metropolitan Planning Office (2017)

Performance Measure

22 - Average Cost of Transportation per Household

Gas costs are only a fraction of total driving costs. Car maintenance and use combine for the true cost of car ownership.

Annual Household Income: $50,939
15% of Income for Transportation = Affordable: $7,641

	Total Annual Transportation Costs	Annual Transportation Costs % Over Affordable
Lawrence	$11,728	153%
Eudora	$13,649	179%
Baldwin City	$13,806	181%
Lecompton	$15,344	201%
Douglas County	$12,475	163%

Transportation costs are considered affordable if they are 15% or less of household income; This calculation used gas priced at $2.50 and Regional Typical Household Characteristics.

Source: https://htaindex.cnt.org/total-driving-costs

Performance Measure

21 - Percentage Change in Density of Urban Area (people/acre)

Low-density land use increases vehicle use and reduces the viability of other modes of travel. Therefore, transportation costs are reduced by promoting density.

	2014	2015	2016
Eudora	NA	3.37	3.32
Lawrence	4.16	4.22	4.28

Source: Lawrence-Douglas County GIS (2017)

University Statistics

The University of Kansas Statistics

Enrollment	24,891
Employment	9,881
Land Area	1,000 Acres

Haskell Indian Nations University Statistics

Enrollment	820
Employment	250
Land Area	293 Acres

Baker University - Baldwin City Campus

Enrollment	882
Employment	496
Land Area	56 Acres

Source: University of Kansas, Haskell Indian Nations University, Baker University and Lawrence-Douglas County Planning Office

Major land uses within the City of Lawrence is educational campuses including the 1,000 acre University of Kansas (KU) campus and the 293 acre Haskell Indian Nations University campus. KU's central location impacts the transportation network within Lawrence. Baker University is located in Baldwin City.

1. University of Kansas

The KU campus impedes east/west movement, as 15th Street does not connect through campus. Major events like KU basketball, football, and graduations lead to a large influx of traffic throughout Lawrence and around campus, which the transportation network must accommodate.

KU completed the 2014-2024 University of Kansas Campus Master Plan which sets out the vision for the KU campus. The campus master plan's primary transportation focus is to create a more successful multimodal system that promotes non-motorized transportation and addresses ADA compliance.

Figure 2.5: KU Long Term Transportation Plan

Source: KU 2014-2024 Campus Master Plan (2014)

Figure 2.5 displays the long-term transportation plan for KU. It includes proposed streets, street realignment, the proposed Jayhawk trail alignment, and proposed parking garage options.

KU Bicycle Master Plan

The plan can be accessed at sustain.ku.edu/campus-bike-plan.

Historic Places in Douglas County

Currently over 850 properties are listed in the National Register of Historic Places and in the Register of Historic Kansas Places in Douglas County.

Information on these properties may be found in the Kansas Historic Resources inventory at khri.kansasgis.org.

KU was awarded a bronze level Bicycle Friendly University designation in 2016 by the American League of Bicyclists. Feedback from the League recommended KU adopt a Complete Streets or Bicycle Accommodation policy, expanding the bike network, increase high quality bicycle parking at popular destination, develop a comprehensive bicycle education program with a public safety awareness campaign, provide bike registration with campus police, host bicycle-themed events, and implement the bicycle master plan.

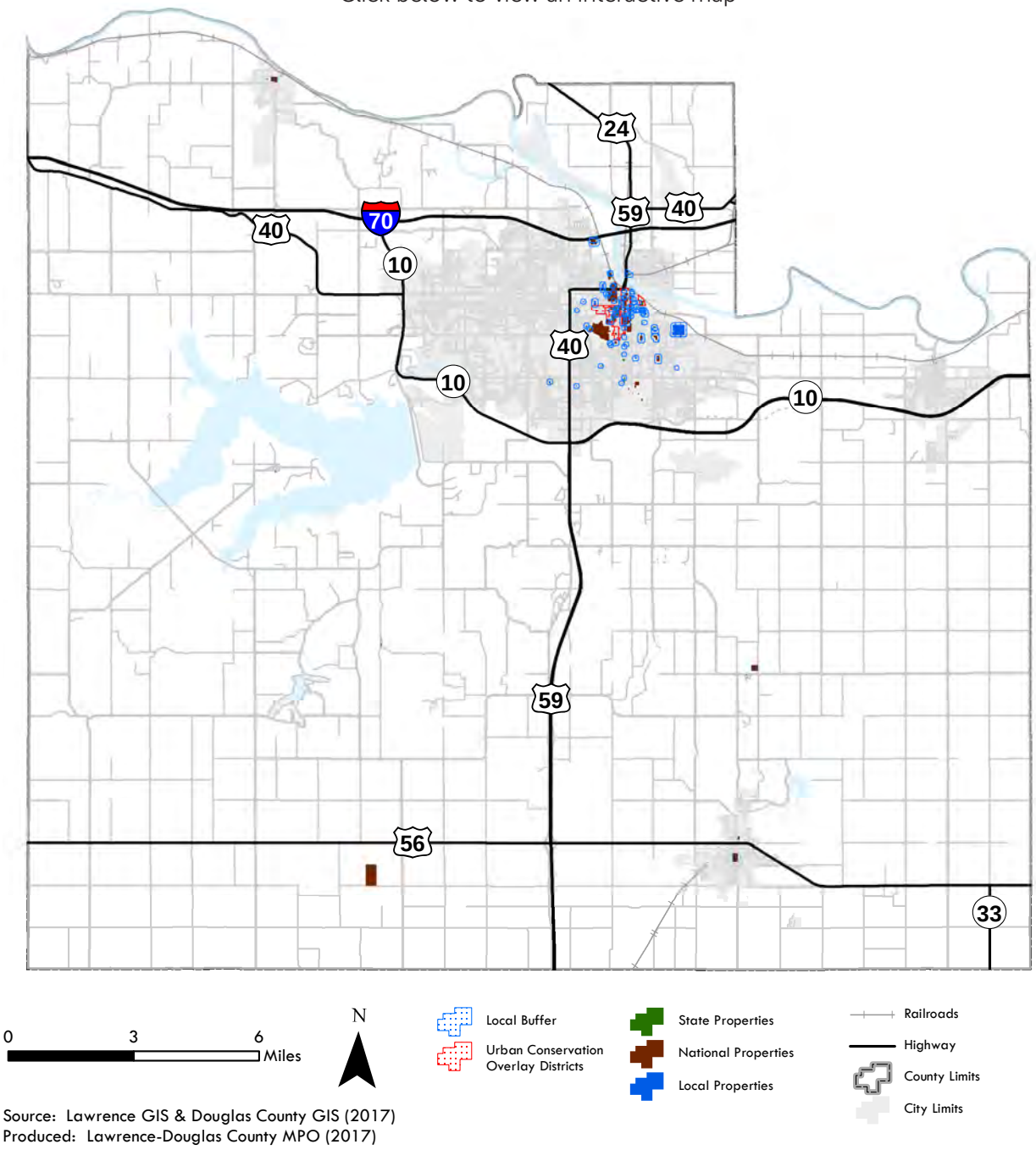
The KU Bicycle Master Plan was completed in 2016. The plan is designed to address the following goals:

- Enhance the bikeway network linking residential, academic, and recreational destinations on campus and in the community
- Promote a safe, healthy campus environment
- Increase the percentage of bicycle and pedestrian users on campus through the implementation of new policies, programs, and infrastructure
- Improve coordination with the City of Lawrence and create seamless transitions between university and city bike infrastructure and routes
- Create movement uphill by identifying policy, program, and infrastructure solutions that encourage people to overcome the real and perceived barrier of steep routes to campus.

B. Historic and Environmental Characteristics

Lawrence and Douglas County strive to balance the needs of a vibrant economy, an equitable society, and a healthy environment. There are important cultural and environmental aspects that enrich the vibrancy of Douglas County and define the urban form. These include historic resources and in the City of Lawrence context areas to protect the environment of the historic properties (Figure 2.6). Over 6,300 properties have been surveyed in Douglas County to document historic resources. The properties include buildings, sites, structures, and objects. Buildings include: houses, barns, theaters, gas stations, and warehouses. Sites include: designed landscapes (parks and gardens) and locations of important events (cemeteries and battlefields). Structures include bridges and dams and objects include fountains, brick sidewalks, and brick streets.

Figure 2.6: Historic Environs
Click below to view an interactive map

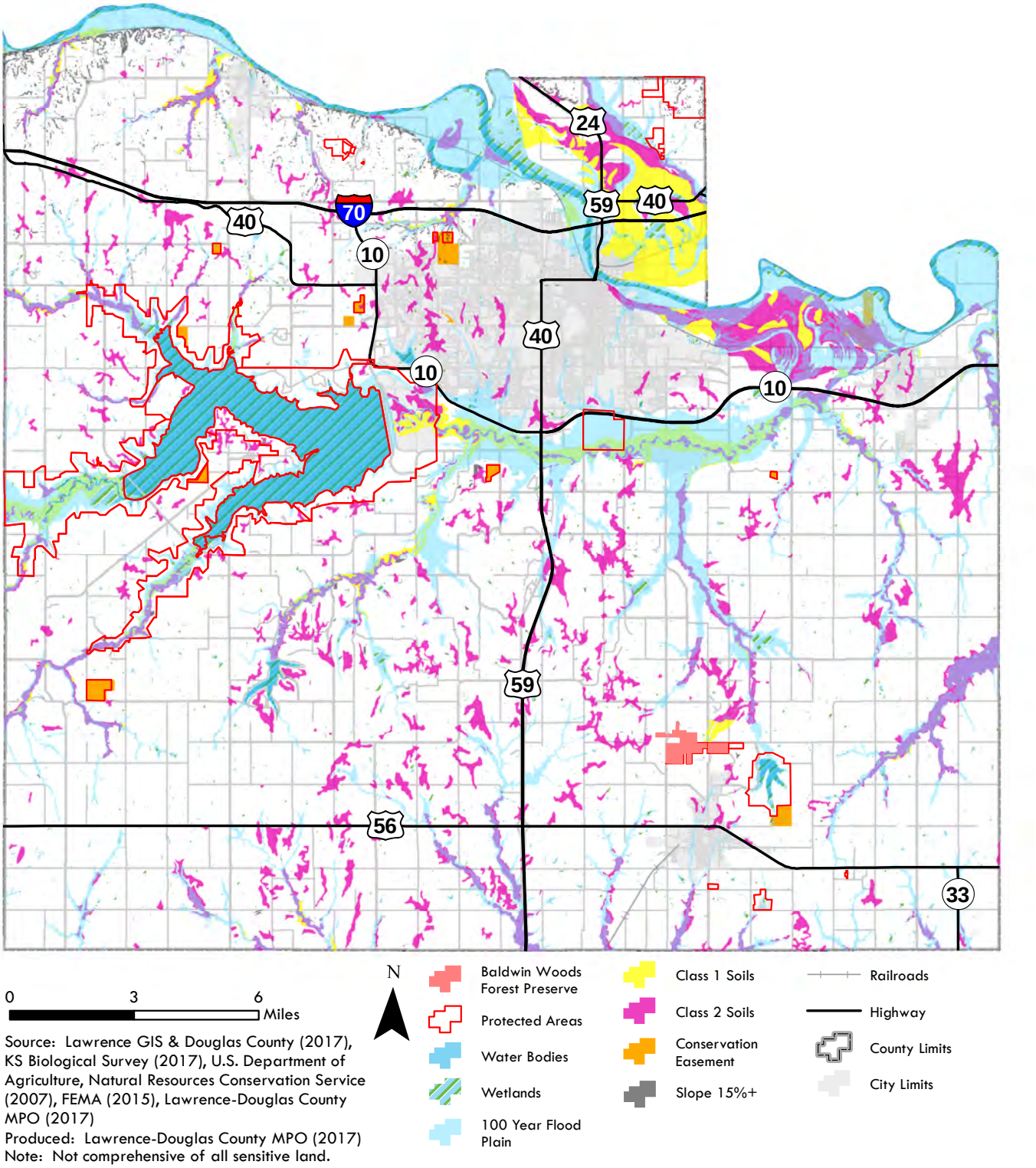


Source: Lawrence GIS & Douglas County GIS (2017)
Produced: Lawrence-Douglas County MPO (2017)

Floodplains, wetlands, and other environmentally sensitive areas should be reviewed as a part of project development. Figure 2.7 displays the environmentally sensitive areas. Due to the Wakarusa and Kansas Rivers there are several flood plain areas. There are two categories of soils delineated: Class 1: Soils in this class are best suited for cultivated crops, pasture, range, woodland, and wildlife. They are deep, generally well drained, easily worked, and less prone to erosion. Class 2: They require careful management to prevent deterioration or to improve air and water relations when cultivated. The limitations are few and the necessary management is easy to apply. The soils may be used for cultivated crops, pasture, range, woodland, or wildlife food and cover. A conservation easement is a legally binding agreement limiting allowable actions to protect the property's ecological or open-space values. It can be executed in many forms with a variety of permissions and restrictions.

Figure 2.7: Floodplains, Wetlands, and Other Environmentally Sensitive Areas

Click below to view an interactive map



Source: Lawrence GIS & Douglas County (2017), KS Biological Survey (2017), U.S. Department of Agriculture, Natural Resources Conservation Service (2007), FEMA (2015), Lawrence-Douglas County MPO (2017)

Produced: Lawrence-Douglas County MPO (2017)

Note: Not comprehensive of all sensitive land.

Air pollution has a profound impact on the environment and leads to water and soil contamination, community health impacts, and contributes to adding greenhouse gases to the environment. While there is no air quality monitor in the County, the monitor in Leavenworth acts as the county's proxy. Douglas County is currently in attainment for National Ambient Air Quality Standards.

The Kansas Department of Wildlife, Parks, and Tourism identifies Threatened and Endangered Species for each Kansas County (Table 2.1). The Douglas County list includes 7 endangered species and 10 threatened species on the State list and 5 endangered, 1 threatened, and 2 candidate species on the Federal list. Furthermore, 8 species have critical habitat, while 9 do not. Transportation projects need to mitigate impact on threatened and endangered species.

Table 2.1: Douglas County Threatened and Endangered Species

Name	State	Federal	Critical Habitat
Mucket Mussel	Endangered	N/A	Yes
Sturgeon Chub	Threatened	Candidate	Yes
Shoal Chub	Threatened	N/A	Yes
Plains Minnow	Threatened	N/A	Yes
Flathead Chub	Threatened	N/A	Yes
Silver Chub	Endangered	N/A	Yes
Least Tern	Endangered	Endangered	Yes
Piping Plover	Threatened	Threatened	Yes
Pallid Sturgeon	Endangered	Endangered	No
Sicklefin Chub	Endangered	Candidate	No
Western Silvery Minnow	Threatened	N/A	No
Topeka Shiner	Threatened	Endangered	No
Hornyhead Chub	Threatened	N/A	No
Whooping Crane	Endangered	Endangered	No
Snowy Plover	Threatened	N/A	No
Eastern Spotted Skunk	Threatened	N/A	No
American Burying Beetle	Endangered	Endangered	No

Source: Kansas Department of Wildlife, Parks and Tourism (2017)

National Ambient Air Quality Standards

The EPA sets National Ambient Air Quality Standards for pollutants considered harmful to public health and environment:

- Carbon Monoxide
- Lead
- Nitrogen Dioxide
- Ozone
- Particle Pollution
- Sulfur Dioxide

Source: Environmental Protection Agency

Sensitive Lands

Sensitive Lands are part of the natural environment that provide habitat for wildlife, endangered ecosystems, or present unique settings that are rare in Douglas County. By protecting these designated spaces we can protect natural habitats, provide recreation areas, and help minimize development impacts in sensitive areas.

These include:

- Endangered Species Habitats
- Floodway and Floodplain
- High Quality Agricultural Soils
- Native Prairies
- Rural Woodlands and Urban Forests
- Steep Slopes
- Wetlands and Stream Corridors

Source: Comprehensive Plan for Unincorporated Douglas County & The City of Lawrence

Performance Measure

24 - Percentage of Sensitive Lands

Sensitive Lands allocated to right-of-way - All of Douglas County	
2017	4%

Source: Lawrence GIS (August 2017)

Sensitive lands are part of the natural environment that provide habitat for wildlife, endangered ecosystems, or present unique settings that are rare in Douglas County. By protecting these designated spaces we can protect natural habitats, provide recreation areas, help minimize development impacts in sensitive areas, and maintain economic and quality of life benefits.

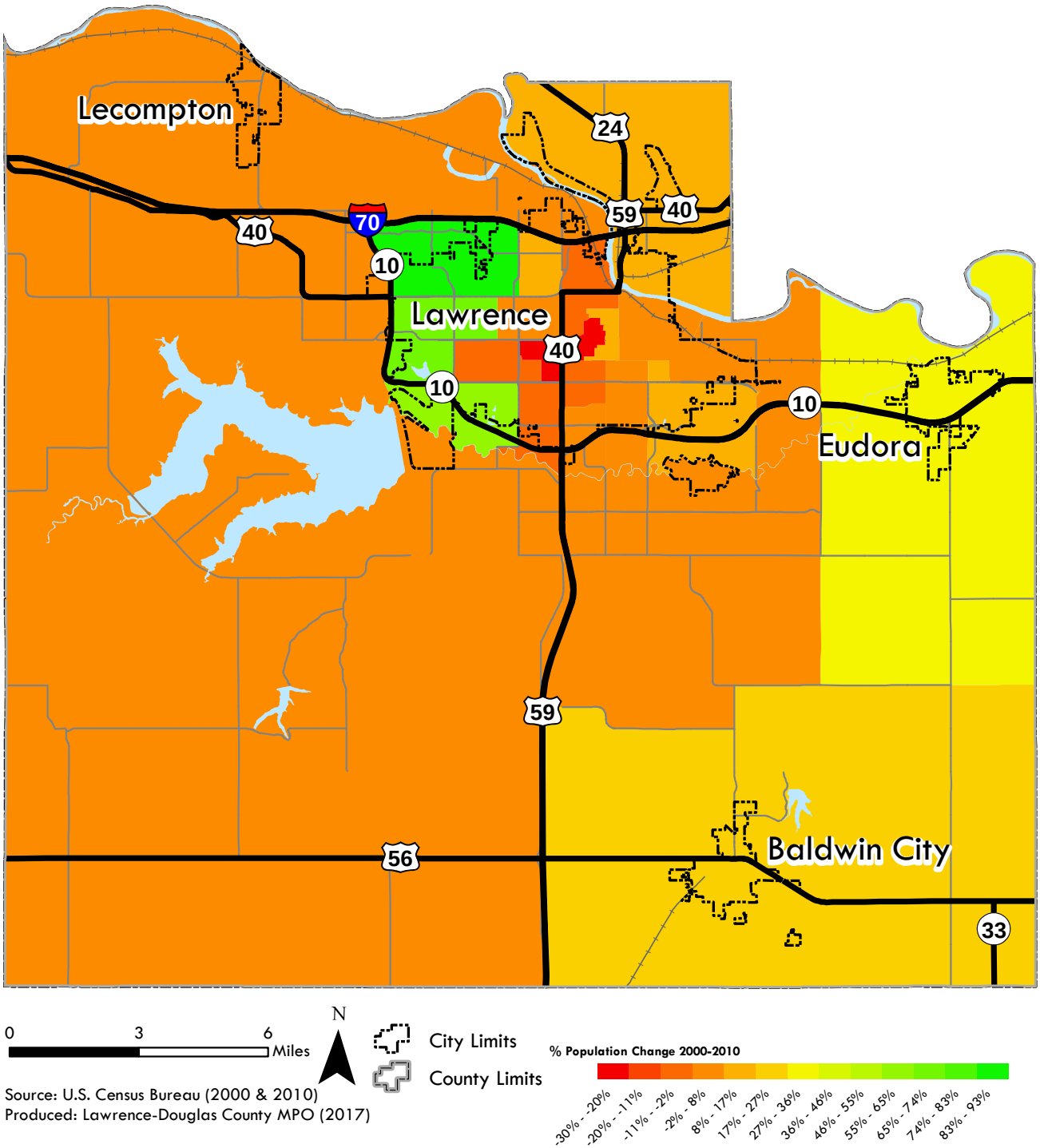
The design of a sustainable multimodal transportation system can foster and encourage healthy lifestyle options. Transportation projects should work to minimize adverse social, economic, and environmental impacts created by the transportation system.

C. Socioeconomic Characteristics

1. Population Profile

Since 1970, the City of Lawrence has historically made up roughly 80% of the total population for all of Douglas County, unincorporated parts of Douglas County have made up 11%, Eudora has made up 6%, Baldwin City has made up 4% and Lecompton has made up 1% of the total population. As shown in Figure 2.8, the highest population growth (shown in green) has occurred in Eudora and western Lawrence, which is to be expected based on development patterns. Furthermore, Eudora became a second class city under Kansas Statutes in 2010 when their population rose above 5,000.

Figure 2.8: Population Change (2000 to 2010)
Click below to view an interactive map



Source: U.S. Census Bureau (2000 & 2010)
Produced: Lawrence-Douglas County MPO (2017)

2. Population Forecasts

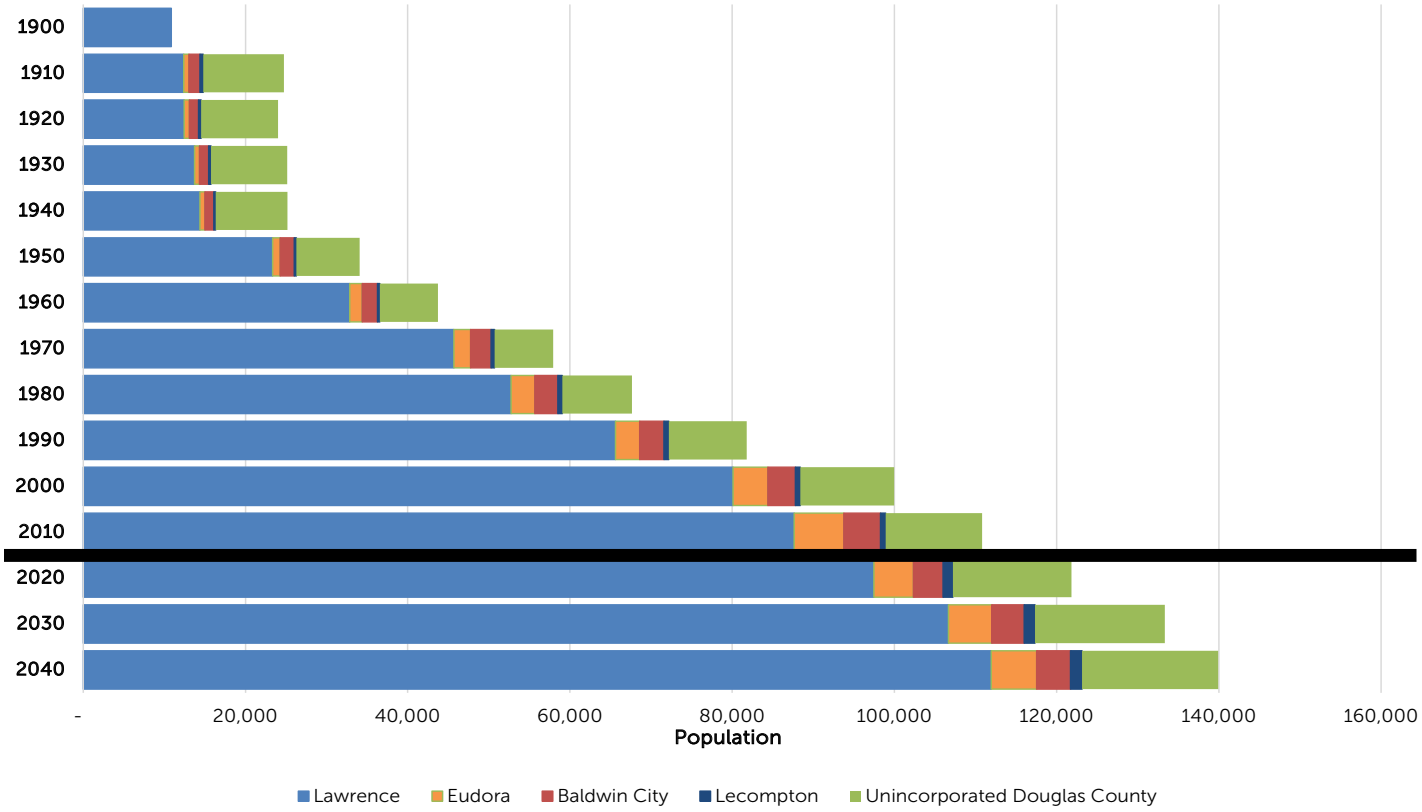
Population forecasts were developed using a spatial model. The model uses several factors including Traffic Analysis Zones (TAZ) from the Travel Demand Model, growth curves, building permits, life cycle changes (births, deaths, migration), future land use plans, servable areas (utilities, fire, police), and Plan 2040's defined Urban Growth Area Boundary. Based on the model, population projections for 2020, 2030, and 2040 considering historic patterns up to 2010 were developed. Figure 2.9 displays the historic and population projections.

Figure 2.10 displays the Plan 2040 population growth tiers. Tier 1 is within the Lawrence city limits and is readily serviceable with utilities (water, sewer, storm water) with minor system enhancements. It is also serviceable by fire with current infrastructure. Tier 2 is within Lawrence's Urban Growth Area and requires annexation. It is readily serviceable with utilities and minor system enhancements necessary for development. It is also serviceable by fire with current infrastructure. Tier 3 is the Future Lawrence Growth Area. It is located within Lawrence's Urban Growth Area and requires annexation. Major utility system enhancements are necessary for development and requires investment in fire infrastructure and personnel. It is not expected to receive urban development by 2040.

What is a Traffic Analysis Zone (TAZ)?

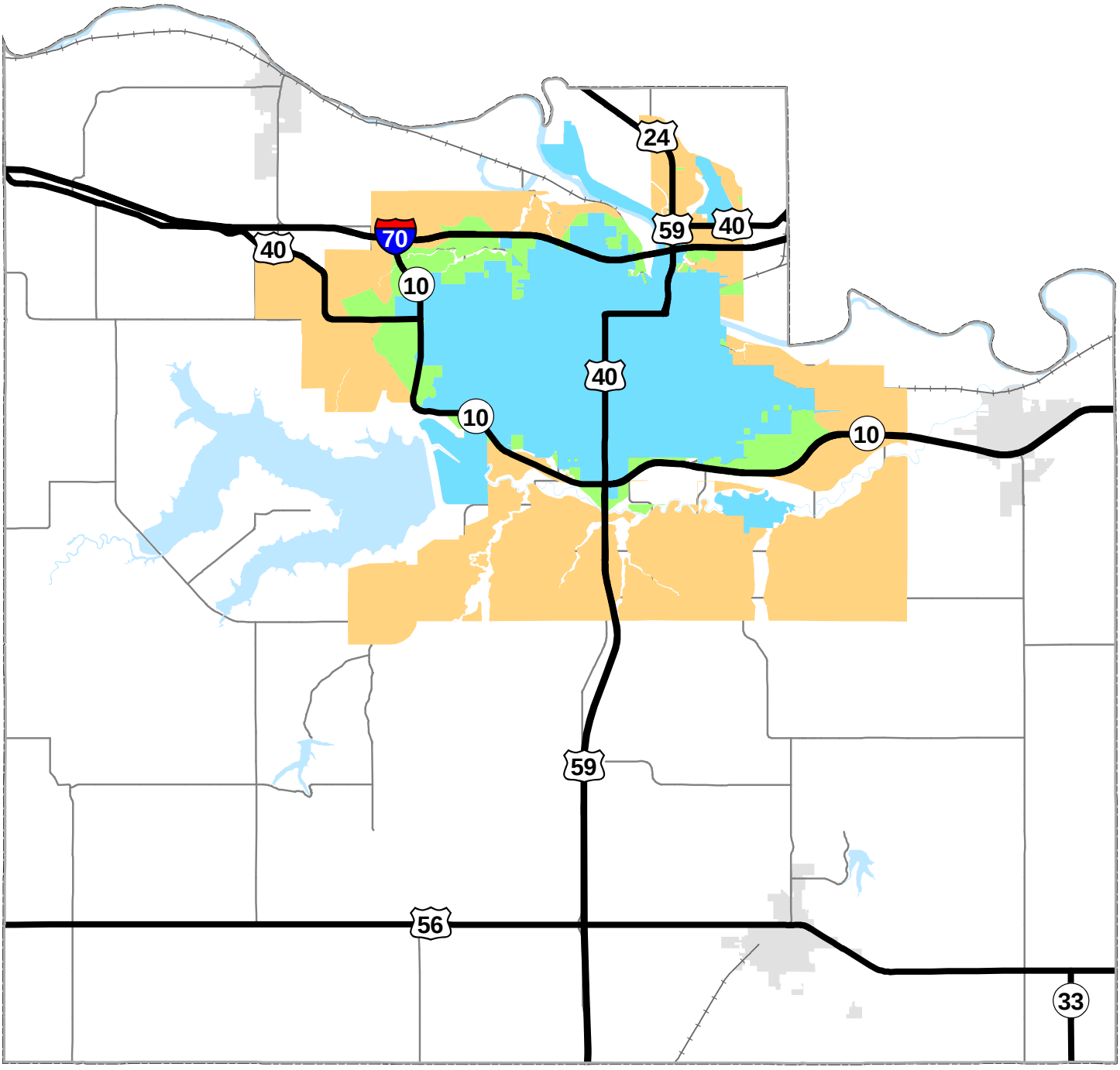
A traffic analysis zone is a geographic area used in planning models. Zones are constructed using Census block group information, population projections and they are tied to the transportation network. They provide a way to assign trips (origins and destinations) to a spatial area in the model.

Figure 2.9: Historic and Population Forecasts



Source: U.S. Census Bureau and Lawrence Planning and Development Services (2011 projections)

Figure 2.10: Plan 2040 Population Growth Tiers
Click below to view an interactive map



Source: Lawrence Planning and Development Services (2017)
Produced: Lawrence-Douglas County MPO (2017)

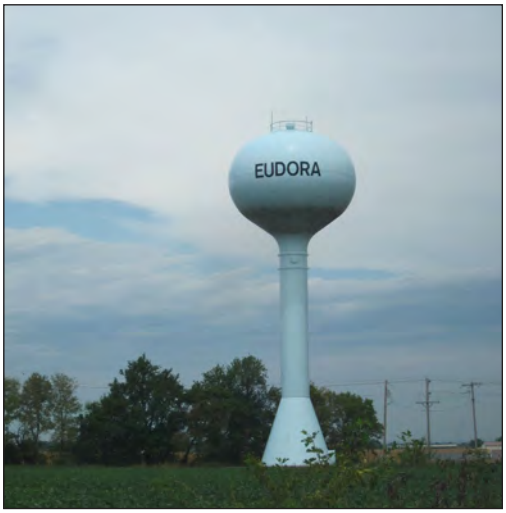
Table 2.2: Largest Employers (250+ Employees)

Employer	Employees	Employer	Employees
The University of Kansas	9,881	Douglas County	435
Lawrence Public Schools	1,800	Boston Financial Data Services	394
City of Lawrence	1,455	The Olivia Collection	320
Lawrence Memorial Hospital	1,322	K-Mart Distribution Center	320
Berry Plastics	739	DCCCA	295
Hallmark Cards, Inc.	525	Allen Press	275
Baker University	496	Community Living Opportunities	263
Amarr Garage Doors	461	Haskell Indian Nations University	250

Source: Economic Development Corporation of Lawrence & Douglas County (2018)

3. Employment Profile

Educational institutions are the primary employers within Douglas County. The largest employer in the county is the University of Kansas, which has an impact on this transportation plan. Table 2.2 shows the largest employers within Douglas County.



4. Employment Assumptions

Employment opportunities in Lawrence and Douglas County are diverse. Different types of businesses generate different types and amounts of travel. The employment data was updated for the Travel Demand Model based on the current best sources from The employment data was updated for the Travel Demand Model based on the current best sources from the Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Destination Employment Statistics (LODES) and local employment data. A map of forecasted employment by TAZ is shown in Appendix D.

D. Environmental Justice (EJ) Review Profile

Environmental Justice (EJ)

Environmental Justice policy is defined in Executive Order 12898 that was signed by President Clinton on February 11, 1994.

The Environmental Protection Agency (EPA) defines Environmental Justice as the "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies." EJ is a federal requirement that projects using federal funds be selected and distributed fairly to all people regardless of income or race and that all people have equal access to the benefits afforded by federally funded projects as well as equal access to the decision-making process for the selection of those federal projects. This concept is conveyed in the three Environmental Justice Principles shown in Figure 2.11, which are incorporated into plan development. The methodology the MPO used to define the target populations is detailed below. The MPO public participation process is detailed in Chapter 3. The MPO analysis of EJ distribution, impacts, and process can be found in Chapter 5.

Figure 2.11: U.S. DOT Environmental Justice Principles

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

1. Methodology

In response to EJ regulations the MPO defined target populations and thresholds to assess the impact of transportation planning.

a. Define Target Populations and Thresholds

Low-income and minority populations were identified in the MPO area. This is done by utilizing Census tracts and 2010-2014 American Community Survey (ACS) 5-year estimate data. Tracts are determined to meet the EJ threshold if they meet either of the criteria listed below.

Low/Moderate Household Income Population, by 2010 Census Tracts

The threshold for low/moderate household income was 50 percent or more of the population residing in households earning less than 80 percent of the area's median income. The City of Lawrence Community Development Division currently uses HUD identified areas within the community that have higher concentrations of low and moderate income residents. Community Development Block Grant (CDBG) funds are targeted toward low/moderate household income areas.

What is the American Community Survey (ACS)?

The American Community Survey is an on-going survey taking place of the old long-form Census. It includes basic demographics as well as detailed questions about population and housing characteristics.

What is an Environmental Justice (EJ) Zone?

Environmental Justice Zones are geographical areas identified within our community that represent a higher percentage of low/moderate income or high minority populations.

Demographics of Douglas County & Lawrence

Median Household Income

Douglas Co.	$50,939
Lawrence	$46,406

Housing Tenure

Douglas Co.
Own: 52% / Rent:48%

Lawrence
Own: 46% / Rent:54%

Persons in Poverty

Douglas Co.	19.4%
Lawrence	21.8%

Educational Attainment

High School graduate or higher

Douglas Co.	94.9%
Lawrence	95.2%

Demographics of Douglas County & Lawrence (Continued)

Median Housing Value

Douglas Co.	$179,800
Lawrence	$176,300

Hispanic or Latino Race

Hispanic or Latino (of any race)

Douglas Co.	6,529
Lawrence	6,083

Not Hispanic or Latino

Douglas Co.	108,439
Lawrence	85,222

Race

White alone

Douglas Co.	96,909
Lawrence	75,168

Black/African American alone

Douglas Co.	4,598
Lawrence	4,126

American Indian/Alaskan Native alone

Douglas Co.	2,650
Lawrence	2,253

Asian alone

Douglas Co.	5,067
Lawrence	4,850

Native Hawaiian/Other Pacific Islander alone

Douglas Co.	27
Lawrence	24

Some other race:

Douglas Co.	698
Lawrence	613

Two or more races:

Douglas Co.	5,018
Lawrence	4,271

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates

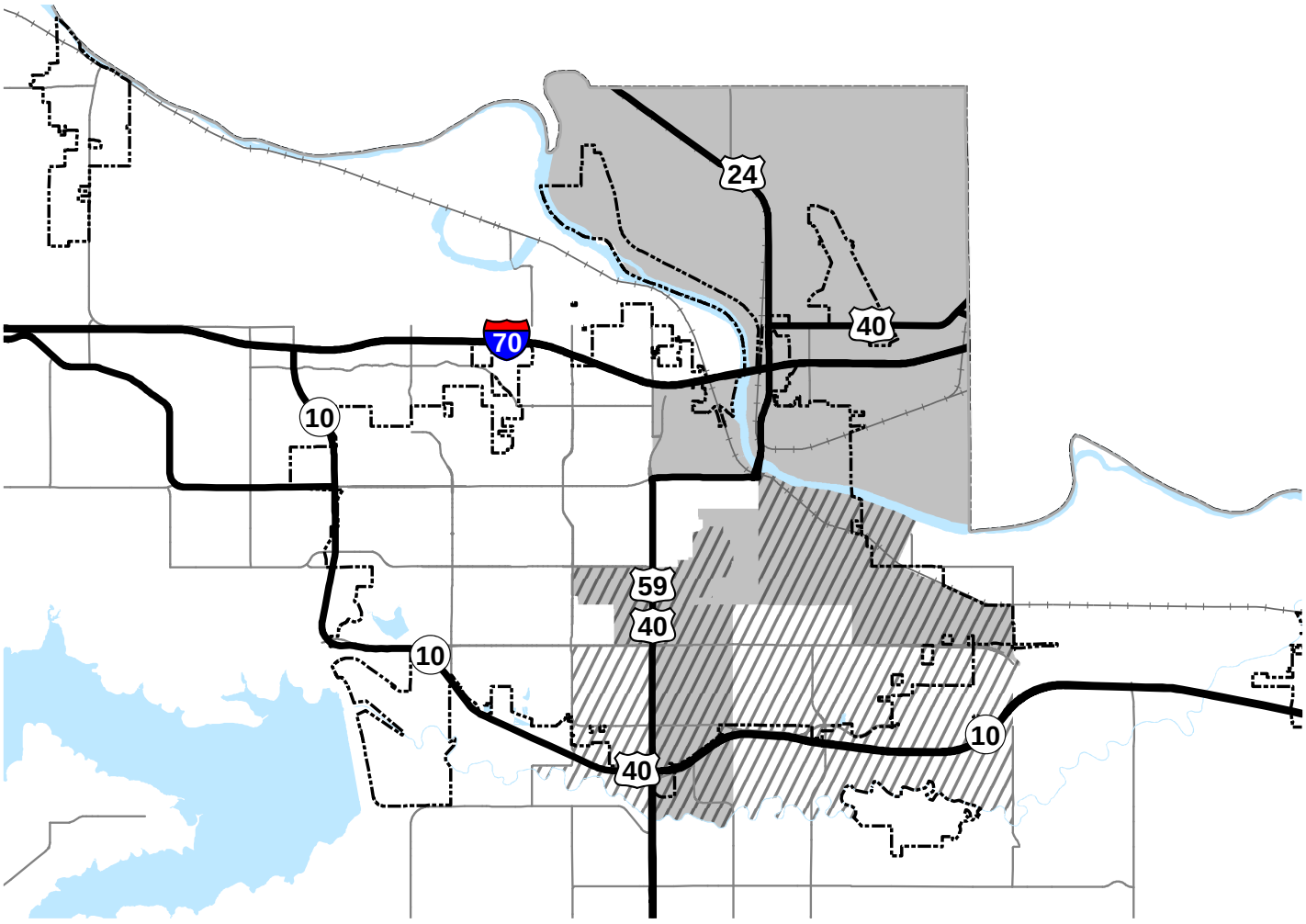
99% Confidence Interval for the Mean Minority Population, by 2010 Census Tracts

The US Census Bureau collects demographic data for one race and a combination of races. For this review, only data for one race was used to depict areas within Douglas County that have a minority population within the 99% Confidence Interval average population residing in Lawrence and Douglas County. Essentially, a confidence interval indicates a range of values that's likely to encompass the true value in our community. With a 99% mean confidence interval we are 99% sure that the interval contains all of the values. The mean minority population is 18.71%. The 99% confidence interval is ± 5.24%. Therefore, 18.71% + 5.24% equals 23.95%. So we are 99% sure that the minority population is under 23.95%.

The majority race in this region is White/Caucasian and the other races collectively are considered as the minority group population for this EJ analysis. The 2010-2014 American Community Survey 5 Year Estimates indicates the minority population within Douglas County represents 10.9% of the total population. In Lawrence, the minority population is slightly higher representing 12.8% percent of the total population.

The EJ zones consist of areas where census tracts are either Low/Moderate household income and/or at the minority 99% confidence interval. The EJ zones are mapped in Figure 2.12. Approximately 46,502 people or 42% of the total Douglas County population resides within EJ zones. No EJ zones are identified outside of the City of Lawrence. The EJ zones within Lawrence are located generally to the east of Iowa Street.

Figure 2.12: Environmental Justice Zones
Click below to view an interactive map



Source: U.S. Census Bureau (2010-2014 ACS 5-year estimate)
Produced: Lawrence-Douglas County MPO (2017)

Note: All EJ Zones in Douglas County are in or near the City of Lawrence

E. Multimodal Assets

This section presents the existing conditions of the various forms of transportation including non-motorized (bicycle and pedestrian), public transit, the roadway network, freight, intermodal, rail, and air. Furthermore, safety and security existing conditions are addressed.

1. Non-Motorized

Although current transportation planning focuses primarily on commercial and personal-use motor vehicles, incorporating alternative means of transportation, particularly bicycling and pedestrian traffic, has the potential to improve the region's transportation system for all users. The US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations states, "Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use." In this context, non-motorized transportation types are weighted equally against other transportation modes.

In 2011, the MPO adopted a Resolution in Support of Complete Streets Principles. The MPO committed to support and encourage the passage of a Complete Streets Policy by governments in Douglas County and incorporate multimodal transportation planning into all of its products, including this plan. In 2012, the City of Lawrence adopted a Complete Streets Policy committing to use an interdisciplinary approach to incorporate the needs of all Users into the design, construction, and maintenance of public and private transportation infrastructure within Lawrence where feasible and fiscally appropriate. This Complete Streets Policy establishes guiding principles and practices to create an equitable, balanced, and effective transportation system that encourages walking, bicycling, and transit use, to improve health and reduce environmental impacts, while simultaneously promoting safety for all Users of Streets.

What does multimodal mean?

Multimodal describes all types or modes of transportation - including walking, biking, driving, or riding transit.

What are Complete Streets?

Complete Streets are designed for safe access for all users (pedestrians, bicyclists, motorists, and transit riders), ages, and abilities.

Source: Smart Growth America

a. Bicycle & Pedestrian Mode Share

The MPO has collected bicycle and pedestrian counts annually using a national methodology to calculate an average annual daily number of bicycle and pedestrian trips for each location. KDOT annual average daily vehicle traffic count numbers are used to calculate the travel percentage breakdown of trips by mode. This data paints a reasonable picture of the average annual trip counts for a variety of locations and on a variety of facility types. Detailed Count data can be found at www.lawrenceks.org/mpo/bikepedcount.

b. Bicycle

As a vital component of the entire transportation system in Lawrence and Douglas County, bicycles provide both essential commuter and recreational transportation. Lawrence was named the a Bicycle Friendly Community in 2000 by the League of American Bicyclists, a symbol of Lawrence's commitment to providing the best cycling opportunities in Kansas. The designation has been renewed in 2004, 2006, 2008, 2012 and 2016 receiving recognition at the bronze level, and the current recognition expires in 2020. As of 2016, only four cities in Kansas were recognized as BFC at the bronze level. As a recognized Bicycle Friendly Community, the City of Lawrence is working on enhancing existing facilities while planning for the future needs of people who bicycle in Lawrence.

Bicycle Friendly Community

The Bicycle Friendly Communities Campaign is an awards program administered by the League of American Bicyclists that recognizes municipalities that actively support bicycling. A Bicycle-Friendly Community provides safe accommodation for cycling and encourages its residents to bike for transportation and recreation. The City of Lawrence has been recognized as a Bicycle Friendly Community at the Bronze level since 2004.

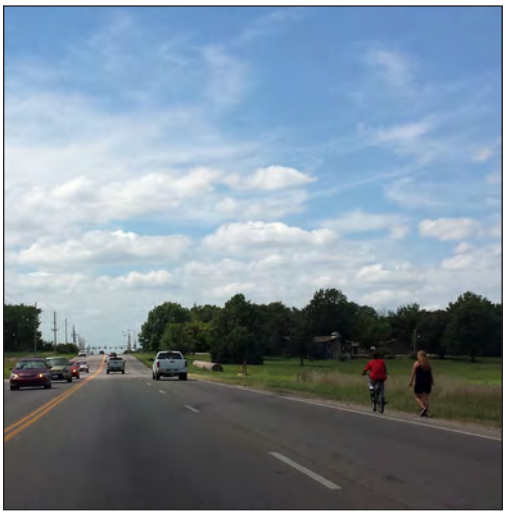
In 2012, the City of Lawrence was re-designated at the Bronze level and the League of American Bicyclists provided feedback and suggestions to further promote bicycling in Lawrence.

In 2016, the City of Lawrence was re-designated at the Bronze level and the League of American Bicyclists provided a Report Card.

Elements that create a Bicycle Friendly Community

- Enforcement
- Education
- Engineering
- Evaluation
- Encouragement
- Ridership
- Crashes
- Facilities

Source: The League of American Bicyclists



Performance Measure

26 - Reduce single occupancy vehicle trips

	2013					
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	74.6%	10.7%	2.3%	6.0%	1.6%	0.8%
Baldwin City	72.1%	16.5%	NA	4.9%	0.2%	2.2%
Eudora	86.5%	8.0%	NA	2.6%	0.0%	2.7%
Lecompton	81.2%	10.6%	NA	1.0%	0.0%	0.0%
Douglas County	75.9%	10.7%	1.9%	5.2%	1.4%	0.9%
	2014					
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	74.3%	10.9%	2.4%	6.1%	1.3%	0.8%
Baldwin City	75.4%	12.3%	NA	4.5%	0.1%	2.4%
Eudora	89.0%	6.0%	NA	3.0%	0.0%	0.6%
Lecompton	93.4%	4.9%	NA	0.0%	0.0%	1.0%
Douglas County	76.4%	10.5%	2.0%	5.3%	1.0%	0.8%
	2015					
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	75.4%	10.7%	2.4%	5.7%	1.0%	0.8%
Baldwin City	74.8%	12.0%	NA	5.4%	0.1%	2.1%
Eudora	89.3%	5.5%	NA	3.3%	0.0%	0.5%
Lecompton	92.1%	5.9%	NA	0.0%	0.0%	0.7%
Douglas County	76.8%	10.2%	2.0%	5.1%	0.9%	0.8%

Source: ACS 5-year estimates (S0801)

Existing Conditions

The City of Lawrence's existing inventory of bicycle facilities includes:

- 15 miles of bike lanes,
- 39 miles of bike routes including 5 miles marked with shared lane;
- 38 miles of existing hard surface shared use paths
- 40 miles of off-road, natural surface paths, and single track recreational trails, including; trails at Clinton Lake and additional off-road trails (along the Kansas River).

Performance Measure

1 - Percentage of people who have access within a ¼ mile to the bikeway network

	2015 Population Estimate	Bike Route	Bike Boulevard	Bike Lane	Protected Bike Lane	Shared Use Path	Total Bikeway Network Access
Lawrence	95,096	62%	0%	35%	0%	38%	87%
EJ Zone	50,627	76%	0%	37%	0%	33%	87%
Eudora	5,685	0%	0%	0%	0%	39%	39%
Baldwin City	4,677	0%	0%	0%	0%	17%	17%
Lecompton	611	0%	0%	0%	0%	0%	0%
Unincorporated Douglas County	13,822	0%	0%	0%	0%	0%	0%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: 2015 Population Estimate and Bikeway Network (2017)

Table 2.3 displays the approximate cost per facility type depicted as proposed facility types in the Lawrence-Douglas Countywide Bikeway System map (Figure 2.13). These costs are planning level estimates and could require additional right-of-way, tree removal, utility relocation and/or other unknown costs. A majority of the existing bike lanes, bike routes with paved shoulders, and shared lane markings are within the Environmental Justice zone (displayed in yellow). To implement the proposed bikeway network approximately $31 million would be needed. Table 2.4 displays the approximate cost per entity.

Performance Measure

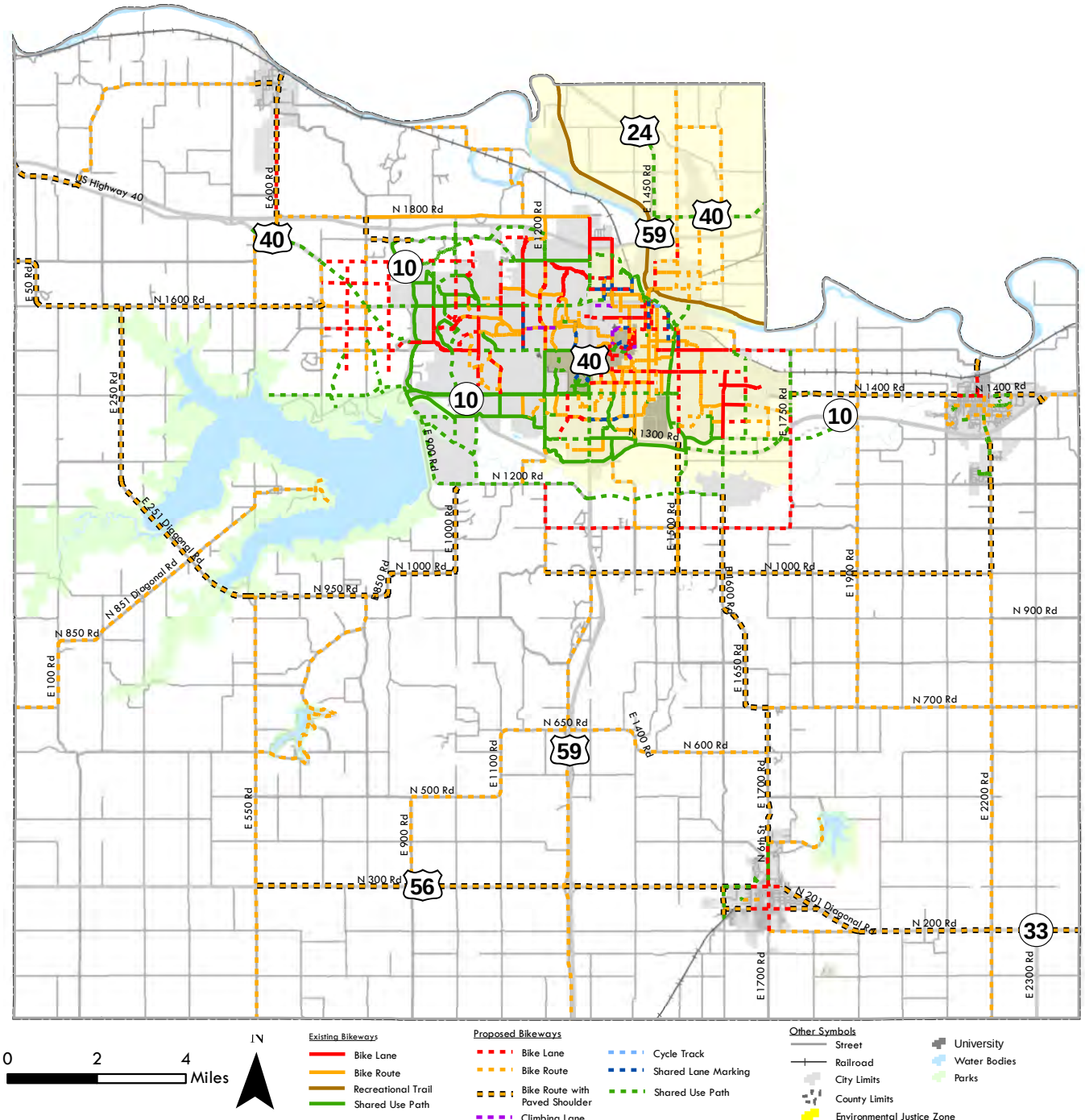
3 - Percentage of public streets with bikeway network

	Bike Route	Bike Blvd.	Bike Lane	Protected Bike Lane	Shared Use Path	Total Bikeway Network Access
Lawrence	11%	0%	4%	0%	7%	22%
EJ Zone	12%	0%	4%	0%	5%	20%
Eudora	0%	0%	0%	0%	2%	2%
Baldwin City	0%	0%	0%	0%	3%	3%
Lecompton	0%	0%	0%	0%	0%	0%
Unincorporated Douglas County	1%	0%	0%	0%	0%	1%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: Lawrence-Douglas County MPO (2017)

Figure 2.13: Lawrence-Douglas Countywide Bikeway System

Click below to view an interactive map



Source: Countywide Bikeway System Plan (2014)
Produced: Lawrence-Douglas County MPO (2017)

Table 2.3: Bikeway Network Estimate Costs Identified in the Countywide Bikeway Plan

	Approximate Per Mile Cost	Miles Planned	Approximate Total Cost
Bike Lanes	$31,760	57.8	$1,837,108
Bike Routes with Paved Shoulder	$136,364	81.3	$11,081,806
Climbing Lanes	$16,055	2.2	$35,050
Cycle Tracks	$230,769	0.3	$61,464
Shared Lane Markings	$11,136	3.7	$41,445
Shared Use Paths	$247,603	77.4	$20,304,730
Total		222.7	$33,361,602

Source: Countywide Bikeway System Plan (2014)

There are a number of existing challenges to bicycling within Lawrence-Douglas County.

- **Physical Barriers** – Major streets can be physical challenges because they are difficult to cross and generally lack bicycle facilities. Topography also serves as a barrier.
- **Discontinuous Network** – The existing bikeway network is discontinuous. Bikeways begin and end suddenly and often do not connect to other bikeways. A discontinuous network is often typical of new bikeway networks that are being implemented. This is particularly true of bikeways such as bike lanes and paths that may take significant time and money to complete. Communities that have streets arranged in grid patterns or have neighborhoods that have this pattern of streets will have an inherent advantage and more options in establishing easier connections for bicyclists.
- **Additional Bikeway Types Needed** – The existing bikeway network is comprised of three primary facility types: bike lanes, bike routes, and shared use paths. Additional bikeway facility types are increasingly common in urban areas. The National Association of City Transportation Officials (NACTO) identified additional bikeway facilities that provide greater comfort to cyclists: buffered bike lanes, climbing bike lanes, colored bike lanes, cycletracks (protected bike lane) and neighborhood greenways/ bicycle boulevards that can better meet the needs of bicyclists than standard lanes, routes, and paths.

Table 2.4 Bicycle Infrastructure Estimates Per Entity

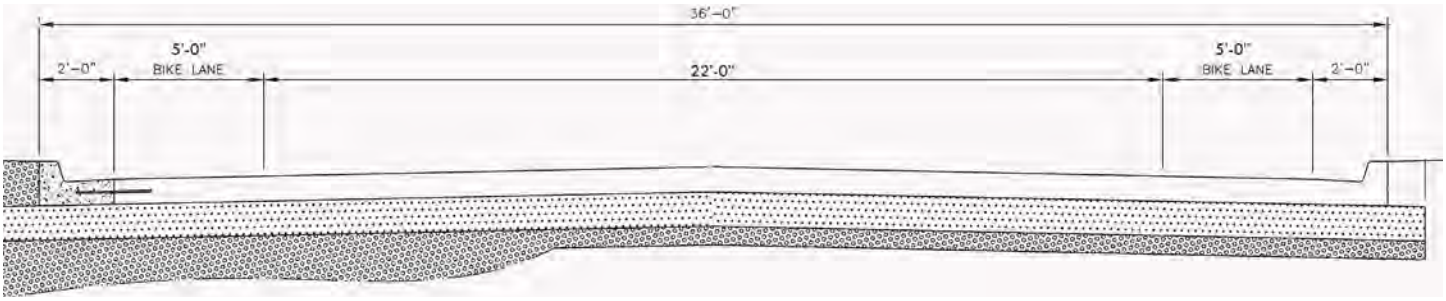
	Estimate Costs
Lawrence	$9,278,585
Baldwin City	$1,146,347
Eudora	$1,629,199
Lecompton	$633,657
Unincorporated Douglas County	$18,522,138
Total	$31,209,926

Source: Countywide Bikeway System Plan (2014)

Types of Bikeways

Bike Lane - A bike lane is a pavement marking that designates a portion of a street for the preferential or exclusive use of bicycles, noted with pavement markings and may also be marked with signage. Bike lanes can be buffered, protected, and/or colored.

Bicycle Boulevard (Neighborhood Greenway) - A bicycle boulevard (neighborhood greenway) is a street with low motorized traffic volumes and speeds designated to provide priority to bicyclists and neighborhood motor vehicle traffic.



Typical Section - 36' Street (Collector)

Types of Bikeways (Continued)

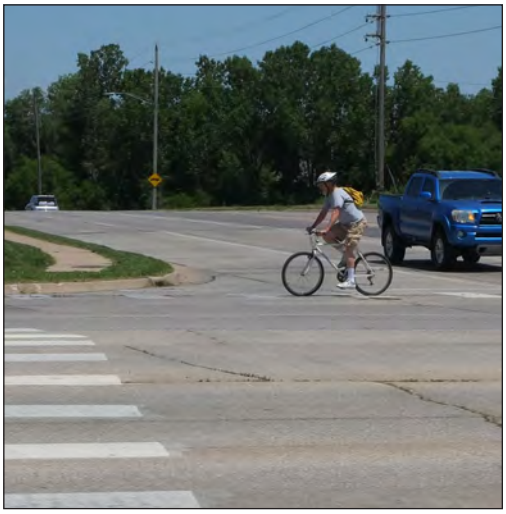
Shared Lane Marking - Shared lane markings (sharrows) are used on streets where bicyclists and vehicles share travel lanes. The sharrow helps position bicyclists and also provides a visual cue to motorists.

Shared-Use Path - A shared use path is an off-street bicycle and pedestrian facility that is physically separated from motor vehicle traffic. Minimum width of shared-use paths are 8 feet wide, with preferential width of 10 feet. Typically SUPs are located in an independent right-of-way such as in a park, stream valley greenway, along a utility corridor, or an abandoned railroad corridor. A shared-use paths located adjacent to street is recognized as a side path.

Signed Bike Route – Signed bike routes provide directional information as a wayfinding aid for bicyclists. Signed routes may be established on streets that offer a continuous bicycling environment. They also can be used to suggest the types of conditions cyclists can expect on a route.

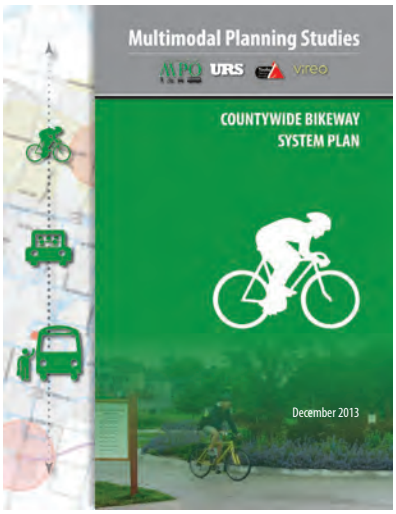
- **Wayfinding Needed** – The existing bikeway network does not indicate to users the direction or distance to different destinations. Wayfinding signs provide information about destinations, direction, and distance to help bicyclists determine the best routes to take to major destinations. Signs provide on-the-ground information that helps bicyclists understand and use the on-street and trail network without the use of a map.
- **Street Cross-Sections** – Streets with a 36 feet back of curb to back of curb street width allow for either two 11-foot travel lanes and two 5-foot bike lanes or two 12-foot travel lanes and two bike lanes that utilize the 1.5 foot gutter pan as part of the 5-foot bike lane. The second option is less desirable for bikers. However, streets that are heavily utilized by transit buses or other truck traffic should accommodate 12-foot travel lanes. Streets that are 34 feet back of curb to back of curb are the minimum width a street can be for us to retrofit bike lanes onto. In that case there are two 11-foot travel lanes and two bike lanes that utilize the 1.5 foot gutter pan as part of the 5-foot bike lane.
- **Safety** – The safety of riding a bicycle on the road with cars close by is a major factor in travel mode choice decisions. The quantity of high speed, distracted, or unlawful driving exhibited by motorists, especially on major roads and during certain times of the day and year, can threaten the safety of bicyclists (and car drivers) becoming a prohibitive factor in citizens choosing bicycling as a viable means of transportation. The personal safety of bicyclists (or perceived safety) is also a factor, particularly for children, elderly people (e.g., isolated areas depending on time of day). Personal security was also cited as an existing concern either as being real or a perceived threat in certain areas whether people ride on or off road.

- **Share the Road Etiquette** – Bicyclists on public roadways have rights and responsibilities as automobile drivers and are subject to laws and local ordinances to regulate their operation. Sometimes friction exists between these users of the roadway, as motorists and bicyclists do not know how to interact. When a road narrows or has a stop light or stop sign it is safer for a bicyclist to "Take the Lane" or cycle in the middle of the lane. Motorists are better able to see bicyclists reducing the chance of sideswiping, right hooking, or left crossing the cyclist.
- **Existing Bicycle System** - While the existing bicycle network is an opportunity, it is also a constraint to cycling in many areas. Many routes do not provide a direct, convenient, or safe means across busy streets. Some routes do not have sufficient signage. Other routes have conflicts with multiple users or they may not provide complete linkages to desired destinations.



Recent Efforts

Several studies have been recently completed.



- **Bike Share Feasibility Study** (2017) – www.lawrenceks.org/mpo/bikeshare – The study explored the feasibility of a bike share program in Lawrence and what a future program might look like. It found that a bike share program in Lawrence would be feasible.
- **Pedestrian Bicycle Issues Task Force** (2016) – www.lawrenceks.org/boards/bike-ped – The city commission created the Pedestrian-Bicycle Issues Task Force to develop built environment and programming recommendations to improve the city's pedestrian and bicycle networks by 2030.
- **Safe Routes to School** (2015 – Ongoing) – www.beactivesaferoutes.com – The Lawrence Safe Routes to School (SRTS) initiative is a collaborative effort between the Lawrence-Douglas County Health Department, Lawrence Public Schools, the City of Lawrence, and the Lawrence-Douglas County Metropolitan Planning Organization to improve the health and wellbeing of children by enabling and encouraging them to safely walk and bicycle to school. The SRTS program includes regular data collection regarding student travel patterns and parent concerns, identification of safe routes to school for all 18 public elementary and middle schools in Lawrence, supporting annual walk and

bike to school celebrations, creating pedestrian and bicycle safety curriculum, and revising the school crossing policy.

- **Bike Education** (2015 – Ongoing) – Lawrence Public Schools and the Lawrence-Douglas County Health Department worked together to create Bicycle Lesson and Safety Training (BLAST) curriculum to provide "on-the-bike" safety instruction to every Lawrence Public School 5th grader. As of the fall of 2016, Lawrence Public Schools owns a fleet of 72 bicycles and three adaptive tricycles to provide this education.
- **Lawrence - Douglas Countywide Bikeway System Plan** (2014) – www.lawrenceks.org/mpo/bicycle_planning – The Countywide Bikeway System Plan details the existing and planned bikeway network for the Lawrence urbanized area and proposes bikeway connections throughout the remainder of Douglas County, including the Cities of Eudora, Baldwin City, and Lecompton. This plan is scheduled for an update in 2018/2019.

c. Pedestrian

Lawrence was awarded a Silver Walk Friendly Community designation from the UNC Highway Safety Research Center in 2017, which is the third highest designation. The City received high marks for inter-agency coordination on the Safe Routes to School programs, the Complete Streets policy, and land use ordinances that are generally supportive of walking. Areas for improvement were also provided, which will provide the City of Lawrence direction to improve existing and future facilities.

Existing Conditions

An inventory of the existing system showing where sidewalks are existing and are missing. Figures 2.15 and 2.16 and display the Missing Sidewalks Maps. Existing inventory of pedestrian facilities include 392 miles in Lawrence, 17 miles in Eudora and Baldwin City, and 1 mile in Lecompton (Figure 2.14). There are more miles of sidewalk and curb ramps in the Environmental Justice zone (displayed in yellow) than in the non-Environmental Justice zone.

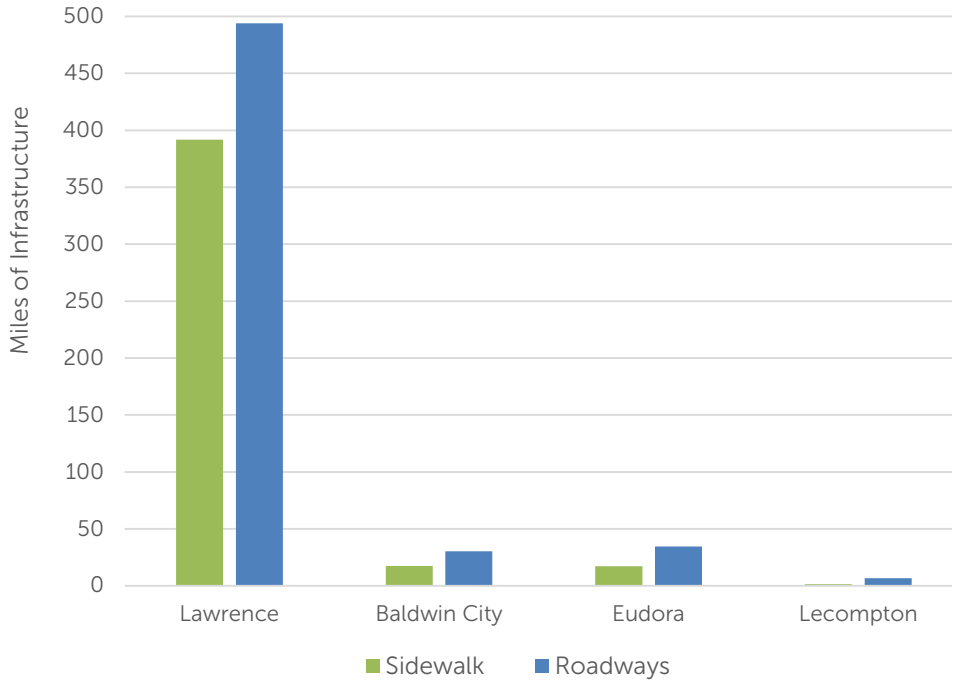
Access the Walk Friendly Community Report Card at https://assets.lawrenceks.org/assets/mpo/pedplan/WFCReportCard-Lawrence.pdf.

Elements that create a Walk Friendly Community

- Community Data & Evaluation
- Planning & Policy
- Engineering & Design
- Education & Encouragement
- Law Enforcement

Source: Walk Friendly Communities

Figure 2.14: Miles of Sidewalk vs. Roadway



Source: Regional Pedestrian Plan (2016) and Douglas County and City of Lawrence (2017)

According to the sidewalk inventory completed for the Regional Pedestrian Plan, Lawrence requires approximately $4.3 million to provide necessary maintenance to the sidewalks on Safe Routes to School (SRTS) designated routes, arterial, and collector streets (Table 2.5). Approximately $1.9 million is needed to install sidewalks on one side of the street and $12.3 million for sidewalk on both sides of the street for SRTS routes, arterials, and collectors. Table 2.6 displays the costs to install sidewalk on one side or both sides of the street on the priority network and maintenance costs and ADA curb ramps in Baldwin City, Eudora, and Lecompton.

Performance Measure

2 - Percentage of public streets with sidewalks on at least one side

	Miles	%
Lawrence	294.5	72%
EJ Zone	130.1	48%
Eudora	14.8	34%
Baldwin City	15.5	44%
Lecompton	1.4	14%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: Lawrence-Douglas County MPO: Lawrence (2017), Eudora (2014), Baldwin City (2014), Lecompton (2015)

Priority Networks

Priority Networks are defined in Chapter 6 in Figures 6.3 and 6.4.

Table 2.5: Lawrence Sidewalk Maintenance and Estimated Sidewalk Cost for the Priority Network and Citywide ADA Curb Ramps

	Estimated Cost to Install Missing Sidewalk*		
	Maintenance	One	Both
SRTS Route	$1,650,000	$200,000	$4,600,000
Arterial	$1,177,890	$700,000	$2,900,000
Collector	$1,480,440	$1,000,000	$4,800,000
Total	$4,308,330	$1,900,000	$12,300,000

Citywide ADA Curb Ramps	$3,212,800

Note: Sidewalk estimates do not include ADA curb ramps. Street classifications are defined on page 59.
Source: Regional Pedestrian Plan (2016)

Table 2.6: Estimated Sidewalk Maintenance and Cost to Install Sidewalk and ADA Curb Ramps

	Maintenance	One	Both	ADA Curb Ramps
Baldwin City	$238,650	$195,000	$800,670	$574,400
Eudora	$175,830	$264,000	$1,322,910	$624,800
Lecompton	$48,000	$138,000	$353,010	$16,000

Note: Sidewalk estimates do not include ADA curb ramps.
Source: Regional Pedestrian Plan (2016)

Figure 2.15: Lawrence Missing Sidewalk

Click below to view an interactive map

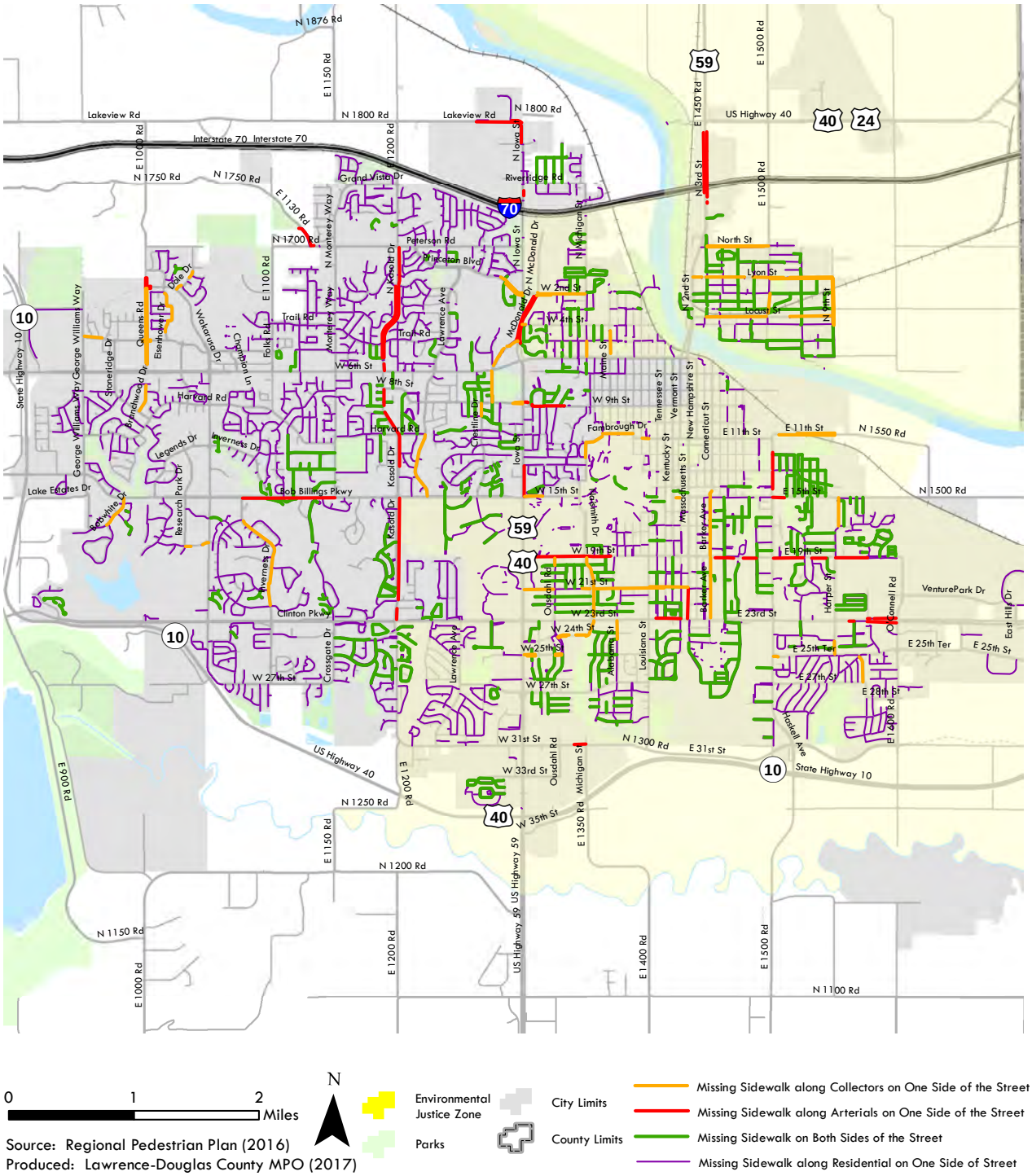
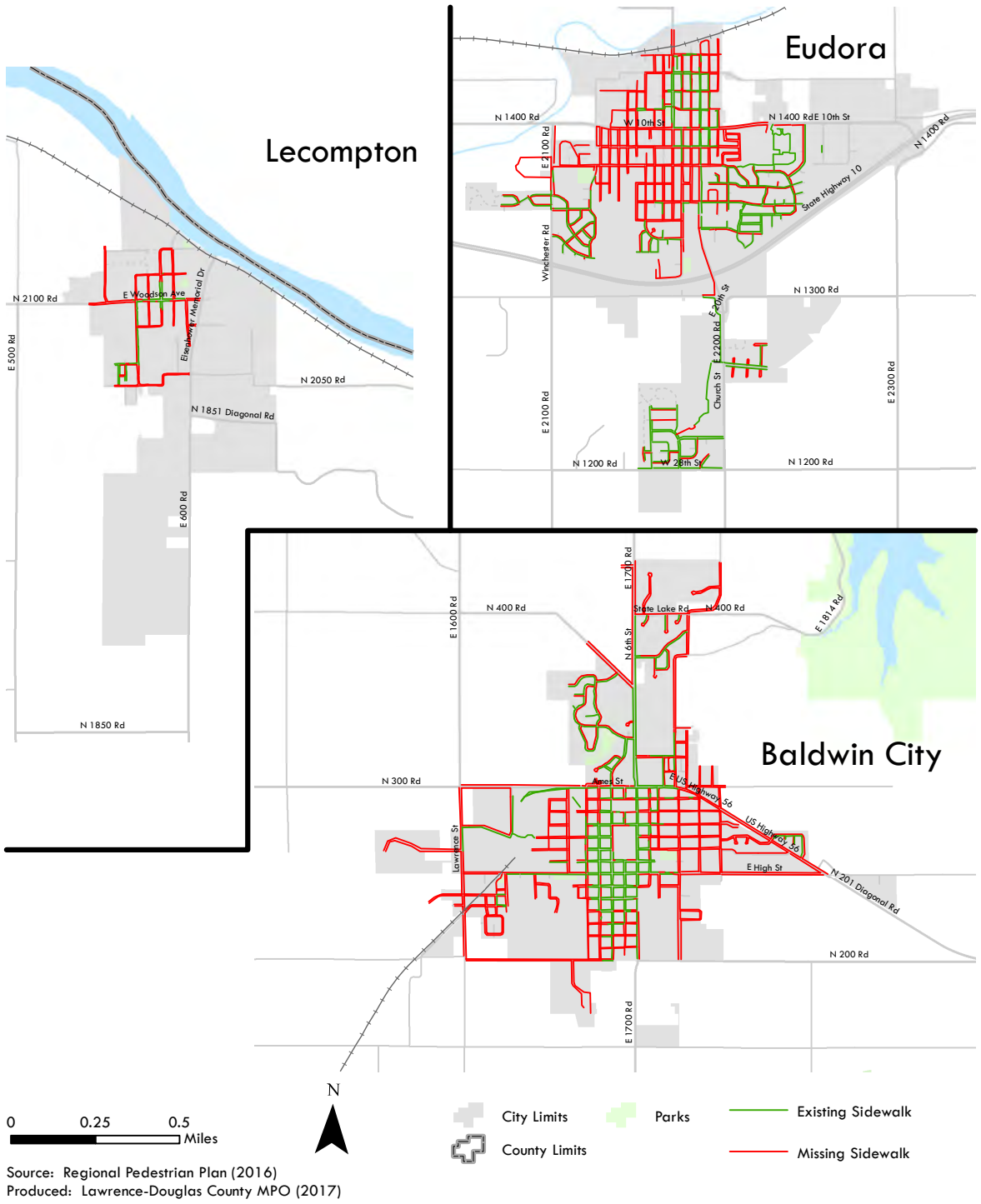


Figure 2.16: Baldwin City, Eudora, Lecompton Existing/Missing Sidewalk
Click below to view an interactive map



Source: Regional Pedestrian Plan (2016)
Produced: Lawrence-Douglas County MPO (2017)

As shown in Figures 2.16, Eudora has missing sidewalks throughout the community. The only locations that have sidewalks are some of the core of town and on one side of the street in the newer curvilinear residential developments. Baldwin City has sidewalks in the historic downtown and around Baker University. Lecompton has few that exist and are along Woodson Avenue and Whitfield Street.

There are a number of existing challenges to pedestrian movement throughout Douglas County.

- **Existing Sidewalk Network** – While the network of sidewalks is an opportunity, it is also a constraint to pedestrians in many areas. Many routes do not provide a direct, convenient, or safe means across busy streets. Gaps in the existing sidewalk network also create barriers for usage and create safety issues. Some routes do not have sufficient signage. Other routes have conflicts with multiple users or they may not provide complete linkages to desired destinations.
- **Street Crossing** – Street crossings may be the "Achilles Heel" of the pedestrian system. Street crossings place the pedestrian in the middle of the street and exposed to potential conflicts with automobiles. For an average pedestrian walking at 3 miles per hour (4.4 feet per second), it takes approximately 3 seconds to cross one 12' traffic lane. If bike lanes are present, an additional 2 seconds are needed. On-street parking on both sides of the street adds another 4 seconds. When determining the total time necessary for a walk signal phase, an additional 3 second cushion of safety is recommended. (Older adults, children, areas of high pedestrian density and mobility impaired pedestrians take longer to cross and may need approximately 50% more time to cross a street.)
- **Visual Amenities** – To promote pedestrian activity in an area, the pedestrian system needs to be aesthetically appealing. The attractiveness of the pedestrian network can range from visually attractive, with enhancements like street lighting, fountains, and benches, to an experience of discomfort and intimidation associated with the absence of amenities.

Average Speeds of Pedestrian

Typical speed	1.2 m/s - (4.0 ft/s)
Older adults	0.9 m/s - (2.8 ft/s)
Cane or crutch	0.8 m/s - (2.62 ft/s)
Assistive walker	0.6 m/s - (2.07 ft/s)
Wheelchair	1.1 m/s - (3.55 ft/s)

Source: Federal Highway Administration

What attracts people to walk in certain areas?

Access & Linkages

- Continuity
- Proximity
- Connected
- Readable
- Walkable
- Convenient
- Accessible

Comfort & Image

- Safe
- Clean
- Green
- Walkable
- Sittable
- Spiritual
- Charming
- Attractive
- Historic

Sociability

- Diverse
- Stewardship
- Cooperative
- Neighborly
- Pride
- Friendly
- Interactive
- Welcoming

Uses & Activities

- Fun
- Active
- Vital
- Special
- Sustainable
- Real
- Useful
- Indigenous
- Celebratory

Source: Project for Public Spaces

What is a Level of Service?

A level of service is a way to categorize and rate different types of facilities. Quantitative and qualitative data can be used to provide information if each facility meets users' needs.

Performance Measure

5 - Percentage of people with access to a bus stop for fixed route transit within a ¼ mile

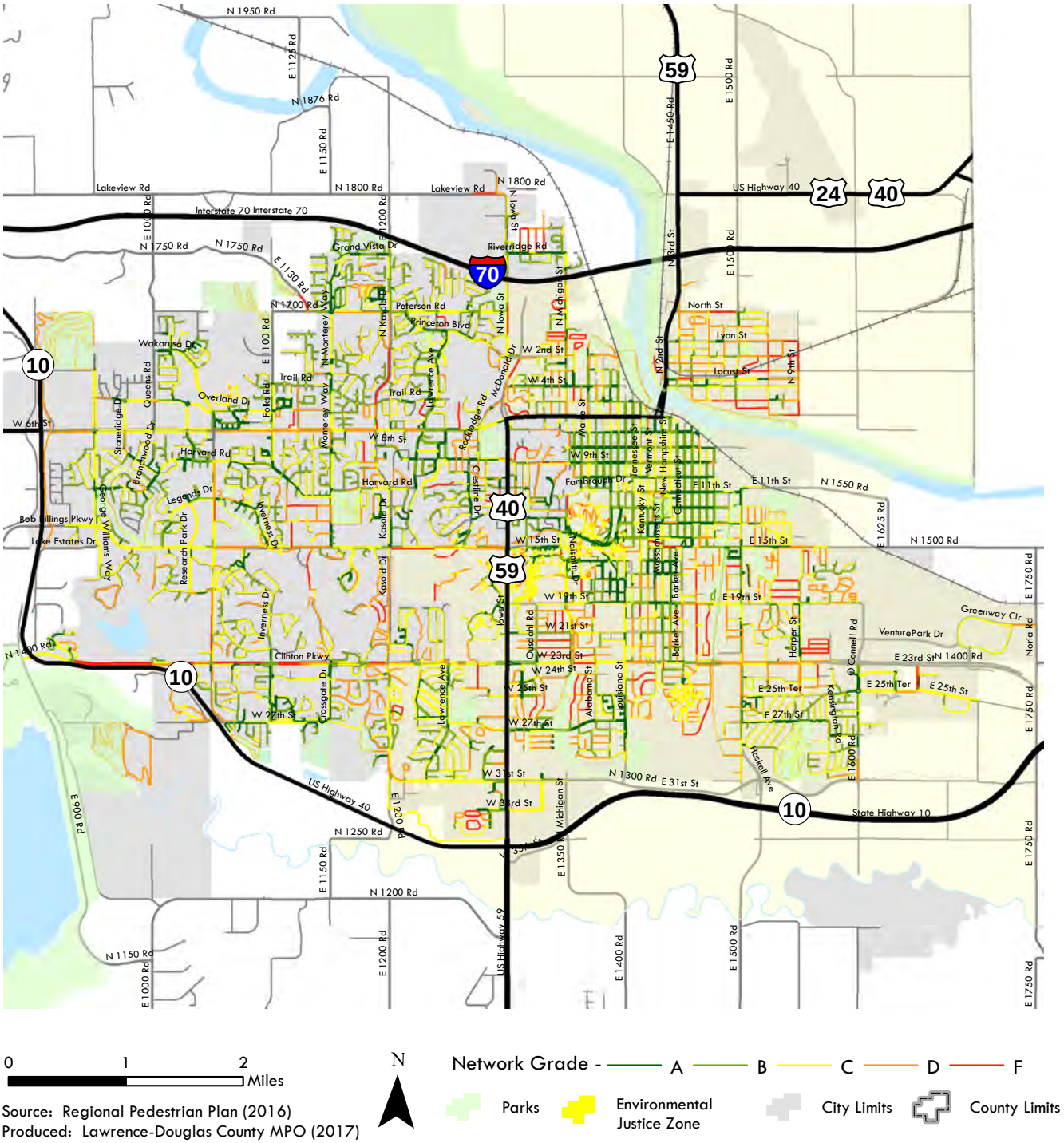
Every transit rider is also a pedestrian. Transit trips are multimodal, meaning that people who ride transit are also using other forms of transportation in addition to transit services.

	2015 Population Estimate	Within a 1/4 mile of a Bus Stop	
Lawrence	95,096	62,193	65%
EJ Zone	50,627	42,556	84%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: 2015 Population Estimate and Lawrence Transit Stops 2016-17

- **Pedestrian Levels of Service** – Effective multimodal transportation planning needs to have a way to assess the current state of the pedestrian network as well as the impact of capital projects and land developments on the pedestrian experience. Applying a letter grade to segments of the pedestrian network includes measuring several factors that help to determine an area's pedestrian friendliness. The current formula to measure pedestrian friendliness for Lawrence evaluates four factors which affect the pedestrian environment: Directness, Continuity, Safety, and Accessibility. Pedestrian network segments with sidewalks on both sides of the street and short block lengths tended to earn better letter grades unless they performed very poorly on the other three factors. In a similar way, segments that had no sidewalks on either side of the street and long block lengths tended to earn poorer letter grades unless they excelled in the other measurements. A limitation of this evaluation is the inability to measure sidewalk quality. Sidewalks with many defects are considered in the same way as newly built sidewalks. Thought should be given to how to include metrics of sidewalk quality in future Pedestrian Network Design scoring.
  - **Directness** – The measure of directness is simply how well a community provides direct pedestrian connections to destinations such as transit stops, schools, parks, commercial centers, or activity areas. This is measured by block length.
  - **Continuity** – The measure of continuity is the completeness of the sidewalk system and avoidance of missing segments. This is measured by the presence of sidewalk on both or one sides of the street.
  - **Safety** – Pedestrians require a sense of safety and security, both through visual line of sight with others and separation from vehicles. Street lighting is also important for walking at night. Safety is measured by adjacent speed limits and adjacent pedestrian crash history.
  - **Accessibility** – Ease of use for everyone, especially for people with disabilities. This is measured by sidewalk slope.

Figure 2.17: Lawrence Pedestrian Network Design Grades
Click below to view an interactive map



Source: Regional Pedestrian Plan (2016)
Produced: Lawrence-Douglas County MPO (2017)

Figure 2.17 displays the Lawrence Pedestrian Network Design Grades. Portions of the pedestrian network that are friendlier towards pedestrians were given an "A" and are symbolized in green. Most of the "A" level pedestrian network is found concentrated in the grid style downtown. Keep in mind this evaluation does not take into account sidewalk quality.

Douglas County

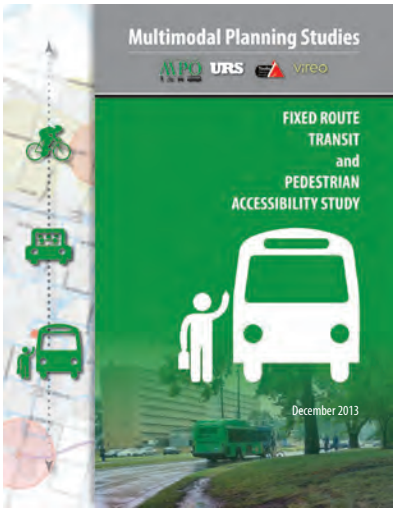
Regional Pedestrian Plan

Recent Efforts

Several studies have been recently completed.

- **Regional Pedestrian Plan** (2016) – www.lawrenceks.org/mpo/pedplan – This Plan represents a vision of a more accessible and safer pedestrian environment in the region. It considers the many benefits of walking and identifies a diverse set of approaches encouraging more pedestrian activity. It also presents a toolbox of policy, program, and infrastructure ideas that cities in Douglas County can implement to improve the pedestrian environment. While there may be overlap, the needs of Lawrence, Eudora, Baldwin City and Lecompton vary in population, available funding, and local priorities; therefore, there are assessments and unique recommendations for each city within Douglas County.
- **Pedestrian Bicycle Issues Task Force** (2016) – www.lawrenceks.org/boards/bike-ped – The Lawrence City Commission created the Pedestrian-Bicycle Issues Task Force to develop built environment and programming recommendations to improve the city's pedestrian and bicycle networks by 2030.
- **Safe Routes to School** (2015 – Ongoing) – www.beactivesaferoutes.com – The Lawrence Safe Routes to School (SRTS) initiative is a collaborative effort between the Lawrence-Douglas County Health Department, Lawrence Public Schools, the City of Lawrence, and the Lawrence-Douglas County Metropolitan Planning Organization to improve the health and wellbeing of children by enabling and encouraging them to safely walk and bicycle to school. The SRTS program includes regular data collection regarding student travel patterns and parent concerns, identification of safe routes to school for all 18 public elementary and middle schools in Lawrence, supporting annual walk and bike to school celebrations, creating pedestrian and bicycle safety curriculum, and revising the school crossing policy.

- **Fixed Route Transit & Pedestrian Accessibility Study** (2014) – www.lawrenceks.org/mpo/transit – This Study recommends improvements to the pedestrian network to improve accessibility to transit service. The study explored obstacles transit riders face along routes, locations where improvements could be made to improve and/or enable people to access routes, and possible locations for bus turnouts to improve convenience and safety for riders and to enhance traffic operations.



2. Transit

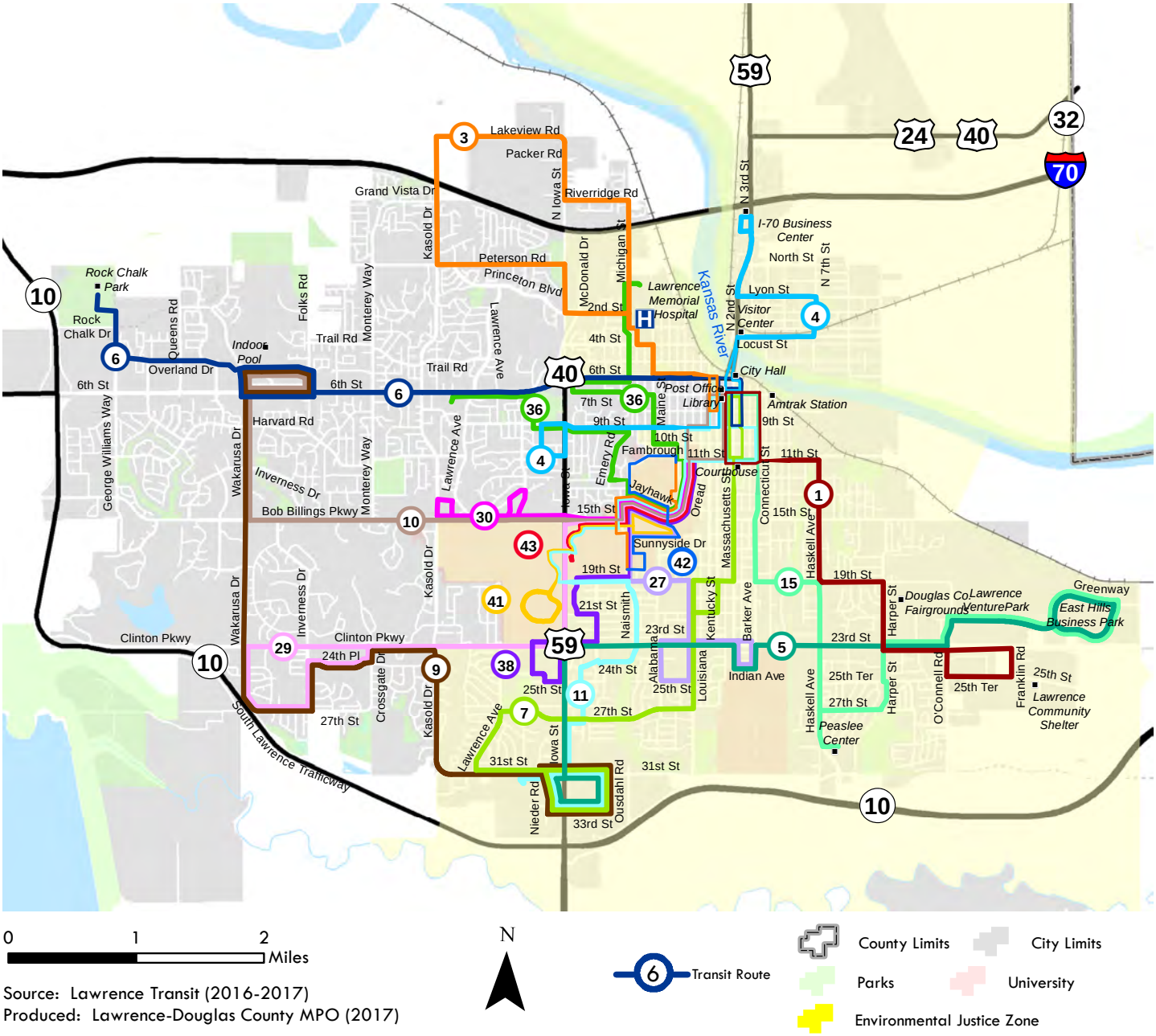
Existing Conditions

Two fixed route service providers, Lawrence Transit and KU on Wheels (KUOW), operate in the City of Lawrence (Figure 2.18). Lawrence Transit provides a public complementary paratransit service (T-Lift) to comply with the Americans with Disabilities Act (ADA). The University of Kansas Parking & Transit Office provides a similar paratransit service, Jaylift, available to KU students, faculty and staff with a KU origin or destination. A majority of the transit service is within the Environmental Justice zone (displayed in yellow).

What is the difference between fixed route service & demand response service?

Fixed route service refers to transit service that operates on a repetitive, fixed schedule basis along a specific route with buses stopping to pick up and drop off passengers at specific locations. Demand response service does not operate over a fixed route. It provides pre-arranged rides from orgins-to-destinations to riders who are not able to use the fixed route system due to a disability. This included T Lift and other paratransit services.

Figure 2.18: Lawrence Transit/KU on Wheels Transit (2016-2017 Routes)
Click below to view an interactive map

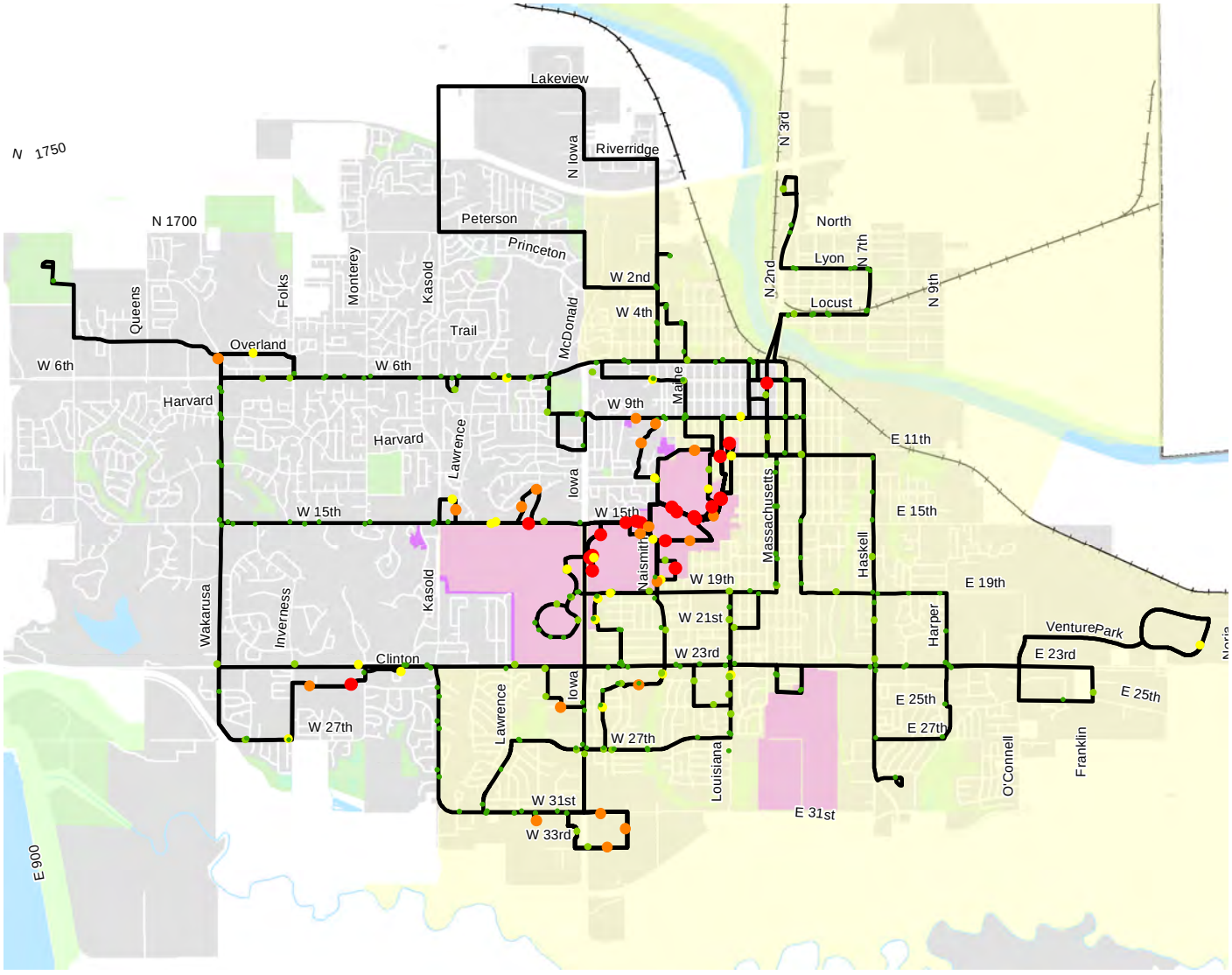


Source: Lawrence Transit (2016-2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure 2.19 displays the boardings by stop per day. The majority of the highest boarding locations are on the KU campus. Table 2.7 shows the number of stops per boardings per day, while Table 2.8 displays the transit amenities and number of boards per stop per day from the aminities guidelines and polices for Lawrence Transit.

Figure 2.19: Highest Boarding Locations

Click below to view an interactive map



Source: Lawrence Transit (2016-2017)
Transit COA (2017)
Produced: Lawrence-Douglas County MPO (2017)

Types of Existing Transit Services

Providers use a variety of service types to maintain a comprehensive system and address the diverse transportation needs in the community. Each type of service used within the network of services in Douglas County is defined below.

Commuter/Regional Service - provides transportation that is regional in nature, connecting one major urban area with another major urban area. Regional routes are typically long with few stops, and act as a limited stop or express type of service.

Complementary paratransit - is comparable transportation service required by the Americans with Disabilities Act for people with disabilities who are unable to use fixed-route transportation systems. These services can operate curb to curb or door to door.

Table 2.7: Number of Stops per Boardings per Day

Boardings	<10	10-24	25-50	51-150	>150
Lawrence	207	55	24	20	21
EJ Zone	140	39	14	12	19

Source: Transit COA (2017)

Table 2.8: Transit Amentities and Number of Boardings per Stop per Day

	<10	10-24	25-50	51-150	>150
Bus Stop Sign	Standard	Standard	Standard	Standard	Standard
Route Designations	Standard	Standard	Standard	Standard	Standard
Benches			Standard	Standard	Standard
Shelter			Standard	Standard	Standard
Information Displays			Standard	Standard	Standard
Trash Receptacle			Standard	Standard	Standard
Bus Stop Pad			Standard	Standard	Standard
Lighting				Standard	Standard
Bicycle Rack				Standard	Standard
Landscaping				Standard	Standard
Leaning Rails				Standard	Standard
Bollards				Standard	Standard

Source: Amentities Guidelines and Policies for Lawrence Transit (2015)

In 2009 through extensive planning and coordination efforts, the Lawrence Transit and KU on Wheels systems created joint routing and scheduling that focuses service to demands and matches frequencies to improve transfers on connecting routes that are operated under a joint contract by a privately owned transit provider. Operating all of those services under a joint contract has gained efficiencies in operations and maintenances for both systems.

The coordinated Lawrence Transit/KU on Wheels system provides nineteen routes varying from six minute frequencies on the KU Campus to 60 minute service. In the past few years Lawrence Transit has been transitioning appropriate routes to 30 minute or less frequency.

In addition to Lawrence Transit and KUOW with their fixed route and related paratransit services, there are several smaller agencies that operate specialized transportation/ paratransit services for transit dependent individuals in the region (as shown in Table 2.9). These transport providers include: Bert Nash Community Mental Health Center, Cottonwood Incorporated, Senior Resource Services for Douglas County, Independence Incorporated, and the Lawrence Housing Authority. These agencies have other core missions, but provide needed specialized transport services to serve their clients, and in some cases also run transit service which is open to the general public to reach areas outside the Lawrence Transit and KUOW coverage areas. The service provided by these small agencies is flexible demand response service.

RideKC, in partnership with Johnson County also operates transit service in Douglas County. Its service is a longer distance commuter route (the K-10 Connector) into Douglas County with connections to college destinations in Johnson County. The KU campus in Lawrence and the Johnson County Community College and the KU Edwards campus are all connected by this JO service. The JO bus routes connect to the fixed route service in Lawrence at a few strategic locations like the KU Park & Ride facility.

Types of Existing Transit Services (Continued)

Fixed-Route Service - is provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations; each fixed-route trip serves the same origins and destinations, unlike demand response and taxicabs.

Peak Service - often lasts for about three hours in the morning and three hours in the afternoon/ evening, when and where a greater level of service is provided for passengers based on increased travel demand.

Flexible Service - is a nontraditional service that attempts to match service demands with available resources. This type of service often is hybrid between two other types of service. As an example a "point deviation" service would include elements of both fixed route and paratransit service. A complete "demand response" service would operate much like complimentary paratransit but would not limit riders based on their ability to use fixed-route service. This type of service is most often provided with smaller vehicles and provides service in a well-defined area.

All of these transit providers combined provide approximately 3.2 million rides per year (Figure 2.20). Of these rides, each year, approximately 93% of the rides were on a fixed route. These services form a network to provide safe, convenient, affordable, reliable, and responsive transportation services to enhance the social, economic and environmental well-being of the community. As shown in Table 2.9 each provider operates during a variety of hours, over various service areas, and for different clientele.

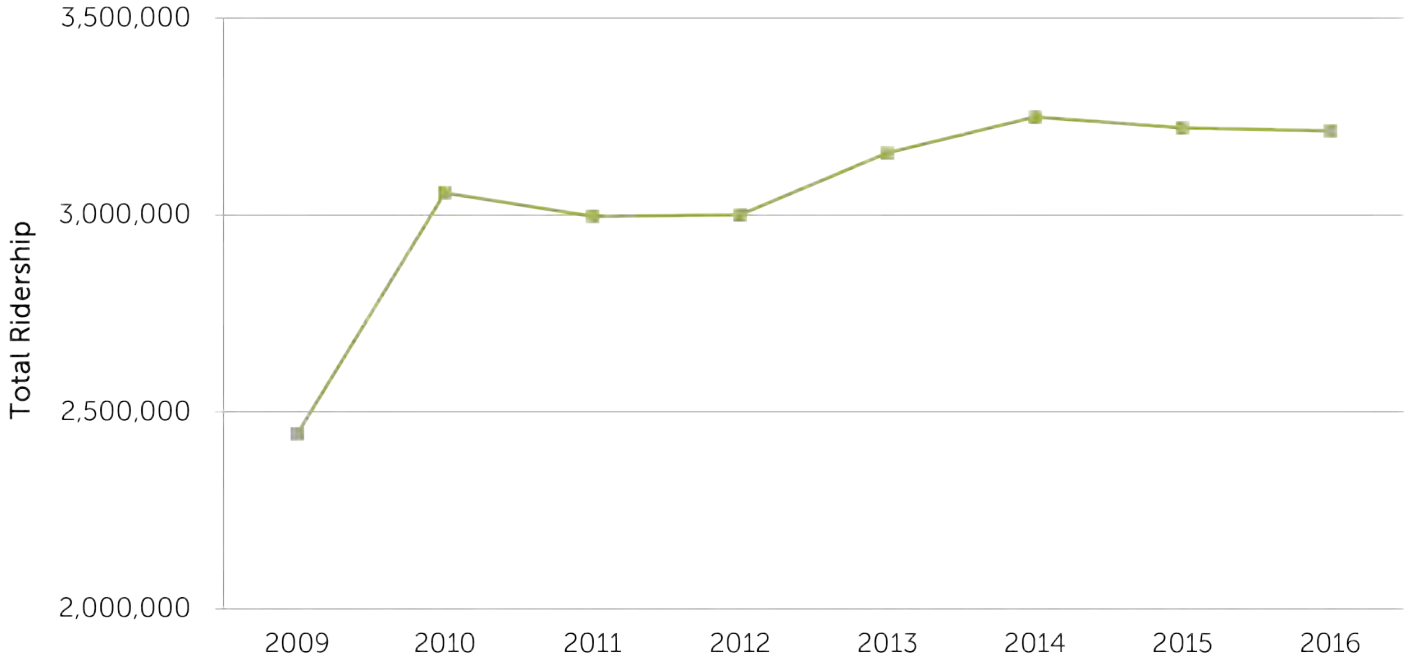
Greyhound Bus Lines provides daily service from Lawrence using a stop at the Lawrence Public Library at 707 Vermont Street. From that location passengers can board buses heading west to Topeka, east to Kansas City, and south to Wichita, and points beyond.

Table 2.9: Transit Providers in Douglas County

Operator	*Fleet Size	Service Hours	Days of Service	Service Area	Clientele
Bert Nash CMHC	3	9 am - 7 pm	Monday - Saturday	Douglas County	Elderly, Disabled (Bert Nash Clients)
Cottonwood, Inc.	3 KDOT + 38 agency	7 am - 10 pm	Monday - Sunday	Douglas County	Disabled (Cottonwood, Inc. Clients)
Senior Resource Center for Douglas County	6	7 am - 3:40 pm	Monday - Friday	Douglas County	Elderly
Independence, Inc.	6	8 am - 5 pm	Monday - Friday	Douglas County	Elderly, Disabled, General Public
RideKC: K-10 Connector***	5	6 am - 11:31 pm 6 am - 7:20 pm	Monday - Thursday Friday	Johnson and Douglas Counties (connecting the 2 KU campuses and JCCC)	General Public
KU on Wheels Fixed Route***	53	7 am - 6 pm	Monday - Friday	Lawrence city limits	General Public
KU on Wheels JayLift***	2	7 am - 6 pm	Monday - Friday	Lawrence city limits	**General Public
Lawrence - Douglas County Housing Authority Babcock Bus	1	8 am - 4 pm	Monday - Thursday	Lawrence city limits	Elderly, Disabled, (Individuals receiving housing assistance)
Lawrence Transit Fixed Route	29	6 am - 8 pm & 8:00 pm - 6:00 am (NightLine)	Monday - Saturday	Lawrence city limits	General Public
Lawrence Transit T-Lift	25	6 am - 8 pm	Monday - Saturday	Lawrence city limits	**General Public

* Fleet size is measured by the number of vehicles in maximum revenue hour service for 2015.
**Certification required.
*** Reduced service when class is not in session
Source: Coordinated Public Transit and Human Services Transportation Plan (2016)

Figure 2.20: Total Transit Ridership in Douglas County



Source: Coordinated Public Transit and Human Services Transportation Plan (2017)

Ridership totals for each system provide a way to measure the volume of riders served by each transit service. Ridership from 2009-2016 is listed in Table 2.10 for each provider. Starting in 2010 Lawrence Transit and KU on Wheels service has been provided jointly through route coordination. This has resulted in a change in ridership. This has resulted, in part, from a change of who reports what ridership locally and to the FTA, in part because of increased demand for those fixed route services. Lawrence Transit/KU on Wheels received an award in 2014, 2015, and 2016 for the obtaining the highest number of ridership among public transit systems in Kansas from the Federal Transit Administration.

Photo by LawrenceTransit.org

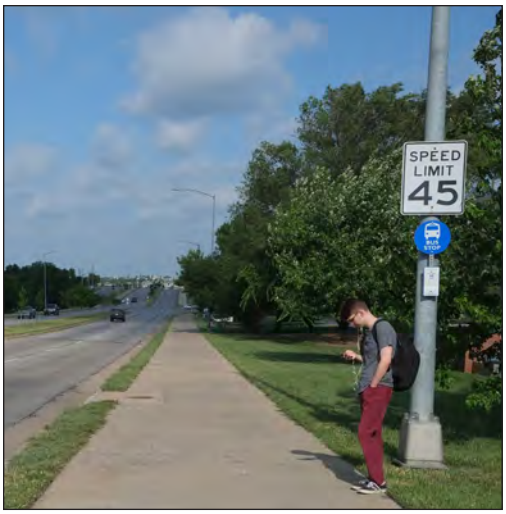
Transit Amentities Guidelines and Policies

The Amentities Guidelines And Policies for Lawrence Transit can be accessed at http://assets.lawrenceks.org/assets/mpo/transit/AmenitiesGuidePolicy.pdf.

Table 2.9: Transit Ridership in Douglas County

	Annual Ridership							
Operator	2009	2010	2011	2012	2013	2014	2015	2016
Bert Nash CMHC	1,896	2,345	3,108	3,853	5,500	5,500	4,020	4,639
Cottonwood, Inc.	5,157	5,211	3,803	2,097	3,960	3,605	2,948	1,838
Independence, Inc.	10,800	9,833	9,626	10,371	3,778	6,905	6,808	4,481
KU on Wheels Fixed Route	1,748,299	2,230,437	2,059,844	1,881,000	1,836,293	1,892,649	1,913,525	1,898,884
KU on Wheels JayLift	4,126	2,232	3,185	4,011	5,557	5,831	3,506	3,410
Lawrence - Douglas County Housing Authority Babcock Bus	2,136	2,105	2,288	3,766	2,500	2,345	2,247	1,986
Lawrence Transit Fixed Route	499,017	620,592	705,561	872,356	1,078,374	1,125,795	1,095,772	1,120,805
Lawrence Transit T-Lift	50,169	50,164	54,065	53,630	54,075	61,444	63,406	66,934
RideKC: K-10 Connector	119,110	128,385	149,703	161,927	159,852	137,074	122,251	104,969
Senior Resource Center for Douglas County	4,000	4,687	5,488	7,885	8,134	7,819	6,397	5,959
Total	2,444,710	3,055,991	2,996,671	3,000,896	3,158,023	3,248,967	3,220,880	3,213,905

* Fleet size is measured by the number of vehicles in maximum revenue hour service for 2015.
**Certification required.
*** Reduced service when class is not in session
Source: Coordinated Public Transit and Human Services Transportation Plan (2016)



Performance Measure

4 - Unlinked Passenger Trips per Vehicle Revenue Hour for demand response

Unlinked Passenger Trips is defined as the number of passengers who board public transportation vehicles. Passengers are counted each time they board transit vehicles, regardless of how many transfers they use to travel to their final destination.

Vehicle Revenue Hour is a term that describes the hours that transit vehicles are moving along a route providing passenger service.

T Lift

	Total Unlinked Passenger Trips	Total Vehicle Revenue Hours	Average Passenger per Revenue Hour
2013	60,418	29,391	2.06
2014	61,444	26,933	2.28
2015	79,364	37,419	2.12
2016	84,369	40,943	2.06

Source: Lawrence Transit (2017)

Performance Measure

4 - Unlinked Passenger Trips per Vehicle Revenue Hour for fixed route service

Fixed-Route

	Total Unlinked Passenger Trips	Total Vehicle Revenue Hours	Average Passenger per Revenue Hour
2013	2,916,833	89,049	32.76
2014	3,025,738	90,514	33.43
2015	2,913,606	95,827	30.40
2016	3,282,422	105,996	30.97

Source: Lawrence Transit and KU on Wheels (2017)

Transit Need

The fixed route transit service in Lawrence is predicated on the amount of funding available. $6.75 million is necessary to operate the current level of transit annually. Approximately an additional $1.5 million annually is needed to operate service on Sunday and night service. Roughly $4 million is needed to institute various transit technologies including real time bus information signs, smart fare boxes, automated passenger counters (APC), and ticket vending machines among other technology. The combined Lawrence Transit/KU on Wheels system needs a permanent bus location transfer site to act as a central location for transfers. Furthermore, transit vehicles have a useful life and need to be replaced on a set schedule. At least $12 million is necessary for vehicle replacement during this plan horizon. The vehicle inventory is located in Appendix C: Transit Asset Management (TAM) and Fleet Inventory

Performance Measure

16 - Percentage of revenue and non-revenue vehicles met or exceeded their Useful Life Benchmark (ULB)

The federal government is concerned with efficient use of transit vehicles, therefore a useful life benchmark is calculated for each type of transit asset.

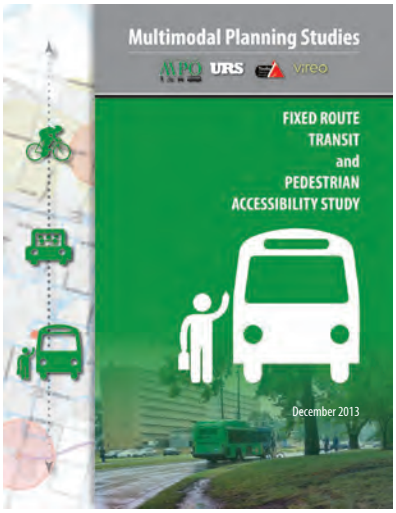
Category	Class	ULB	% of Vehicles at or Exceeding ULB
Revenue vehicle	Full-sized bus	14	34%
	Cutaway bus	10	32%
	Van	8	27%
	Minivan	8	33%
Non-Revenue Vehicles	Minivan	8	0%
	SUV	8	100%
	Auto	8	75%

Note: FTA Useful Life Benchmark (ULB)
Source: Lawrence Transit, KU on Wheels, Other Human Service Providers (2017)

Performance Measure

17 - Percentage of assets with a condition rating below 3 on the FTA Transit Economic Requirements Model (TERM) scale

There are no federally funded facilities.



Recent Efforts

Several transit studies have been recently completed.

- **Bus Transfer Location Analysis** (in progress - 2017) – http://lawrencetransit.org/bus-transfer-location-analysis - Lawrence Transit and MPO are coordinating to pursue a consultant-led study to identify locations for the bus transfers. The consultant will engage the City Commission and stakeholders to develop criteria to guide the evaluation process for bus transfer locations. Upon identifying acceptable transfer locations, a concept for the bus transfer location and amenities – appropriate to the specific locations and budget constraints – would be developed.
- **Transit Comprehensive Operations Analysis** (2017) – www.lawrenceks.org/mpo/transitcoa – The Lawrence Transit System, in partnership with KU on Wheels, and the MPO conducted a comprehensive analysis of bus service in Lawrence in 2016. This study took a detailed look at the city's existing bus services and provided recommendations for improving service to meet the needs of both city residents and university students.
- **Coordinated Public Transit and Human Services Transportation Plan** (CPT-HSTP) (2016) – www.lawrenceks.org/mpo/transit – Area transit providers worked together and approved a CPT-HSTP to aid in the continued communication and coordination of all providers throughout Douglas County. The plan is implemented by the MPO subcommittee Regional Transit Advisory Committee (RTAC).
- **Fixed-Route Transit & Pedestrian Accessibility Study** (2014) – www.lawrenceks.org/mpo/transit – The Fixed Route Transit and Pedestrian Accessibility Study identified obstacles transit riders face in accessing the fixed route system, locations where improvements can be made to the pedestrian environment, issues with streets/sidewalks that prevent people from accessing the fixed route system, and possible bus turnouts to make boarding and exiting more convenient and enhance traffic operations.

- **Commuter Park & Ride Study** (2014) – www.lawrenceks.org/mpo/study – The Commuter Park & Ride Study identified potential park & ride locations in Lawrence, which were evaluated for highway access, connections to existing local transit service, proximity to major activity centers, residential, and employment areas, special event parking accommodation, land acquisition, and feasibility to accommodate amenities.
- **I-70 Corridor Transit Feasibility Study** (2014) –http://www.ksdot.org/Assets/wwwksdotorg/bureaus/burTransPlan/pubtrans/pdf/I-70%20Corridor%20Transit%20Feasibility%20Study%20-%20FINAL%20-%202014-03-20.pdf – KDOT studied the feasibility of providing transit service in the I-70 corridor between downtown Kansas City, Missouri; Lawrence, Kansas; and Topeka, Kansas. The study found the largest commuter travel in the I-70 corridor is from residents of the Lawrence area to workplaces in downtown Topeka and Topeka residents to KU and other Lawrence employers. This level of movement would support regularly scheduled commuter transit service.

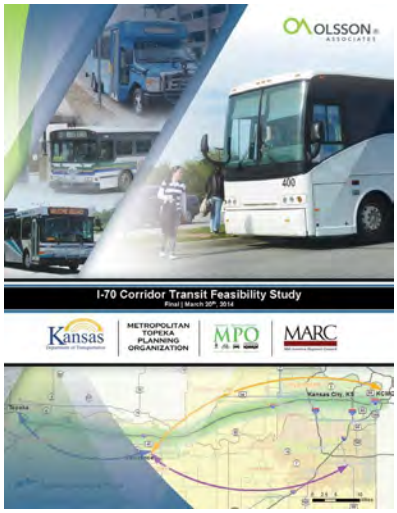
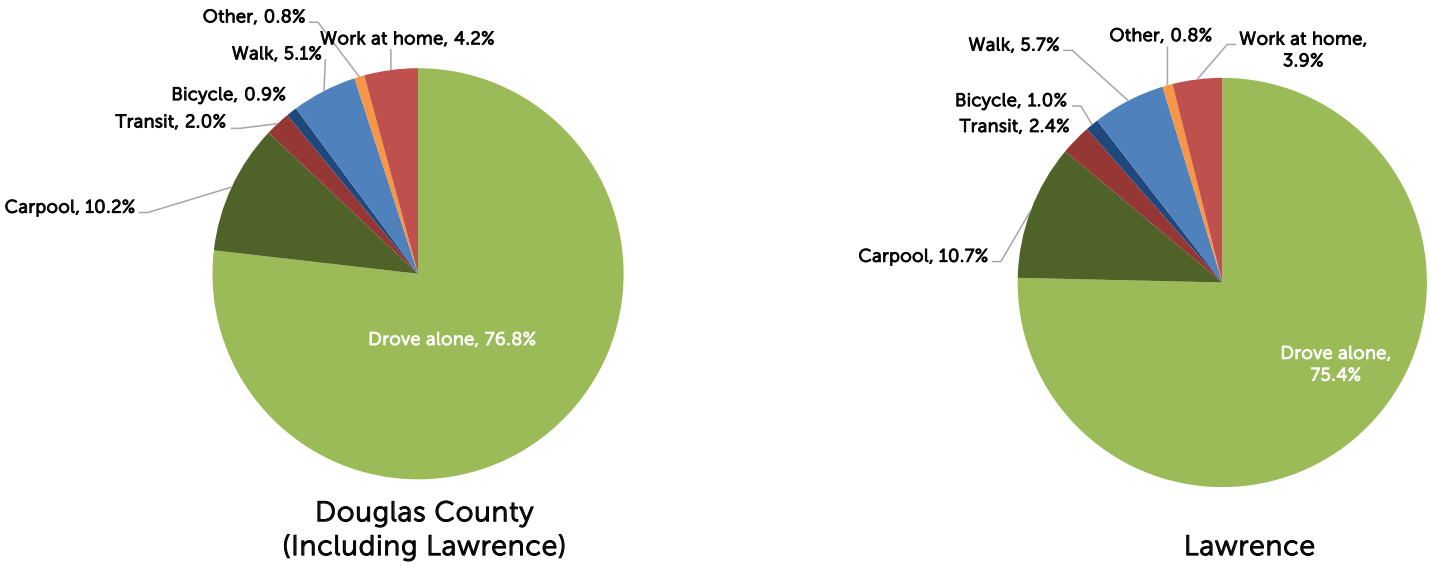


Figure 2.21: Work Commute



Source: US Census, 2011-2015 ACS 5-Year Estimates (808301)

3. Roadway Network

A majority of residents within Douglas County and Lawrence travel to work in single occupancy vehicles (Figure 2.21). This predominance of drivers makes the road network a priority. The road network also provides connections to commerce hubs in Topeka and Kansas City.

Existing Conditions

The public roadway system in the region consists of approximately 1,367 functionally classified centerline miles of roads consisting primarily of two-lane minor arterials, collectors, and local roads. The principal arterial and higher class roadways comprise only a small percent of the mileage but represent most of the roads that have high traffic volumes and significant congestion problems. However, congestion along the region's busiest roads is not the only issue facing the roadway network. In some other areas there is almost no congestion, but there are missing links in the network causing problems. Missing connections can create circuitous routings and longer than desired trip lengths, long wait times at un-signalized intersections, and other problems. At other uncongested places there are safety issues to consider related to the design or condition of the roadway and/or bridges along that route. Congested corridors certainly do need some attention and improvements, but congestion is not the only (or in some locations not even an important) factor in recommending improvements.

Performance Measure

25 - Percentage of single occupancy vehicles

Entity	2013	2014	2015
Lawrence	74.6%	74.3%	75.4%
Baldwin City	72.1%	75.4%	74.8%
Eudora	86.5%	89.0%	89.3%
Lecompton	81.2%	93.4%	92.1%
Douglas County	75.9%	76.4%	76.8%

Source: ACS 5-year estimates (S0801)

What is a single occupancy vehicle?

A single occupancy vehicle means that only one person, the driver, is occupying an automobile.

Table 2.11 shows the overall totals of roadway centerline miles maintained by KDOT, Douglas County and city governments in the region. The table makes it obvious that Douglas County and the City of Lawrence are the two local governments that maintain most of the major roadway mileage in the region. However, that simple fact does not indicate the whole nature of the roadway system maintenance demands faced by those two entities nor does it present a picture of how the roadway maintenance demands on these two governments compare to other cities and counties around the state.

Table 2.11: Centerline Miles Maintained per Entity

Entity	Centerline Miles	Percentage
Army Corps of Engineers	8.4	0.6%
Baldwin City	30.2	2.1%
Douglas County	229.5	15.7%
Eudora	34.5	2.4%
Kansas Department of Transportation	123.7	8.5%
Kansas Department of Wildlife, Parks, and Tourism	8.5	0.6%
Kansas Turnpike Authority	49.8	3.4%
Lawrence	384.2	26.3%
Lecompton	6.7	0.5%
Townships	576.3	39.4%
University of Kansas	11.0	0.8%
Total	1,462.8	100.0%

Note: Douglas County maintains all bridges and all large culverts (opening >25 sq. ft.) on Township roads
Source: Douglas County & City of Lawrence (2017)

Functional Classification

The roadway network in Douglas County is composed of various types of roadways ranging from basic gravel roads to multi-lane freeways; the roads vary from congested urban arterials to sparsely used rural roads. For MPO purposes and this T2040 Plan the roadways in the region are classified as either urban area or rural area roads and then further divided into a number of functional classifications based on the role they serve in the network and how much mobility versus property access function they are planned to have (Figure 2.22). Figure 2.23 displays the Functional Classification Map for Douglas County. Table 2.12 shows the total mileage and percentage for each classification type.

What is a center line mile?

A center line mile is a term used for one mile of a single roadway regardless of the number of lanes on the road.

Functional Classification

Interstates – roadways designated as interstate highways by the USDOT and KDOT.

Other Freeways and Expressways – limited access roads not designated as interstates that have a primary mobility function. These roads may have interchanges and some at-grade intersections.

Other Principal Arterials – major roads with a primary mobility function that are designed to move traffic across town, connect neighborhoods, and provide access to major activity centers in the region. These roads carry traffic to, from, and through the region. They are typically viewed as the major roads for the area, have some of the highest traffic volumes, serve longer trip lengths than other surface streets, and carry a high proportion of the area's traffic on a small percent of the road mileage.

Functional Classification (Continued)

Minor Arterials – roads having a primary mobility function that are designed to connect to and supplement the principal arterials while providing connections between neighborhoods and connections to some major activity centers. These roads may place more emphasis on land access than principal arterials. They may serve smaller cities and population centers not served by principal arterials.

Major Collectors – roads that have a relative balance between mobility and property access functions, bring traffic to higher class roads, connect to smaller activity centers, and serve important travel corridors in the region which are not served by higher class roads.

Minor Collectors – roads that have a balance between mobility and property access functions, supplement major collectors, bring traffic to higher class roads, and may provide connections to small local activity centers.

Local Roads – public roadways that have a primary purpose of property access and/or are not classified by the MPO. They provide the lowest level of mobility and are designed for short trips leading to nearby destinations in the same neighborhood or provide a connection from land uses to a higher class road. Longer through trips along these roads should be discouraged.

Figure 2.22: Roadway Function: Mobility and Access

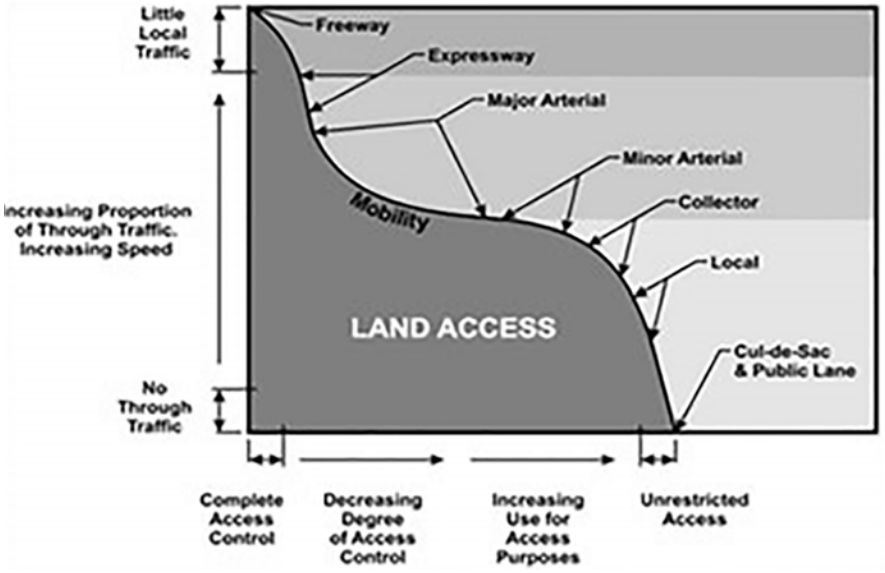


Table 2.12 Miles of Classified Roadways

Facility Type	Total Mileage	Percentage	Color
Interstate	17.3	1.3%	
Other Freeway & Expressway	33.4	2.4%	
Other Principal Arterial	22.9	1.7%	
Minor Arterial	108.0	8.1%	
Future Minor Arterial	3.2		
Major Collector	213.9	15.9%	
Future Major Collector	2.9		
Minor Collector	90.5	6.8%	
Future Minor Collector	2.4		
Local	871.3	63.8%	
Total	1,365.7	100.0%	

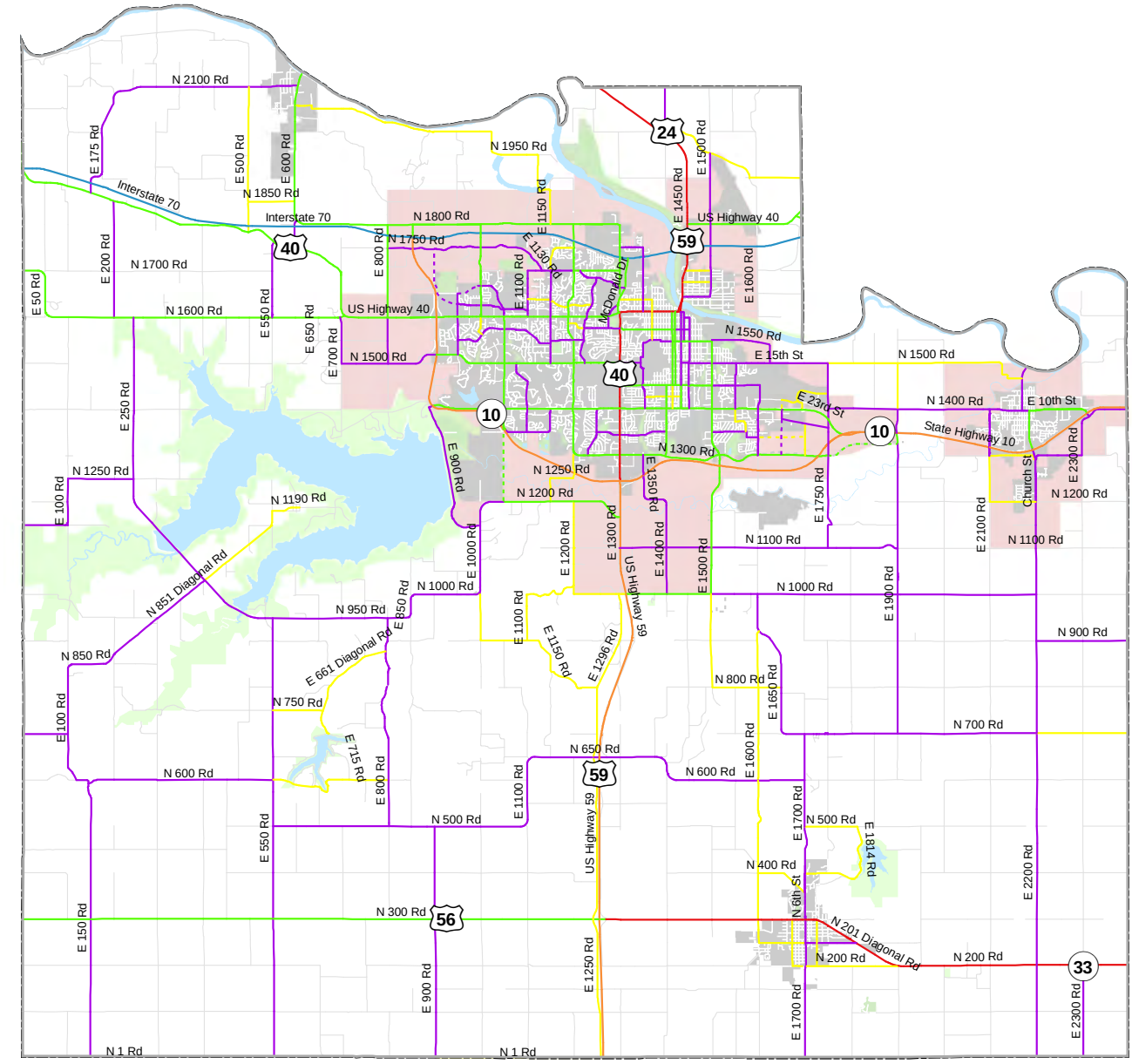
Source: 2017 MPO-KDOT-FHWA Roadway Functional Classification Map, MPO Approved 7-20-17

Brief descriptions of the roadway functional classifications used by the MPO are listed in the sidebar on pages 59-60; more detailed descriptions of those terms including Federal Highway Administration (FHWA) definitions of them are found on the FHWA website at:

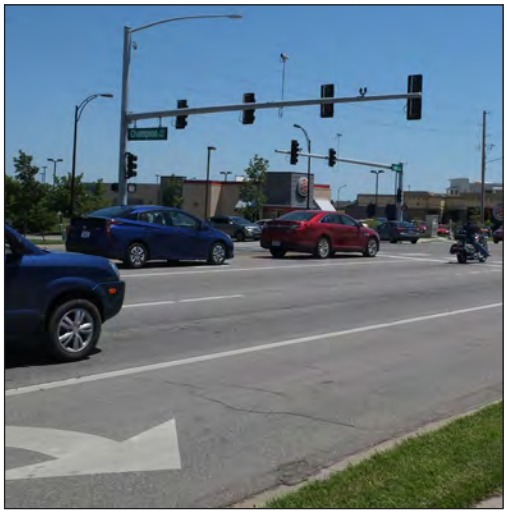
www.fhwa.dot.gov/planning/processes/statewide/related/functional_classification/fc02.cfm.

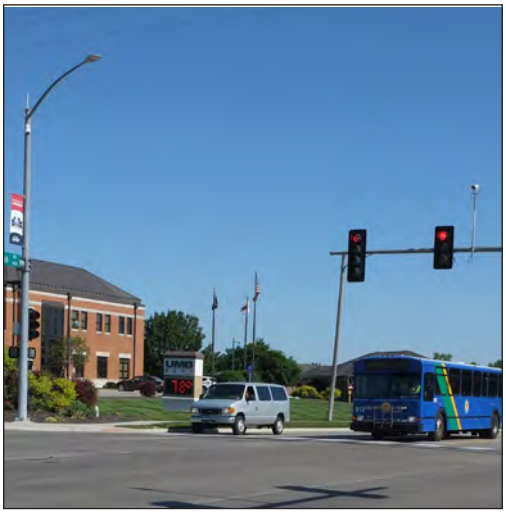
Figure 2.23: 2017 MPO-KDOT-FHWA Roadway Functional Classification Lawrence-Douglas County, Kansas

Click below to view an interactive map



Source: Lawrence-Douglas County MPO Policy Board Approval 7-20-17, FHWA Approval - 8-1-17
Produced: Lawrence-Douglas County MPO (2017)





Other Roadway Classification

Local governments may classify road segments differently than what is shown on the preceding MPO functional classification map. Those differences can relate to local practices or regulations. The two other classification maps used routinely by land use and transportation planners in the region are the Lawrence-Douglas County Major Thoroughfares Map and the Douglas County Access Management Map. The two locally produced maps (Major Thoroughfares and County Access Management Maps) provide useful planning information to help guide the development of the region's roadway network and helps local officials avoid several problems that can develop if the future function and design needs for roadways are not accurately anticipated. The local road classification maps generally complement and supplement the information on the MPO-KDOT-FHWA Roadway Functional Classification Map Lawrence-Douglas County, Kansas (Functional Classification Map). However, in some cases the local made maps portray higher classifications for certain road segment than the Functional Classification Map does, and that is acceptable. Classification at a higher level (e.g., County class at principal arterial and MPO class at minor arterial) often results from the local government concerns about access management or it can be the result of the difference between the regional MPO and local city/county viewpoints from which the different maps are drawn. For rural roads, the Functional Classification Map classifies roads based on their function on a regional or statewide basis, whereas the locally produced Access Management Map, for example, classifies roads based on their function on an intra-county basis. So, for example, a county road that may serve as a Major Collector on a regional or statewide basis may function as a Principal Arterial when considering only the Douglas County road network. In most cases the local maps have more classified road segments than the Functional Class Map and have higher classifications for some routes.

Lawrence-Douglas County Major Thoroughfares Map

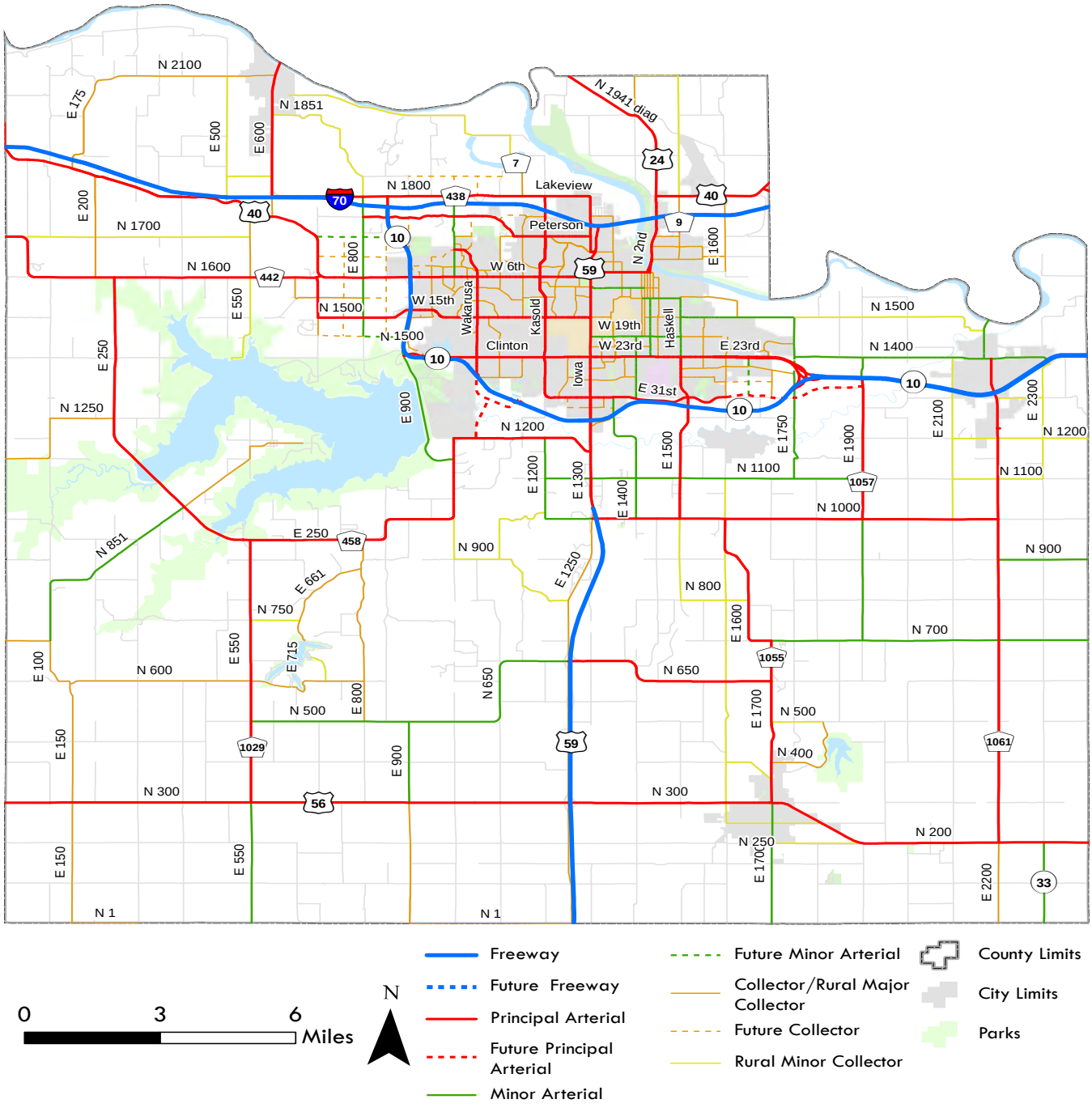
The Major Thoroughfares Map used by Lawrence and Douglas County land use planners is related to the MPO Functional Classification Map, but there are several differences. The thoroughfares map is created to address Kansas Statute No. 12-685 instead of the federal guidelines and regulations that the MPO uses to create the Functional Classification Map. This Kansas statute authorizes a city's governing body to designate existing and proposed streets, boulevards, and avenues as "main traffic ways" whose primary function is the movement of traffic between activity areas within the city and between the city and surrounding areas. The roadway classifications shown on that map are used as the basis for guiding local decisions on corridor preservation, access management, and roadway design. That map is also referenced in Lawrence and Douglas County land use and development guides (zoning code, subdivision regulations, etc). The Major Thoroughfares Map, Figure 2.24 is the roadway classification map used for the Lawrence-Douglas County Comprehensive Plan and land use planning functions provided by the Lawrence-Douglas County Planning Department. The map is commonly referred to as the road classification map by Lawrence and Douglas County officials.

Federal Functional Classification & Major Thoroughfares

The Federal Functional Classification Map is a federally mandated map with certain requirements and is used on a state and national level. The Major Thoroughfares Map is used by Lawrence and Douglas County to balance land access and thru movement of traffic for network level planning. Network planning ensures connectivity and access, as well as guides local decisions on corridor preservation, access management, and roadway design.

Figure 2.24: Lawrence-Douglas County Major Thoroughfares

Click below to view an interactive map



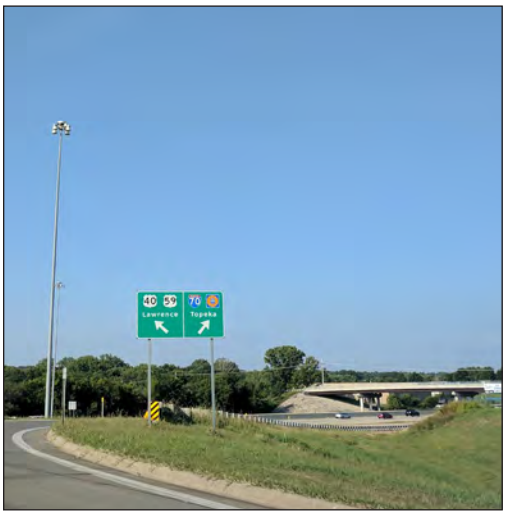
Source: Lawrence-Douglas County MPO (2017)
Produced: Lawrence-Douglas County MPO (2017)

Douglas County Access Management Map

The other locally derived road class map used routinely by land use and transportation planners is the Douglas County Access Management Map. This map is used by land use planners and developers to determine access management type items like driveway spacing distances along rural area roads. In the unincorporated parts of Douglas County access management is particularly important for corridors that are likely to experience development or become urbanized in the foreseeable future. In 2006, Douglas County adopted access management standards for rural roads in which minimum frontage requirements increase as the functional classification of the road increases. That County action was taken to address the issue of strip development along county roads and to avoid problems caused by too many access points packed closely together along county routes.

Eudora, Baldwin City and Lecompton produce their own comprehensive plans and their own street classification maps in their planning documents. Those maps showing road classifications are typically coordinated with adjoining Douglas County road classifications.

View the Douglas County Access Management Map at www.douglascountyks.org/sites/default/files/media/depts/public-works/pdf/access-management-map.pdf.



Bridge Condition

At the end of 2016 Douglas County was responsible for maintaining 53 County Route bridges and 101 bridges on township roads (Figure 2.25). These bridge totals represent only bridges that are statutorily defined as openings of greater than 20 feet. As you drive around Douglas County it is clear that the drainage needs of the region dictate that roadways also include many drainage features that consist of smaller structures that convey water under the roads. Those small structures typically are concrete culvert pipes or boxes. At the end of 2016 Douglas County had 1,011 culverts that they were responsible for maintaining on the County route system and township roads. By state law the County is responsible for maintaining the bridges on both the County routes and Township roads, and the County is also responsible for maintaining Township road culverts that exceed 25 square feet of waterway opening area (e.g. a 5'x5' box culvert). Townships are responsible for maintaining culverts on township roads that have smaller waterway openings.

Bridges are inspected biennially to assess bridge conditions and determine if a bridge is adequate to service current structural and functional demands. Bridges with deficiencies are divided into two categories: Structurally Deficient and Functionally Obsolete.

- A **Structurally Deficient** bridge is a status used to describe a bridge that has one or more structural defects that require attention. This status does not indicate the severity of the defect but rather that a defect is present. This status has weight restriction for traffic through posted signs that restrict load limits and/or speeds; however, this status does not necessarily mean the bridge is unsafe.
- A **Functionally Obsolete** bridge is a status used to describe a bridge that is no longer by design functionally adequate for its task. This can be due to the bridge not having enough lanes to accommodate the traffic flow or it not having space for emergency shoulders. A Functionally Obsolete bridge is determined from the results of field inspection findings. Functionally Obsolete does not communicate anything of a structural nature. A Functionally Obsolete bridge may be perfectly safe and structurally sound, but may be the source of traffic jams or may not have a high enough clearance to allow an oversized vehicle.

For any bridges or culverts over a waterway, there is a condition component - Channel. A bad channel can result in either Structurally Deficient or Functionally Obsolete designation. The primary consideration when evaluating and classifying structural deficiencies is the condition ratings of bridge components; specifically deck, superstructure, and substructure (see illustration in the sidebar).

Properly scheduled inspections help to identify unsafe conditions and if a bridge is determined to be unsafe, it is closed. Deficient bridges often remain open to traffic and have posted weight restrictions. These bridges are scheduled for rehabilitation or replacement to address deficiencies. In contrast to structural deficiencies, which are generally the result of deteriorating conditions of the bridge components, functional obsolescence typically results from changing traffic demands. Functional obsolescence is assessed by comparing the existing geometric configurations and design load-carrying capacities to current standards and demands and the disparities between the actual and the preferred configurations are used to determine whether a bridge should be classified as "functionally obsolete."

View the national bridges inventory definitions at http://nationalbridges.com/guide-to-ratings

Bridge Components

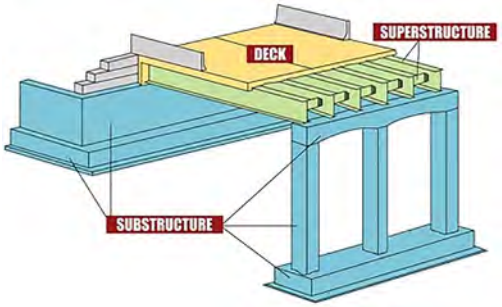


Figure 2.25: National Highway System (NHS) and Non-NHS Bridge

Click below to view an interactive map

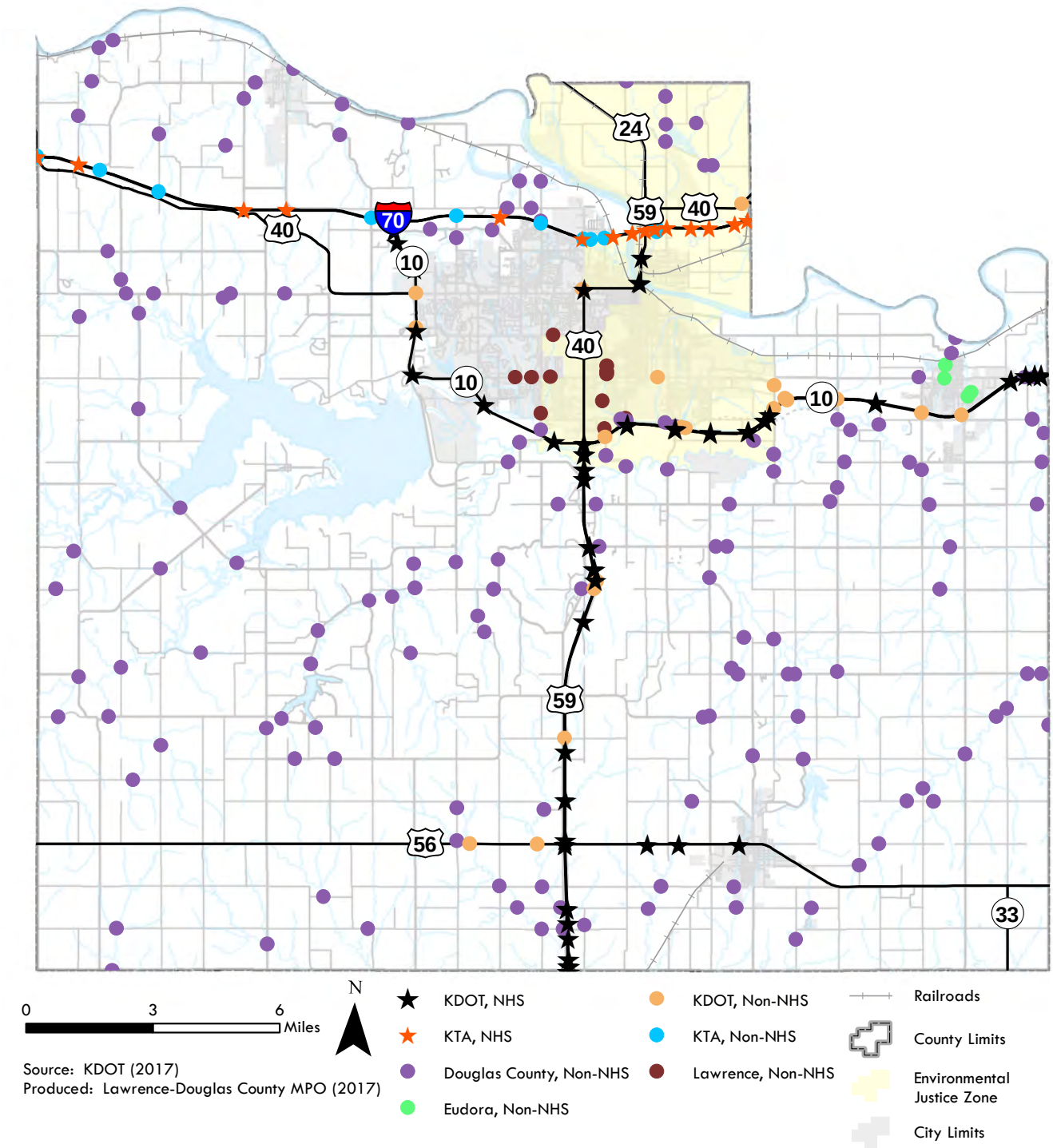


Table 2.13: Structurally Deficient and Functionally Obsolete Bridges

Condition	Location
Structurally Deficient	E 1000 Rd over the KTA near Morning Star Church*
Functionally Obsolete	Route 1061 over the Wakarusa River at Eudora
	E 1200 Road over Yankee Tank Creek approximately 0.3 miles south of 31st St.
	E 1500 Road over unnamed tributary to Mud Creek approximately 0.4 miles south of Jefferson County line
	E 1750 Road over Coal Creek approximately 0.2 miles south of N 800 Road

Note: * A recent repair project to the deck will most likely result in an upgraded rating in the next inspection.
Source: Douglas County Public Works, Lawrence Public Works, & KDOT (2017)

Table 2.13 shows the structurally deficient and functionally obsolete bridges in Douglas County. There are currently 4 functionally obsolete bridges in the County, no structurally deficient or functionally obsolete bridges within the City of Lawrence, and one structurally deficient bridge owned by the Kansas Turnpike Authority (KTA). The KTA bridge had a recent repair project to the deck which will most likely result in an upgraded rating in the next inspection. Approximately $2.7 million is needed to replace the 4 functionally obsolete bridges.

Performance Measure

14 - Percentage of NHS bridges by deck area classified as in Good condition

The federal government is moving towards evaluating bridges, utilizing a new metric that includes the deck, superstructure, and substructure. The rating is then weighted based on the deck area.

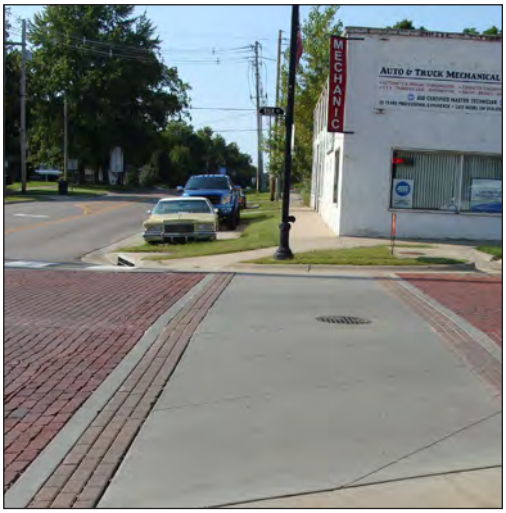
	2012	2013	2014	2015	2016
KDOT	85.8%	88.9%	83.4%	83.6%	85.0%
Lawrence/Eudora	-	69.1%	69.1%	-	-
KTA	98.0%	99.3%	98.6%	98.6%	99.3%
Total	92.7%	94.7%	91.9%	92.2%	92.5%

Source: KDOT (2017)

Pavement Condition Index (PCI) Reports

2-21-17 City Managers Report has the 2017 PCI program update: https://assets.lawrenceks.org/assets/agendas/cc/2017/02-21-17/pw_cmr_pavement_management_program_update_report.pdf

2-23-16 City Managers Memo provides additional information: https://assets.lawrenceks.org/assets/agendas/cc/2016/02-23-16/pw_street_maintenance_update_memo.html



Performance Measure

14 - Percentage of NHS bridges by deck area classified as in Poor condition

	2012	2013	2014	2015	2016
KDOT	3.8%	0.5%	0.0%	0.0%	0.0%
Lawrence/Eudora	-	0.0%	0.0%	-	-
KTA	0.0%	0.0%	0.0%	0.0%	0.0%
Total	1.6%	0.2%	0.0%	0.0%	0.0%

Source: KDOT (2017)

Performance Measure

15 - Percentage of non-NHS bridges by deck area classified as in Good

	2012	2013	2014	2015	2016
State Highway System	78.0%	79.4%	83.7%	88.4%	95.8%
Lawrence/Eudora	60.1%	62.8%	64.4%	65.6%	60.7%
County	79.1%	71.0%	68.6%	68.8%	79.9%
KTA	96.3%	96.3%	96.3%	96.3%	96.3%
Total	81.1%	75.7%	74.6%	75.9%	85.9%

Source: KDOT (2017)

Performance Measure

15 - Percentage of non-NHS bridges by deck area classified as in Poor

	2012	2013	2014	2015	2016
State Highway System	6.8%	5.2%	0.0%	0.0%	0.0%
Lawrence/Eudora	0.0%	0.0%	0.0%	0.0%	0.0%
County	0.1%	0.1%	0.2%	0.2%	0.0%
KTA	0.0%	3.7%	3.7%	3.7%	3.7%
Total	1.0%	1.3%	0.7%	0.7%	0.4%

Source: KDOT (2017)

Pavement Condition

Lawrence Public Works, Douglas County Public Works, City of Eudora, and KDOT evaluate their pavement condition annually. Lawrence, Douglas County, and Eudora utilize a Pavement Condition Index (PCI) score based on visual inspection of the streets. The PCI is a numerical rating intended to reflect the overall impact of various distresses on pavement condition. The PCI is calculated by subtracting the total distress deductions from 100. The resulting PCI number falls within a rating scale range of 0 to 100. Eudora's scale is based on 0 to 10. KDOT utilizes the International Roughness Index (IRI) as well as cracking and rutting/faulting to rate its pavement. The KDOT van (pictured in the sidebar) uses equipment that looks like a rear bumper to measure profiles in each wheel path. These profiles can be thought of as a closely spaced height measurements running in the direction of travel on the surface of the road. IRI is computed by running an algorithm on these height measurements that indicates what someone sitting in a car would feel driving at about 50 MPH over this surface. The IRI values are reported in inches per mile. KDOT then converts the IRI value into 3 roughness levels; less than 105, 105-165, and more than 165 inches per mile for level 1, 2, and 3 respectively. Similar levels are provided for rutting (<= ½, ½ - 1, >1 inches). Faulting is a bit more convoluted as the individual fault heights are measured and then run through a weighted averaging to determine a faulting level. Cracking for both concrete and pavement have many factors that weigh into the individual cracking assessment and into the averaging. The end result for all of this is each pavement management section has a distress state that is created from the roughness, cracking, and rutting or faulting levels. Twenty-seven possible distress states from 111 to 333 are created from the roughness and distress data. By combining the distress state and pavement type, a performance level can be assigned to each segment.

Each entity determines what is considered "good" and "poor" pavement condition differently. Lawrence uses critical points based on the road classification - Arterial is >= 65 and Collector >= 60. Douglas County utilizes >= 80 as their critical point for "good" roads, while Eudora uses >= 6. KDOT uses the performance level which is assigned by combining the pavement distress state and pavement type to categorize "good" and "poor" roads. Performance level 1 is "good", while performance level 3 is "poor"

PCI Improvements

Lawrence has increased the average PCI by 9.45% since the program started in 2006. It costs roughly $15 to $18 per square yard to improve segments from the 55 to 60 threshold to the ideal 100.

Below is the van KDOT utilizes to collect IRI data.

Performance Measure

18 - Percentage of pavements of the Interstate System in Good condition

[This table will be updated once information is received from KDOT.]

Figure 2.26: Lawrence "Good" v. "Poor" Pavement by Arterials and Collectors (2012-2016)

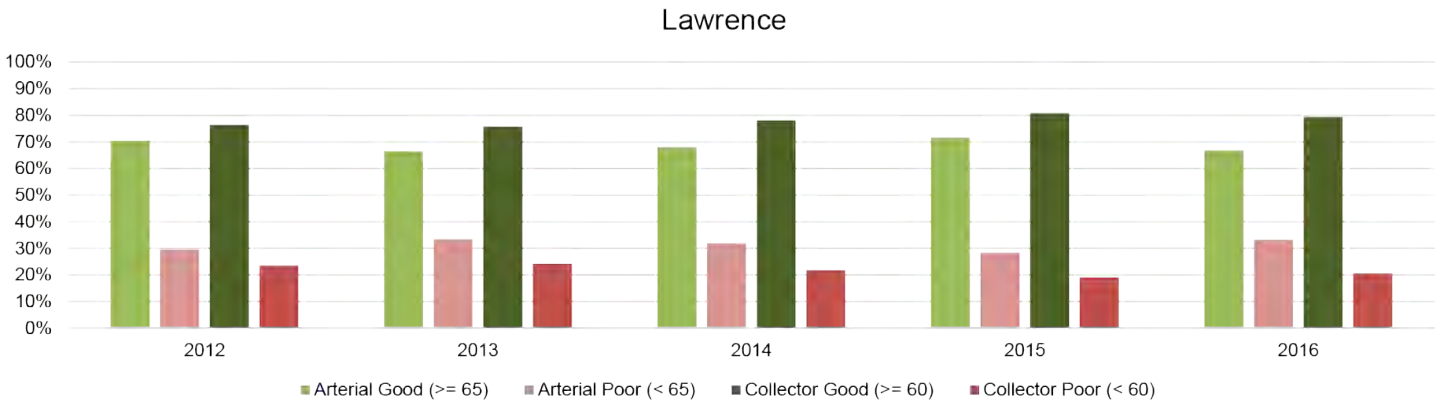
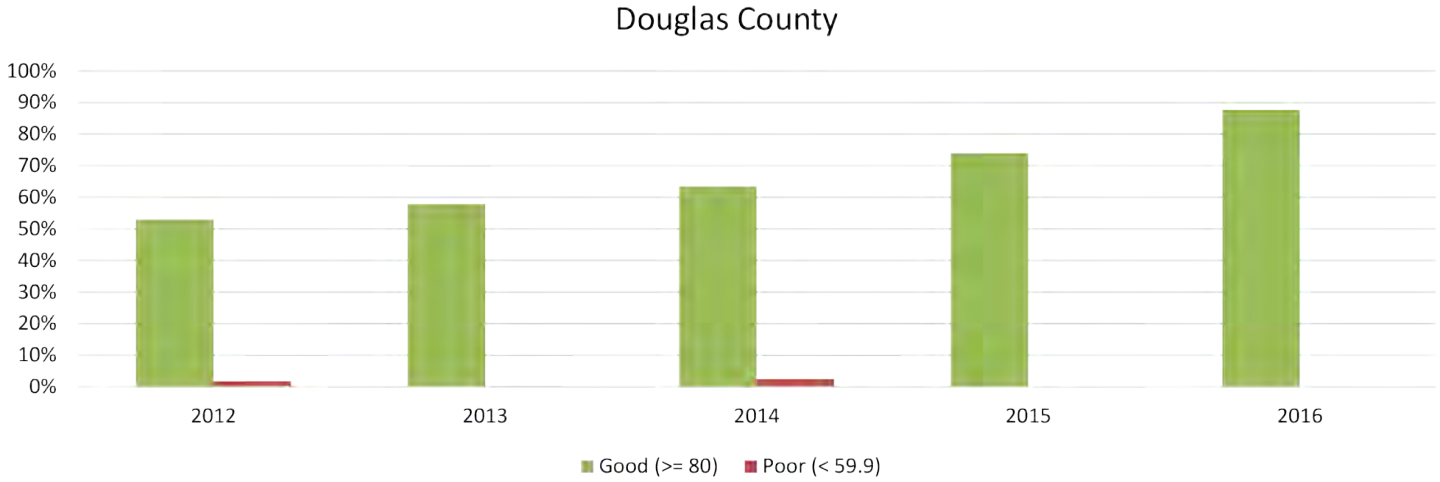


Figure 2.27: Douglas County "Good" v. "Poor" Pavement (2012-2016)

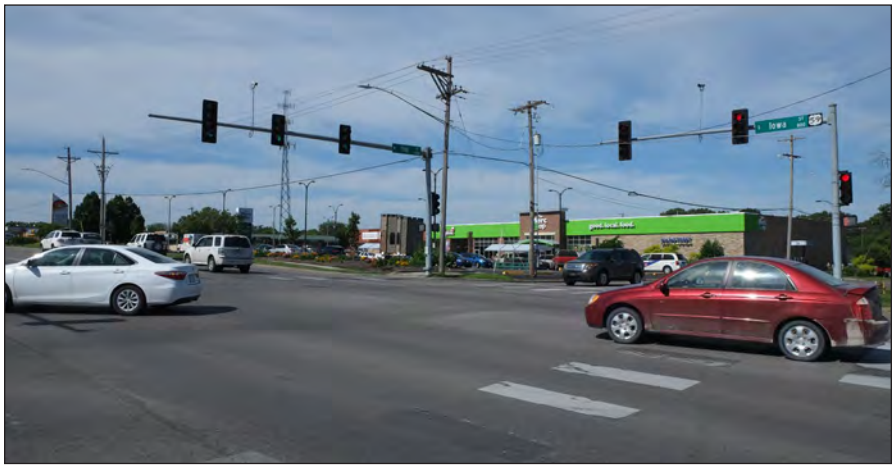


Figures 2.26 and 2.27 display the Good/Poor percentage for Lawrence and Douglas County. Generally the pavement condition Douglas County has improved over the last five years and the pavement condition in Lawrence has stayed relatively consistent.

Performance Measure

18 - Percentage of pavements of the Interstate System in Poor condition

[This table will be updated once information is received from KDOT.]



Performance Measure

20 - Percentage of pavement of non-NHS major roads (collector and above) in Good and Poor condition (by City, County)

Lawrence						
	PCI Rating	2012	2013	2014	2015	2016
Arterial	Good (>= 65)	70.50%	66.51%	68.06%	71.64%	66.75%
	Poor (< 65)	29.50%	33.49%	31.94%	28.36%	33.25%
Collector	Good (>= 60)	76.43%	75.84%	78.22%	80.92%	79.40%
	Poor (< 60)	23.57%	24.16%	21.78%	19.08%	20.60%

Source: Lawrence (2017)

Douglas County					
PCI Rating	2012	2013	2014	2015	2016
Good (>= 80)	53.08%	57.91%	63.46%	74.02%	87.72%
Fair (60 - 79.9)	45.14%	41.73%	33.98%	25.98%	12.28%
Poor (< 59.9)	1.78%	0.36%	2.56%	0.00%	0.00%

Source: Douglas County (2017)

Eudora	
PCI Rating	2016
Good (>= 6)	78.30%
Poor (< 6)	21.70%

Source: Eudora (2017)

Performance Measure

19 - Percentage of pavements of the non-Interstate NHS in Good and Poor condition

[This table will be updated once information is received from KDOT.]

Figure 2.28: "Good" and "Poor" Pavement Condition Map
Click below to view an interactive map

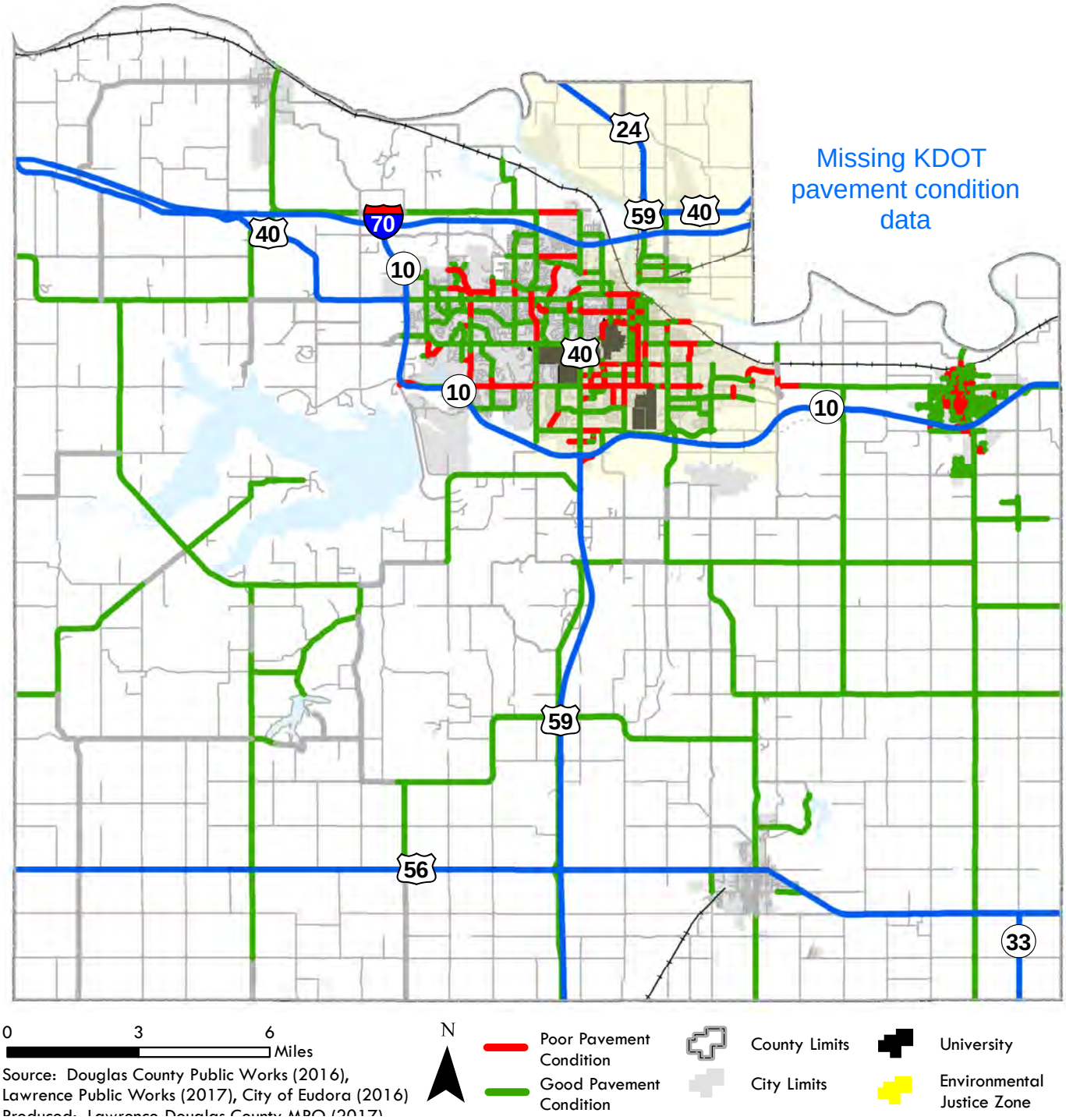


Figure 2.28 shows the pavement condition map for Lawrence, Douglas County, Eudora and KDOT maintained roads.

Signalized Intersections

The City of Lawrence currently has 113 signalized intersections; 36 intersections along North 2nd-3rd Street, 6th Street, Iowa Street, Clinton Parkway, 23rd Street, and Wakarusa Drive are part of an ITS system and are interconnected using fiber optic cable and connected to the Traffic Engineering Division offices; 15 pedestrian hybrid beacons throughout the City; 42 intersections are coordinated through timing-based signal plans; the remaining 20 intersections are isolated and run free. These ITS efforts are designed to improve traffic flow, reduce delays, and reduce air pollutant emissions; the system will be expanded as funding becomes available. The ITS Architecture provides a framework for ITS implementation - https://lawrenceks.org/mpo/its.

The roadway network in Douglas County includes several locations that make important connections for vehicular traffic. Intersections like 6th and Wakarusa in Lawrence, and Church Street and K-10 in Eudora are important for the residents that live nearby and use those intersections. Locally important connections are usually depicted on the functional classification map as arterial street intersections. Some other intersections and connections in the region are important to more than just the residents of Douglas County. Those locations include intersections of arterials with expressways or freeways (e.g., I-70/K-10 interchange, US-59/K-10 interchange, I-70/US-59 interchange).

Commuting Patterns

The Census Transportation Planning Products (CTPP) estimates over 7,840 residents from outside Douglas County commuted into Douglas County each weekday for employment. Approximately 10,710 Douglas County residents commuted to areas outside the County, with the majority going to Johnson and Shawnee Counties in Kansas. Figure 2.29 illustrates commuter patterns within the area.

What are Intelligent Transportation Systems (ITS)?

ITS applies technology and communication systems to improve the multi-modal movement.

It includes traffic conditions detection systems and cameras, dynamic message signs providing real time travel information, agency coordination, and a host of other technologies improving the transportation infrastructure

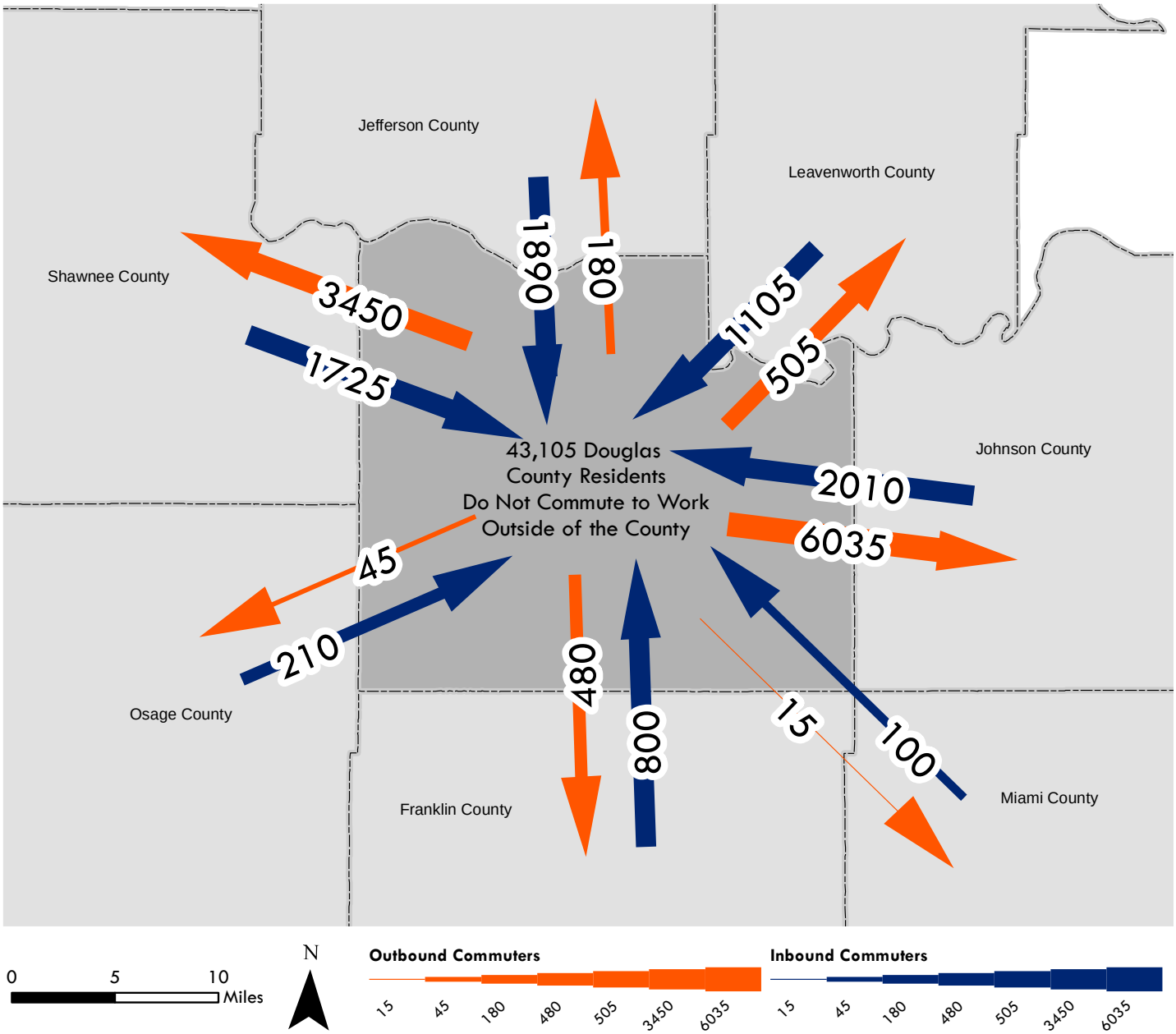
Performance Measure

6 - Percent of the Person-Miles Traveled on the Interstate & Non-Interstate NHS That Are Reliable

	Interstate	Non- Interstate NHS
2017*	100%	99%

Note: * Inaccurate NHS designations utilizes best available data.
Source: NPMRDS - 2017 Year-to-Date - Accessed 1-31-18

Figure 2.29: Commuting Patterns
Click below to view an interactive map



Source: Census Transportation Planning Products - A302100 (CTPP)(2006-2010 5-yr ACS)
Produced: Lawrence-Douglas County MPO (2017)

Performance Measure

23 - Daily Vehicles Miles Traveled (VMT) per Capita

	Baldwin City	Eudora	Lawrence	Lecompton	Unincorporated Douglas County	Douglas County
2010	5.70	6.58	12.84	7.47	118.46	23.52
2011	5.51	6.55	12.73	7.93	118.73	23.34
2012	5.26	6.85	12.86	8.23	122.06	23.74
2013	4.67	6.58	12.35	3.33	115.75	22.58
2014	4.72	6.21	12.28	11.22	116.45	22.56
2015	4.76	11.98	12.69	2.92	115.26	23.03
2016	5.36	13.57	12.94	3.50	121.53	23.89

Source: KDOT (2017) and US Census (2017)

Performance Measure

7 - Average commute times

Entity	2013	2014	2015
Lawrence	18.4	18.9	19.2
Baldwin City	28.2	26.4	24.3
Eudora	26.5	27.4	26.6
Lecompton	26.6	26.0	25.5
Douglas County	20.1	20.3	20.4

Note: This data is based on where people begin their trip regardless of where they are traveling. Time in minutes.
Source: ACS 5-year estimates (S0801)

Performance Measure

8 - Truck Travel Time Reliability (TTTR) Index on the Interstate system

2017
1.07

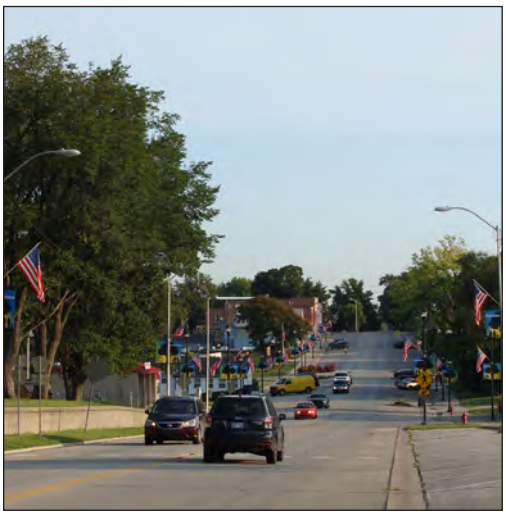
Source: NPMRDS - 2017 Year-to-Date - Accessed 1-31-18

Table 2.14: Roadway Level of Service

Level of Service	A	B	C	D	E	F
Traffic Flow	Free-flow conditions	Reasonably Free-flow	Influence of Traffic Density is Noticeable	Influence of Traffic Density is Severe	Unstable	Forced or Breakdown
Maneuverability	Almost Completely Unimpeded	Slightly Restricted	Noticeably Restricted	Severely Restricted	Extremely Unstable	Almost None
Driver Comfort	High	High	Some Tension	Poor	Extremely Poor	Extremely Poor
Average Speed	Speed Limit	Close to Speed Limit	Close to	Some Slowing	Significantly Slower than Speed Limit	Significantly Slower than Speed Limit
Volume to Capacity Ratio (V/C)	< 0.40	0.40 – 0.59	0.60 – 0.79	0.80 – 0.89	0.90 – 0.99	> 1.00

What is a Travel Demand Model?

A travel demand model uses roadway networks, population and employment data to calculate expected demand for future roadway networks. The model outputs a map of the roadway network with forecasted traffic volumes for each segment.



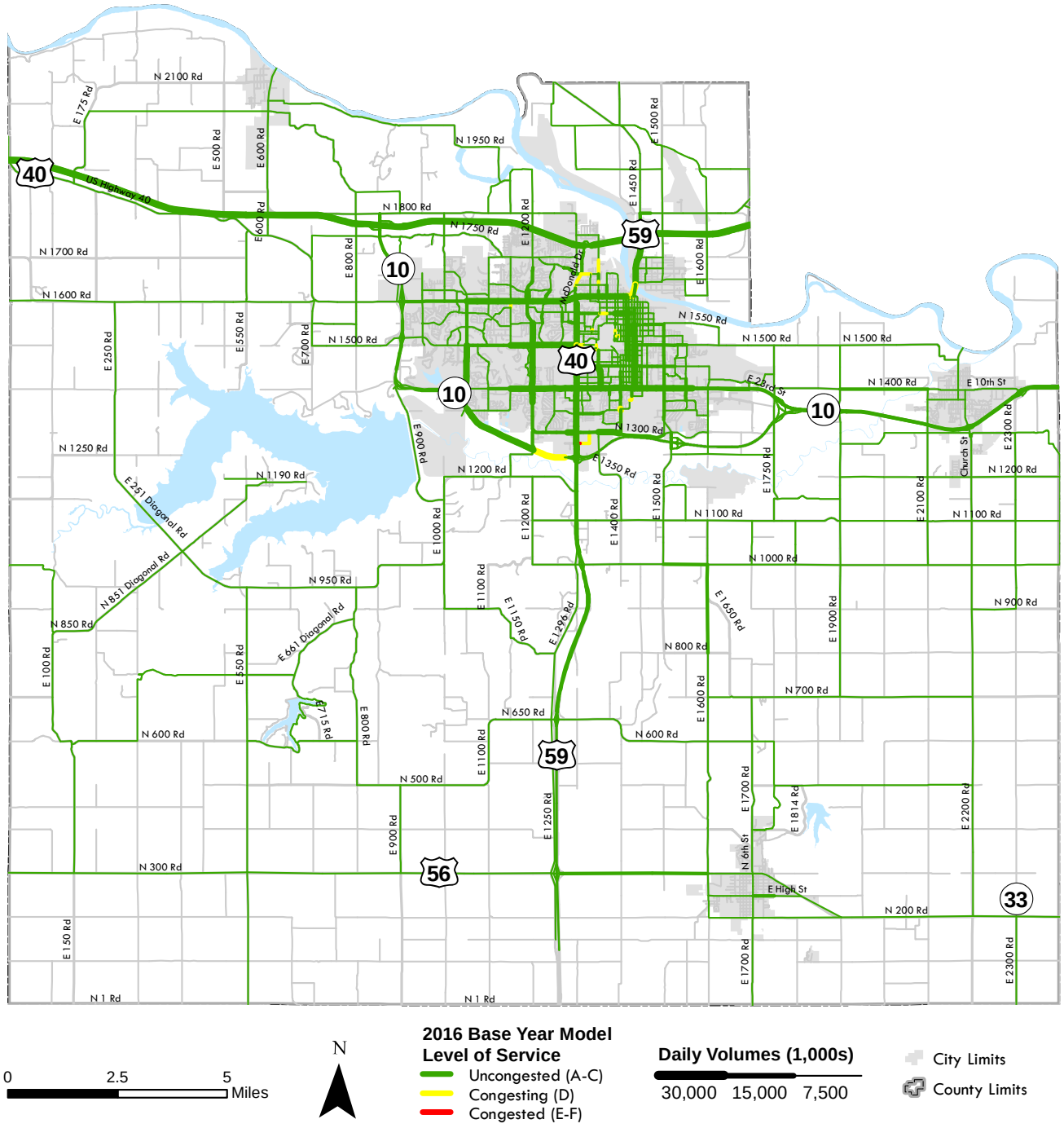
Busy Road Segments & Intersections

Level of Service (LOS) can be explained in terms of vehicular traffic flow, maneuverability, driver comfort, average speed, and the ratio of traffic volume to a roadway's maximum traffic capacity. It is typically reported for the peak traffic hour (rush hour) of a typical weekday. Table 2.14 defines each LOS rating.

The region's Travel Demand Model provides the Level of Service for major streets, roads, and highways in Douglas County. Many communities around the country try to maintain LOS C or D, or better for their roadway systems, although it is acceptable with some locations, such as a busy downtown area, to operate at an even lower Level of Service during peak times. Many communities also use their Level of Service standard to develop and prioritize projects to improve transportation facilities and services as well as to regulate growth and development. The City of Lawrence and Douglas County currently do not have a LOS standard for roadway corridors.

Figure 2.30 and Figure 2.31 display the base year Level of Service developed from the Travel Demand Model.

Figure 2.30: Douglas County 2016 Base Year Level of Service
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Uncongested (A-C)

Congesting (D)

Congested (E-F)

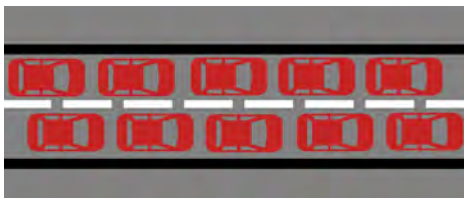
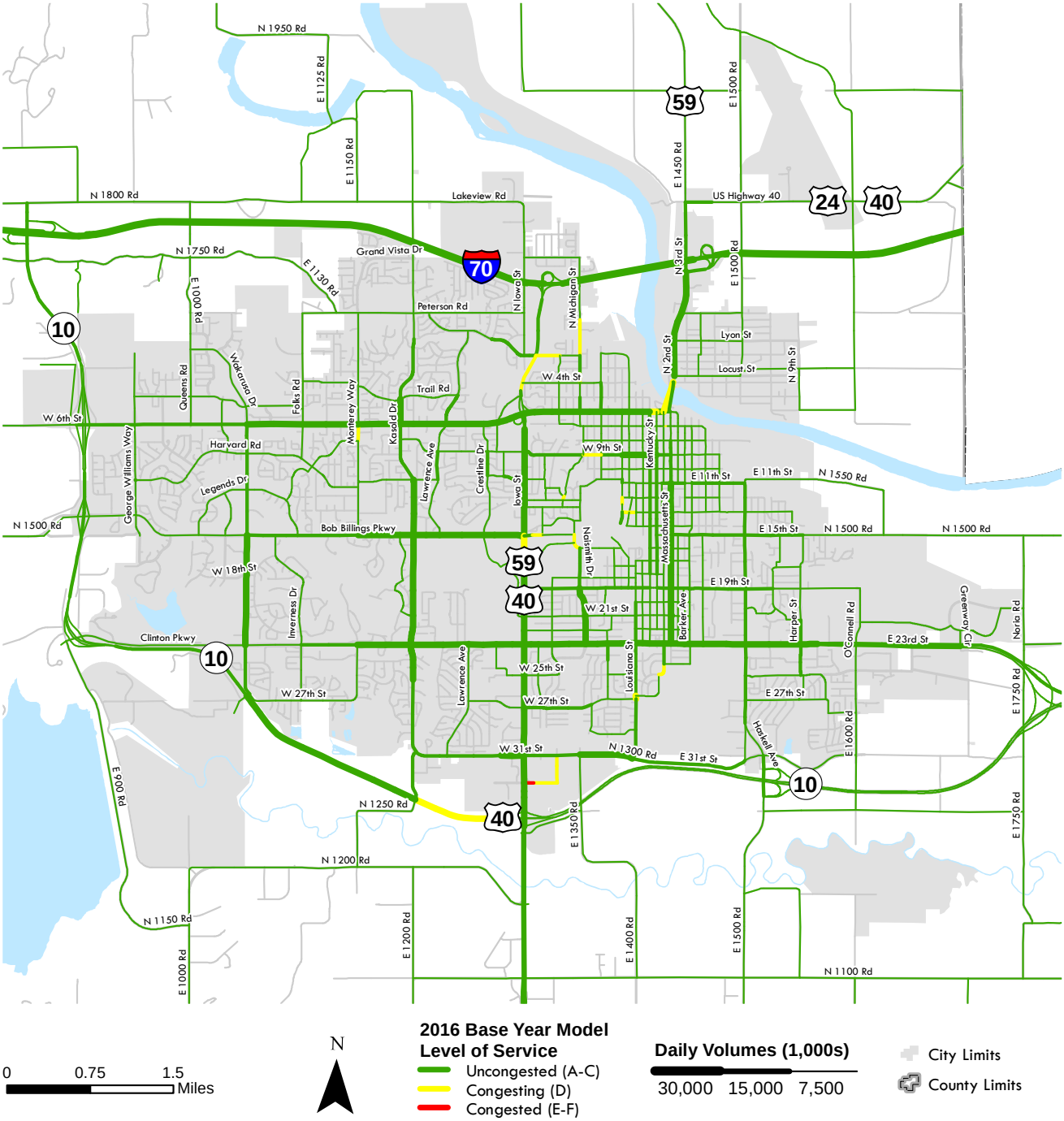


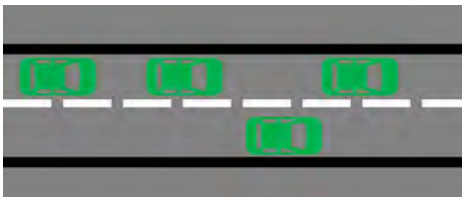
Figure 2.31: Lawrence 2016 Base Year Level of Service

Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Uncongested (A-C)



Congesting (D)

Congested (E-F)

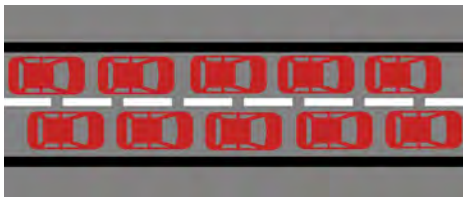
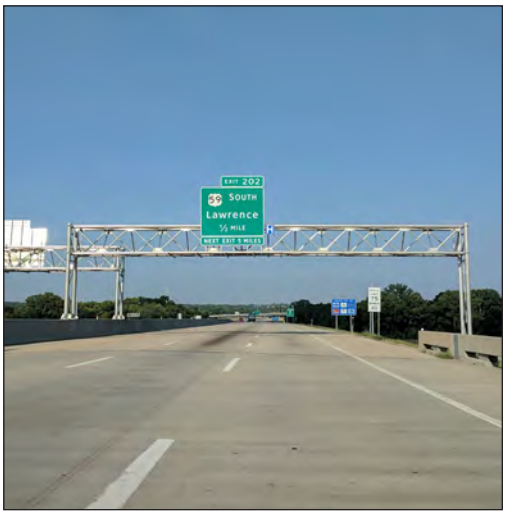


Table 2.15: Congested Roadway Segments from the 2016 Base Year Travel Demand Model

Road Segment	Status
W 33rd, Iowa to entrance east of Mattress Firm	Congested
N Michigan, Pinewood to 2nd	Congesting
13th, Mississippi to Louisiana	Congesting
E 6th, Tennessee to Kentucky	Congesting
E 7th, Vermont to west of Massachusetts	Congesting
Emery, High to Strafford	Congesting
Iowa, 15th to Irving Hills	Congesting
K-10 (SLT), E 1200 to Iowa	Congesting
Louisiana, Park Hill to W 27th	Congesting
McDonald, 2nd to north of Rockledge	Congesting
Michigan, South of 3rd to 4th	Congesting
Mississippi, 12th to north of 13th	Congesting
Monterey, 6th to Willshire	Congesting
N 2nd/Vermont, Locust to 6th (over KS River South Bound)	Congesting
Naismith, 15th to Sunnyside	Congesting
Ousdahl, 31st to 33rd	Congesting
Vermont, South of Nebraska to Montana	Congesting
W 15th, East of Iowa to Engel	Congesting
W 2nd, McDonald to Wisconsin	Congesting
W 33rd, East entrance of Mattress Firm to Ousdahl	Congesting
W 9th, Emery to Maine	Congesting

Source: MPO Travel Demand Model Base Year (2016)



Much of the area's road and bridge system is operating with comfortable levels of traffic and are not close to operating at or near capacity. Some other parts of the system do experience traffic congestion for certain periods of the day. Most of the traffic congestion within Douglas County occurs in Lawrence. Table 2.15 shows the Lawrence road segments and intersections with the highest traffic volumes.

Some of these roads and intersections are multi-lane facilities designed to carry high traffic volumes so their congestion at peak hours is expected and tolerated by most drivers, but it does have some environmental and economic impacts. All of these locations are well known to Lawrence drivers, are busy roads, and are important to the smooth function of the region's roadway network.

South Lawrence Trafficway

The South Lawrence Trafficway was completed in the fall of 2016. The following traffic counts represent the deferment of traffic before and after the completion.

	Pre-SLT	Post-SLT
Eastbound 23rd Street	30,713	22,280
West leg SLT	8,504	18,470

Source: KDOT Traffic Counts, 23rd St 2007-2013 AVG and 2016 and West Leg 2009-2015 AVG and 2017

F. Freight, Intermodal, Rail, and Air

The economic success of a region depends to a large degree on its connections to the rest of the world and its ability to facilitate the movement of people and goods across and within its boundaries. Fortunately, for Douglas County, major truck and rail routes traverse the area and make connections to other markets. The close proximity of Kansas City which is a major rail center and truck route connection point also helps freight move into and out of Douglas County. The connections in Kansas City are important nationally, and are just an hour or less away from Lawrence and other parts of Douglas County.

On a more regional and statewide scale, since Lawrence and Douglas County are located between the Topeka and Kansas City Metropolitan Areas, they fulfill a role as an important link along the I-70 and K-10 corridors. This is a significant link in moving traffic from Topeka and western Kansas into the Kansas City Area and providing connections that serve traffic between Topeka and the growing economic development areas in Johnson County.

This section will focus on the region's transportation network as it applies to freight movements, rail, and aircraft operations at the public airport.

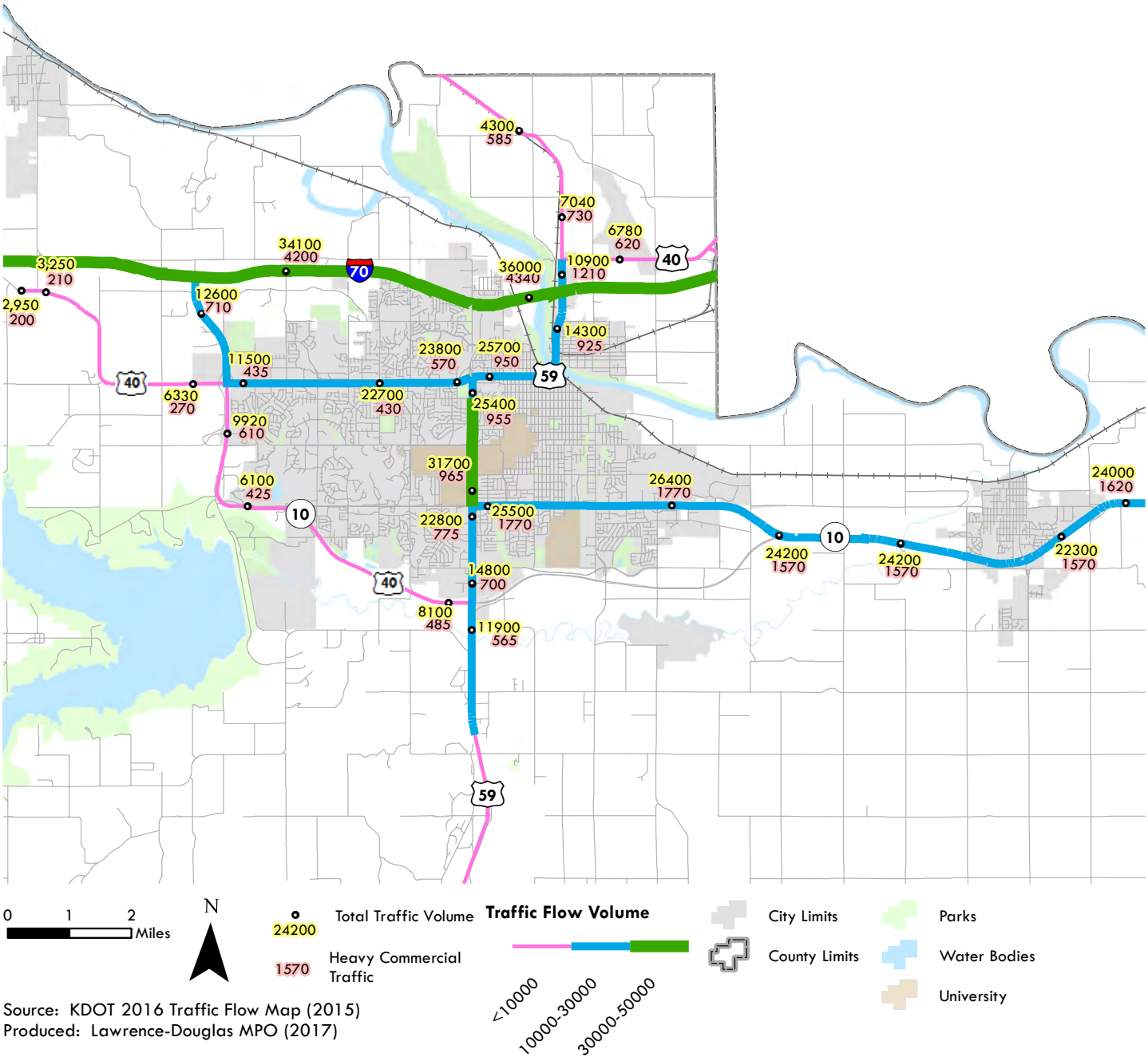
1. Freight Movements

Freight movements invariably impact land uses, especially along truck and rail corridors. Additionally, the northeast part of the state is located within a 24-hour drive of a majority of the Continental United States. Growth in freight traffic within Douglas County and surrounding counties is expected over the next few decades and that will impact the traveling public as more trucks will be using highways, major city streets, and some county roads adding to the traffic loads on the region's major roads.

a. Existing Conditions

The 2016 KDOT Traffic Flow map (Figure 2.32) shows between 4,200 and 4,340 trucks pass through the region on I-70. Not surprisingly, I-70 is the largest freight corridor in the County. However, these counts were conducted before the South Lawrence Trafficway (SLT) was opened. New counts will be reviewed when they

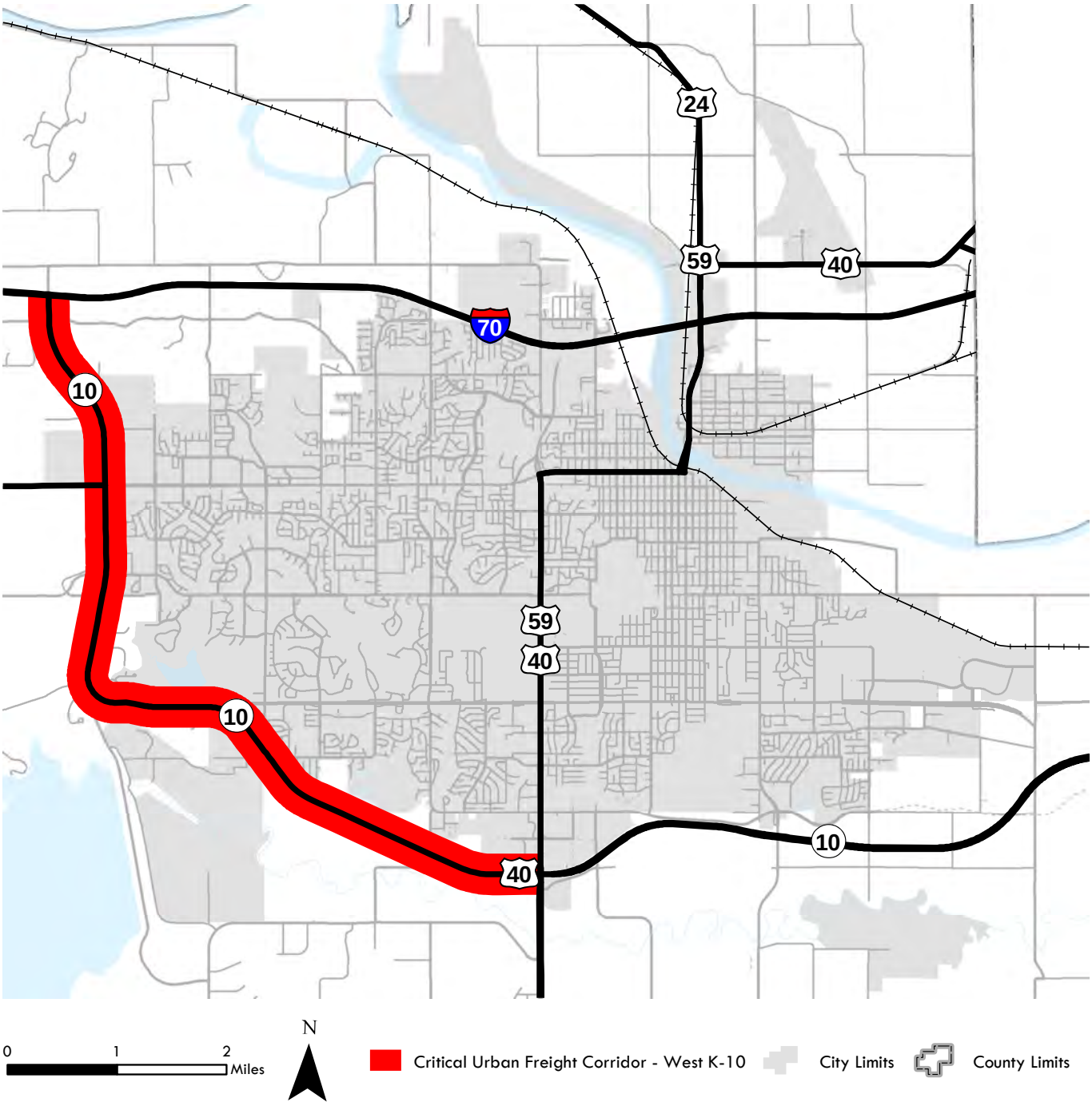
Figure 2.32: Traffic and Truck Flow
Click below to view an interactive map



Source: KDOT 2016 Traffic Flow Map (2015)
Produced: Lawrence-Douglas MPO (2017)

are available to see if the trend has altered due to the new K-10 alignment. In April 2017, the MPO Policy Board recommended designation of West K-10 as a Critical Freight Corridor to KDOT for inclusion in their statewide freight plan (Figure 2.33).

Figure 2.33: Critical Freight Corridors
Click below to view an interactive map



Source: Kansas Statewide Freight Plan (2017)
Produced: Lawrence-Douglas County MPO (2017)

The Mid-America Regional Council (MARC, the MPO for Metro Kansas City) developed an Intra-Regional Freight Study for Northeast Kansas, which involved 12 Kansas City area counties including Douglas County. Table 2.16 below shows the Douglas County Truck Trips for May 2010 Weekdays based on the American Transportation Research Institute (ATRI) data as a county to county trip table. In total there were 4,725 truck trips of which 1,937 were internal to the county, 463 were to or from areas external to the 12 county study area, and 2,325 were between Douglas County and the remaining 11 counties in the study area.

Figure 2.34 shows the pattern of these truck trips originating in Douglas County and destined to other counties in the study area. Figure 2.35 shows the pattern of truck trips originating in the study area destined for Douglas County. Interestingly the number of truck trips originating and terminating within Douglas County are remarkably similar. 4,725 trips originate in Douglas County, while 4,895 terminate in Douglas County.

Table 2.16: KCIRTS May 2010 All Weekday Truck Trips for Douglas County

Destination County		From Douglas	To Douglas
Missouri	Other Destinations	463	603
	Platte	39	47
	Buchanan	50	47
	Cass	51	62
	Clay	297	352
	Jackson	414	361
	Lafayette	151	170
Kansas	Leavenworth	176	185
	Johnson	276	331
	Miami	8	6
	Shawnee	468	471
	Wyandotte	395	323
	Douglas	1,937	1,937
	Total	4,725	4,895

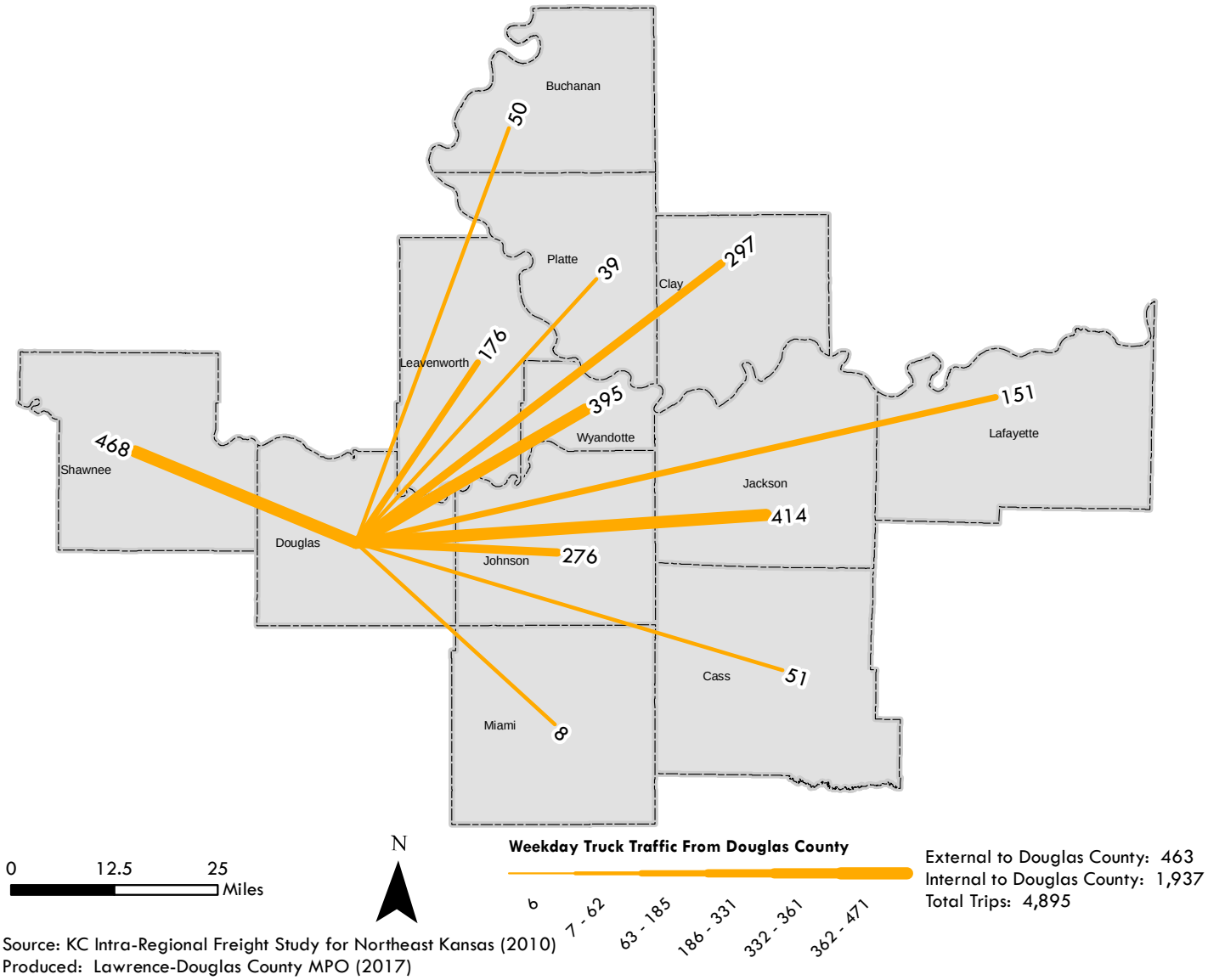
Source: Intra-Regional Freight Study for Northeast Kansas, May 2010 Weekday American Transportation Research Institute Truck Data

What is freight?

Freight is the transportation of goods by truck, train, ship, or aircraft. The majority of freight in Douglas County is carried on the highways within the county.

Figure 2.34: Truck Trips from Douglas County to Other Study Area Counties

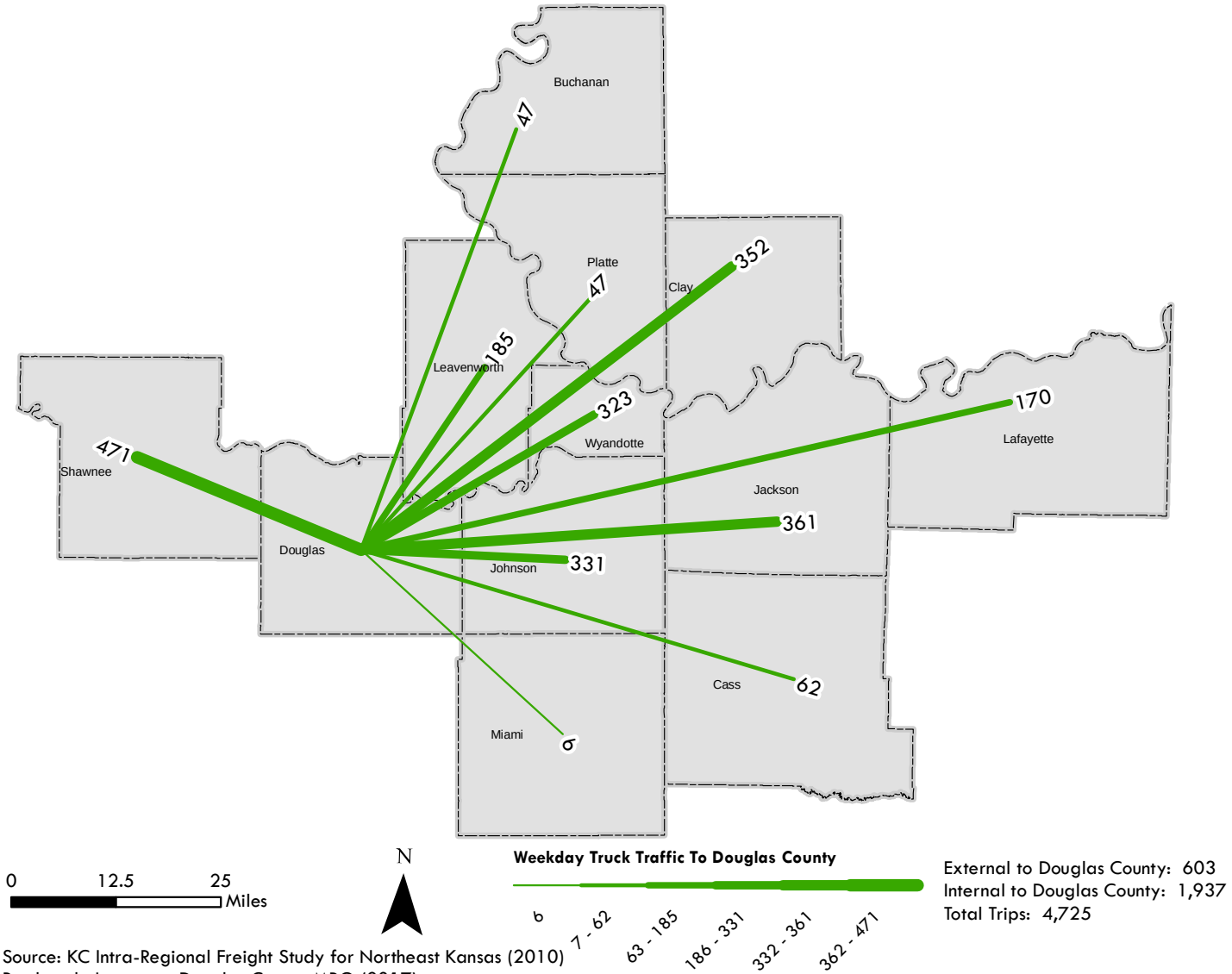
Click below to view an interactive map



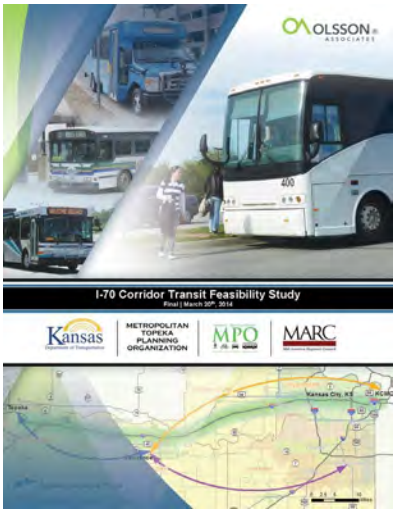
Source: KC Intra-Regional Freight Study for Northeast Kansas (2010)
Produced: Lawrence-Douglas County MPO (2017)

Figure 2.35: Truck Trips from Other Study Area Counties to Douglas County

Click below to view an interactive map



Source: KC Intra-Regional Freight Study for Northeast Kansas (2010)
Produced: Lawrence-Douglas County MPO (2017)



What are Intermodal Facilities?

Intermodal Facilities refer to facilities where people and/or goods transfer between modes (e.g., combined commuter rail and bus stations, rail/truck freight transfer facilities, etc.).

b. Recent Efforts

Recent freight planning includes:

- **Statewide Freight Plan** (2017) – www.ksdot.org/burRail/Rail/default.asp – KDOT is currently developing a Statewide Freight Plan in tandem with the Statewide Rail Plan. It will be completed by the end of 2017. Any Douglas County pertinent information will be included once it is available.
- **Kansas Statewide Freight Network Truck Parking Plan** (2016) – www.ksdot.org/burRail/Rail/default.asp – The Kansas Department of Transportation and the Kansas Turnpike Authority completed the Statewide Fright Network Truck Parking Plan to improve the state's freight competitiveness by studying and developing strategies for improving its statewide freight network's safety, efficiency and competitiveness, especially along primary and secondary freight corridors of significance, which include Interstate 70, Interstate 35 and the Kansas Turnpike. The I-70 corridor through Douglas County has several parking lots that accommodate large freight trucks and have been identified for possible Tier 1 (out of 3) projects.
- **Intra-Regional Freight Study for Northeast Kansas** (2010) – www.marc.org/Transportation/Plans-Studies/Transportation-Plans-and-Studies/Special-studies-and-projects – The Mid-America Regional Council (MARC, the MPO for Metro Kansas City) developed an Intra-Regional Freight Study for Northeast Kansas. The City of Lawrence participated in this study process and received the previously mentioned ATRI data. The study will most likely be updated in 2018.

2. Intermodal Facilities

a. Existing Conditions

Intermodalism is the concept that binds the modes together so that people and freight movements can be made in the most efficient manner possible. Although none currently exist in the local area, intermodal freight facilities in Kansas City and Topeka provide the region with those connections.

Freight destined for Douglas County can be moved by rail to Kansas City and then trucked a short distance to its final destination. Douglas County does not currently have an intermodal center to handle rail-truck transfers, but large amounts of cargo in containers from those facilities do travel through the region as evidenced by the many containers on truck rigs noticed on the I-70 corridor and the multitude of containers on trains passing through Lawrence.

BNSF Intermodal Facility at Edgerton

The Burlington Northern Santa Fe (BNSF) Railroad developed an intermodal facility at the City of Edgerton in Johnson County east of the Lawrence-Douglas County planning area. This BNSF development is now commonly referred to as the Intermodal Facility. The facility provides for the transfer of freight between rail and trucks. The facility opened in 2013 and is expected to handle 7,000 trucks and 140 trains per day by 2030. Most of that truck traffic is expected to be carried on I-35. There is also the potential for substantial growth in warehouse facilities and other freight related development in the Edgerton-Gardner Area of Southwest Johnson County.

This large intermodal center in neighboring Johnson County creates the potential for increased truck traffic traveling through the Lawrence-Douglas County Area. However, KDOT has projected that BNSF related traffic coming through rural parts of southern Douglas County up to Lawrence will be minimal and not cause a significant impact on road capacity in our region. Trucks from these new freight facilities in Johnson County that come through Douglas County will likely impact only a few roads including US-56 through Baldwin City to US-59, US-59 from US-56 to Lawrence and K-10, and K-10 through Lawrence to I-70.

What is an at-grade crossing?

An at-grade crossing is an intersection in which a railroad line crosses a street or path at the same level as the roadway. Typically at-grade crossings use electronic warning devices for vehicles, pedestrians, or bicyclists that consist of warning lights and barrier gates.

3. Rail

Kansas is seen as a prime area for the development of freight distribution centers due to its location on two major interstate highways (I-70 and I-35) and by the state being traversed by two major rail systems.

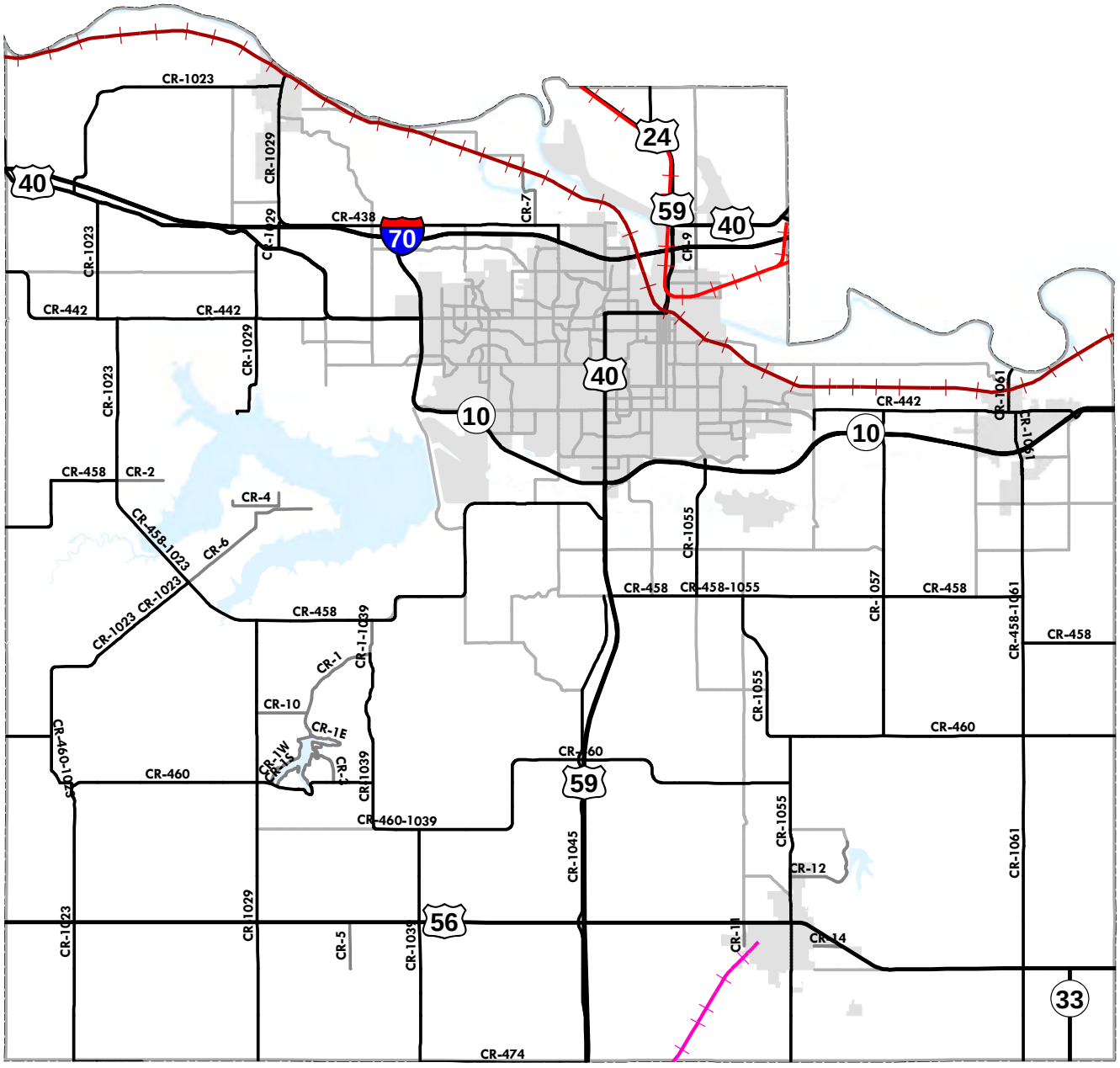
a. Existing Conditions

Freight Rail

There are two active freight rail lines that pass through Douglas County (Figure 2.36). The Burlington Northern Santa Fe (BNSF) has 27.6 miles, while Union Pacific (UP) has 9.3 miles. The Santa Fe Trail Historical is an excursion railroad that extends for from Baldwin City to Ottawa – it does not carry freight. The rail facilities in the area provide access to national rail networks so that local businesses can ship to a larger market. The railroads in the area also interact with the road system and both at-grade and grade separated railroad crossings in the region. There are currently two at-grade BNSF crossings that intersect with the Lawrence Loop shared use path along the west side of the Kansas River through Burcham Park.

At the UP Railroad and North 3rd Street just north of the Kansas River Bridge Pair in Downtown Lawrence, there is a substandard height limit on an arterial due to a railroad crossing due to the road underpass only allowing 14-feet of clearance and restricting some tall truck loads that must detour around that site. Fortunately, for the Lawrence Area there are no at-grade railroad crossings on any of the area's busiest roads.

Figure 2.36 Railroads and Highways
Click below to view an interactive map

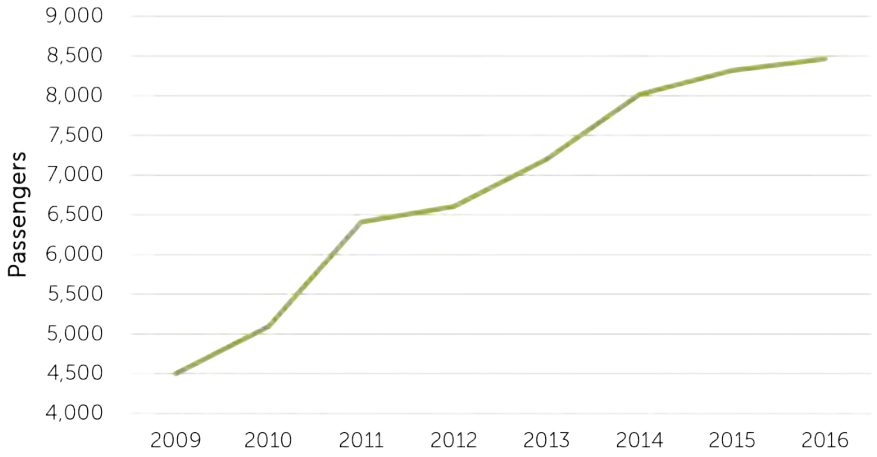


There are 39 at-grade public crossings in Douglas County. These at-grade crossing locations have potential vehicle, pedestrian, bicycle, and train conflict. KDOT has been heavily involved in efforts to improve the safety of the statewide rail system, which includes 5,150 at-grade public crossings. KDOT maintains an inventory of prioritized crossing projects for inclusion in its work program. Based on data from the Federal Railroad Administration, there were two fatalities in Douglas County, one in 2013 and one in 2016.

Passenger - Intercity Rail Service

Limited passenger service exists at the Lawrence Santa Fe Depot through Amtrak, but this service is not conducive to commuter travel. The long distance Amtrak Train serving Kansas, the Southwest Chief, operates between Los Angeles and Chicago with daily service once in each direction. In Northeast Kansas this Amtrak service is scheduled for nighttime hours with scheduled stops in Lawrence at 11:52 PM westbound and 5:47 AM eastbound. The Lawrence station is located at 413 East 7th Street along the Kansas River east of Downtown Lawrence. The Southwest Chief boarding/deboardings take place at six points in Kansas: Lawrence, Topeka, Newton, Hutchinson, Dodge City, and Garden City. Between 2009 and 2016 Amtrak ridership arriving and departing at the Lawrence station has increased by 88% from 4,500 to 8,465, as shown in Figure 2.37.

Figure 2.37 Amtrak Ridership

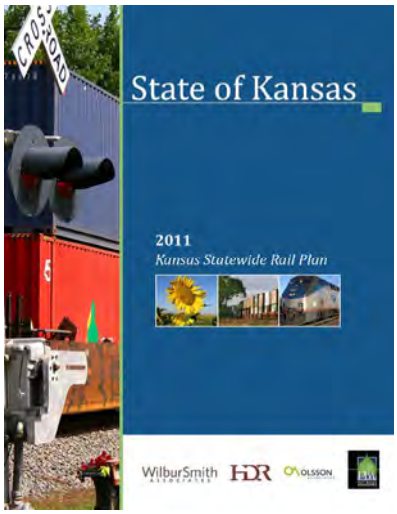


Source: National Association of Railroad Passengers (2017)

b. Recent Efforts

Several rail plans have been completed recently.

- **Statewide Rail Plan** (2017) – www.ksdot.org/burRail/Rail/default.asp – KDOT is currently updating their 2011 Kansas Statewide Rail Plan in tandem with the Statewide Freight Plan. It will be completed by the end of 2017. Any Douglas County pertinent information will be included once it is available.
- **Kansas City-Wichita-Oklahoma City-Fort Worth Corridor Passenger Rail Service Development Plan** (2011) – www.ksdot.org/PDF_Files/PDF-Passenger-Rail-SDP.pdf – KDOT determined service between Kansas City and Fort Worth would be feasible. The Kansas City to Fort Worth service would serve Lawrence with a morning and evening arrival/departure. KDOT and others are currently determining when and if funding for this expanded rail service in Kansas can be obtained and how.



4. Aviation

a. Existing Conditions

The Lawrence Municipal Airport is a general aviation facility located approximately three miles north of Downtown Lawrence on East US Hwy 24/40. The City of Lawrence has owned and operated the airport at its current location since its dedication in October 1929. The uncontrolled airfield, LWC averages 32,700 flights a year, which works out to be 90 daily flight operations of single-engine, twin-engine and business jets between 8/30/2014 – 8/30/2015. With the assistance of a 5,700 feet runway and Class I Instrument Landing System, the airport is an outstanding all-weather airport for recreational or business flyers.

b. Recent Efforts

One recent plan was completed for the airport.

- **Airport Master Plan** (2011) – assets.lawrenceks.org/assets/airport/pdf/Lawrence-airport-Master-Plan-Final.pdf – The plan outlines the orderly expansion of existing facilities, and the replacement of older facilities to meet needs over the next 20 years. While the recommended improvements are phased through the short (0-5 year), intermediate (6-10 year), and long term (11-20 year) planning horizons, the airport improvements are demand based. Facilities will not be constructed until they are needed for capacity or to replace obsolete facilities.

G. Safety

The safety of the traveling public is a top priority for the Lawrence-Douglas County MPO, the Lawrence Transit System, KDOT, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), Douglas County, and the cities in the planning area. Safety pertains to vehicles, bicyclists, pedestrians, and transit. Therefore, specific safety information for each mode of travel is provided in the following section.

1. Non-Motorized

a. Existing Conditions

Whichever route a bicyclist or pedestrian may choose or need to use, that route should be reasonably safe for bicycling and walking. Issues may include hazards (e.g., drainage grates, overhead obstructions, etc.), lighting, vehicular conflicts, or conflicts with other sidewalk or bikeway users. The number of non-motorized fatalities and serious injuries are shown in Performance Measure 13. Figures 2.38 - 2.42 display the location of bicycle and pedestrian crashes in Lawrence, Douglas County, Eudora, Baldwin City, and Lecompton.

Pedestrian Speed Safety

Source: Impact Speed and a Pedestrian's Risk of Severe Injury or Death, Brian Tefft, AAA Foundation for Traffic Safety, 2011

Performance Measure

13 - Number of non-motorized fatalities & serious injuries

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorp. Douglas County	Douglas County
2007-2011	0.4	0.0	6.2	0.0	1.2	7.8
2008-2012	0.4	0.0	6.4	0.0	0.8	7.6
2009-2013	0.4	0.0	6.8	0.0	0.6	7.8
2010-2014	0.4	0.0	6.2	0.0	1.0	7.6
2011-2015	0.4	0.0	6.0	0.0	1.0	7.4
2012-2016	0.0	0.0	6.6	0.0	0.8	7.4

Source: KDOT (2017)

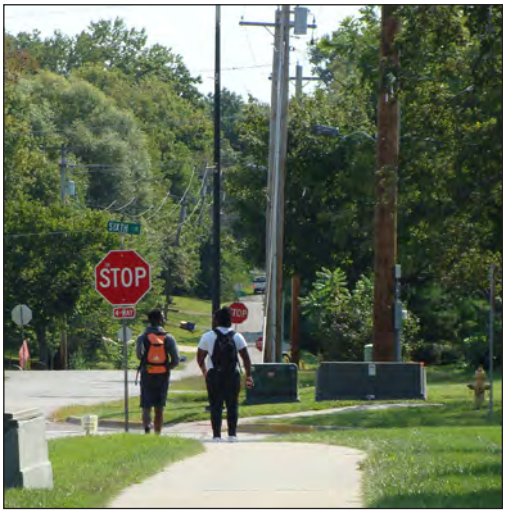
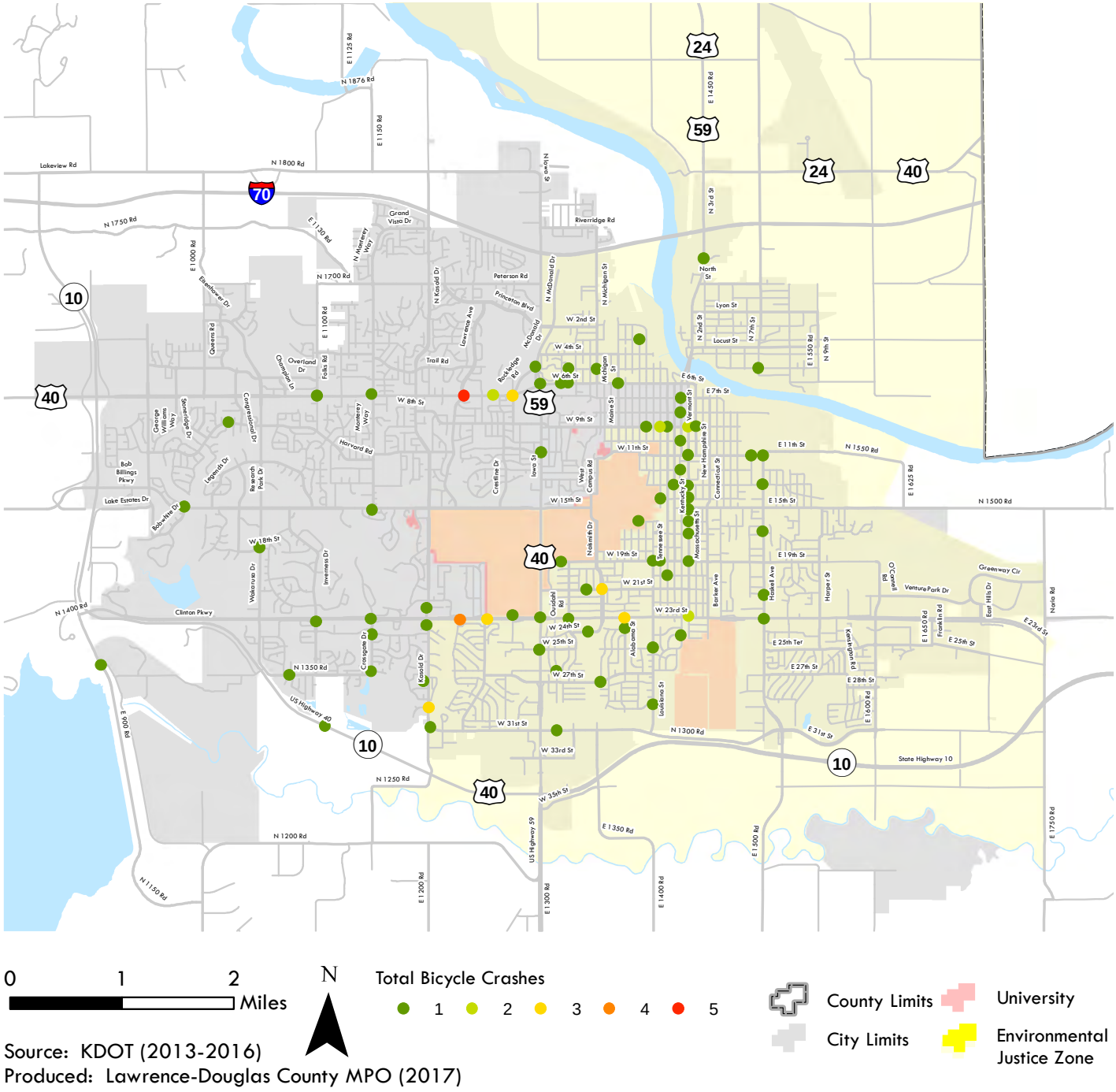


Figure 2.38: Lawrence Bicycle Crash Locations
Click below to view an interactive map



There were no bicycle crash locations in Eudora, Baldwin City, or Lecompton, therefore the map of these locations is not shown.

Figure 2.39: Douglas County Bicycle Crash Locations

Click below to view an interactive map

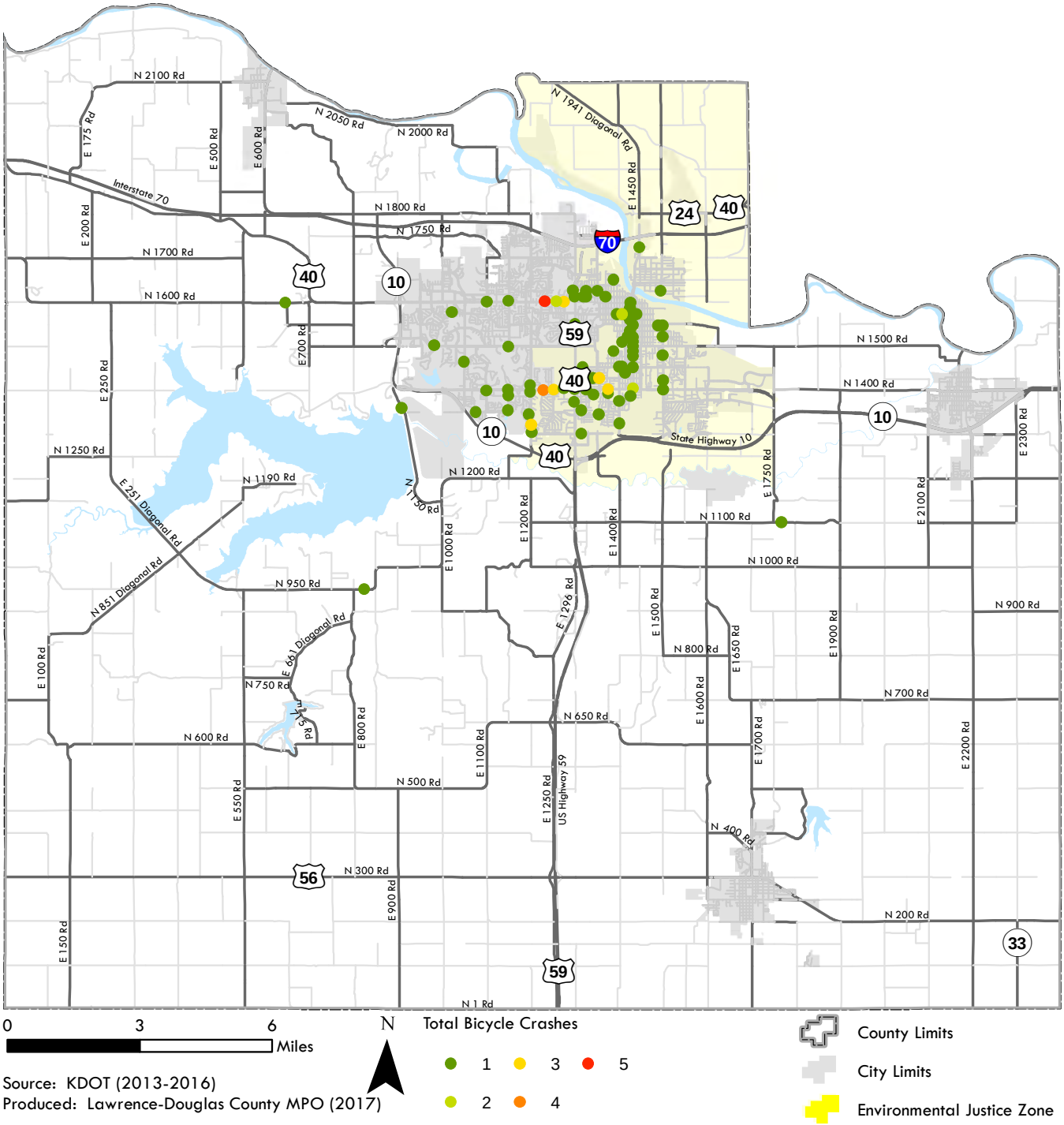
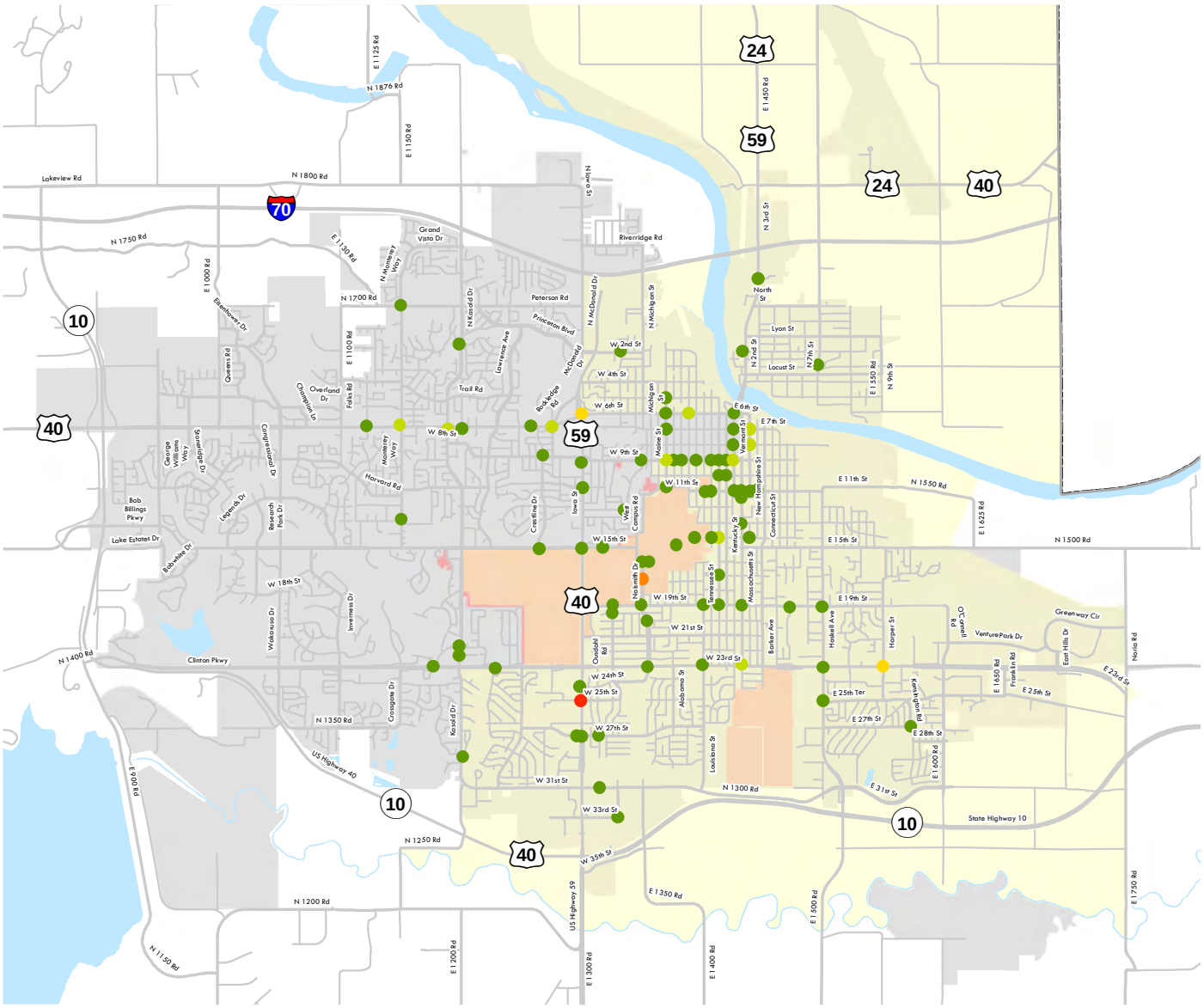


Figure 2.40: Lawrence Pedestrian Crash Locations

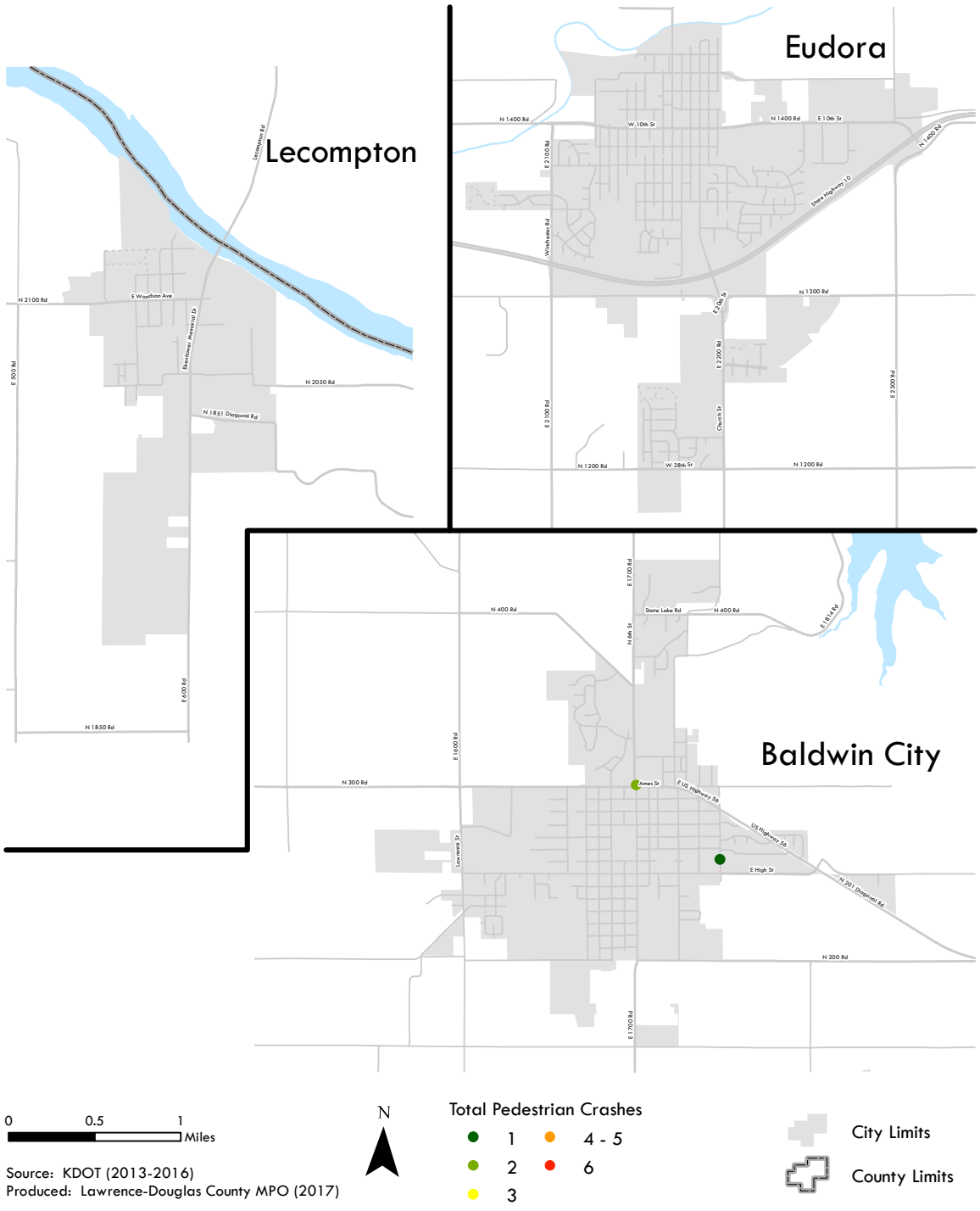
Click below to view an interactive map



Source: KDOT (2013-2016)

Produced: Lawrence-Douglas County MPO (2017)

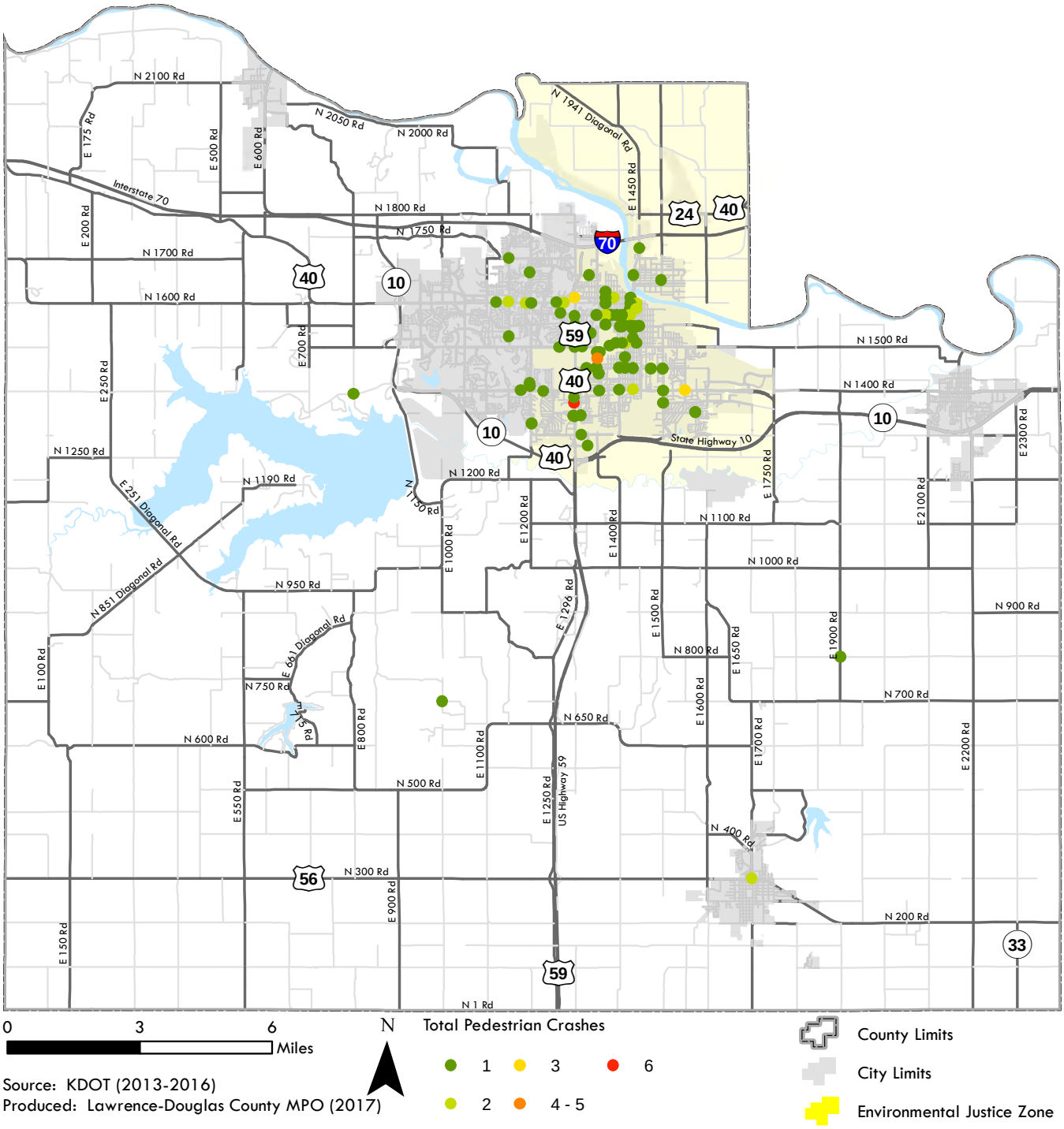
Figure 2.41: Eudora, Baldwin City, Lecompton Pedestrian Crash Locations
Click below to view an interactive map



Source: KDOT (2013-2016)
Produced: Lawrence-Douglas County MPO (2017)

Figure 2.42: Douglas County Pedestrian Crash Locations

Click below to view an interactive map



Source: KDOT (2013-2016)
Produced: Lawrence-Douglas County MPO (2017)

2. Transit

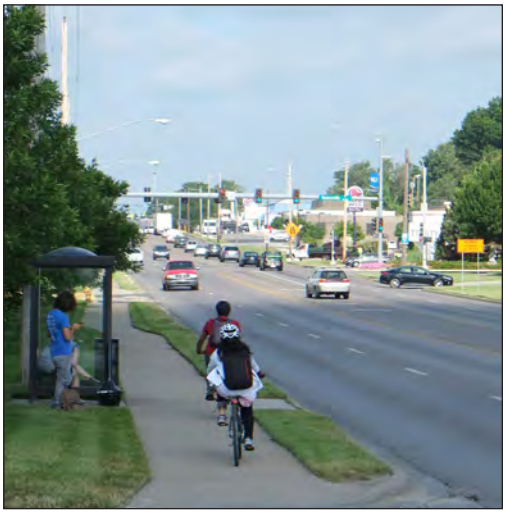
a. Existing Conditions

A major safety concern for transit operators is the possibility of a transit vehicle crash and injuries to riders, but for each rider the safety issues are much more personal. Bus drivers are trained in ways to avoid accidents and keep their passengers and themselves safe, but they cannot control all the other drivers on the roads. Table 2.17 compares the revenue miles (miles in service to passengers) driven by the Lawrence Transit and KU on Wheels buses to the number of accidents involving transit buses for the past four years. In 2012, drivers began reporting non-preventable accidents they witnessed even if they occurred in proximity to but not on the transit vehicle; an example of this is accidents that were a result of someone tripping after they alighted the transit vehicle. Overall there have been few accidents that qualify as FTA accidents, which are where at a minimum one person required immediate medical attention away from the scene and/or property damage equal to or exceeding $7,500. The highest number was in 2014, but in subsequent years there have been two or fewer each year.

Table 2.17: Bus Accidents by Revenue Miles

	Year	Revenue Miles	Preventable Accidents	Non-Preventable Accidents	FTA Accidents*
Lawrence Transit	2012	950,515	14	39	0
	2013	881,379	9	54	0
	2014	955,107	13	57	4
	2015	1,038,688	15	47	2
	2016	1,201,257	14	59	1
KU on Wheels	2012	599,286	15	30	0
	2013	571,131	9	42	0
	2014	585,349	11	30	1
	2015	610,279	11	24	0
	2016	669,757	11	23	0

Note: *Accidents where at minimum one person required immediate medical attention away from the scene and/or resulted in property damage equal to or exceeding $7,500.
Source: Lawrence Transit and KU on Wheels (2017)



3. Roadway

a. Existing Conditions

For people that regularly drive around Lawrence and Douglas County, the perception of safety on the roadways is relatively high for most roads and at most times. However, there are some road segments that are narrow, congested at times, have sharp turns, have numerous driveway conflicts, have hills, and/or all of those plus several other attributes that make safety seem less than ideal. There are also several behavioral issues in play within the traffic stream that can affect one's perceived safety level. Those behavioral items include people making rolling stops at stop signs instead of coming to a full complete stop, people driving through signalized turns as the light goes red, speeding by drivers, and inattentive drivers texting or talking on the phone.

The Kansas Department of Transportation (KDOT) collects traffic crashes that occur on public roadways involving property damage of at least $1000 or an injury or fatality. Each year approximately 3,500 motor vehicle accidents occur in the Lawrence-Douglas County MPO Planning Area.

Performance Measure

9 - Number of fatalities (All public roads)

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorp. Douglas County	Douglas County
2007-2011	0.0	0.0	3.2	0.0	4.4	7.6
2008-2012	0.0	0.0	3.6	0.0	5.2	8.8
2009-2013	0.0	0.0	3.0	0.0	4.2	7.2
2010-2014	0.0	0.0	2.2	0.0	5.2	7.4
2011-2015	0.0	0.0	1.8	0.0	6.4	8.2
2012-2016	0.0	0.0	1.6	0.0	5.6	7.4

Note: Includes vehicle, bicycle, and pedestrian crashes.
Source: KDOT (2017)

Performance Measure

10 - Rate of fatalities per 100 million VMT (All public roads)

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorp. Douglas County	Douglas County
2007-2011	0.0	0.0	0.8	0.0	0.9	0.8
2008-2012	0.0	0.0	0.9	0.0	1.0	0.9
2009-2013	0.0	0.0	0.7	0.0	0.8	0.8
2010-2014	0.0	0.0	0.5	0.0	1.0	0.8
2011-2015	0.0	0.0	0.4	0.0	1.2	0.8
2012-2016	0.0	0.0	0.4	0.0	1.1	0.8

Note: Includes vehicles, bicycle, and pedestrian crashes.
Source: KDOT (2017)

Performance Measure

11 - Number of serious injuries (All public roads)

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorp. Douglas County	Douglas County
2007-2011	0.6	2.2	35.2	0.0	27.0	65.0
2008-2012	0.6	2.6	31.6	0.0	24.6	59.4
2009-2013	0.6	2.6	27.8	0.0	23.4	54.4
2010-2014	0.6	1.8	26.0	0.0	21.8	50.2
2011-2015	0.6	0.8	22.0	0.0	18.8	42.2
2012-2016	0.0	0.4	20.0	0.0	15.4	35.8

Note: Includes vehicle, bicycle, and pedestrian crashes.
Source: KDOT (2017)

Figure 2.43 and 2.44 display the locations of crashes and crash density from 2013-2016. The safety analysis takes crashes one step further; Excess Expected Average Crash Frequency (EEACF) was calculated for every intersection of roadways throughout Douglas County. Average Crash Frequency (ACF) is determined based on how many crashes occur each year at a particular location. Expected ACF is calculated based on intersection type, posted speed and volumes. EEACF is a measure which shows the extra amount of observed traffic crashes expected at a location for a year above the predicted amount of crashes based on traffic volumes. If a site has positive excess, it shows that the site has a potential for safety improvements and merits further investigation. Locations with 2.51 or more crashes than expected are shown on Figure 2.45.

Performance Measure

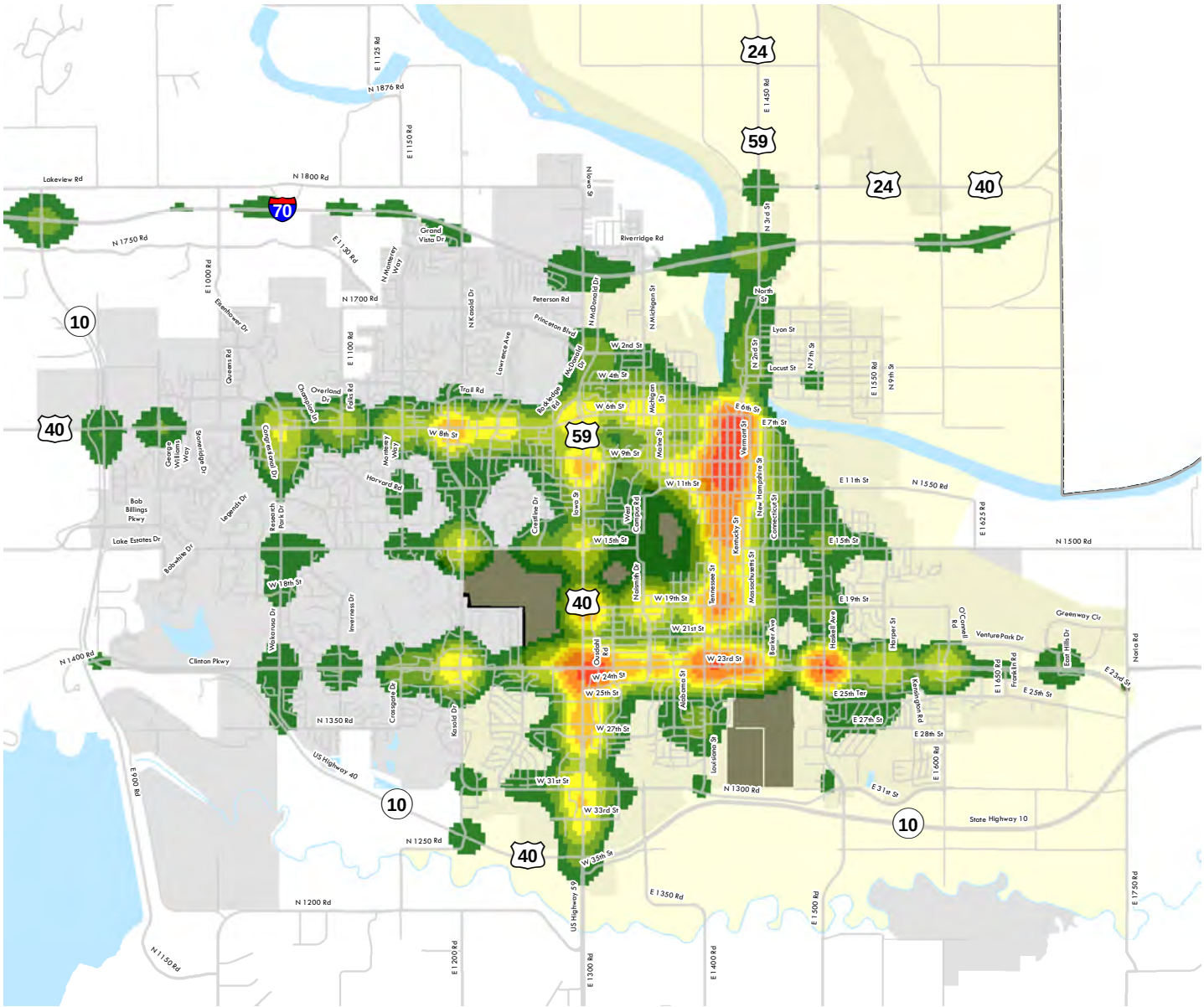
12 - Rate of serious injuries per 100 million VMT (All public roads)

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorp. Douglas County	Douglas County
2007-2011	6.8	14.4	8.6	0.0	5.2	6.8
2008-2012	6.7	17.0	7.7	0.0	4.8	6.2
2009-2013	6.8	17.2	6.7	0.0	4.5	5.7
2010-2014	7.0	12.1	6.3	0.0	4.2	5.2
2011-2015	7.2	4.6	5.2	0.0	3.6	4.4
2012-2016	0.0	1.9	4.7	0.0	2.9	3.6

Note: Includes vehicle, bicycle, and pedestrian crashes.
Source: KDOT (2017)

Figure 2.43: Lawrence Vehicle Crash Locations

Click below to view an interactive map



0 1 2 Miles

N

Vehicle Crash Density

Low Med. High

County Limits

City Limits

University

Environmental Justice Zone

Source: KDOT (2013-2016)

Produced: Lawrence-Douglas County MPO (2017)

Figure 2.44: Eudora, Baldwin City, Lecompton Vehicle Crash Locations

Click below to view an interactive map

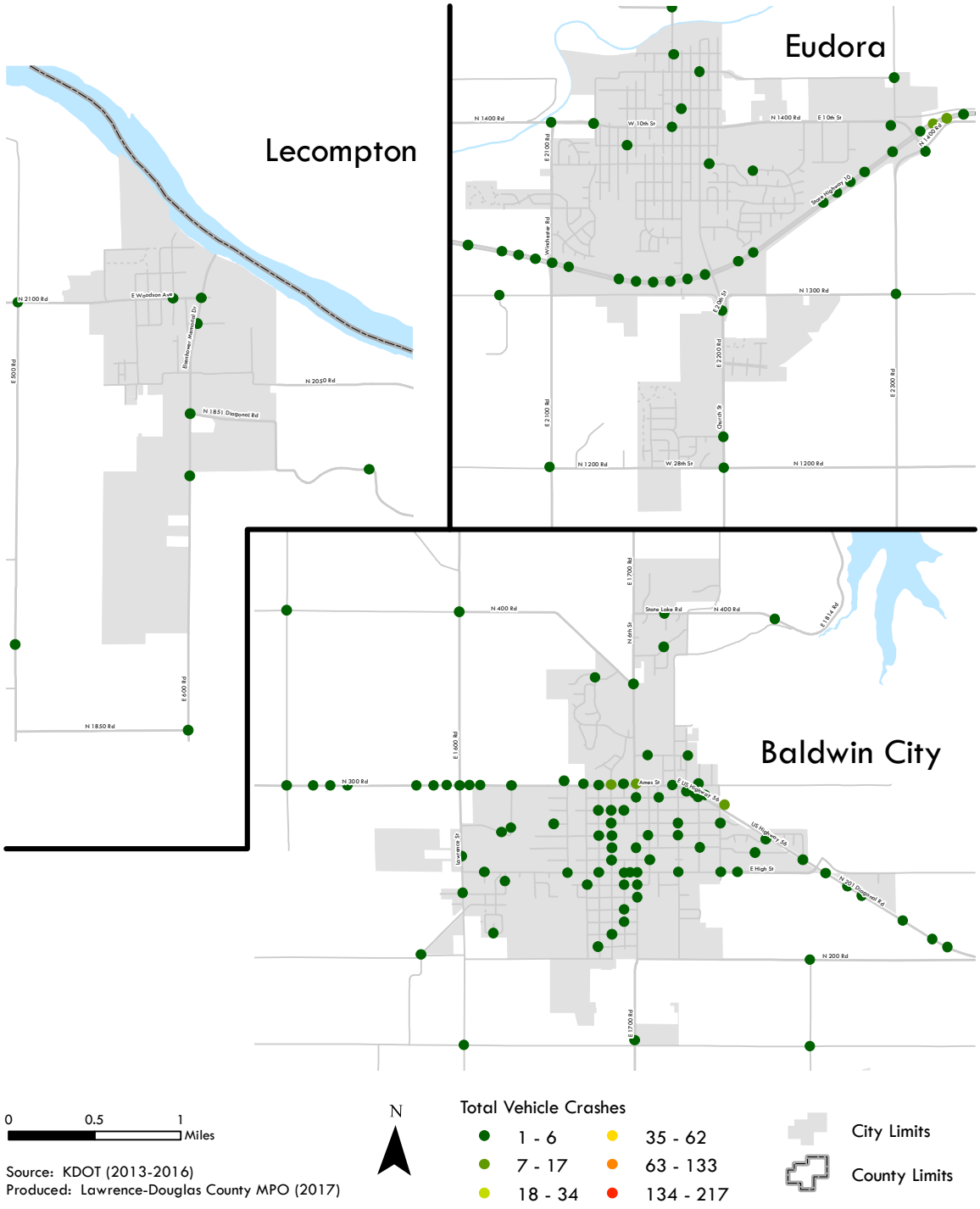
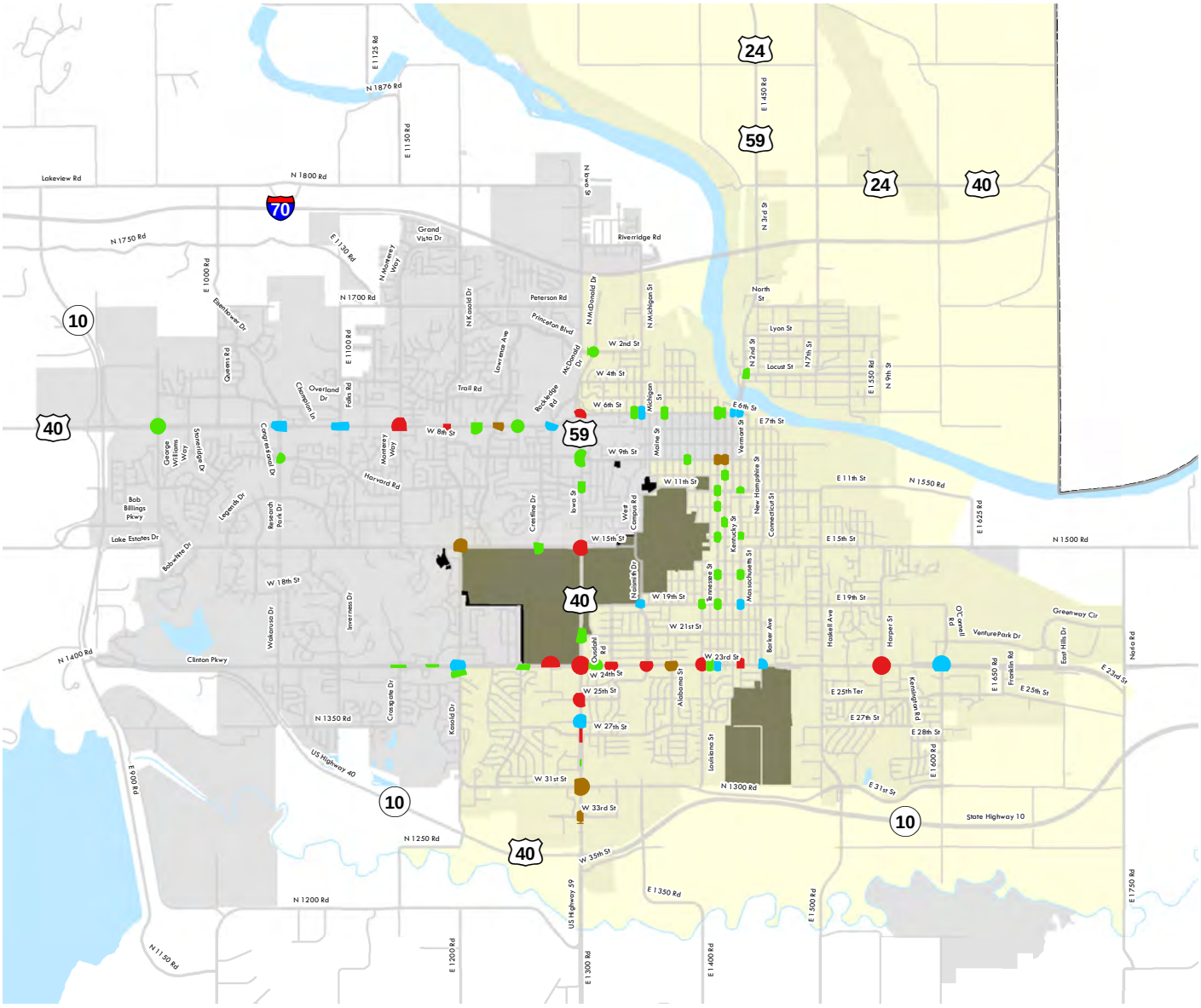
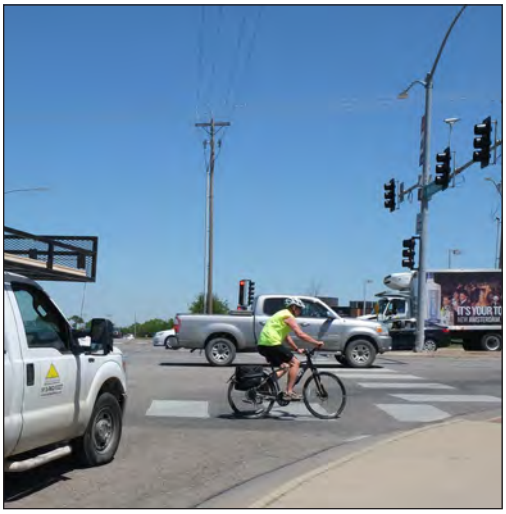


Figure 2.45: Excess Expected Average Crash Frequency Locations



Note: Locations were ranked based on Excess Expected Average Crash Frequency (EEACF). The value represented by EEACF was generally calculated based on annual traffic counts, number and type of crashes and other details of an intersection or roadway. A value indicates more than the expected number of crashes occurred for that location. The EEACF all occured in Lawrence.



19th Street Practical Road Safety Assessment

The 19th Street Practical Road Safety Assessment analyses the 19th Street corridor from Iowa Street to Barker Avenue. The report looks at bicycle and pedestrian safety concerns, identifies risks and opportunities, and provides suggested solutions. The assessment can be accessed at https://assets.lawrenceks.org/assets/mpo/corridor/19thStRSA.pdf

b. Recent Efforts

- **Crash Safety Analysis and Countermeasure Identification** (2017) – www.lawrenceks.org/mpo/safety – This project will identify crash hotspots in Douglas County based on a quantitative assessment and provide recommendations for preventive measures.
- **KDOT Statewide Strategic Highway Safety Plan (SHSP)** (2015) –www.ksdot.org/Assets/wwwksdotorg/bureaus/burTrafficSaf/reports/reportspdf/SHSP.pdf – The Plan's mission is to "drive strategic investments that reduce traveler casualties and the emotional and economic burdens of crashes, utilizing the 4E's (education, enforcement, engineering and emergency medical services) in a collaborative process." There are 6 key emphasis areas which have been identified as providing the biggest potential for improving safety: Impaired Driving, Intersections, Occupant Protection, Older Driver, Roadway Departure, Teen Drivers.

H. Security

Planning for transportation security has to do with securing key infrastructure from natural disasters, man-made violence, and hazardous material spills. Fortunately, in some cases improvements that can help maintain roadway network operations (e.g., ITS deployment including cameras at key intersections and a traffic control center) can also aid in network security efforts. In other cases improvements designed to strengthen transportation facilities for natural disaster purposes (e.g., wrapping bridge supports with steel as a seismic retrofit or strengthening levees to better handle floods) can also make those facilities harder targets. The State Fire Marshal's Office Hazardous Materials Division maintains hazardous materials (Haz-Mat) teams throughout the state to respond when events occur by supporting local first responders. A Haz-Mat team may be required for hazardous materials incidents, accidents, weapons of mass destruction (WMDs), and acts of terrorism.

At this time, the existing security planning been completed by the Douglas County Emergency Management department. The Douglas County Emergency Operations Plan (EOP) was completed in June 2014. The purpose of the EOP is to establish a comprehensive, countywide, all-hazards approach to incident management across a spectrum of activities including prevention, preparedness, response, and recovery, in the event of a disaster or emergency. There is a Transaction Emergency Support Function (ESF-1) provided by Lawrence Transit, which is responsible for coordinating countywide transportation support to local governments and voluntary organizations. The Douglas County Multi-Jurisdicational Multi-Hazards Mitigation Plan was completed in 2008. It identifies proactive mitigation planning at the local level that can help reduce the cost of disaster response and recovery to property owners and government by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption. The Northeast Kansas (Homeland Security Region K) Multi-Hazard, Multi-Jurisdictional Mitigation Plan was completed in 2014. The plan provides realistic actions to reduce potential vulnerability and exposure to identified hazards for the 9 participating counties and 1 participating tribe located in the northeast region of the State.

Like all other places where people congregate and all other public buildings and facilities, the transit system is a potential target for attack. Thinking of the transit system that is designed to help people who need a ride get around town (or other transport infrastructure like bridges and intersections) as items to protect from damage but also as potential targets for more than vandalism is uncomfortable. Every facility and every service needs to be reviewed for security and safety issues. Fortunately, for our region the things that have been completed and can be done to address safety issues are also capable of addressing security issues for our transit system.

Douglas County Emergency Management Department

The Douglas County Emergency Management Department prepares for, responds to, and recovers from major emergencies and disasters. In addition, the DC EMD also educates and trains citizens, responders, governing officials. Four phases of the comprehensive emergency management program include mitigation, preparedness, response, and recovery.

For more information, visit their website at www.douglascountyks.org/depts/emergency-management

Source: Douglas County Emergency Management Department

Table 2.18: Planned and Identified Needs

	Estimated Need	Entity	Description
People who bicycle	$31,209,926	Countywide	Bicycle infrastructure
	$2,397,000	Lawrence	Identified programmed bikeway projects
People who walk	$4,770,810	Countywide	Sidewalk maintenance on the priority network
	$14,776,590	Countywide	Sidewalk installation on both sides of the street on the priority network
	$2,497,000	Countywide	Sidewalk installation on one side of the street on the priority network
	$4,428,000	Countywide	Repair or construct ADA curb ramps
	$533,000	Lawrence	Identified programmed pedestrian projects
People who ride transit	$193,282,400	Lawrence	24 yrs of $6.75 million annual Lawrence Transit operations at current level of service
	$14,315,500	Lawrence	24 yrs of $500,000 annual Lawrence Transit night service operations
	$28,634,500	Lawrence	24 yrs of $1 million annual Lawrence Transit Sunday service operations
	$86,400,000	Lawrence	24 yrs of $3.6 million annual KU on Wheels operations
	$5,000,000	Lawrence	Bus transfer hub development
	$4,000,000	Lawrence	Transit technology for Lawrence Transit/KU on Wheels
	$12,000,000	Lawrence	Lawrence Transit vehicle replacement
	$37,223,700	Lawrence	KU on Wheels vehicle replacement
	$21,781,600	Countywide	24 yrs of $760,700 annual other human service transportation providers operations & capital expenses
People who drive	$480,000	Lawrence	Currently identified and approved unfunded traffic calming
	$15,167,065	Lawrence	Minor/major pavement rehabilitation (improve 55-65 PCI to ideal 100 PCI)
	$30,020,683	Lawrence	Pavement preservation work (improve 66-85 PCI to ideal 100 PCI)
	$35,000,000	Lawrence	Intelligent Transportation Systems (ITS) implementation
	$2,700,000	Countywide	Replace 4 functionally obsolete bridges
	$1,102,216,405	Countywide	Identified programmed roadway projects
	$98,719,242	Countywide	Identified illustrative roadway projects
Total	$1,747,553,421		

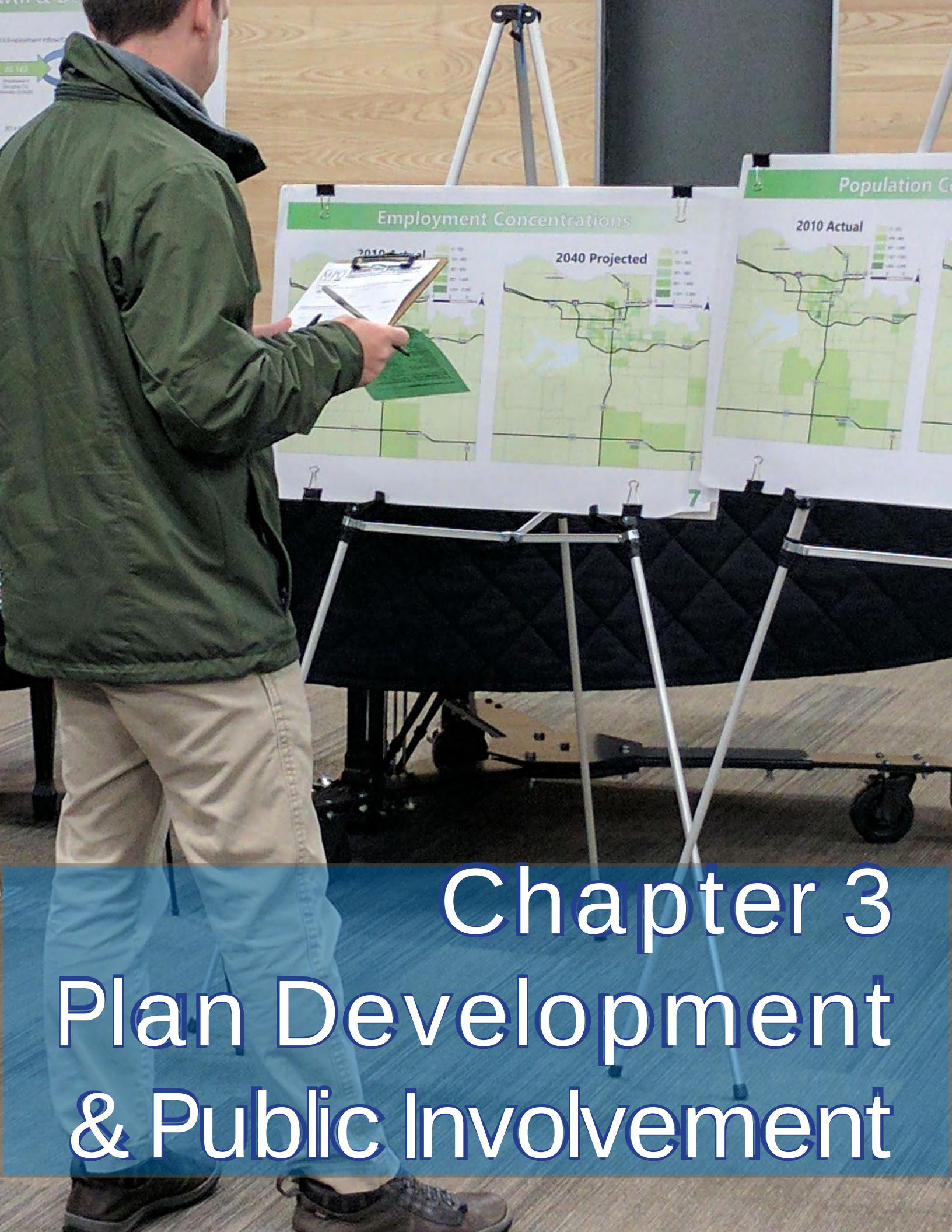
Note: Transit operations includes a 1.5% annual inflation rate. These estimates are not exclusive, but have been identified in the planning process.
Source: Lawrence-Douglas County MPO (2017), Regional Pedestrian Plan (2016), Countywide Bikeway System Plan (2014), Lawrence Transit (2017), and Lawrence Public Works Department (2017)

I. Summary

This chapter provided the existing conditions for land use, socioeconomic characteristics, environmental justice, and multimodal assets. Table 2.18 provides a summary of planned and identified needs. This list is not is not exclusive, but is comprised of current planning documents. As shown, approximately $4.7 million is needed to provide maintenance on sidewalks that were inventoried for the Regional Pedestrian Plan. Additionally, $4.4 million is needed to repair or construct ADA curb ramps. To complete minor/major pavement rehabilitation and pavement preservation, based on the 2016 PCI inventory, $45.2 million is needed. $28.1 million of bikeway infrastructure needs exist, as well as $361 million transit operations needs until 2040 and $58 million of one-time capital purchases (including a transfer hub, transit technology, and vehicle replacement).

What we heard:

"Keep all forms of transportation in mind when planning for **affordable housing** *– be thoughtful about expanding affordable housing with* **transportation access***"*



Chapter 3
Plan Development & Public Involvement

3. Plan Development and Public Involvement

A. Plan Development Process

What is a Metropolitan Transportation Plan (MTP)?

A Metropolitan Transportation Plan (MTP) is a document resulting from regional or statewide collaboration and consensus on a region or state's transportation system, and also serves as the defining vision for the region's or state's transportation systems and services. The plan lays out transportation improvements scheduled over the next 20 years. The MTP must be updated every 5 years. MPOs are required to develop a MTP that is fiscally constrained, contains performance measures, goals to identify needed transportation improvements and project selection.

https://www.fhwa.dot.gov/planning/glossary/

https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/metropolitan-transportation-plan-mtp

The T2040 Steering Committee was created by the Lawrence-Douglas County Metropolitan Planning Organization Policy Board to guide the plan's development and review stakeholder input. The T2040 Steering Committee met regularly throughout the T2040 process helping to build consensus and reach recommendations through informed consent. MPO staff presented information and the Committee reviewed materials for accuracy, relevancy, and importance in the development of T2040. The Committee shaped T2040 into a plan that is comprehensive, sensitive to design and use of a multimodal transportation system. The update process is shown in Figure 3.1.

Figure 3.1: T2040 Update Process

Committee members members represent:

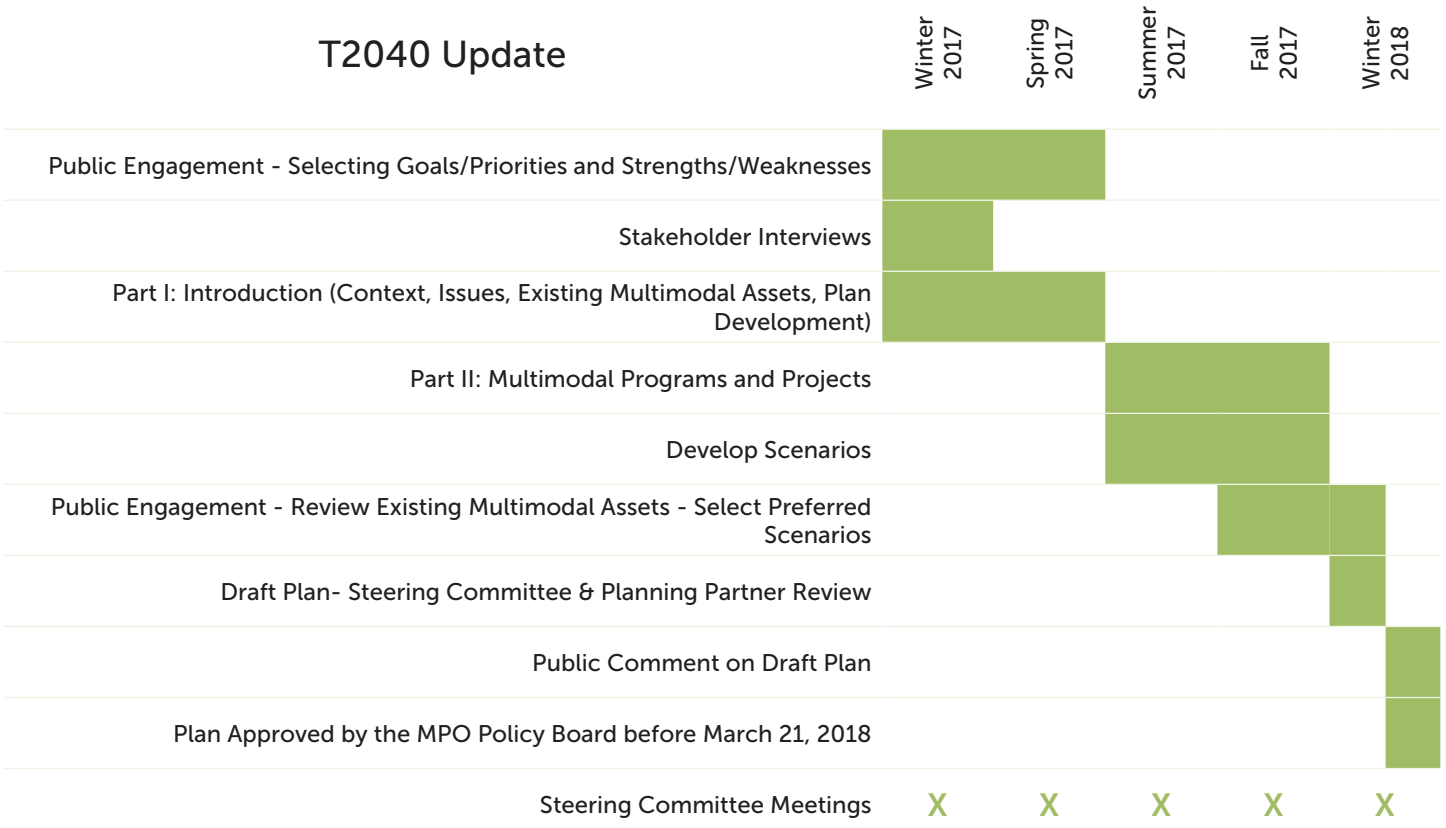
- Douglas County Public Works
- Douglas County Sustainability Office
- Lawrence-Douglas County Planning Commission
- Lawrence-Douglas County Planning & Development Services
- Lawrence-Douglas County Health Department
- Lawrence Public Works
- Lawrence Transit
- Eudora City
- Baldwin City
- Lecompton City
- University of Kansas Design & Construction Management
- Kansas Department of Transportation
- Federal Highway Administration Kansas Division
- Federal Transit Administration Region 7 Office
- MPO Bicycle Advisory Committee
- Lawrence Transportation Commission

The plan timeline is shown in Figure 3.2.

MPO Public Participation Plan

The MPO public participation process is guided by the 2016 Public Participation Plan.

Figure 3.2: T2040 Timeline



B. Public Involvement Process

Public involvement is a high priority in the planning and development process for T2040. The Lawrence-Douglas County MPO's Public Involvement for Transportation Planning procedures reflect the region's rigorous approach to public involvement. It outlines a process that provides complete information, timely public notice, and full public access.

This planning process was divided into two public engagement phases. The first phase began with the release of the transportation survey on February 1, 2017. Stakeholder interviews were also held to gather input regarding transportation needs and issues from public agencies and interested parties. Additionally, four open houses were held to garner public input.

- **Lawrence Aquatic Center**, 4706 Overland Dr, Lawrence, March 27, 2017, 4-7 pm
- **Lawrence Public Library**, 707 Vermont St, Lawrence, March 30, 2017, 3-6 pm
- **Baldwin City Public Library**, 800 7th St, Baldwin City, April 3, 2017, 4-7 pm
- **Eudora Community Center**, 1630 Elm St, Eudora, April 6, 2017, 4-7 pm

The second phase of public engagement began on November 13, 2017 with the release of the second transportation survey. Five open houses were held to garner public input.

- **Baldwin City Public Library**, 800 7th St, Baldwin City, November 13th, 4:30-6:30 pm
- **Eudora Community Center**, 1630 Elm St, Eudora, November 14th, 4:30-6:30 pm
- **Lawrence Public Library**, 707 Vermont St, Lawrence, November 16th, 3-5 pm
- **Aunt Netters Cafe**, 336 Elmore St, Lecompton, November 17th, 11-1 pm
- **Lawrence Public Library**, 707 Vermont St, Lawrence, November 21st, 5-7 pm

C. T2040 Public Participation Activities

There were several ways to participate in the planning process.

1. T2040 Website

A project website (www.lawrenceks.org/mpo/t2040-update) was created to provide all planning materials. Staff also used the MPO Tell Us Portal (www.lawrenceks.org/mpo/tellus) to conduct surveys and collect public comment throughout the process.

2. Email List

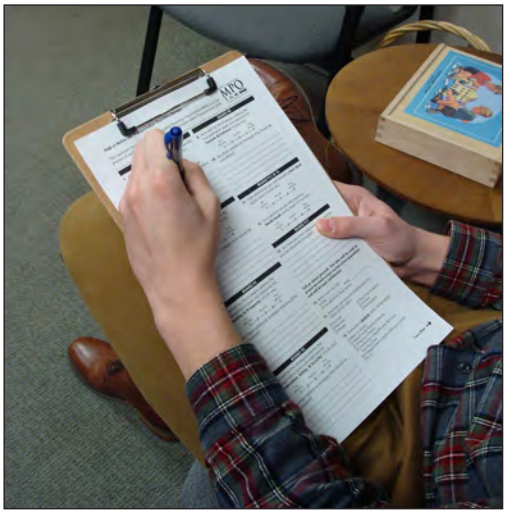
The MPO compiled a list of interested parties to send email notifications about the on-going T2040 events. The website offers a link for any member of the public to sign up for notifications. At each opportunity, recipients on the list were sent emails notifying them of participation opportunities including surveys, open houses, mobile meetings, and public comment periods.

LAWRENCE - DOUGLAS COUNTY METROPOLITAN PLANNING ORGANIZATION

Tell us what YOU THINK!

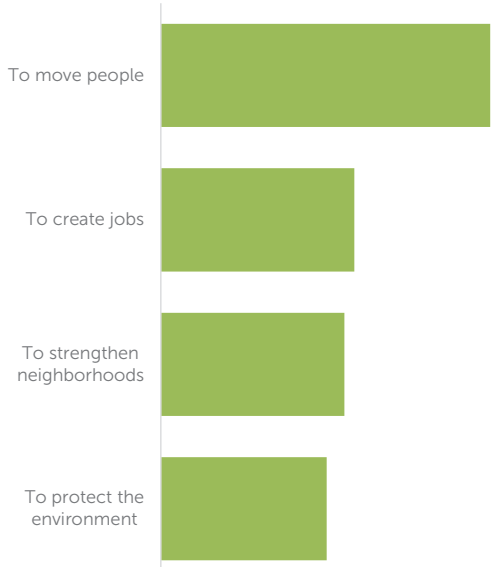
Email Subscription

Want to receive news on transportation planning in Lawrence-Douglas County? Sign up for an email updates at https://lawrenceks.org/subscriptions by selecting the "Transportation Planning" list.



Top planning priorities

Stakeholder interview participants were asked *"What should be the Lawrence-Douglas County MPO's priorities for planning a regional comprehensive transportation system?"* Respondents were asked to rank each of the following responses from 1-4.



3. Surveys

Two surveys were utilized in this planning process. The first centered on identifying respondents' experiences and vision for the region's transportation system. A survey availability notification was sent via the email list on February 1, 2017, and was available until April 30, 2017. Social media posts were written and distributed to the various local governments and other interested parties making people aware of the survey opportunity, during which 1,555 surveys were collected. A summary of those results are included in this chapter, and the list of all comments received is in Appendix B: Public Input.

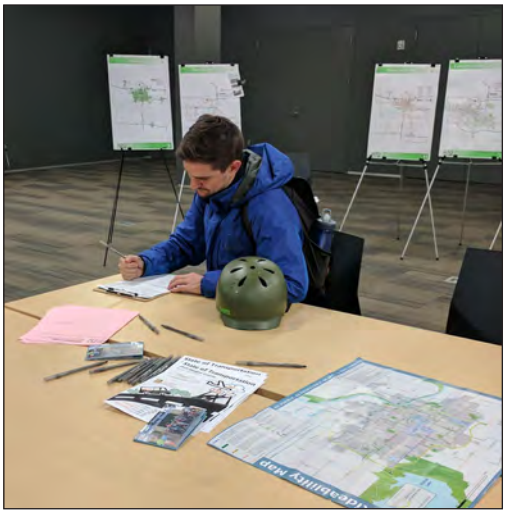
The second survey asked participants to weigh in on the strategies and projects that would best address the transportation priorities throughout Douglas County. The survey was available from November 13th to November 27th, 2017. The survey was promoted through social media posts posted by the local governments, news release, and at the open house meetings. An email was sent to everyone who provided their email address on the first survey and a notice was sent through Tell Us Portal telling past participants a new survey opportunity was available. Surveys were collected through the the Tell Us Portal and paper copies at the five open house meetings held during the survey window. A total of 88 surveys were collected.

4. Stakeholder Interviews

Thirty-six interviews were conducted with various stakeholders to gather input regarding transportation needs and issues. These interviews included representatives from a wide cross section of the community including representatives of organizations, not normally included within transportation planning process such as the Kansas Department of Wildlife, Parks, and Tourism, the U.S. Army Corps of Engineers, the Lawrence Shelter, League of Women Voters, Tenants to Homeowners, and many more. While this diverse cross section of people provided varied input, it was remarkable how similar some of the responses were. A full summary of the results can be found in Appendix B: Public Input.

5. Mobile Meetings

Mobile meetings were held throughout the first phase of public engagement phase to promote the survey and participation in the planning process. Thirty-eight mobile meetings were held February 11 – April 30, 2017 during the first phase of public engagement. Citizens had an opportunity to take a paper survey and/or talk with staff at each mobile meeting.



6. Written Comment

MPO staff accepted email and hand written comments, as well as public comments left in the general comment area within Tell Us Portal during the public participation process. Written comments about the draft T2040 Plan were collected from February 1 - March 2, 2018. Written comments were also provided in-person at steering committee meetings. A full summary of the results can be found in Appendix B: Public Input.

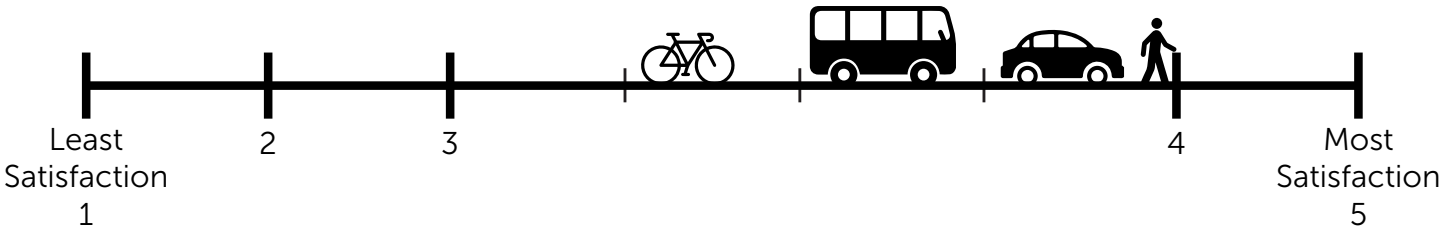
D. What we heard

The comments collected through the T2040 Public Participation process are summarized below. A complete and detailed list of all the comments can be found in Appendix B: Public Input.

1. Experience and vision for transportation (Survey 1)

The first phase of public engagement was centered on identifying respondents' experience and vision for transportation in the Lawrence-Douglas County region.

On a scale of 1 to 5, with 1 being the lowest satisfaction and 5 being the highest satisfaction, survey respondents ranked the following categories.



Typical auto/car experience satisfaction:

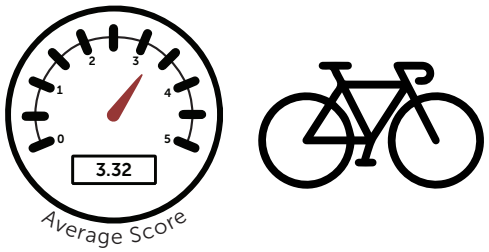
Summary of results:

- Survey participants feel the roads are in need of repair (41%), and that drivers do not follow rules of the road (31%).

Typical bicycling experience satisfaction:

Summary of results:

- Surveyed community members indicate that bicycle routes are incomplete; participants also feel that there needs to be more and safer bicycles routes.



Typical transit/bus experience satisfaction:

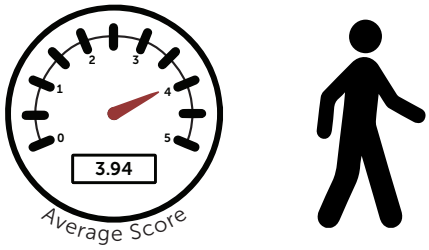
Summary of results:

- Lawrence respondents feel there is a lack of transit amenities such as benches and shelters and would also like to see expanded transit hours, more frequent service and bus service on Sundays.
- Baldwin City and Eudora would like to see transit service expand to their areas.

Typical walking experience satisfaction:

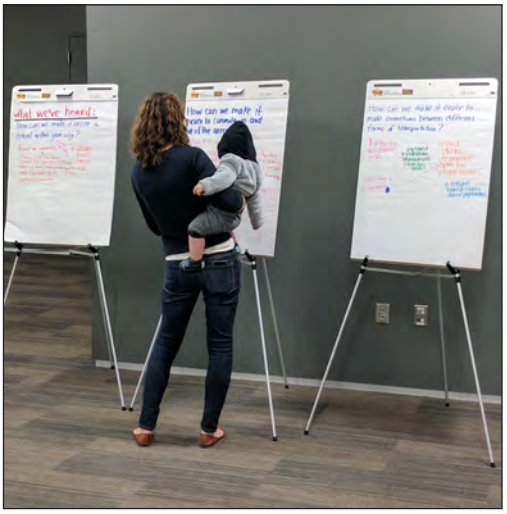
Summary of results:

- Respondents feel that sidewalks are in need of repair and that the sidewalk network is incomplete.
- Participants desire amenities to make the environment safer and more comfortable.



Other themes and priorities:

- Participants are generally satisfied with the transportation system (overall average of 3.59 on a scale from 1-5, 1 being the lowest satisfaction and 5 being the highest satisfaction), but there is room for improvement.
- Walking was the highest rated satisfaction; bicycling was the lowest rating satisfaction.
- Respondents indicated that they mostly use auto/cars (86%) and walking/sidewalks (77%) as modes of transportation throughout the county.
- Lawrence respondents feel bicycling should be easier to use, Eudora and Lecompton would like auto transportation to be easier to use, and Baldwin City would like walking to be easier to use.



{The top priority for the Lawrence-Douglas County MPO should be to move people}

Top priority for moving people – **Maintain existing roads, sidewalks, and bikeways**

Top priority for creating jobs – **Improve employees' access to current employment centers**

Top priority for strengthening neighborhoods – **Provide streets/sidewalks that are comfortable for bicycles and pedestrians**

Top priority for protecting the environment – **Reduce reliance on fossil fuels**

2. Strategies and projects that will best address transportation priorities (Survey 2)

The second phase of public engagement asked participants to weigh in on the strategies and projects that will best address the transportation priorities throughout Douglas County. Survey respondents evaluated draft goals and objectives that were based on phase one public engagement. On a scale of 1 to 5, 1 being the lowest effectiveness and 5 being the highest effectiveness, survey respondents ranked the overall goals and objectives, including the four goal and objective themes. The average effectiveness is shown in Figure 3.3. The overall goals and objectives averaged 3.79, access and choices averaged 3.92, mobility and prosperity averaged 3.67, preservation, safety, and security averaged 3.88, sustain and enhance averaged 3.81. Overall the average effectiveness was close to 4, indicating respondents were supportive of T2040's goals and objectives. These goals and objectives were adjusted based on public comment and are included in Chapter 4: Goals, Objectives, and Performance Measures.

Figure 3.3: Goals & Objectives Effectiveness

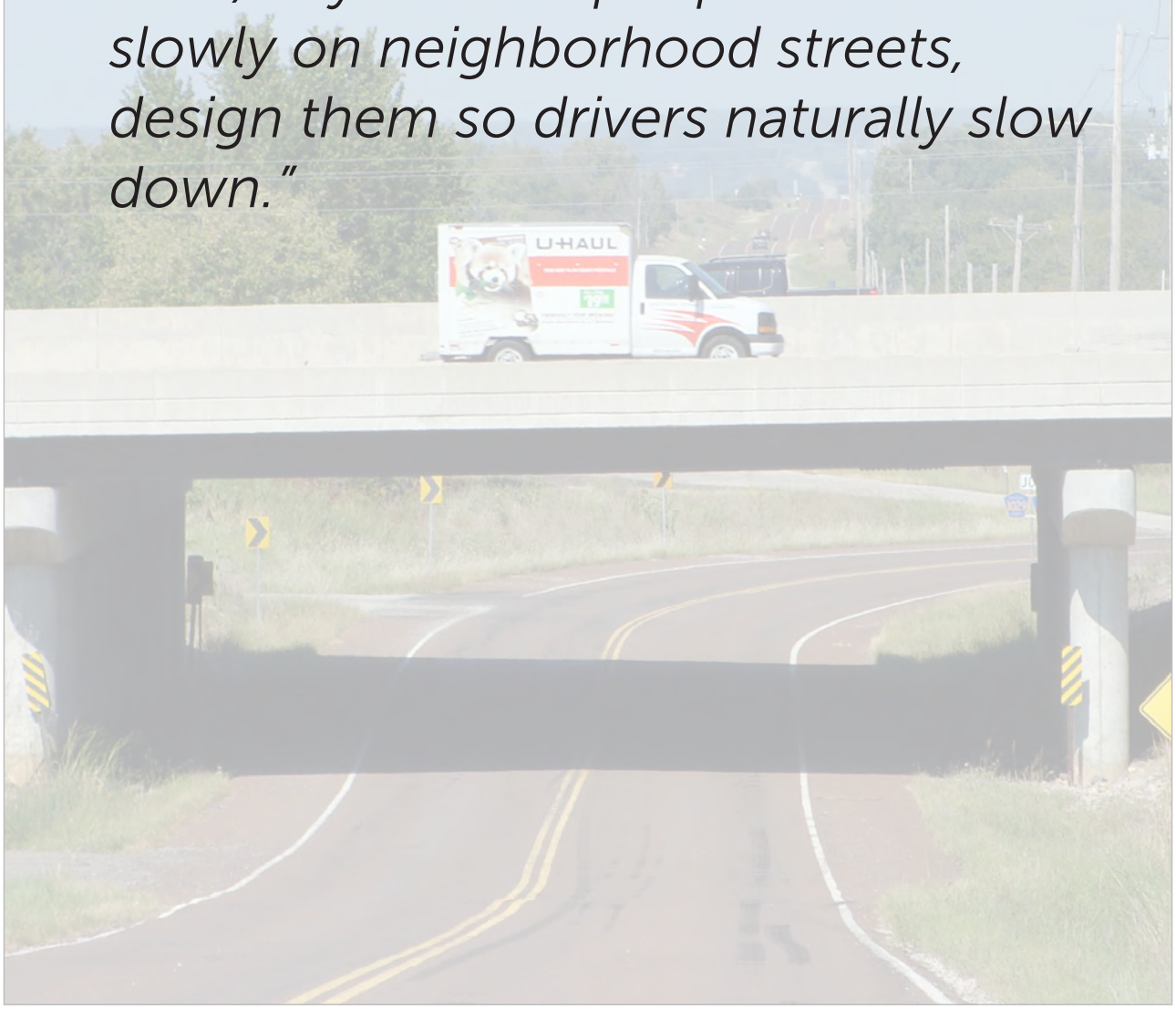
	Goals	Objectives	Average Effectiveness
Access & Choices	Enhance Transportation options and choices for improved system performance	Improve regional connectivity (urban/rural) of all modes of the transportation networks including access to desired destinations.	3.92/5
		Enhance transit service, amenities and facilities.	
Mobility & Prosperity	Efficient movement of people, goods, and freight	Implement strategies that address system performance & improve reliability, capacity and competitiveness for regional freight.	3.67/5
Preservation, Safety, & Security	Prioritize preservation, safety, and security of the transportation network	Support projects and policies that improve safety and security.	3.88/5
		Preserve and enhance transportation infrastructure and assets.	
Sustain & Enhance	Minimize adverse social, economic, and environmental impacts created by transportation	Promote density to reduce transportation costs & reduce environmental impacts of transportation.	3.81/5
		Reduce single occupancy vehicle trips.	

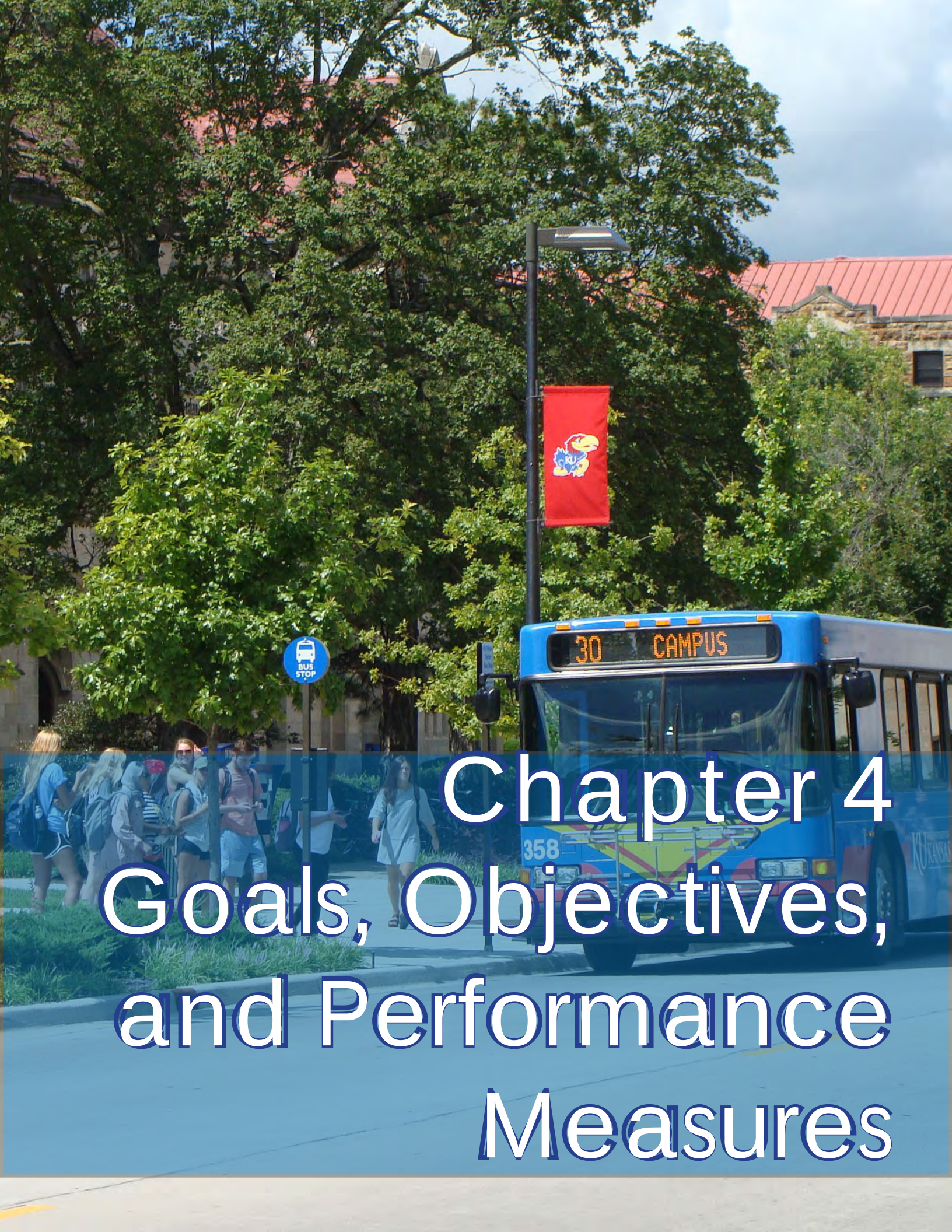
E. Summary

Overall, the community desires more choices, connections, and safety improvements for all user types and improvements to existing conditions of sidewalks, roads, bicycle networks, and transit frequency. This is reflected in the strategies and projects included throughout this plan and delineated in Chapter 6: Multimodal Projects and Strategies.

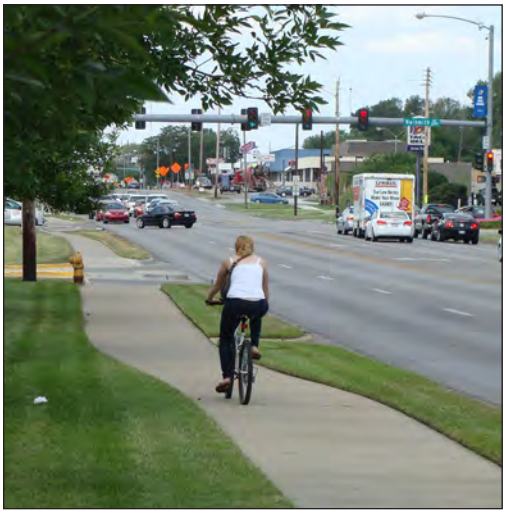
What we heard:

"Ensure denser, mixed use development so people don't have to rely solely on cars for simple errands. Charge appropriate parking fees (and fines). If you want people to drive slowly on neighborhood streets, design them so drivers naturally slow down."





Chapter 4
Goals, Objectives, and Performance Measures



4. Goals, Objectives, and Performance Measures

The goals and objectives of Transportation 2040 (T2040) – Metropolitan Transportation Plan (MTP) for the Lawrence-Douglas County Metropolitan Planning Area (MPA) – are based on the overarching goal of creating a shared regional vision for how the Lawrence-Douglas County Region will grow and look like in the future as depicted by the Lawrence-Douglas County Comprehensive Plan.

The goals and objectives in this T2040 Plan are based on the following considerations:

- Public Participation from meetings and interviews with transportation stakeholders, various advisory committees, and written comments from the public
- The previous MTP; Transportation 2040 – Lawrence-Douglas County Long Range Transportation Plan
- Horizon 2020 – Lawrence-Douglas County Comprehensive Plan and its draft update
- Planning Factors from the Federal surface transportation act - Fixing America's Surface Transportation (FAST) Act
- Comprehensive multimodal nature of the MTP outlined in the MPO Policy Board Bylaws and the multimodal plans of the region
- Knowledge and experience of numerous transportation professionals involved in our region's MPO process
- Guidance from the Kansas Department of Transportation and State of Kansas emphasis areas outlined in the Transportation Works for Kansas (T-WORKS) program, and an anticipated future state program
- Federal transportation planning regulations for MPOs

A. National Goals

The national Federal highway program performance goals as established by Congress are:

Safety - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

Infrastructure Condition - To maintain the highway infrastructure asset system in a state of good repair

Congestion Reduction - To achieve a significant reduction in congestion on the National Highway System

System Reliability - To improve the efficiency of the surface transportation system

Freight Movement and Economic Vitality - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

Environmental Sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment.

Reduced Project Delivery Delays - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

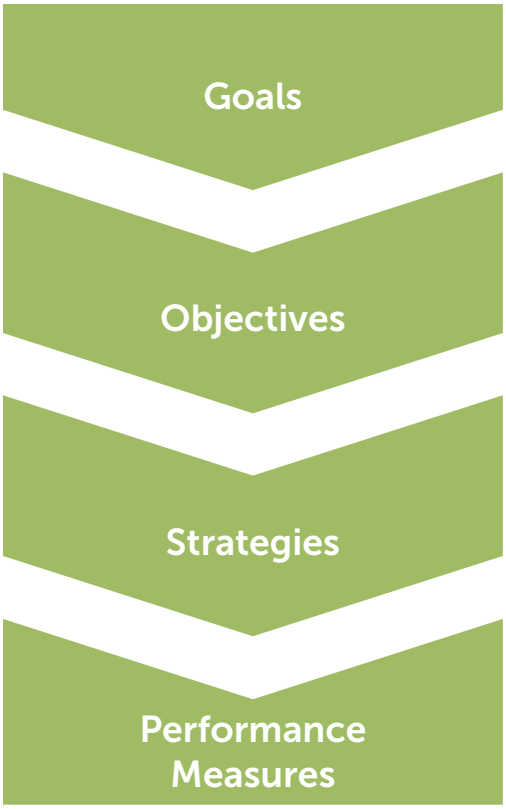
What is system reliability?

System reliability, or travel time reliability, means the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.

Source: Federal Highway Administration

Goals, Objectives, Strategies, and Performance Measure

The following graphic shows the heirarchical structure of how Goals, Objectives, Strategies, and Performance Measure relate to one another.



B. Transportation 2040 – Moving Forward Together Vision Statement

Develop a multimodal transport system that safely, efficiently and equitably serves all users whom travel to, from, and within the region; and develop a regional transport network of facilities and services that complements the region's economy and enhances the region's livability.

This vision emphasizes the importance of multimodal system planning and the transportation network value as a community asset. This plan supports an accessible environment serving to improve the quality of life and prosperity in the region. The goals, objectives, and performance measures below support the plan's multimodal vision. This is the region's first performance-based plan to meet federal regulations.

Goals, Objectives, Strategies, and Performance Measures

Goals, Objectives, Strategies and Performance Measures are defined below.

Goals

Goals are long range approaches articulating the vision of the community. They represent an improvement to the status quo that can be generally supported by the community.

Objectives

Objectives are defined approaches to attain the identified goal. Many objectives can fall under each goal. For many objectives the timeline for completion will be the plan's 5 year duration. For others it may be a shorter or longer term.

Strategies

Strategies included in Chapter 6 detail the specific action to reach goals. They establish specific future actions that should be completed and reflect reasoned choices among all of the available alternatives. Strategies are the responsibility of many actors to implement the plan, including the MPO, local governments, and the KDOT.

Performance Measures

Performance measures are used to assess progress toward meeting goals and objectives, and are integral to implementing a performance-based plan. The results of the performance measures advise the outcomes of the implemented projects and strategies. In addition to the federally required performance measures, the plan development process identified additional locally selected performance measures using the following considerations: Performance measures are meaningful to the goal or objective it supports and the measure can be influenced by policy and investment decisions. The data is feasible and practical for the MPO to collect, store, analyze, and report. Metrics are used to track performance trends on an annual basis.

Performance measure data is reported throughout Chapter 2 and all the measures, data, trends, and federal targets are reported in Appendix F: System Performance Report.

Trends are shown for performance measures that have sufficient data history. Trends are observations about the general direction the data, and can be found in Appendix F. Targets are set for performance measures federally required by FAST Act with varying timelines as the requirements to do so occur. Targets represent the desired direction of the measure to meet the goal and objective. Targets approved by the MPO Policy Board are incorporated into Appendix F.

Performance data allows staff the ability to track performance and assess the impacts of transportation polices, programs, and projects to assess whether projects and strategies have worked to accomplish their goal. All measures will be tracked annually or as data availability allows. Appendix F will be updated annually.

1. Goals and Objectives

T2040 consists of a goal for each of the plan's 4 themes: Access and Choices; Mobility and Prosperity; Preservation, Safety, and Security; and Sustain and Enhance. These themes and goals are tied to the performance measures found throughout Chapter 2 and in Appendix F (System Performance Report).

Goals	Objectives
Access & Choices: Enhance Transportation options and choices for improved system performance	Improve regional connectivity (urban/rural) of all modes of the transportation networks including access to desired destinations.
	Enhance transit service, amenities and facilities.
Mobility & Prosperity: Efficient movement of people, goods, and freight	Implement strategies that address system performance & improve reliability, capacity and competitiveness for regional freight.
Preservation, Safety, & Security: Prioritize preservation, safety, and security of the transportation network	Support projects and policies that improve safety and security.
	Preserve and enhance transportation infrastructure and assets.
Sustain & Enhance: Minimize adverse social, economic, and environmental impacts created by transportation	Promote density to reduce transportation costs & reduce environmental impacts of transportation.
	Reduce single occupancy vehicle trips.

Access & Choices

Goal

Enhance transportation options and choices for improved system performance

Objectives

- Improve regional connectivity (urban/rural) of all modes of the transportation networks including access to desired destinations
- Enhance transit service, amenities and facilities

Strategies

- Continue deployment transit amenities (shelters, benches, real time information, etc.) based on the Transit Amenities Policy
- Coordinate land use and transportation planning to reduce transportation costs and develop land that encourages multimodal transportation through coordinated review of land use plans
- Develop tools to educate and encourage trips by walking through programs like wayfinding signage or open streets events
- Ensure the multimodal networks provide access to employment and commercial opportunities
- Implement existing plans:
    - Bus Transfer Location Analysis
    - Coordinated Public Transit-Human Services Transportation Plan (CPT-HTSP)
    - Countywide Bikeway Plan and Regional Pedestrian Plan
    - Safe Routes to School program
    - Transit Comprehensive Operations Analysis (COA)
- Develop in accordance with the Major Thoroughfares map including improving East/West connections throughout Lawrence
- Improve multimodal facilities and amenities to improve connections between modes
- Integrate multimodal elements in project planning, design, construction, and maintenance, consistent with the Complete Streets Policy
- Plan and implement an Americans with Disabilities Act (ADA) Transition Plan to reduce barriers to access
- Prioritize bicycle and pedestrian improvements based on plan priorities
- Provide meaningful public involvement in the transportation planning process.
- Track and measure progress of infrastructure, amenities, and programming related to bikeability and walkability.

Note: See Chapter 6 for more detailed strategies.

Performance Measures

1. Percentage of people who have access within a ¼ mile to the bikeway network
2. Percentage of public streets with sidewalks on at least one side
3. Percentage of public streets with bikeway network
4. Unlinked Passenger Trips per Vehicle Revenue Hour for demand response and fixed route service
5. Percentage of population with access within a ¼ mile to a bus stop for fixed route transit

Note: See Appendix F for the System Performance Report.

Mobility & Prosperity

Goal

Efficient movement of people, goods, and freight

Objectives

- Implement strategies that address system performance
- Improve reliability, capacity and competitiveness for regional freight

Strategies

- Deploy technology and other alternative strategies to relieve congestion
- Encourage safe and efficient traveling through the multimodal networks
- Establish a Right of Way management process that reduces the impacts to mobility
- Expand intercity and commuter transit options based on demand
- Implement relevant portions of the Statewide Freight Plan
- Implement the 10-Year Parking Operations and Development Plan
- Implement the Regional Intelligent Transportation System Strategic Deployment Plan strategies to maximize network capacity and improve efficiencies
- Plan and implement citywide multimodal wayfinding
- Revise and strengthen Traffic Impact Study requirements to include multimodal analysis
- Strengthen and implement access management for all users
- Improve project development processes between local, regional, state and federal agencies to reduce costs and increase project delivery time.

Note: See Chapter 6 for more detailed strategies.

Performance Measures

6. *Percent of the person-miles traveled on the Interstate and Non-Instate NHS that are reliable

7. Average commute times

Note: * indicates a federally required performance measure. See Appendix F for the System Performance Report.

Preservation, Safety, & Security

Goal

Prioritize preservation, safety, and security of the transportation network

Objectives

- Support projects and policies that improve safety and security
- Preserve and enhance transportation infrastructure and assets

Strategies

- At a minimum maintain existing conditions
- Continue a transparent and coordinated transportation planning process that encourages participation and performance based planning
- Design and build roadways for the safety of all users
- Design or retrofit collector and local streets for the safety of all users
- Enhance multimodal friendliness and minimize crashes and injuries of bicyclists through design
- Facilitate, develop, and distribute safety education programming/materials for all users
- Maintain an inventory of transportation infrastructure and assets and track transportation system performance
- Maintain and improve roadway pavement and bridge conditions
- Maintain and improve bikeway networks conditions
- Prioritize crash (vehicle and non-motorized) hot spots for safety improvements
- Maintain and improve the existing pedestrian networks conditions and enforce sidewalk repair policy or establish a sidewalk maintenance program
- Use traffic calming to improve safety and implement a traffic safety campaign

Note: See Chapter 6 for more detailed strategies.

Performance Measures

9. *Number of fatalities
10. *Rate of fatalities per 100 million VMT
11. *Number of serious injuries
12. *Rate of serious injuries per 100 million VMT
13. *Number of non-motorized fatalities & non-motorized serious injuries
14. *Percentage of NHS bridges by deck area classified as in Good and Poor condition
15. Percentage of non-NHS bridges by deck area classified as in Good and Poor condition
16. *Percentage of revenue and non-revenue vehicles met or exceeded their Useful Life Benchmark
17. *Percentage of assets with a condition rating below 3 on the FTA Transit Economic Requirements Model scale
18. *Percentage of pavements of the Interstate System in Good and Poor condition
19. *Percentage of pavements of the non-Interstate NHS in Good and Poor condition
20. Percentage of pavement of non-NHS major roads (collector and above) in Good and Poor condition

Note: * indicates a federally required performance measure. See Appendix F for the System Performance Report.

Sustain & Enhance

Goal

Minimize adverse social, economic, and environmental impacts created by transportation

Objectives

- Promote density to reduce transportation costs
- Reduce environmental impacts of transportation
- Reduce single occupancy vehicle trips

Strategies

- Continue to follow emerging technologies and market driven transportation (automatic vehicles, electric vehicles, rideshare)
- Coordinate decision making to balance land use and environmental impacts
- Employ site design requirements that encourage pedestrian travel and non-single occupancy vehicle trips
- Explore alternative transit energy sources
- Explore transit operations and technologies that minimize environmental impacts
- Implement Travel Demand Management (TDM) strategies to reduce single occupancy vehicle trips
- Incorporate and evaluate the distribution and impacts of transportation programs, projects, and services

Note: See Chapter 6 for more detailed strategies.

Performance Measures

21. Percentage change in density of urban area
22. Average cost of transportation per household
23. Daily Vehicles Miles Traveled (VMT) per Capita
24. Percentage of sensitive lands
25. Percentage of single occupancy vehicles
26. Percentage of mode choice

Note: See Appendix F for the System Performance Report.

2. Relationship between T2040 Goals and Federal Planning Factors

The 10 federal planning factors represent a comprehensive transportation system planning accommodating all users. Table 4.1 shows how each goal correlates with the federal planning factors expressed throughout the plan.

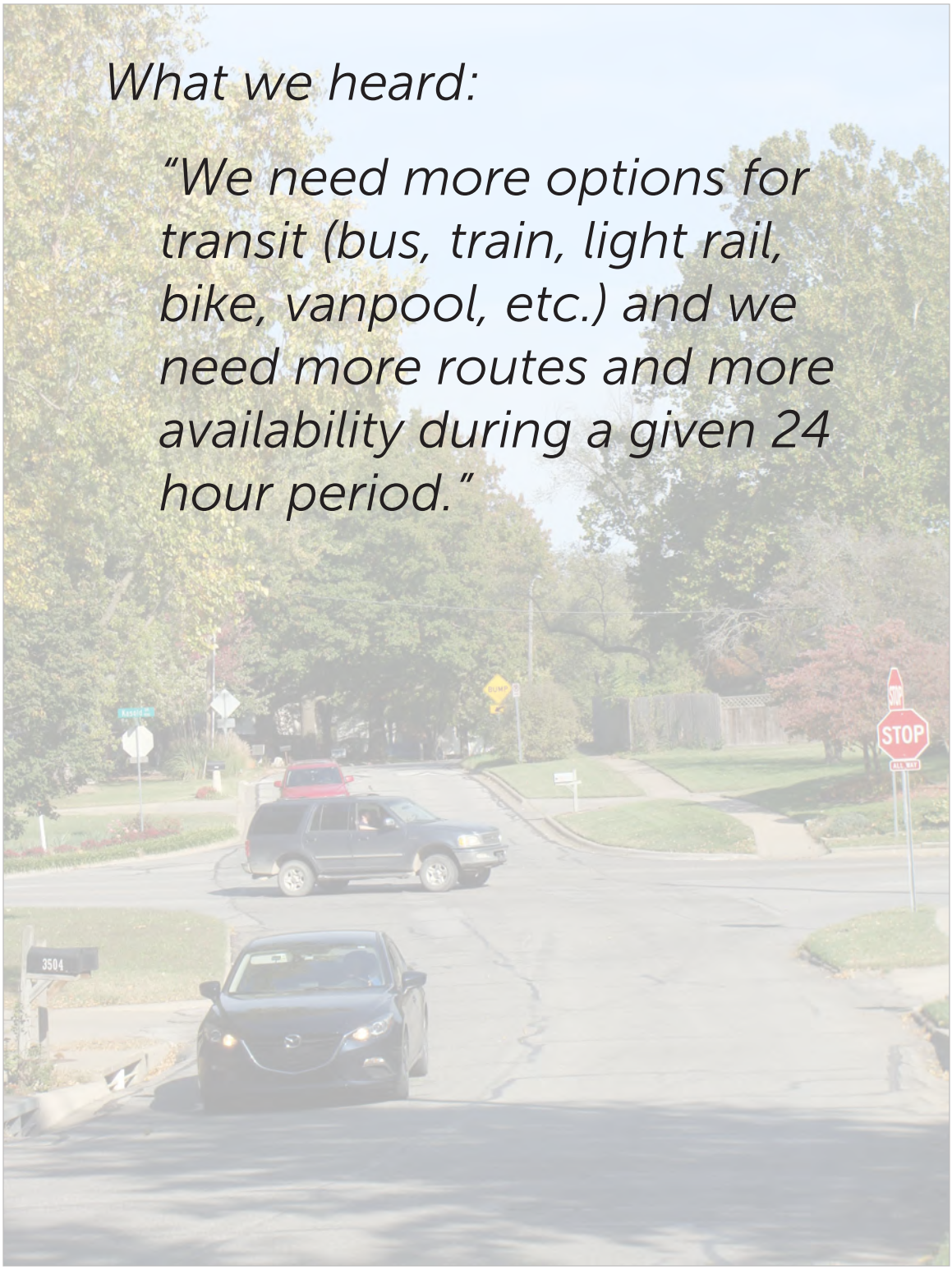
Table 4.1: T2040 Goals and Federal Planning Factors

	Enhance transportation options and choices for improved system performance	Efficient movement of people, goods, and freight	Prioritize preservation, safety, and security of the transportation network	Minimize adverse social, economic, and environmental impacts created by transportation
Economic Vitality	X	X		X
Safety			X	X
Security	X		X	X
Accessibility & Mobility	X			X
Quality of Life	X	X		X
Integration & Connectivity	X	X		
System Management		X	X	
Preservation		X	X	
Resiliency & Reliability		X	X	
Travel & Tourism	X	X		

Source: Federal Planning Factors (23 CFR 134)

What we heard:

"We need more options for transit (bus, train, light rail, bike, vanpool, etc.) and we need more routes and more availability during a given 24 hour period."

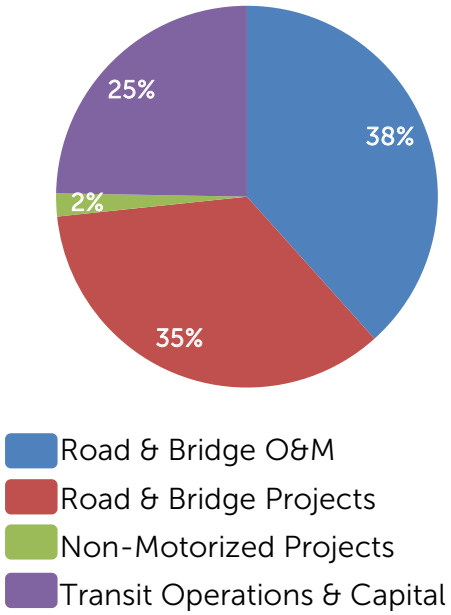


Chapter 5
Financial Analysis

What are Operations and Maintenance (O&M)?

Operations and maintenance (O&M) refers to the running and preservation of the transportation system, including roadways, sidewalks, bike routes, and transit vehicles.

Total Revenues



5. Financial Analysis

A. Overview

T2040 includes a financial analysis which demonstrates how the plan can be implemented with available resources. T2040 places a high priority on Operations and Maintenance (O&M) and preservation of the existing transportation system; therefore, the plan subtracts the O&M expenses "off the top" from the available revenue before projects are selected (Figure 5.1).

This financial analysis sets funding priorities for three separate categories: non-motorized, transit, and road and bridge. Each category includes an analysis of historical revenues, historical O&M expenditures, and projections based on the historical numbers with inflation applied to both the revenue and the O&M.

The total FY2017-2040 projections are calculated in this chapter. The $1.503 billion total projected revenues shown in Figure 5.1 are programmed in distinct funding categories. As shown in the pie chart in the sidebar, 38% or $576.4 million is programmed for road and bridge O&M, leaving $926.6 million to be split between road and bridge projects (35%), transit operations and capital (25%) and non-motorized projects (2%).

Figure 5.1: O&M "Off the Top" Illustration and FY2017-2040 Funding Projections

Table 5.1: Historical Bicycle and Pedestrian Expenses as Part of Road Projects in Lawrence

Lawrence	FY2012	FY2013	FY2014	FY2015	FY2016	5-Year Average
Bicycle	$ -	$318,700	$1,028,500	$1,499,000	$130,312	$595,300
Pedestrian	$497,594	$801,514	$114,345	$352,129	$220,650	$397,200

Note: 5-Year Averages are rounded to nearest 100.

B. Non-Motorized - Methodology, Assumptions, and Findings

In Lawrence, bicycle and pedestrian infrastructure projects have been historically incorporated into larger road projects budgets, unless they were funded through grants or special allocations. This integration of bicycle and pedestrian elements in roadway projects is consistent with the MPO's Complete Streets Resolution and the Lawrence Complete Streets Policy. However, it limits the implementation of standalone bicycle and pedestrian projects. Table 5.1 displays the historic bicycle and pedestrian expenses that were identified as part of road projects for the City of Lawrence. This data was not available for other entities in the MPO. Lawrence, Eudora, and Baldwin City provided historical bike and pedestrian revenue information from FY2012-2016 for standalone budgeted projects (Table 5.2). The first set aside funding for standalone bicycle and pedestrian projects in Lawrence was established in 2016. Lawrence identified KDOT Transportation Alternative (TA) grants which were received during the five year timeframe, while Eudora and Baldwin City received either TA or local grant assistance. The 2016 Lawrence budget identified $200,000 for bicycle/pedestrian/ADA ramp projects, as

Table 5.2: Bicycle and Pedestrian Standalone Project Revenues

Lawrence	FY2012	FY2013	FY2014	FY2015	FY2016	5-Year Average	2017 Budget
Bicycle/Pedestrian/ADA Ramps					$200,000		$450,000
CDBG Sidewalk Gap Program					$100,000		$100,000
TA	$-	$-	$1,503,000	$-	$-	$300,600	
Eudora							
TA	$-	$-	$-	$-	$262,000	$52,400	
Baldwin City							
Local Grants	$-	$-	$-	$-	$32,550	$6,500	

Note: 5-Year Averages are rounded to nearest 100.

well as $100,000 of Community Development Block Grant (CDBG) sidewalk gap program funding. The 2017 Lawrence budget identified $450,000 per year in set aside funding for bicycle/pedestrian/ADA ramp projects for 2017-2021 and $100,000 per year in CBDG sidewalk gap program funding for 2017-2021. Based on the historical data it was assumed Lawrence will receive a TA grant of $300,600 every five years and the other municipalities will receive either a TA or local grant of $60,000 every five years and the $450,000 set aside bicycle/pedestrian/ADA ramp funding and the $100,000 CBDG sidewalk gap program funding would be available in Lawrence every year until 2040. Furthermore, Lawrence was awarded two TA grants for FFY2018/19 totaling $2 million, which was included in the anticipated revenues. Table 5.3 displays the anticipated funding based on the historical data with a 1.5% growth applied annually.

Table 5.3: Bicycle and Pedestrian Projections -1.5% Growth Annually

Lawrence - TA and Local Funding	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040
Revenues/$ Available for Projects	$4,697,069	$5,579,600	$5,752,300	$6,196,800	$6,675,300
Other Municipalities - TA and Local Grants					
Revenues/$ Available for Projects	$60,000	$64,600	$69,600	$75,000	$80,800
MPO Region					
Revenues/$ Available for Projects	$4,757,069	$5,644,200	$5,821,900	$6,271,800	$6,756,100

Note: O&M for bicycle and pedestrian projects is not currently tracked by the municipalities; therefore, it was not included in this analysis.

C. Transit - Methodology, Assumptions, and Findings

Historical funding for Lawrence Transit and KU on Wheels does not provide a complete picture of transit funding in the area. This is because transit funding sources are not always predicated on historial levels and KU on Wheels is funded by a student fee and parking user fees, which historic data does not provide an accurate depiction. Therefore, Lawrence Transit and KU on Wheels utilized FY2018 projected revenues as the base year of funding (Table 5.4). Lawrence Transit and KU on Wheels funding was separated into Operating and Capital, as the funding are distinct pots of funding provided by the Federal government and KDOT, or in the case of KU on Wheels, separated in the University of Kansas budget.

Table 5.4: FY2018 Transit Revenues

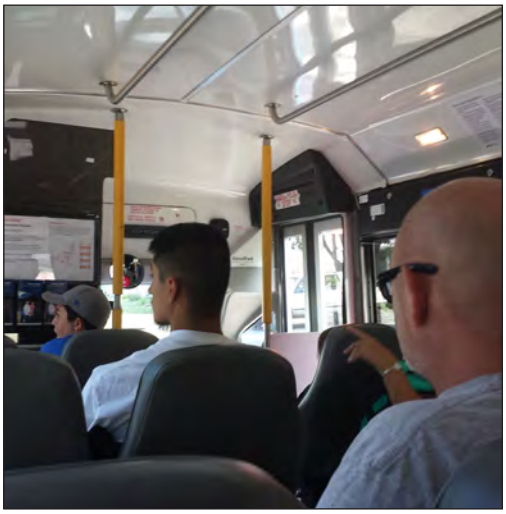
Lawrence Transit - Operating	FY2018 Projected Revenues
Sales Tax (.2%)	$3,514,000
Use Tax Tax (.2%)	$364,000
Interest	$36,000
Service Charges	$435,000
CTP-Operations	$665,400
FTA-Operations	$2,135,100
Operating Reserve	$5,398,300
Lawrence Transit - Capital	**FY2018 Projected Revenues**
CTP-Capital	$500,000
Capital Reserve	$5,000,000

* Lawrence Transit local dollars include farebox
** Revenues match expenses for year as opposed to actual award amounts

KU on Wheels - Operating	FY2018 Projected Revenues
7007000-P&T KU Transit System	$523,900
7007010-P&T KU Transit System - KU On Wheels Operations	$2,258,800
7007025-P&T KU Transit System Bus Facility	$133,100
7007026-P&T KU Trans System Facility Utilities	$40,100
7007027-P&T KU Trans System Facility Diesel	$297,400
7007028-P&T KU Trans System Facility Gasohol	$296,200
7007029-P&T KU Trans System Facility Maintenance	$22,700
7007030-P&T KU Transit System Lift Van	$140,500
KU on Wheels - Capital	**FY2018 Projected Revenues**
7007020-P&T KU Transit System Bus Purchase	$1,404,300

Note: Rounded to nearest 100.

The other human service transportation providers in Douglas County (Bert Nash CMHS, Cottonwood, Inc., Independence, Inc., Lawrence-Douglas County Housing Authority Babcock Bus, Senior Resource Center for Douglas County, and Lawrence Presbyterian Manor) provided historical revenue data from FY2012-2016 (Table 5.5).



What is a capital project?

A capital project is a project that includes acquiring, constructing, supervising or inspecting equipment or facility, rehabilitation or remanufacturing vehicles, preventative maintenance, leasing equiment or facility, or improvement that enhances economic development or incorporate private investment.

Source: Federal Transit Administration

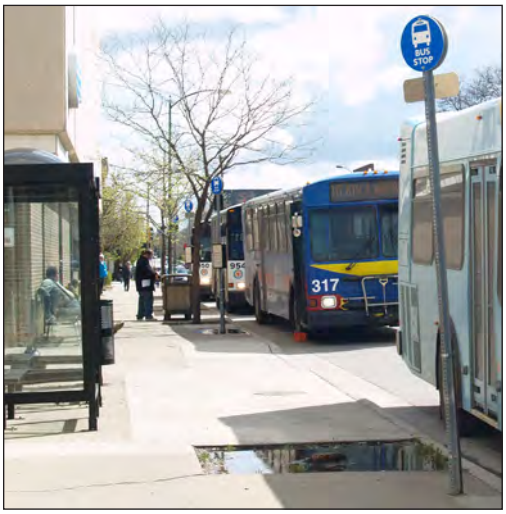
Table 5.5: Historical Other Human Service Transportation Revenues for Capital and Operations

	FY2012	FY2013	FY2014	FY2015	FY2016	5-Year Average
Federal	$75,358	$77,640	$51,726	$89,679	$74,048	$73,700
State	$28,572	$55,258	$36,051	$27,355	$78,368	$45,100
Local	$138,160	$115,634	$135,478	$101,207	$126,505	$123,400
Other	$416,718	$354,965	$425,538	$400,568	$379,439	$395,400

Note: 5-Year Averages are rounded to nearest 100.

What are Operations and Maintenance (O&M) for transit?

Operations and maintenance (O&M) for transit refers to vehicle and systems inspections, refueling, filter, oil, and fluid replacements, major comonent repair and replacement, operator wages, and other operating expenses.



Lawrence Transit and KU on Wheels provided FY2018 projected Operations and Maintenance (O&M) information, while the Other Human Service Transportation Providers furnished FY2012-2016 O&M data. O&M consists of routine things such as vehicle and systems inspections, refueling, filter, oil, and fluid replacements, major component repair and replacement, operator wages, and other miscellaneous operating expenses. Table 5.6 shows the projected Lawrence Transit and KU on Wheels FY2018 expenses, which were used as the base year for O&M projections. Table 5.7 shows the historical O&M for the other human service transportation providers.

Table 5.6: FY2018 Transit Operations and Maintenance Expenditures – Lawrence Transit

Operators	FY2018 Projected Expenditures
Personal Services	$93,000
Contractural Services	$3,631,000
Commodities	$760,000
CTP-Operations	$665,400
FTA Operations	$2,135,100
Capital	**FY2018 Projected Expenditures**
CTP-Capital	$1,000,000
Multi Modal Facility	$5,000,000

Note: Rounded to nearest 100.

Table 5.6: FY2018 Transit Operations and Maintenance Expenditures – KU on Wheels Continued

Operators	FY2018 Projected Expenditures
Local/User Fee	$3,605,200
Capital	**FY2018 Projected Expenditures**
Local/User Fee	$1,278,500

Note: Rounded to nearest 100.

Table 5.7: Historical Other Human Service Transportation Providers Operations and Maintenance Expenditures – Operations and Capital

	FY2012	FY2013	FY2014	FY2015	FY2016	Total	5-Year Average
KDOT Vehicles	$237,638	$200,715	$233,357	$166,115	$207,151	$1,044,975	$209,000
Non-KDOT/Other Agency Vehicles	$263,559	$266,778	$265,410	$269,095	$259,770	$1,324,611	$264,900

Note: 5-Year Averages are rounded to nearest 100.

The Lawrence Transit and KU on Wheels FY2018 anticipated revenues and expenditures were projected with 1.5% growth annually. The other human service transportation providers historical revenues and O&M averages were projected with 1.5% growth annually. Table 5.8 displays these projections summed into year bands. Funding available per entity is shown by subtracting O&M expenditures from revenues. The Lawrence Transit and KU on Wheels data begins in 2018, while the Other Human Service Transportation Providers begin in 2017. These funding projections are based on the assumption that the 2017 Lawrence sales taxes would be renewed and continued through 2040.

The capital revenues for Lawrence Transit shows a deficit because federal transit funding has changed for the smaller transit systems (which Lawrence Transit is). Thus, there is no longer set aside funding for capital (vehicle replacement). Therefore, from time-to-time operations funding will need to be converted to capital funding to replace transit vehicles.

Table 5.8: Transit Projections -1.5% Growth Annually (Revenue and O&M Expenditures)

Lawrence Transit	FY2018-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040
Revenues - Operations	**$24,030,350**	**$40,804,550**	**$40,649,600**	**$43,740,900**	**$47,122,400**
Operations Expenditures	$15,720,200	$28,097,000	$30,615,300	$33,033,000	$35,585,800
$ Available for Service Expansion	$8,310,150	$12,707,550	$10,034,300	$10,707,900	$11,536,600
Revenues - Capital	**$7,000,000**	**$2,500,000**	**$2,522,600**	**$2,693,600**	**$2,901,600**
Capital Expenditures	$7,000,000	$2,000,000	$2,522,600	$2,045,200	$2,901,600
Capital Expenditures Shortfall	$-	$-	$(477,400)	$-	$(282,800)
$ Available for Capital Purchases	$-	$500,000	$-	$648,400	$-
KU On Wheels					
Revenues - Operations	**$11,306,000**	**$20,002,500**	**$21,548,200**	**$23,213,600**	**$25,007,500**
Operations Expenditures	$10,978,700	$19,423,400	$20,924,300	$22,541,500	$24,283,700
$ Available for Service Expansion	$327,300	$579,100	$623,900	$672,100	$723,800
Revenues - Capital	**$4,276,500**	**$7,566,100**	**$8,150,700**	**$8,780,400**	**$9,458,300**
Capital Expenditures	$3,893,400	$6,889,000	$7,421,800	$7,995,300	$8,613,200
$ Available for Capital Purchases	$383,100	$677,100	$728,900	$785,100	$845,100
Other Human Service Transportation Providers					
Revenues	$2,608,400	$3,486,700	$3,756,800	$4,046,400	$4,359,100
O&M/Capital Expenditures	$1,938,600	$2,591,400	$2,791,300	$3,007,000	$3,239,500
$ Available for Service Expansion/ Capital Purchases	$669,800	$895,300	$965,500	$1,039,400	$1,119,600
MPO Region					
Revenues - Operations	**$35,336,350**	**$60,807,050**	**$62,197,800**	**$66,954,500**	**$72,129,900**
Operations Expenditures	$26,698,900	$47,520,400	$51,539,600	$55,574,500	$59,869,500
$ Available for Service Expansion	$8,637,450	$13,286,650	$10,658,200	$11,380,000	$12,260,400
Revenues - Capital	**$11,276,500**	**$10,066,100**	**$10,673,300**	**$11,474,000**	**$12,359,900**
Capital Expenditures	$10,893,400	$8,889,000	$9,944,400	$10,040,500	$11,514,800
$ Available for Capital Purchases	$383,100	$1,177,100	$728,900	$1,433,500	$845,100
Revenues - Other Paratranist Providers	**$2,608,400**	**$3,486,700**	**$3,756,800**	**$4,046,400**	**$4,359,100**
O&M Expenditures	$1,938,600	$2,591,400	$2,791,300	$3,007,000	$3,239,500
$ Available for Service Expansion/ Capital Purchases	$669,800	$895,300	$965,500	$1,039,400	$1,119,600

Note: The Lawrence Transit and KU on Wheels projections start in FY2018, while the Other Human Service Transportation Providers begin in FY2017.

D. Road and Bridge - Methodology, Assumptions, and Findings

Lawrence, Eudora, Baldwin City, Lecompton, and Douglas County provided historical revenue information from FY2012-2016 (Table 5.9). KDOT evaluated state projects in the region between FY2000-2020 (Table 5.10). This was done because there was a large influx of funding over the last five years from the South Lawrence Trafficway project, which was an anomaly; therefore, the 20-year average was used to forecast a reasonable amount of state funding per year. However, the K-10 West Leg project is programmed to occur during this plan's horizon. Thus, the annual average was not used for the 2017-2020 and 2021-2025 bands, as the financials need to reflect the full amount of State/Federal funds that are estimated to be available for this project. Doing so will more accurately show the amount of state funding needed for the project and match the federal funding. 5-year rounded revenue averages were calculated based on data provided by each entity (except for KDOT which was a 20-year average). KTA is funded by toll revenues and projects come with funding as shown in Table 5.11.

What is fiscal constraint?

The plan cannot be a wishlist. Projects must have sufficient financial information to confirm that projects can be implemented using committed or available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained.

Source: Federal Transit Administration

Table 5.9: Historical Road & Bridge Revenues

Lawrence	FY2012	FY2013	FY2014	FY2015	FY2016	5-Year Average
Surface Transportation Program	$900,000	$900,000	$900,000	$900,000	$900,000	$900,000
Highway Safety Improvement Program	$-	$1,200,000	$715,000	$-	$-	$383,000
State	$-	$2,000,000	$1,605,000	$6,000	$-	$722,200
State Gas Tax (Special City/County Highway Fund)	$2,525,368	$2,491,425	$2,575,910	$2,669,620	$2,708,951	$2,594,300
Stormwater Fund	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000
General Fund Support	$3,824,149	$3,956,461	$3,894,927	$4,038,428	$3,966,866	$3,936,200
Eudora						
Federal Funds Exchange	$-	$-	$170,436	$64,285	$65,024	$59,900
Motor Fuel Tax - State	$160,026	$156,224	$160,427	$164,399	$168,272	$161,900
Motor Fuel Tax - County	$16,846	$16,609	$16,465	$16,503	$15,116	$16,300
Mud Bond Fees	$-	$-	$2,500	$2,500	$1,500	$1,300
Misc	$65	$-	$-	$-	$-	$-
Special Highway Reserve	$38,017	$13,845	$-	$-	$32,786	$16,900
General Fund	$449,370	$343,019	$356,438	$356,438	$319,119	$364,900
Storm Drainage	$93,235	$27,241	$33,784	$33,784	$84,324	$54,500
Baldwin City						
Motor Fuel Tax - State	$119,543	$114,973	$118,824	$119,869	$122,808	$119,200
Motor Fuel Tax - County	$12,395	$12,187	$10,558	$12,034	$111,028	$31,600
General Fund Support	$301,455	$351,581	$313,481	$442,497	$306,435	$343,100
Special Highway Fund - Cash Carry	$295,372	$269,514	$340,311	$214,067	$124,296	$248,700
Lecompton						
Local	$6,769	$15,860	$16,705	$16,705	$16,943	$14,600
Douglas County						
Surface Transportation Program	$1,879,000	$-	$-	$-	$-	$375,800
Federal Lands Access Program	$-	$-	$500,000	$-	$-	$100,000
U.S. Fish and Wildlife Service	$-	$-	$75,000	$165,000	$-	$48,000
Kansas Local Bridge Improvement Program	$-	$-	$-	$-	$120,000	$24,000
State - Federal Funds Exchange	$-	$-	$-	$1,200,918	$1,224,613	$485,100
Local	$3,469,300	$3,742,679	$3,955,242	$4,076,797	$4,423,101	$3,933,400
Capital Improvement Program Allocation	$2,625,000	$2,582,729	$3,554,137	$3,666,161	$2,070,075	$2,899,600
State Gas Tax (Special City/County Highway Fund)	$1,717,048	$1,699,441	$1,702,557	$1,722,947	$1,750,250	$1,718,400
KDOT						
State Annual Average	See KDOT Table 5.10					$2,510,000
Federal Funds	Funding comes with the project - a large influx of Federal and State funding is expected for the K-10/SLT project in 2017-2020 and 2026-2030					
KTA						
Toll Revenues	Funding comes with the projects - See Table 5.11					

Note: 5-Year Averages are rounded to nearest 100.

Table 5.10: Historical KDOT Highway Construction Funding

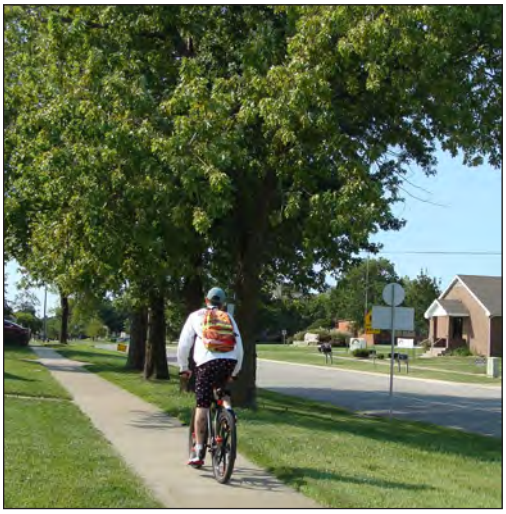
Funding Program Name	Comprehensive Transportation Program (CTP)	Interim	T-Works			
Funding Years	FY2000-2009	FY2010	FY2011-2013	FY 2014-2020	Annual Average	Per Decade
Douglas County	$8,100,000	$2,500,000	$18,900,000	$20,700,000	$2,510,000	$25,100,000

@ State fiscal year (FY) runs from 7/1 through 6/30.
For FY 00-13, numbers are Construction WP "Best Cost" for MM, SE, & SM program categories, project status = Active, Complete, or Closed statuses (from WinCPMS).
All numbers are construction cost only (utilities, right-of-way, preliminary engineering, and construction engineering are not included) for State Highway System-only projects and include federal, state, and local monies.
For FY 11-13, numbers shown do not include remaining unprogrammed set-aside balances for which projects have not yet been identified.
For FY 00-13, numbers are Construction WP "Best Cost" for MM, SE, & SM program categories, project status = Active, Complete, or Closed statuses.
For FY 14-20, numbers are Construction WP "Best Cost" for Preservation, Modernization, and Expansion program categories, project status = Active, Complete, or Closed statuses.

Table 5.11: Anticipated KTA Funding

KTA	Year	Anticipated Funding
Toll Revenues (funding comes with the projects)		
Expansion project (126x)	2026-2030	$20,486,000
Expansion project (127x)	2031-2035	$40,972,000
Surfacing O&M project (133x)	2017-2020	$2,200,000
Pavement and Bridge O&M Activities	2017-2020	$404,800
Pavement and Bridge O&M Activities	2021-2025	$590,800
Pavement and Bridge O&M Activities	2026-2030	$701,700
Pavement and Bridge O&M Activities	2031-2035	$834,200
Pavement and Bridge O&M Activities	2036-2040	$990,100
	Total Anticipated Funding	$67,179,600

Each entity provided historical Operations and Maintenance (O&M) information from FY2012-2016, with the exception of KDOT which provided O&M from SFY2015-2017 and KTA which provided FY2018 planned O&M expenditures. O&M consists of routine things such as pothole patching, minor repairs to pavements and curbs, snow removal, striping and marking, utility work and patching, electrical repairs, tree trimming, mowing, signal repairs, sign replacement, bridge maintenance, and other minor work tasks. At KDOT, O&M estimates are derived on a sub area basis rather than county by county. The sub areas are organized largely by how the agency works to control ice and snow operations in winter. Some of these sub areas may cross county lines and contain parts of two or more portions of a particular county. This



is the case with the Douglas County as a sub area covers most of this county and also a portion of an adjacent county. There also may be more than one sub area in any given county (i.e. Johnson County has 3 sub areas.) The KDOT O&M estimates represent the closest estimates that are available based upon the geographic boundaries that guide KDOT's operations and maintenance activities.

Table 5.12 shows the 5-year rounded averages for O&M, which were calculated based on data provided by each entity (except for KDOT which was a 3-year average, Douglas County which is a 4-year average, and KTA which is 2018 planned estimates).

The historical revenues average was projected at 1.5% annually. The historical O&M average was projected annually at 3.5%. Table 5.13 displays these projections summed into bands. It shows the revenues minus the O&M expenditures to present funding available for projects per entity. There is an O&M shortfall identified in Eudora due to O&M costs outpacing revenues. However, if additional funding is required, Eudora will allocate general funding to fill the gap. These funding projections are based on the assumption that the 2017 Lawrence sales taxes would be renewed and continued through 2040.

Table 5.12: Historical Road and Bridge Operations and Maintenance Expenditures

Lawrence	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	5-Year Avg.
Gas Tax Fund (214)	$2,525,368	$2,491,425	$2,575,910	$2,669,620	$2,708,951		$2,594,300
Stormwater Fund (505)	$140,000	$140,000	$140,000	$140,000	$140,000		$140,000
Street Division (3000)	$2,948,759	$2,991,170	$2,859,670	$2,964,740	$2,914,035		$2,935,700
Traffic Division (3020)	$622,066	$677,156	$730,428	$775,615	$756,095		$712,300
Engineering Division (3010)	$253,324	$288,135	$304,829	$298,073	$296,736		$288,200
KLINK (CIP Program to O&M)	$200,000	$387,057	$200,000	$-	$-		$157,400
Mill and Overlay (CIP Program to O&M)	$944,208	$900,000	$1,456,999	$-	$-		$660,200
Infrastructure Sales Tax	$1,954,566	$650,871	$952,162	$1,835,009	$800,000		$1,238,500
Eudora							
Overhead and Administration	$179,538	$169,839	$130,691	$147,574	$193,419		$164,200
Asphalt/Concrete Road Maintenance	$578,021	$387,099	$376,057	$465,891	$492,722		$460,000
Baldwin City							
Overhead and Administration	$264,583	$329,413	$280,392	$357,842	$281,937		$302,800
Asphalt/Concrete Road Maintenance	$62,715	$153,794	$133,567	$313,899	$219,711		$176,700
Lecompton							
Overhead and Administration	$4,907	$1,259	$2,217	$1,786	$2,278		$2,500
Asphalt/Concrete Road Maintenance	$-	$400	$-	$859	$498		$400
Gravel/Earth Road Maintenance	$-	$-	$21,844	$-	$-		$4,400
Douglas County							4-Year Avg
Overhead and Administration	$1,220,856	$1,280,608	$1,362,199	$1,379,595			$1,310,800
Asphalt/Concrete Road Maintenance	$3,161,574	$4,620,036	$2,898,865	$3,698,454			$3,594,700
Gravel/Earth Road Maintenance	$401,331	$392,309	$378,137	$359,706			$382,900
Bridge Maintenance	$97,047	$203,077	$366,568	$649,693			$329,100
KDOT							3- Year Avg
Pavement				$62,276	$15,354	$43,902	$40,500
Shoulders				$18,112	$132	$15,099	$11,100
Drainage				$53,974	$11,792	$10,359	$25,400
Roadside				$299,330	$140,057	$169,504	$203,000
Bridge				$1,696	$2,496	$4,742	$3,000
Snow & Ice				$193,858	$160,070	$135,536	$163,200
Traffic Guidance				$138,215	$141,503	$167,682	$149,100
KTA							FY2018 Planned
Pavement							$54,000
Bridge							$42,000

Note: Averages are rounded to nearest 100.

Table 5.13: Road and Bridge Projections -1.5% Growth Annually and 3.5% O&M Increase Annually

Lawrence	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040
Revenues	$58,129,400	$76,066,800	$83,140,300	$89,738,400	$96,674,800
O&M Expenditures	$36,781,800	$53,698,100	$63,775,900	$75,746,000	$89,962,500
$ Available for Projects	$21,347,600	$22,368,700	$19,364,400	$13,992,400	$6,712,300
Eudora					
Revenues	$2,764,100	$3,695,200	$3,981,100	$4,288,800	$4,620,400
O&M Expenditures	$2,630,800	$3,695,200	$3,981,100	$4,288,800	$4,620,400
O&M Expenditures Shortfall	$-	$(146,000)	$(580,900)	$(1,129,600)	$(1,814,800)
$ Available for Projects	$133,300	$-	$-	$-	$-
Baldwin City					
Revenues	$4,196,500	$3,528,500	$4,374,000	$4,712,300	$5,076,600
O&M Expenditures	$2,021,200	$2,951,500	$3,505,500	$4,163,700	$4,945,200
$ Available for Projects	$2,175,300	$577,000	$868,500	$548,600	$131,400
Lecompton					
Revenues	$59,600	$79,000	$84,300	$91,500	$99,000
O&M Expenditures	$31,000	$45,500	$53,000	$61,500	$73,000
$ Available for Projects	$28,600	$33,500	$31,300	$30,000	$26,000
Douglas County					
Revenues	$39,208,700	$52,411,400	$56,463,000	$60,827,100	$65,527,900
O&M Expenditures	$23,677,400	$34,568,300	$41,058,000	$48,765,300	$57,918,400
$ Available for Projects	$15,531,300	$17,843,100	$15,405,000	$12,061,800	$7,609,500
KDOT					
Revenues	$17,509,100	$13,726,500	$222,924,500	$15,931,000	$17,162,300
O&M Expenditures	$2,509,100	$3,662,900	$4,349,500	$5,389,448	$6,401,200
$ Available for Projects	$15,000,000	$10,063,600	$218,575,000	$10,541,552	$10,761,100
KTA					
Revenues	$2,498,300	$570,900	$21,163,900	$41,777,900	$956,800
O&M Expenditures	$2,498,300	$570,900	$677,900	$805,900	$956,800
$ Available for Projects	$-	$-	$20,486,000	$40,972,000	$-
Private Developments					
Revenues	$-	$2,958,015	$23,097,485	$2,101,005	$-
O&M Expenditures	$-	$-	$-	$-	$-
$ Available for Projects	$-	$2,958,015	$23,097,485	$2,101,005	$-
MPO Region					
Revenues	$124,365,700	$153,036,315	$415,228,585	$219,468,005	$190,117,800
O&M Expenditures	$70,149,600	$99,338,400	$117,981,800	$140,350,248	$166,692,300
$ Available for Projects	$54,216,100	$53,697,915	$297,246,785	$79,117,757	$23,425,500

Note: Private development projects will be paid for by developers at the time of development.

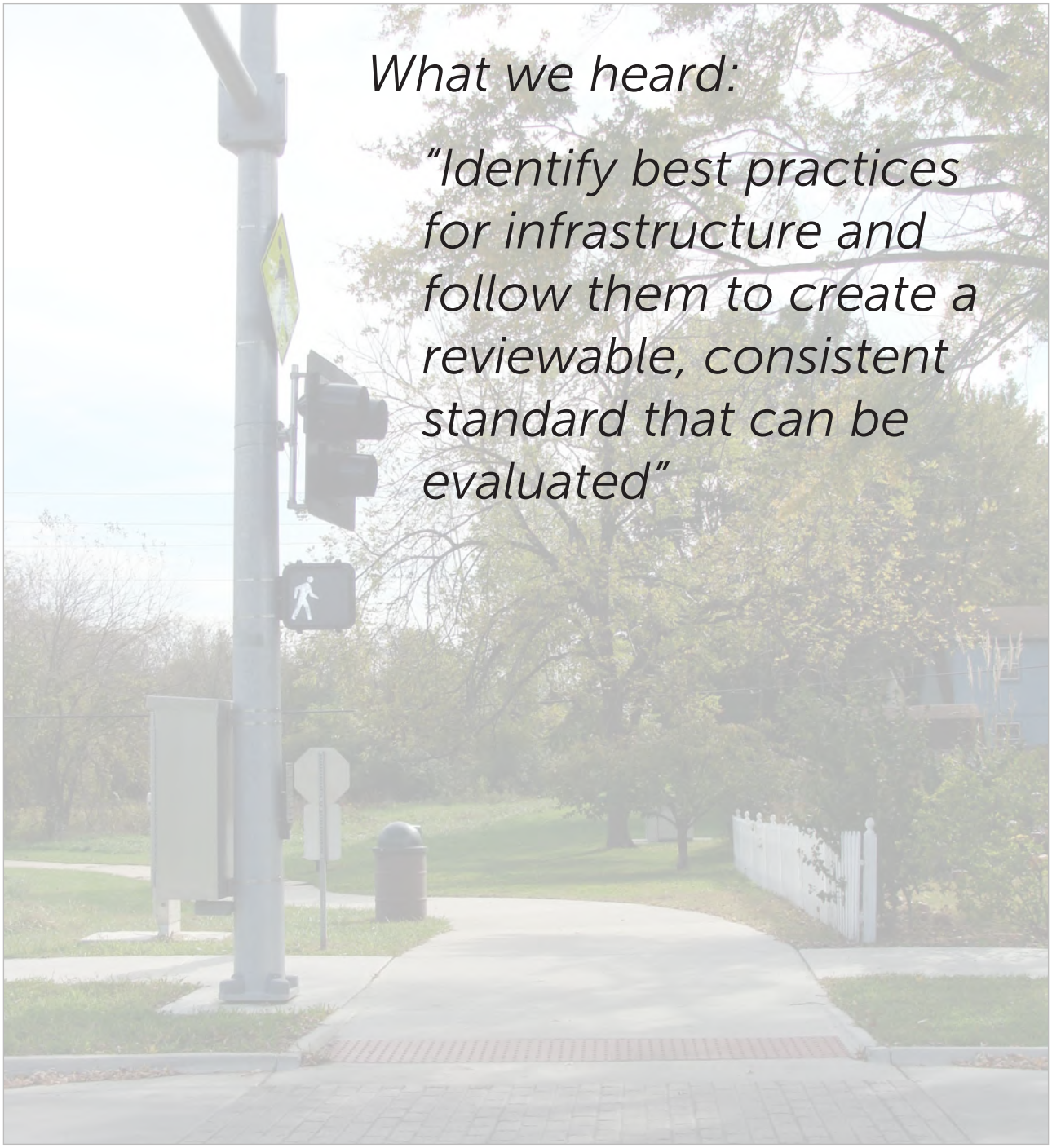
E. Summary

This financial analysis utilized historical data to create projections for anticipated revenues and operations and maintenance expenditures for road and bridge and transit projects. The non-motorized analysis did not include operations and maintenance expenditures because those expenses are not currently tracked by municipalities. Table 5.14 displays the T2040 fiscal constraint for all modes (non-motorized, transit, and road and bridge). As shown, there is sufficient projected revenue to account for the O&M expenditures and the programmed projects, which are discussed in Chapter 6.

Table 5.14: T2040 Fiscal Constraint

	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040
Projected Revenues	$178,344,019	$233,040,365	$497,678,385	$308,214,705	$285,722,800
O&M Expenditures	$63,243,100	$88,088,300	$118,005,600	$140,378,548	$166,725,600
Programmed Projects	$103,583,500	$123,948,815	$360,975,685	$148,666,257	$98,114,400
Remaining Unprogrammed Projects	$11,517,419	$21,003,250	$18,697,100	$19,169,900	$20,882,800
Fiscally Constrained	Yes	Yes	Yes	Yes	Yes

Note: Total fiscal constrain includes non-motorized, transit, and road and bridge



What we heard:

"Identify best practices for infrastructure and follow them to create a reviewable, consistent standard that can be evaluated"

Chapter 6 Multimodal Projects and Strategies

What is wayfinding?

Wayfinding is a network of signage that directs users to specific spaces and/or locations.

6. Multimodal Projects and Strategies

Previous chapters discussed the existing conditions and needs identified in the Lawrence-Douglas County region. Chapter 5 provides the financial analysis for potential funding. This chapter incorporates existing mode-specific plans into the long-range plan identifying strategies and projects to address transportation needs.

A. Overall Strategies

While there are different transportation modes, the transportation system needs to be thought of as a comprehensive system, which works together to provide mobility. There are several strategies that impact all transportation users and illustrate the interconnectedness of the modes.

Encourage safe and efficient traveling through the multimodal networks

- Ensure the multimodal networks provide access to employment and commercial opportunities
- Integrate multimodal elements in project planning, design, construction, and maintenance, consistent with the Complete Streets Policy
- Improve multimodal facilities and amenities to improve connections between modes
- Plan and implement citywide multimodal wayfinding
- Prioritize crash (vehicle and non-motorized) hot spots for safety improvements
- Develop in accordance with the Major Thoroughfares map including improving East/West connections throughout Lawrence
- Strength and implement access management for all users
- Facilitate, develop, and distribute safety education programming/materials for all users

Continue a transparent and coordinated transportation planning process that encourages participation and performance based planning

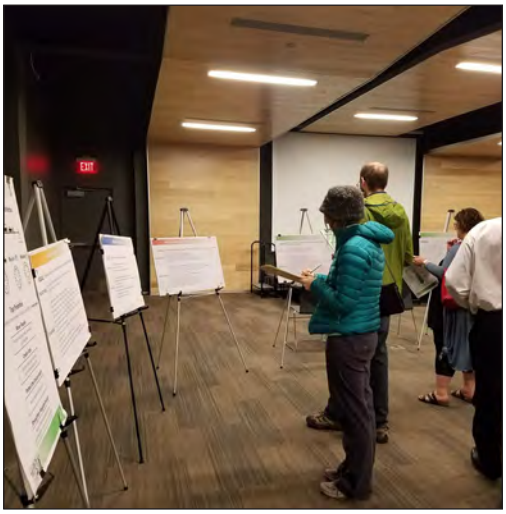
- Provide meaningful public involvement in the

transportation planning process. The Public Participation Plan guides the public participation efforts for the Lawrence – Douglas County MPO.

- Maintain an inventory of transportation infrastructure and assets and track transportation system performance
- Incorporate and evaluate the distribution and impacts of transportation programs, projects, and services during planning, design, and construction.

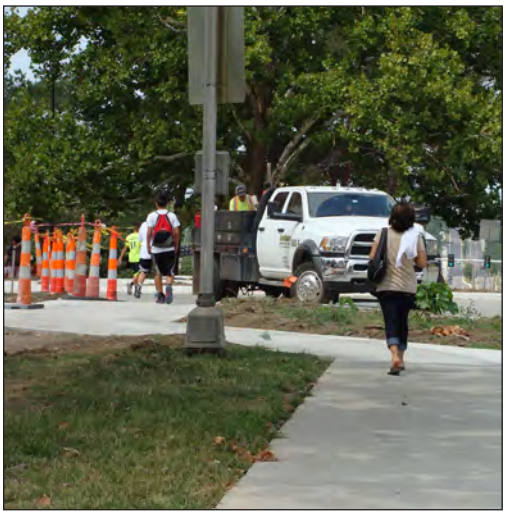
Coordinate decision making to balance land use and environmental impacts

- Employ site design requirements that encourage pedestrian travel and non-single occupancy vehicle trips
- Coordinate land use and transportation planning to reduce transportation costs and develop land that encourage multimodal transportation through coordinated review of land use plans
- Continue to follow emerging technologies and market driven transportation (automatic vehicles, electric vehicles, rideshare). As these technologies advance and are implemented they may alter infrastructure that is necessary, which needs to be addressed through planning.
- Improve project development processes between local, regional, state and federal agencies to reduce costs and increase project delivery time.



B. Non-Motorized

Bicycling and walking are self-powered options that provide a real alternative for transportation needs, from commutes to school and work, to shopping trips, to recreational activities, even business and delivery transport. The US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations states, "Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use." In this context, non-motorized transportation types are equal with other transportation modes.



What are NACTO and AASHTO?

The American Association of State Highway and Transportation Officials (AASHTO) and the National Association of City Transportation Officials (NACTO) are standards setting bodies for transportation that public design guidelines and other resources for transportation planners to use in their localities.

AASHTO has published manuals such as the Guide for the Planning, Design, and Operation of Pedestrian Facilities and A Policy on Geometric Design of Highways and Streets. NACTO has published design guidelines such as the Urban Bikeway Design Guide and the Urban Street Design Guide.

Planning must consider all transportation users, including individuals who cannot or prefer not to drive. All users should have the same safe and efficient transportation choices as those offered to drivers. Pedestrian and bicycle facilities should meet accessibility requirements and provide safe, convenient, and interconnected transportation networks. Considering all members of Lawrence and Douglas County Communities, including children and adults for whom car ownership is not an option, bicycle and pedestrian facilities must be part of the regional transportation planning process. Particular care must be taken, in rehabilitating existing motor routes and future roadway improvements, to consider how these routes, particularly major arterial routes, have in the past created barriers for both bicyclists and pedestrians.

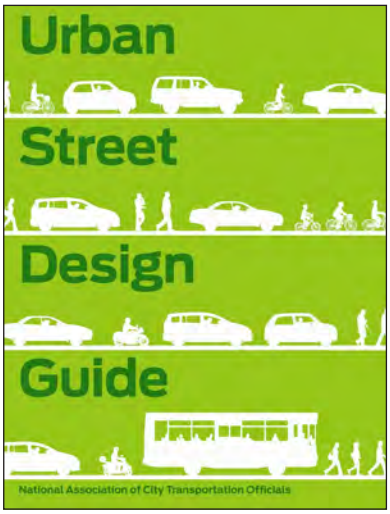
1. Strategies

Implement the Regional Pedestrian Plan

The Regional Pedestrian Plan established a regional vision for walkability - "The residents of Lawrence, Eudora, Baldwin City and Lecompton envision communities that invite people of all ages and abilities to walk for enjoyment, exercise, and daily transportation by providing a safe, convenient, and attractive pedestrian environment." The following recommendations embody the implementation strategies for walkability throughout Douglas County:

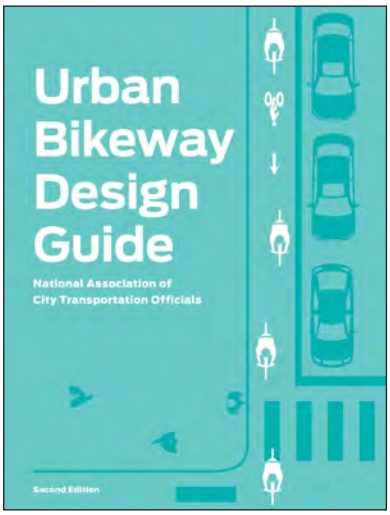
- Prioritize pedestrian improvements based on plan priorities to construct the priority pedestrian networks. In Lawrence, the Non-Motorized Prioritization Policy should be used when prioritizing improvements.
- Maintain and improve the existing pedestrian networks conditions and enforce sidewalk repair policy or establish a sidewalk maintenance program
- Plan and implement an Americans with Disabilities Act (ADA) Transition Plan to reduce barriers to access
- Maintain and Implement a Safe Routes to School program
- Use traffic calming to improve safety and implement a traffic safety campaign
- Develop tools to educate and encourage trips by walking through programs like wayfinding signage or open streets events

- Track and measure progress of infrastructure, amenities, and programming related to Walkability. Lawrence should strive for at least a gold Walk Friendly Community ranking.
- Update the Regional Pedestrian Plan before 2022

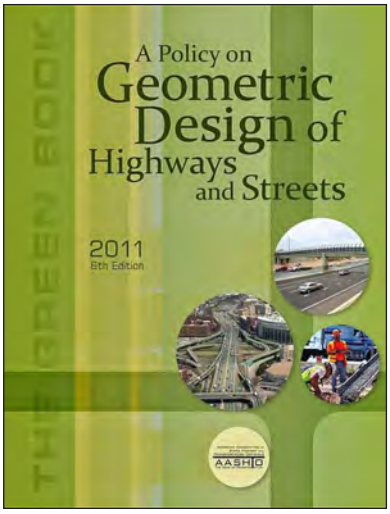


Implement the Countywide Bikeway Plan

The Countywide Bikeway Plan established a regional vision for bikeability: "To advance bicycling as a safe and efficient means of transportation through facility development, educational programs, and progressive governmental policy, with the ultimate goal of connecting Lawrence and Douglas County's areas and neighborhoods, improving quality of life, and meeting transportation and recreation needs." The following principles embody the implementation strategies for bikeability throughout Douglas County:



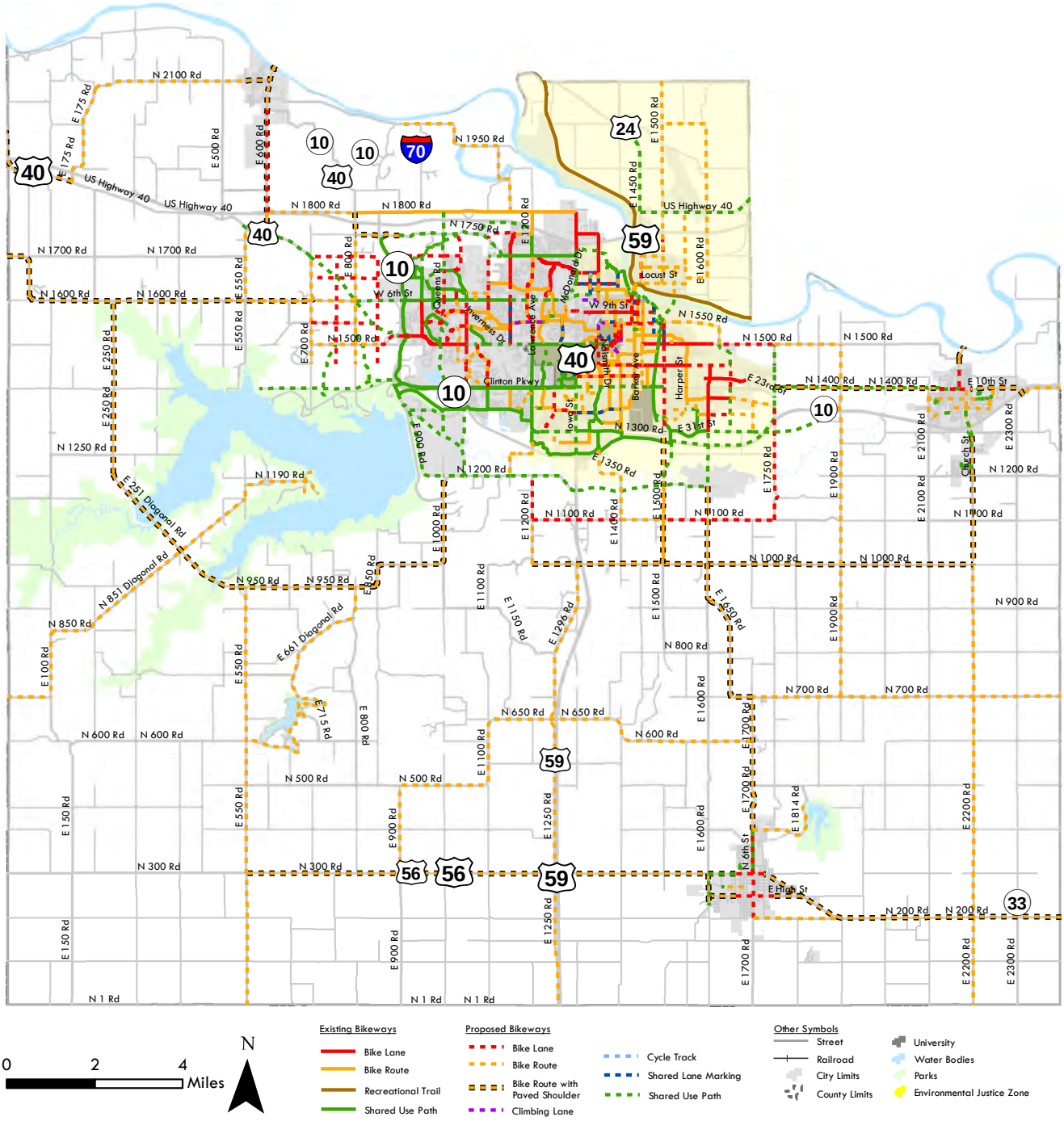
- Enhance multimodal friendliness and minimize crashes and injuries of bicyclists through design.
- Prioritize bicycle improvements based on plan priorities to construct the bikeway networks. In Lawrence, the Non-Motorized Prioritization Policy should be used when prioritizing improvements.
- Maintain and improve bikeway networks conditions
- Develop tools and educational programs to encourage trips by bicycle such as the Bicycle Rideability Map
- Track and measure progress of infrastructure, amenities, and programming related to bikeability. Lawrence should strive for at least silver Bicycle Friendly Community ranking.
- Update the Countywide Bikeway Plan before 2020



2. Projects

Figure 6.1 displays the countywide bikeway network. The dashed lines are proposed bikeways.

Figure 6.1: Countywide Bikeway Projects
Click below to view an interactive map

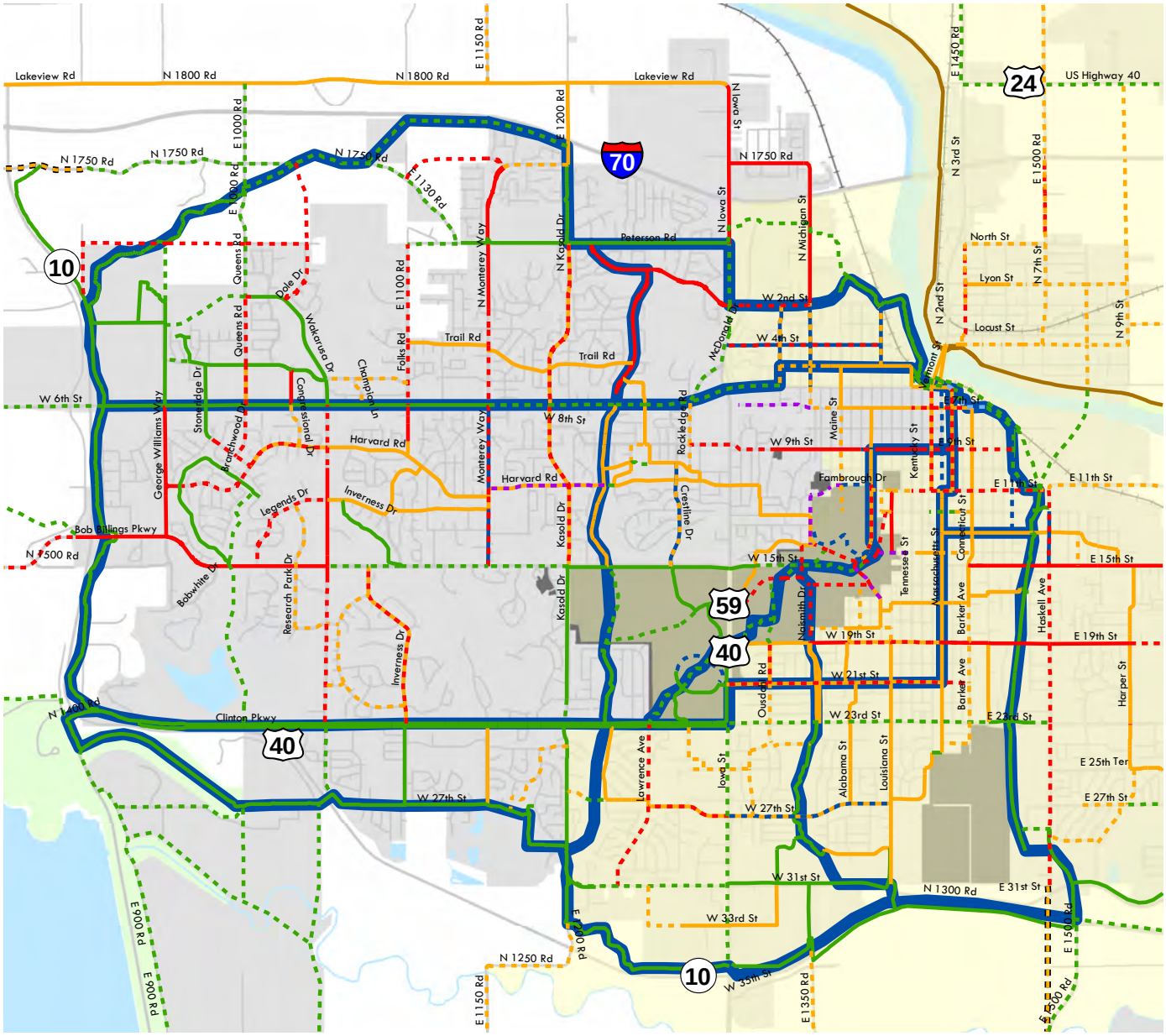


Source: Countywide Bikeway System Plan (2014) &
Lawrence Loop Alignment Study (2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure 6.2 displays the countywide bikeway network along with the priority network identified by the Lawrence Pedestrian Bicycle Issues Task Force (shown in wide blue).

Figure 6.2: Lawrence Bikeway Projects on the Priority Network

Click below to view an interactive map

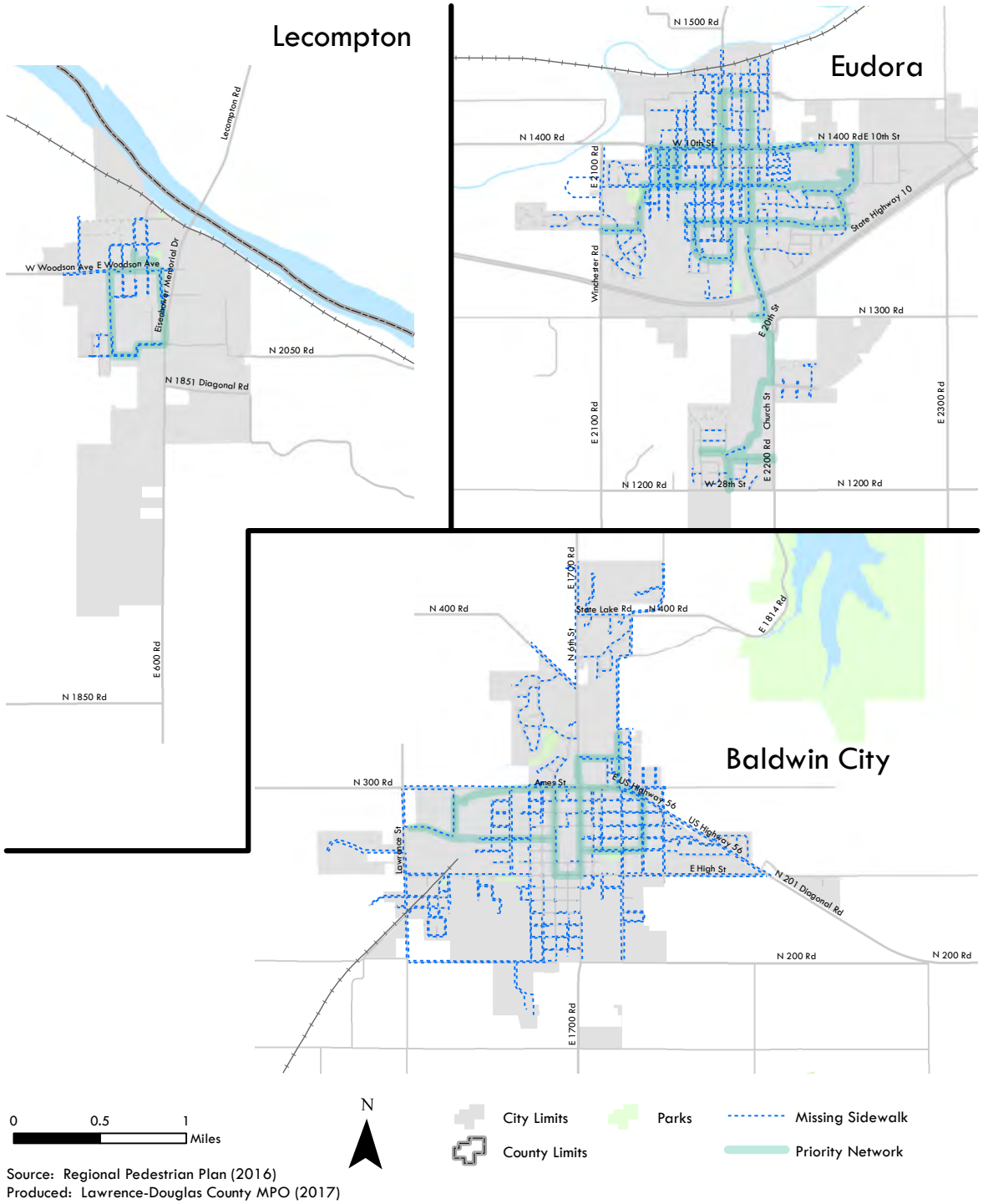


Source: Countywide Bikeway System Plan (2014), Pedestrian Bike Issues Task Force (PBITF) (2016) & Lawrence Loop Alignment Study (2017)
Produced: Lawrence-Douglas County MPO (2017)

The pedestrian priority network and missing sidewalks are displayed in Figure 6.3 for Lecompton, Eudora, and Baldwin City; while Figure 6.4 shows Lawrence.

Figure 6.3: Lecompton, Eudora, Baldwin City Missing Sidewalks on the Pedestrian Priority Network

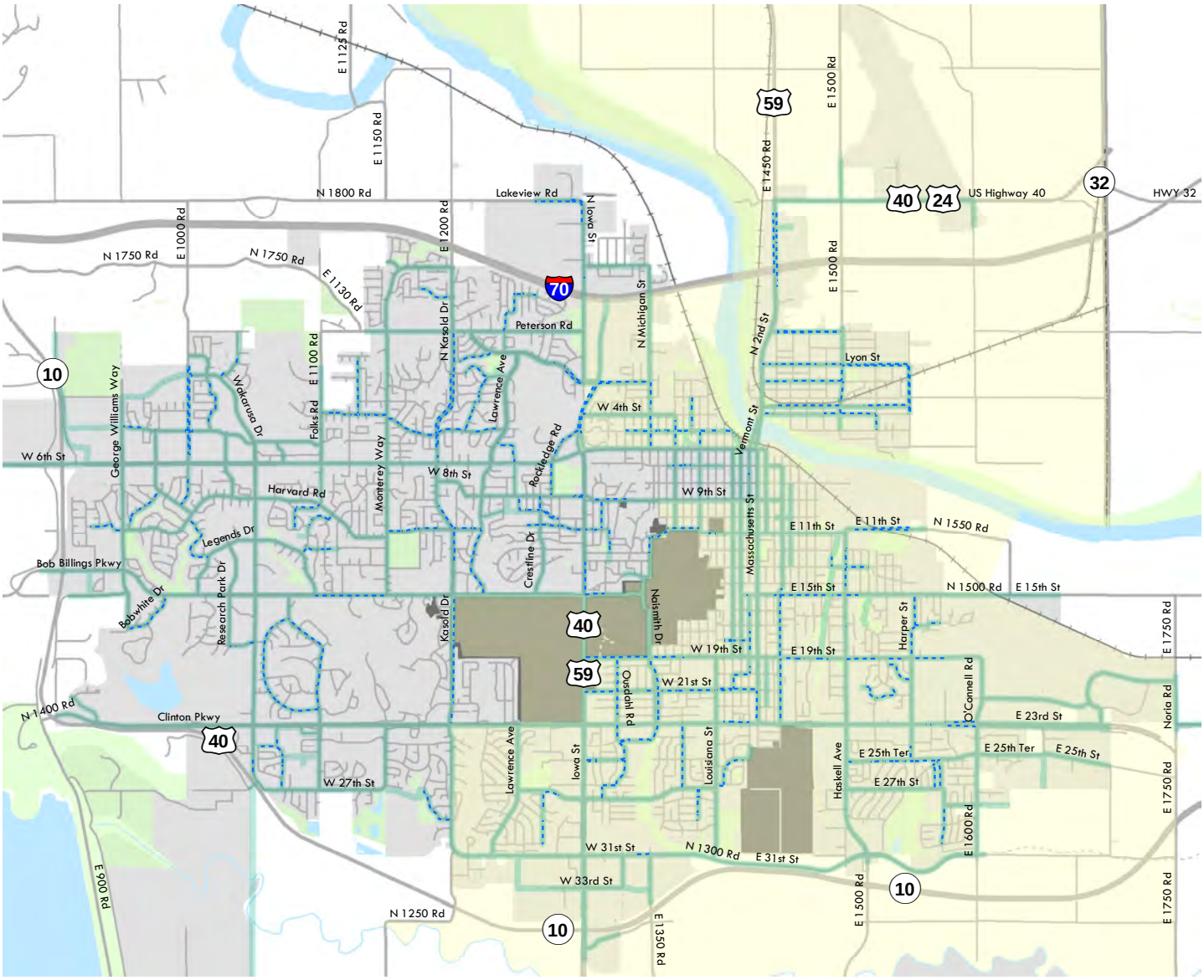
Click below to view an interactive map



Source: Regional Pedestrian Plan (2016)
Produced: Lawrence-Douglas County MPO (2017)

Figure 6.4: Lawrence Missing Sidewalks on the Pedestrian Priority Network

Click below to view an interactive map



0 1.25 2.5 Miles

N

Source: Regional Pedestrian Plan (2016) & Pedestrian Bicycle Issues Taskforce (PBITF) (2016)

Produced: Lawrence-Douglas County MPO (2017)

Missing Sidewalks along Priority Network

Pedestrian Priority Network

Environmental Justice Zone

Parks

University

City Limits

County Limits

Table 6.1 shows the fiscally constrained non-motorized projects. The City of Lawrence has a Non-Motorized Infrastructure Prioritization Policy to program funds towards bicycle and pedestrian projects. Currently, only 2 KDOT awarded Transportation Alternatives (TA) projects are programmed. Other regional bicycle and pedestrian improvements will be prioritized and implemented as funding becomes available.

Table 6.1: Fiscally Constrained Non-Motorized Projects

Lawrence								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
505	19th St. & Iowa St. Pedestrian and Bicycle Underpass	Pedestrian/ bicycle underpass	$2,397,000	$-	$-	$-	$-	$2,397,000
506	SRTS Phase 2: Infrast-ructure	New sidewalk construction along designated Safe Routes to School. Driveway and sidewalk ramp construction will be included for ADA compliance.	$533,000	$-	$-	$-	$-	$533,000
-	Bicycle and Pedestrian Projects	Unprogrammed projects	$1,767,069	$5,579,600	$5,752,300	$6,196,800	$6,675,300	$25,971,069
		Total Project Cost	$4,697,069	$5,579,600	$5,752,300	$6,196,800	$6,675,300	$28,901,069
		Projected Revenues	$4,697,069	$5,579,600	$5,752,300	$6,196,800	$6,675,300	$28,901,069
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes
Other Municipalities								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
-	Bicycle and Pedestrian Projects	Unprogrammed projects	$60,000	$64,600	$69,600	$75,000	$80,800	$350,000
		Total Project Cost	$60,000	$64,600	$69,600	$75,000	$80,800	$350,000
		Projected Revenues	$60,000	$64,600	$69,600	$75,000	$80,800	$350,000
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Note: O&M for bicycle and pedestrian projects is not currently tracked by the municipalities; therefore, it was not included as a project.

C. Transit

Transit service has evolved quickly in Lawrence. In less than two decades, Lawrence Transit has grown from fewer than ten routes, serving primarily transit-dependent riders, to a coordinated City-University service carrying approximately 14,000 passengers per weekday when the University of Kansas is in session. Transit in Douglas County is more than Lawrence Transit/KU on Wheels; it includes a variety of human service transportation providers including Senior Resource Service for Douglas County and Independence, Inc., among others. It is important to implement strategies supporting coordinated transit services striving to provide a seamless service for riders. All transit riders are also pedestrians at some point during their trip, so planning for all modes of travel is necessary to ensure efficient travel.

1. Strategies

Implement the Transit Comprehensive Operations Analysis (COA)

The Transit Comprehensive Operations Analysis (COA) (2017) provided a complete analysis of transit operations within Lawrence, since transit service was established in 2000. Several key principles from the COA include:

- Providing responsive transit service reflective of demand
- Continue deployment transit amenities (shelters, benches, real time information, etc.) based on the Transit Amenities Policy
- Invest in technology supporting transit operations (ex: passenger counters, automatic vehicle location, etc.).
- Maintain and replace transit vehicles that are past their useful life
- Establish permanent primary and secondary bus transfer locations
- Regularly conduct and implement a service analysis for coordinated transit services

Implement the Bus Transfer Location Analysis

The Bus Transfer Location Analysis (pending 2018) identifies and articulates the community values for a transfer site or sites. These values were utilized in determining potential sites, which should continue to be evaluated and implemented.

Implement the Coordinated Public Transit –Human Services Transportation Plan (CPT-HSTP)

The Coordinated Public Transit –Human Services Transportation Plan (CPT-HSTP) (2016) outlines how transit providers can most efficiently and effectively work together in improving mobility for individuals with special transportation needs. Several significant themes from the CPT-HSTP are:

- Improve relationships with regional transit providers (Lawrence Transit, KU on Wheels, Senior Resources, Independence Inc., etc.) to improve the use of resources, responsiveness, emergency preparedness in response to the community
- Improve the coordination of public transit and human services transportation to maximize the efficient and effective use of funding
- Continue to host Transit Travel Training teaching people how to ride the bus, read schedules, and practice taking a transit trip

Explore transit operations and technologies that minimize environmental impacts

- Expand intercity and commuter transit options based on demand
- Explore alternative transit energy sources

2. Projects

Table 6.2 shows the fiscally constrained Lawrence Transit, KU on Wheels, and Other Human Service Transportation Providers projects. The two main categories of funding are Operations, Maintenance, & Admin and Transit Capital Replacement. Lawrence Transit also has funding programed for a Bus Transfer Site(s) in 2017-2020.

Table 6.2: Fiscally Constrained Transit Projects

Lawrence Transit								
#	Name	Description	FY2018-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
402	Operations, Maintenance, & Admin	Transit operations, maintenance, & administration	$15,720,200	28,097,000	$30,615,300	$33,033,000	#35,585,800	$143,051,300
410	Bus Transfer Site(s)	Location(s) to facilitate transfers between buses	$5,000,000	$-	$-	$-	$-	$5,000,000
403	Transit Capital Replacement	Bus replacement after vehicles have met their useful life benchmark	$2,000,000	$2,000,000	$2,000,000	$3,000,000	$3,000,000	$12,000,000
		Total Project Cost	$22,720,200	$30,097,000	$32,615,300	$36,033,000	$38,585,800	$160,051,300
		Projected Revenues	$31,030,350	$43,304,550	$43,172,200	$46,434,500	$50,024,000	$213,965,600
		Remaining Unprogrammed Revenues	$8,310,150	$13,207,550	$10,556,900	$10,401,500	$11,438,200	$53,914,300
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

KU on Wheels								
#	Name	Description	FY2018-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
-	Operations, Maintenance, & Admin	Transit operations, maintenance, & administration	$10,978,700	$19,423,400	$20,924,300	$22,541,500	$24,283,700	$98,151,600
-	Transit Capital Replacement	Bus replacement after vehicles have met their useful life benchmark	$3,893,400	$6,889,000	$7,421,800	$7,995,300	$8,613,200	$34,812,700
		Total Project Cost	$14,872,100	$26,312,400	$28,346,100	$30,536,800	$32,896,900	$132,964,300
		Projected Revenues	$15,582,500	$27,568,600	$29,698,900	$31,994,000	$34,465,800	$139,309,800
		Remaining Unprogrammed Revenues	$710,400	$1,256,200	$1,352,800	$1,457,200	$1,568,900	$6,345,500
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Other Human Service Transportation Providers								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
-	Operations, Maintenance, Admin, & Capital	All aspects of transit service	$1,938,600	$2,591,400	$2,791,300	$3,007,000	$3,239,500	$13,567,800
		Total Project Cost	$1,938,600	$2,591,400	$2,791,300	$3,007,000	$3,239,500	$13,567,800
		Projected Revenues	$2,608,400	$3,486,700	$3,756,800	$4,046,400	$4,359,100	$18,257,400
		Remaining Unprogrammed Revenues	$669,800	$895,300	$965,500	$1,039,400	$1,119,600	$4,689,600
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Note: Lawrence Transit and KU on Wheels used FY2018 as the base year for projections, while the Other Human Service Transportation Providers used FY2012-2016 and projected starting in 2017..

What is Travel Demand Management (TDM)?

Travel Demand Management refers to strategies to help people use the infrastructure for transit, ridesharing, walking, bicycling that changes their travel behavior (how and when people travel) to increase transportation system efficiency and achieve specific objectives.

D. Roadway Network

In order for the region's roadway network to support the multimodal vision of the community, and provide acceptable level of service, a number of strategies need to be implemented. These strategies build on existing opportunities in the current system and create a multimodal network that serves all users safely, efficiently, and equitably.

1. Strategies

At a minimum maintain existing conditions

- Maintain and improve roadway pavement condition
- Maintain and improve bridge condition

Design and build roadways for the safety of all users

- Revise and strengthen Traffic Impact Study requirements to include multimodal analysis
- Design or retrofit collector and local streets for the safety of all users
- Establish a Right of Way management process that reduces the impacts to mobility
- Regularly analyze crash data to address hot spots and implement countermeasure to improve safety

Deploy technology and other alternative strategies to relieve congestion

- Implement the Regional Intelligent Transportation System Strategic Deployment Plan strategies to maximize network capacity and improve efficiencies
- Implement Travel Demand Management (TDM) strategies to reduce single occupancy vehicle trips
- Implement relevant portions of the Statewide Freight Plan
- Implement the 10-Year Parking Operations and Development Plan

2. Projects

In order to select the fiscally-constrained road and bridge project list, a travel demand model was developed using population and employment data in connection with the road network. The first step was to develop the 2016 Base Year model (Figure 6.5). Level of Service (LOS) was utilized to categorize congestion based on the user experience. The scale ranges from Congested (E-F) to Congesting (D) and Uncongested (A-C) (see sidebar). Daily volumes were also shown in the model indicated by the thickness of the line. The base year model includes approximately 2.8 million vehicle miles traveled (VMT) and 2,467 hours of delay.

Level of Service (LOS) Categories

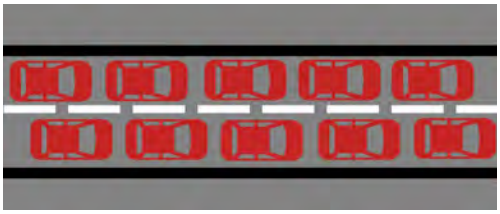
Uncongested (A-C)

Level of Service A-C are uncongested roadways ranging from free-flow traffic with unrestricted ability to select speed and maneuvering to restricted flow that remains stable. The maps display LOS A-C as green lines.

Congesting (D)

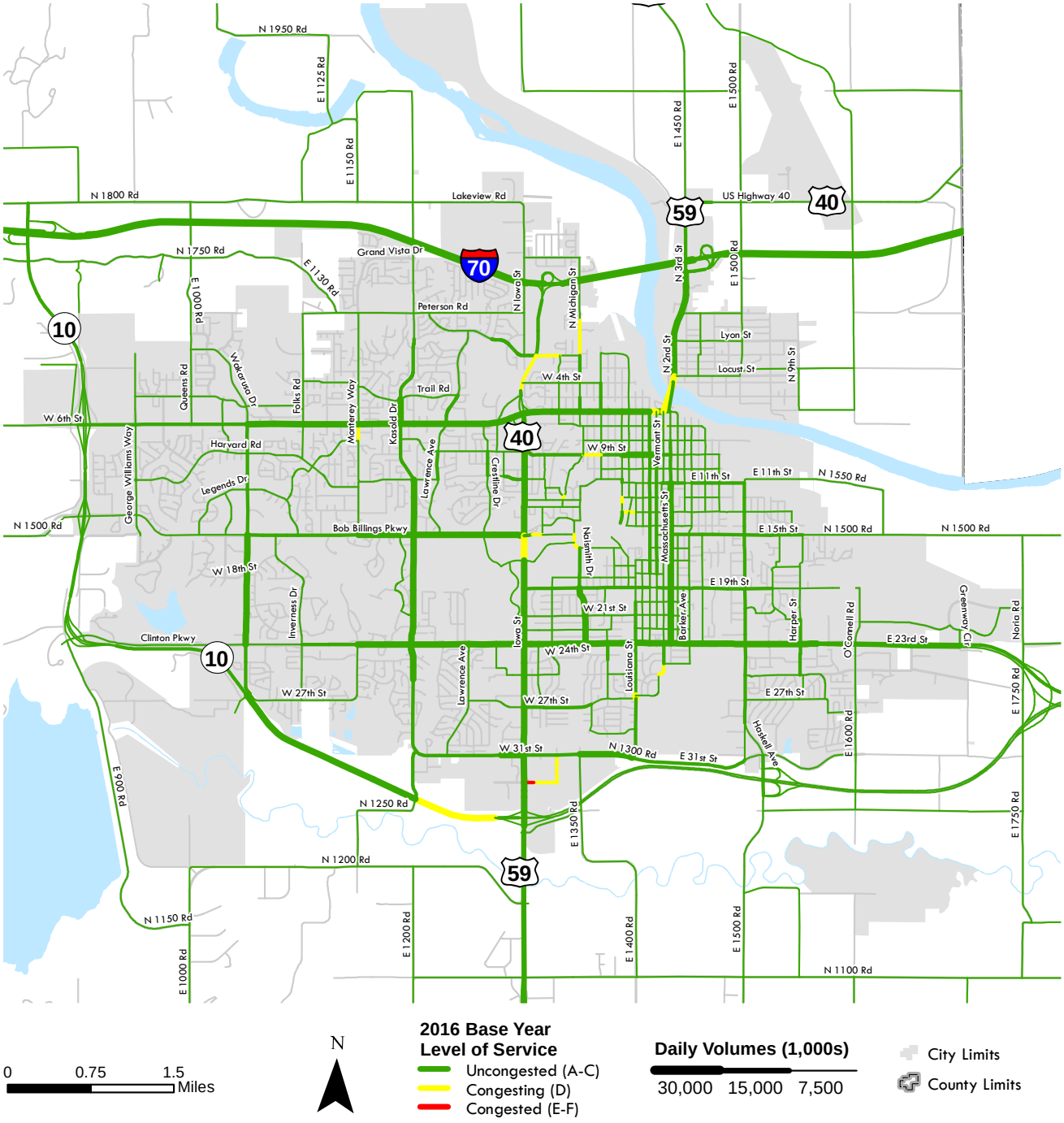
Level of Service D consists of congesting roadways, which consists of restricted speed and the freedom to maneuver, although flow remains stable.The maps display LOS D as yellow lines.

Congested (E-F)



Level of Service E-F are congested roadways, meaning traffic is bumper to bumper, characterized by stop-and-go waves, and poor travel times. The maps display LOS E-F as red lines.

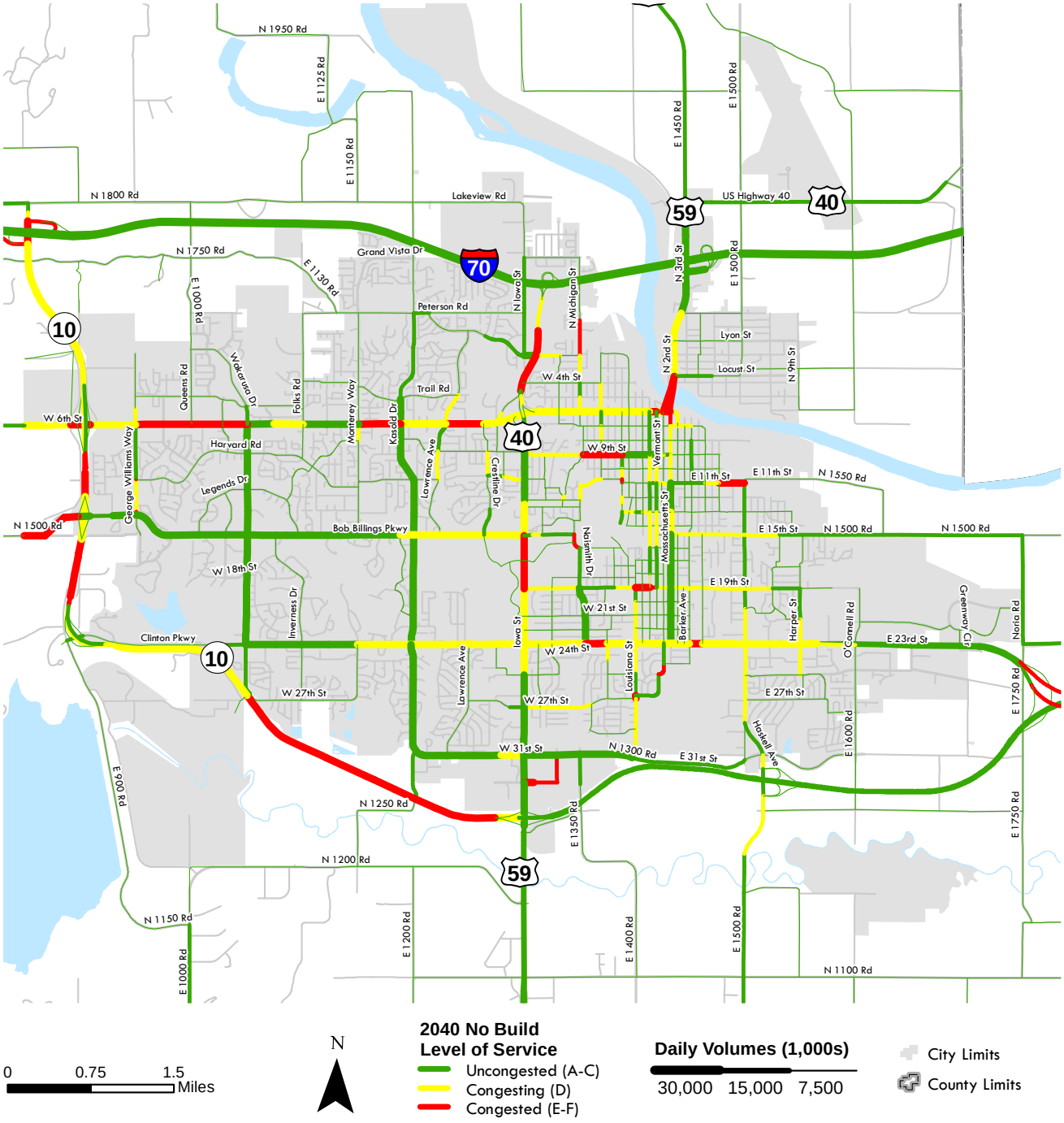
Figure 6.5: 2016 Base Year Model
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Next, a 2040 No-Build model (Figure 6.6) was developed to show the level of service and congestion if no improvements are constructed, but the population increased by approximately 42,000 people. As shown, there are more congested and congesting segments. The vehicle miles traveled increased to 4.1 million miles and 16,244 hours of delay.

Figure 6.6: 2040 No Build Model
Click below to view an interactive map

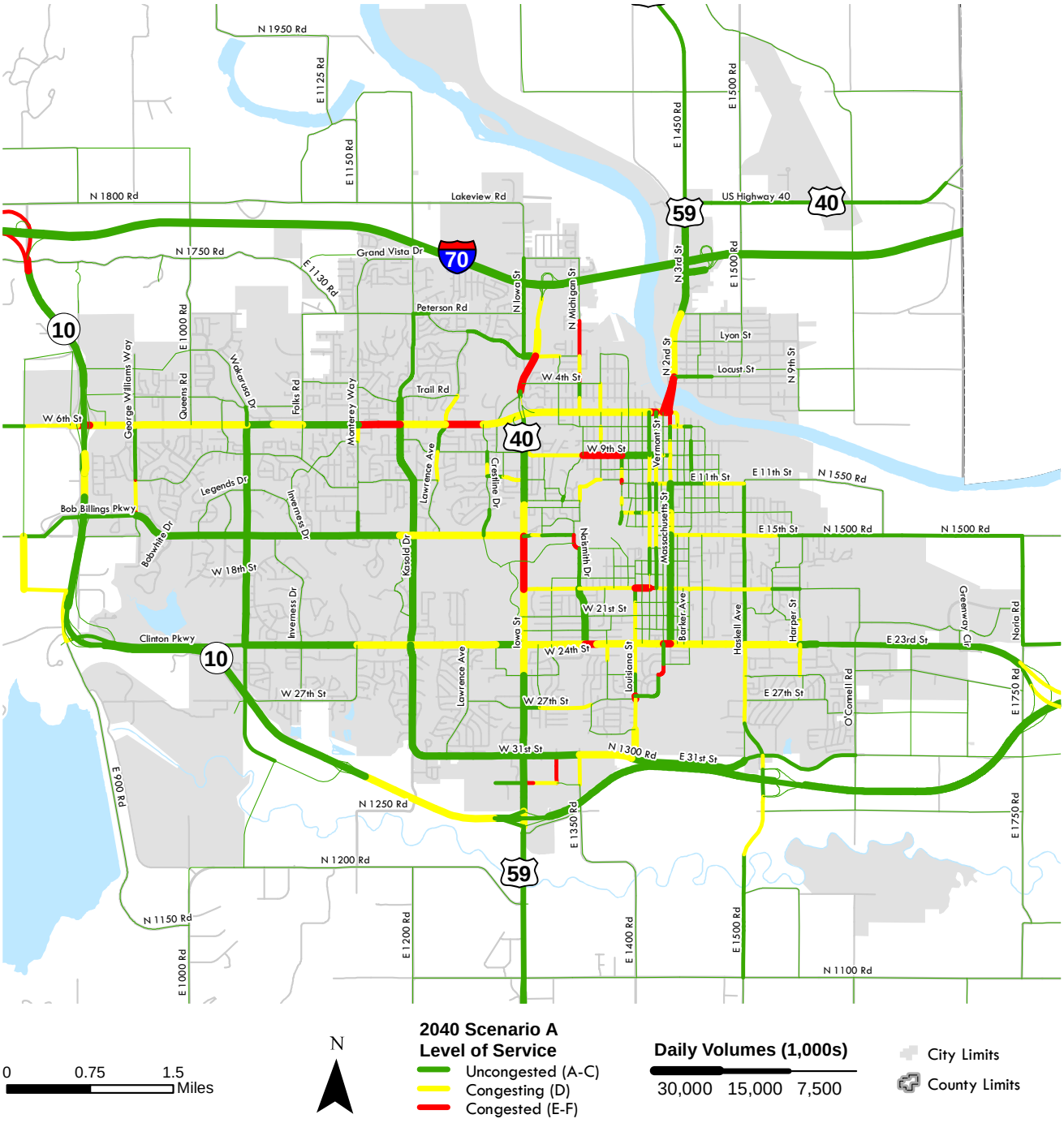


Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Fiscally-constrained projects were then introduced into the model's street network to help address the congestion issues. Projects programmed address level of service, safety, infrastructure condition, and multimodal access to support the regional goals identified in Chapter 4. Three scenarios were developed (shown in Appendix D). Scenario A is the preferred scenario and is shown in Figure 6.7.

There is still some congestion shown in Figure 6.7 even with all of the projects shown in Figure 6.9; however, the level of congestion is improved compared to the No-Build scenario; while the vehicle miles traveled are slightly increased over the No-Build scenario at 4.2 million miles.

Figure 6.7: Preferred Scenario
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

However, the hours of delay are greatly decreased at 12,788 hours, a decrease of 3,456 hours from the No-Build scenario. Table 6.5 displays the fiscally constrained road and bridge projects.

Table 6.3 displays the predicted vehicle miles traveled, vehicle hours traveled, and delay in hours for the Base Year, No-Build, and Preferred Scenario. The 2040 No-Build and Preferred Scenario both accommodate over 42,000 new people in the County and almost 20,000 new jobs. However, the Preferred Scenario accounts for fewer vehicle hours traveled and hours of delay compared to the No-Build Scenario, which is reflective of the desire to reduce congestion.

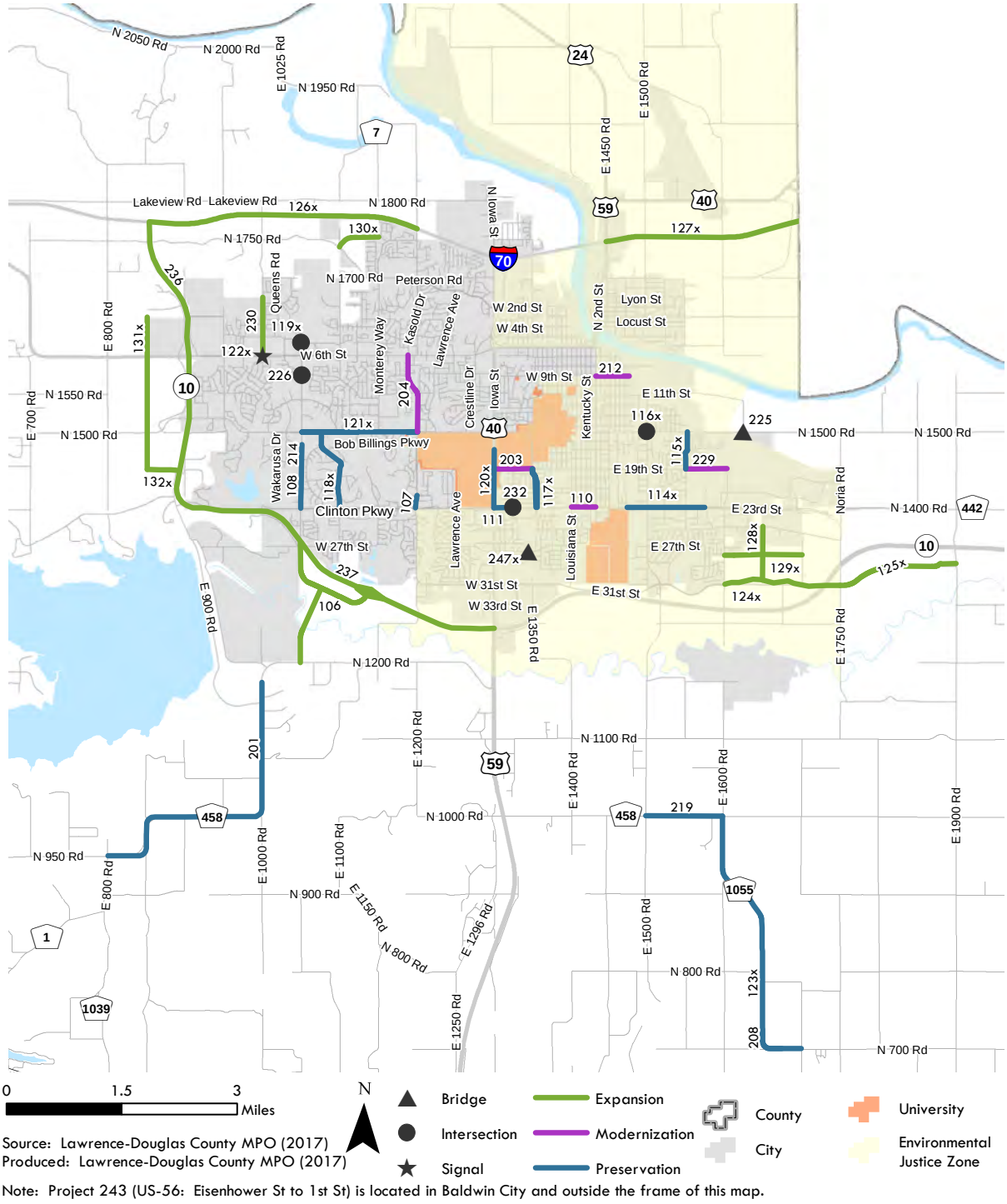
Table 6.3: Model Comparison

Scenario	Network Year	Total Population	Total Employment	Total Lane Miles	Vehicle Miles Traveled*	Vehicle Hours Traveled*	Delay (Hours)
2016 Base	2016	119,891	62,045	1,305	2,813,150	104,634	2,467
2040 No Build	2016	161,935	81,985	1,305	4,175,164	158,135	16,244
2040 Build - Preferred (Scenario A)	Scenario A	161,935	81,985	1,380	4,226,464	156,580	12,788

Note: *Without Centroids

Figure 6.8: 2040 Fiscally Constrained Roads and Bridges Projects

Click below to view an interactive map



Projects shown in Figure 6.8 are listed in Table 6.4.

Table 6.4: Fiscally Constrained Road and Bridge Projects

Lawrence								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
106	Wakarusa Dr. Extension: Rte. 458 to planned K-10 interchange (Partial) (#2018-11)	New road construction to extend Wakarusa Dr. from planned K-10 interchange to Rte. 458. New bridge over Wakarusa River. Final alignment not determined. *($10,775,000 total project cost shared with Douglas County)*	$860,000	$4,527,500	$-	$-	$-	$5,387,500
107	Kasold Dr.: Clinton Pkwy. to Hyvee	Road reconstruction including pavement, storm sewer, sidewalks, bicycle facilities, and median	$1,000,000	$-	$-	$-	$-	$1,000,000
108	Wakarusa Dr.: 18th St. to 23rd St.	Road reconstruction including pavement, storm sewer, sidewalks, bicycle facilities, and median	$250,000	$3,500,000	$-	$-	$-	$3,750,000
110	23rd St.: Louisiana St. to Massachusetts St.	Construction of a 2 way left turn lane on 23rd St. from Louisiana St. to Massachusetts St.	$1,150,000	$-	$-	$-	$-	$1,150,000
111	23rd St.: Iowa St. to Ousdahl Rd.	Road resurfacing	$500,000	$-	$-	$-	$-	$500,000
203	19th St.: Naismith Dr. to Iowa St./US-59	Reconstruction including center turn lane and bike lanes	$2,000,000	$-	$-	$-	$-	$2,000,000
204	Kasold Dr.: W. 6th St. to Bob Billings Pkwy.	Reconstruction of street will include subgrade treatment, concrete pavement, traffic signal at Kasold Dr. and Harvard Rd., and multi-modal facilities.	$6,500,000	$-	$-	$-	$-	$6,500,000
212	9th St.: Massachusetts St. to Delaware St.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, geometric improvements and multimodal facilities	$2,500,000	$-	$-	$-	$-	$2,500,000
214	Wakarusa Dr. (South): Research Pkwy. to 18th St.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, geometric improvements and multimodal facilities	$-	$3,800,000	$-	$-	$-	$3,800,000
226	Harvard Rd./ Wakarusa Dr. Roundabout	Convert All Way Stop controlled intersection to two lane roundabout	$2,000,000	$-	$-	$-	$-	$2,000,000
229	19th St.: O'Connell Rd. to Harper St.	Reconstruct & tie into Venture Park, roundabout at 19th St. & Harper St., construct sidewalk & bike lanes	$3,000,000	$-	$-	$-	$-	$3,000,000

Table 6.4: Fiscally Constrained Road and Bridge Projects Continued

Lawrence								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
230	Queens Rd.: 6th St. to North City Limits	Construct Queens Rd., roundabout at Overland Dr. & Queens Rd., construct sidewalk & bike lanes	$3,800,000	$-	$-	$-	$-	$3,800,000
232	23rd St./ Ousdahl Rd. Intersection	Geometric improvements & storm sewer	$4,000,000	$-	$-	$-	$-	$4,000,000
114x	23rd St.: Haskell Bridge to FF St.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, and geometric improvements	$500,000	$9,250,000	$-	$-	$-	$9,750,000
115x	Harper St.: 15th St. to 19th St.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, and geometric improvements	$-	$1,000,000	$-	$-	$-	$1,000,000
116x	15th St. & Haskell Ave. Intersection	Geometric improvements	$-	$1,000,000	$-	$-	$-	$1,000,000
117x	Naismith Dr.: 19th St. to 23rd St.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, geometric improvements and multimodal facilities	$-	$2,300,000	$-	$-	$-	$2,300,000
118x	Inverness Dr.: Bob Billings Pkwy. to Clinton Pkwy.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, geometric improvements and multimodal facilities	$-	$1,850,000	$1,500,000	$-	$-	$3,350,000
119x	Overland Dr. & Wakarusa Dr. Intersection	Geometric improvements - Roundabout	$-	$-	$1,150,000	$-	$-	$1,150,000
120x	Iowa St.: Irving Hill to 23rd St.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, geometric improvements and multimodal facilities	$-	$-	$5,500,000	$-	$-	$5,500,000
121x	Bob Billings Pkwy.: Kasold Dr. to Wakarusa Dr.	Reconstruction of street will include subgrade treatment, surfacing, storm sewer, geometric improvements and multimodal facilities	$-	$-	$5,000,000	$-	$-	$5,000,000
122x	6th St. & Queens Rd. Intersection	New traffic signal	$300,000	$-	$-	$-	$-	$300,000
124x	31st St.: O'Connell Rd. to Noria Rd. (Partial)	New 2-lane road *($11,806,982 total project cost shared with Douglas County)*	$-	$5,903,491	$-	$-	$-	$5,903,491
247x	27th St. Bridge @ Naismith Valley Park	Bridge replacement	$-	$500,000	$-	$-	$-	$500,000
-	O&M	Unprogrammed Operations & Maintenance activities	$29,768,800	$42,428,100	$63,775,900	$75,746,000	$89,962,500	$301,681,300
		Total Project Cost	$58,128,800	$76,059,091	$76,925,900	$75,746,000	$89,962,500	$376,822,291
		Projected Revenues	$58,129,400	$76,066,800	$83,140,300	$89,738,400	$96,674,800	$403,749,700
		Remaining Unprogrammed Revenues	$600	$7,709	$6,214,400	$13,992,400	$6,712,300	$26,927,409
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.4: Fiscally Constrained Road and Bridge Projects Continued

Eudora								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
-	O&M	Operations & Maintenance activities	$2,630,800	$3,841,200	$4,562,000	$5,418,400	$6,435,200	$22,887,600
		Total Project Cost	$2,630,800	$3,841,200	$4,562,000	$5,418,400	$6,435,200	$22,887,600
		Projected Revenues	$2,764,100	$3,695,200	$3,981,100	$4,288,800	$4,620,400	$19,349,600
	Remaining Unprogrammed Revenues		$133,300	$(146,000)	$(580,900)	$(1,129,600)	$(1,814,800)	$(3,538,000)
		Fiscally Constrained	Yes	No	No	No	No	No
Baldwin City								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
243	US-56: Eisenhower St. to 1st St.	Improvements to US-56 - Realign Eisenhower and construct 3 lane US-56 in Baldwin City	$1,675,000	$-	$-	$-	$-	$1,675,000
-	O&M	Operations & Maintenance activities	$2,021,200	$2,951,500	$3,505,500	$4,163,700	$4,945,200	$17,587,100
		Total Project Cost	$3,696,200	$2,951,500	$3,505,500	$4,163,700	$4,945,200	$19,262,100
		Projected Revenues	$4,196,500	$3,528,500	$4,374,000	$4,712,300	$5,076,600	$21,887,900
	Remaining Unprogrammed Revenues		$500,300	$577,000	$868,500	$548,600	$131,400	$2,625,800
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes
Lecompton								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
-	O&M	Operations & Maintenance activities	$31,000	$45,500	$53,000	$61,500	$73,000	$264,000
		Total Project Cost	$31,000	$45,500	$53,000	$61,500	$73,000	$264,000
		Projected Revenues	$59,600	$79,000	$84,300	$91,500	$99,000	$413,400
	Remaining Unprogrammed Revenues		$28,600	$33,500	$31,300	$30,000	$26,000	$149,400
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Note: Eudora has an O&M shortfall as O&M costs outpace revenues. If additional funding is required, Eudora will allocate general funding to fill the gap.

Table 6.4: Fiscally Constrained Road and Bridge Projects Continued

Douglas County								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
106	Wakarusa Dr. Extension: Rte. 458 to planned K-10 interchange (Partial) (#2018-11)	New road construction to extend Wakarusa Dr. from planned K-10 interchange to Rte. 458. New bridge over Wakarusa River. Final alignment not determined. *($10,775,000 total project cost shared with Lawrence)*	$860,000	$4,527,500	$-	$-	$-	$5,387,500
201	Rte. 458: E 800 Rd. to N 1175 Rd.(#2015-05)	3-R Improvements (rehabilitation, restoration, resurfacing)	$6,634,613	$-	$-	$-	$-	$6,634,613
208	Rte. 1055 at North 700 Curve: Rte. 1055 from N 725 Rd. to E 1675 Rd. (#2016-18)	Construct paved shoulders, roadside safety improvements, replace two bridges and two culverts	$1,476,000	$-	$-	$-	$-	$1,476,000
219	Rte. 458: E 1500 Rd. to E 1600 Rd. (#2016-17)	Construct paved shoulders; replace narrow culvert; flatten roadside slope	$1,200,000	$-	$-	$-	$-	$1,200,000
225	Culvert 1500-1624: N 1500 Rd./E 15th St. at E 1625 Rd. Intersection (#2015-61)	Replace narrow culverts, channel improvements	$778,350	$-	$-	$-	$-	$778,350
123x	Rte. 1055: Vinland to Rte. 458 (#2017-15)	3-R Improvements (rehabilitation, restoration, resurfacing)	$4,425,000	$-	$-	$-	$-	$4,425,000
124x	31st St.: O'Connell Rd. to Noria Rd. (Partial)	New 2-lane road *($11,806,982 total project cost shared with Lawrence)*	$-	$5,903,491	$-	$-	$-	$5,903,491
125x	31st St.: Noria Rd/E 1750 Rd. to CR. 1057/E 1900 Rd.	New 2-lane road	$-	$5,414,653	$5,414,653	$-	$-	$10,829,305
-	O&M	Operations & Maintenance activities	$23,677,400	$34,568,300	$41,058,000	$48,765,300	$57,918,400	$205,987,400
		Total Project Cost	$39,051,363	$50,413,944	$46,472,653	$48,765,300	$57,918,400	$242,621,659
		Projected Revenues	$39,208,700	$52,411,400	$56,463,000	$60,827,100	$65,527,900	$274,438,100
		Remaining Unprogrammed Revenues	$157,337	$1,997,457	$9,990,348	$12,061,800	$7,609,500	$31,816,441
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.4: Fiscally Constrained Road and Bridge Projects Continued

Kansas Department of Transportation								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
236	K-10/South Lawrence Trfwy. West Leg: I-70/K10 Junction South to 3500 ft N of K-10/ US-40 Junction (KA-3634-02)	Add 2-lanes to the existing 2-lanes for a 4-Lane Freeway section. This will include reconstruction of existing interchange at I-70 (KTA), A mainline ORT (Open Road Tolling) toll plaza on K-10 is included in reconstruction of the interchange at I-70. Design not finalized.	$4,200,000	$-	$69,575,000	$-	$-	$73,775,000
237	K-10/South Lawrence Trfwy. West Leg: 3500 ft N of K-10/US-40 Junction, to K-10 US-59/Iowa St. Junction (KA-3634-03)	Add 2-lanes to the existing 2-lanes for a 4-Lane Freeway section. This will include existing interchanges at US-40 (6th St.), Bob Billings Pkwy., Clinton Pkwy. and US-59 (Iowa St.) There will be a new interchange approximately 0.8 miles east of the Wakarusa/27th St. intersection. The Kasold Dr./E 1200 Rd. intersection will be closed. Design not finalized.	$10,800,000	$-	$149,000,000	$-	$-	$159,800,000
-	O&M	General Operations & Maintenance activities	$2,509,100	$3,662,900	$4,349,500	$5,389,448	$6,401,200	$22,312,148
		Total Project Cost	$17,509,100	$3,662,900	$222,924,500	$5,389,448	$6,401,200	$255,887,148
		Projected Revenues	$17,509,100	$13,726,500	$222,924,500	$15,931,000	$17,162,300	$287,253,400
		Remaining Unprogrammed Revenues	$-	$10,063,600	$-	$10,541,552	$10,761,100	$31,366,252
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.4: Fiscally Constrained Road and Bridge Projects Continued

Kansas Turnpike Authority								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
126x	I-70/Kansas Turnpike: K-10/ Lecompton Interchange E (MM 197) to MM 201	Widen freeway from 4 to 6 lanes	$-	$-	$-	$40,972,000	$-	$40,972,000
127x	I-70/Kansas Turnpike: Eastern Lawrence Interchange (MM 204) to Douglas/ Leavenworth County Line (MM 206)	Widen freeway from 4 to 6 lanes	$-	$-	$20,486,000	$-	$-	$20,486,000
133x	I-70/Kansas Turnpike: K-10/ Lecompton Interchange E (MM 197) to Douglas/ Leavenworth County Line (MM 206)	Surfacing (contract maintenance) O&M	$2,200,000	$-	$-	$-	$-	$2,200,000
-	O&M	Pavement & Bridge O&M Activities	$298,300	$570,900	$677,900	$805,900	$956,800	$3,309,800
		Total Project Cost	$2,498,300	$570,900	$21,163,900	41,777,900	$956,800	$66,967,800
		Projected Revenues	$2,498,300	$570,900	$21,163,900	$41,777,900	$956,800	$66,967,800
		Remaining Unprogrammed Revenues	$-	$-	$-	$-	$-	$-
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes
Private Development								
#	Name	Description	FY2017-2020	FY2021-2025	FY2026-2030	FY2031-2035	FY2036-2040	Total
128x	Franklin Rd.: E 25th St. to E 31st St.	Construct to Arterial standards	$-	$-	$-	$2,101,005	$-	$2,101,005
129x	E 28th St.: O'Connell Rd. to E 1700 Rd.	Construct to Collector standards	$-	$-	$5,375,485	$-	$-	$5,375,485
130x	Hunters Hill Dr.: Hill Song Cir. to N 1750 Rd.	Construct to Collector standards	$-	$2,958,015	$-	$-	$-	$2,958,015
131x	E 850 Rd.: Future N 1650 Rd. to Future N 1457 Rd.	Construct to Collector standards	$-	$-	$15,684,000	$-	$-	$15,684,000
132x	N 1457 Rd.: E 900 Rd. to E 850 Rd.	Construct to Arterial standards	$-	$-	$2,038,000	$-	$-	$2,038,000
		Total Project Cost	$-	$2,958,015	$23,097,485	$2,101,005	$-	$28,156,505
		Projected Revenues	$-	$2,958,015	$23,097,485	$2,101,005		$28,156,505
		Remaining Unprogrammed Revenues	$-	$-	$-	$-	$-	$-
		Fiscally Constrained	Yes	Yes	Yes	Yes	Yes	Yes

Note: Private development projects will be paid for by developers at the time of development.

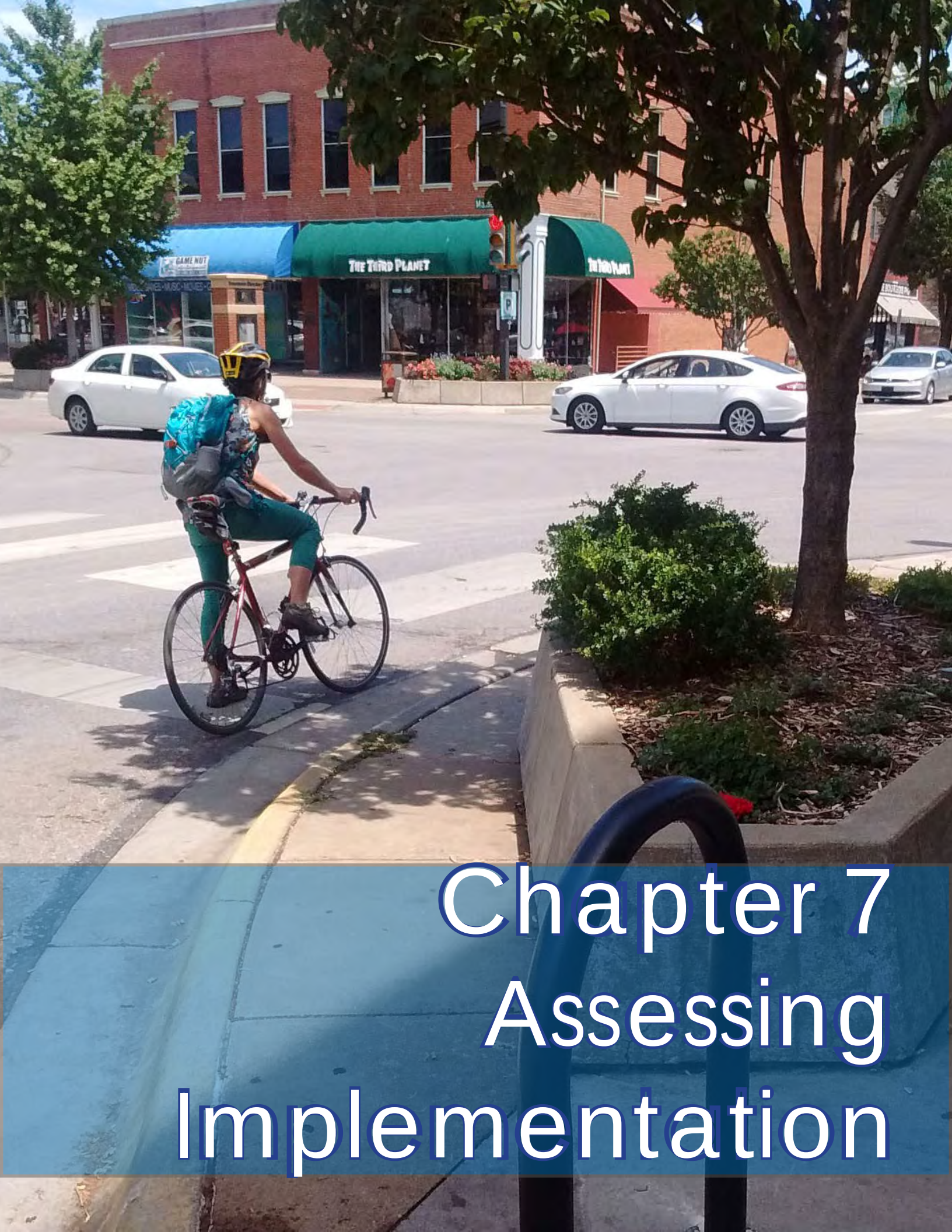
Through the plan development process several projects were identified as important, but are not currently funded. These projects are on the illustrative project list shown in Table 6.5. These projects would be amended into the fiscally constrained project list if allocated funding is greater than anticipated or if funding is secured for a specific project. This list is not exhaustive. If funding is available other projects could be amended into the fiscally constrained project list.

Table 6.5: Illustrative Projects

Entity	Project Route	Project Description	Project Location	Estimated Cost
Lawrence	US-40 Corridor	Bikeway Construction	Queens Rd. west to Rock Chalk Park near the US-10/K-10 Interchange	$580,000
Lawrence	6th St./US-40 and McDonald Rd./ US-59	Replacement and Upgrades	6th St./US-40 and McDonald Rd./US-59 Interchange	$25,000,000
KDOT	K-10/US-40/6th St. Interchange Area	Construction of a Diverging Diamond Interchange (DDI)	US-40/K-10 junction	$10,478,212
Lawrence-DG County	US-40	Widen to 4 lanes	E 800 Rd. to Stull Rd./CR. 442 at E 700 Rd.	$23,919,869
Lawrence-DG County	US-56	Reconstruction and addition of paved shoulders, intersection improvements and other safety upgrades	US-59 east to the Douglas/ Johnson County Line	$34,741,161
Lawrence-KDOT	Olympic Dr. Underpass	Extend Olympic Dr. south under K-10	Olympic Dr. south under K-10 connecting with Speicher Rd.	$4,000,000

What we heard:

"Enhance pedestrian safety with contiguous sidewalks maintained to safe standards"



Chapter 7 Assessing Implementation

7. Assessing Implementation

This plan provides the desired transportation investment priorities, which need to be evaluated to ensure they do not disproportionally adversely affect the environmental justice populations and the environment.

A. Environmental Justice (EJ) Analysis

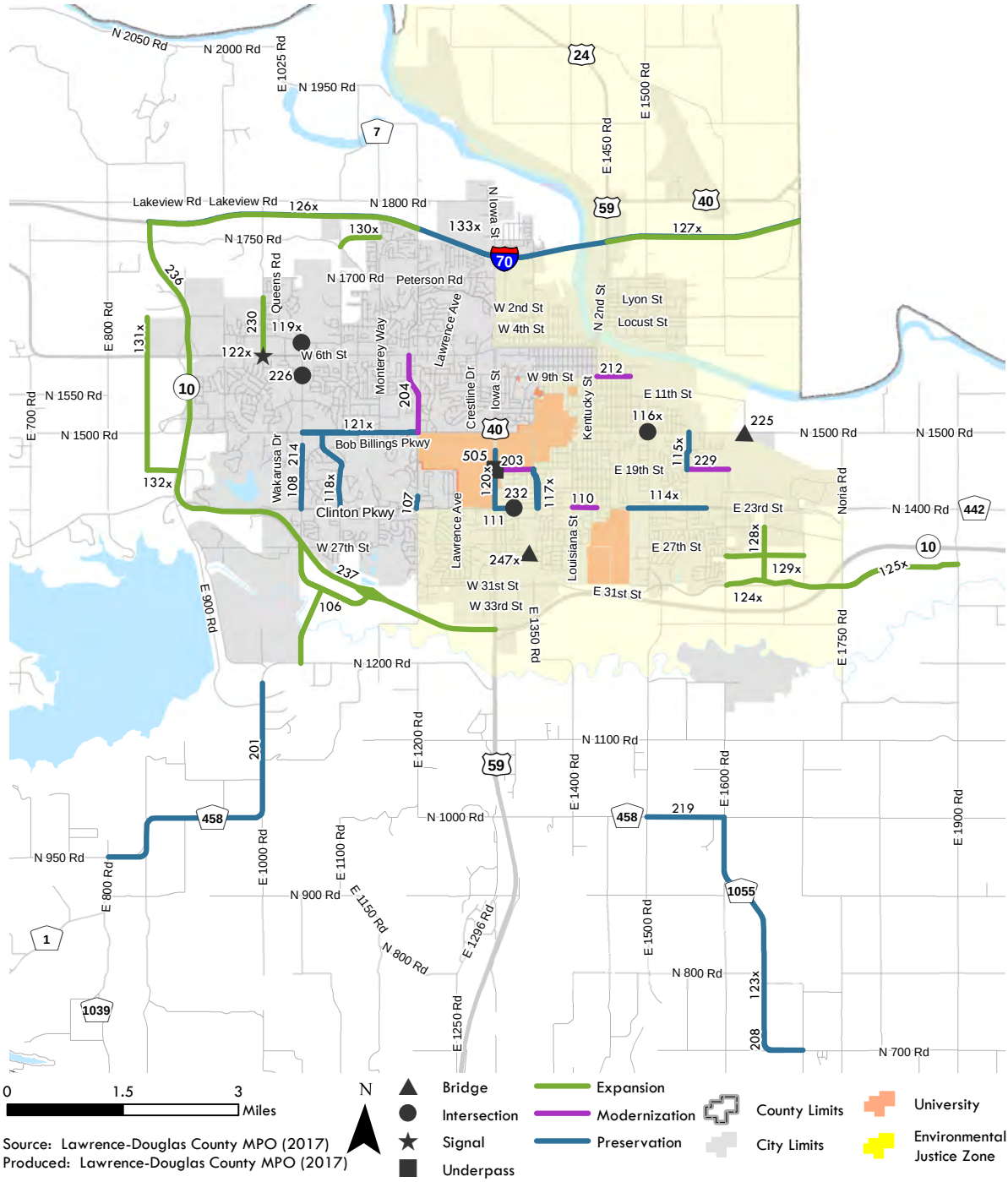
The environmental justice (EJ) zone was established by identifying the low-income and minority populations. Chapter 1 details how the EJ zone was developed (it is located in or near the City of Lawrence limits). Rather than conducting an EJ analysis as an afterthought, evaluation of EJ impacts were integrated the planning process. Any time there was data that pertained to the EJ zone, it was delineated so the impacts on the EJ zone population could be shown. Table 7.1 displays the 19 mapped investment priorities located within the EJ zone. They are mapped in Figure 7.1. 6 projects include some sort of multimodal facility, whether it is bike lanes, sidewalk, shared use path, or a pedestrian and bicycle underpass. These elements improve mobility and safety. The 6 projects account for 7% of the project costs found in the EJ zone. If the large K-10 expansion project (237) is not included in the calculation, then 23% of the projects in the EJ zone have components that improvement mobility and safety. The unprogrammed non-motorized funding will be spent on projects not included in this EJ analysis but that continue to improve access, mobility, and safety for people who walk and bicycle. The non-motorized prioritization process also recognizes consideration should be given to EJ areas in project selection.

Table 7.1: Mapped Investment Priorities Located in the EJ Zone

#	Project Name	Project Year	Project Type	Description	Benefit	Total Cost
110	23rd St.: Louisiana St. to Massachusetts St.	2017-2020	Modernization	2 way left turn lane		$1,150,000
111	23rd St.: Iowa St. to Ousdahl Rd.	2017-2020	Preservation	Resurfacing		$500,000
203	19th St.: Naismith Dr. to Iowa St. /US-59	2017-2020	Modernization	Reconstruction	Includes bike lanes	$2,000,000
212	9th St.: Massachusetts St. to Delaware St.	2017-2020	Modernization	Reconstruction	Includes multimodal facilities	$2,500,000
229	19th St.: O'Connell Rd. to Harper St.	2017-2020	Modernization	Reconstruction	Includes sidewalk & bike lanes	$3,000,000
232	23rd St./Ousdahl Rd. Intersection	2017-2020	Intersection	Improvements		$4,000,000
114x	23rd St.: Haskell Bridge to FF St.	2017-2025	Preservation	Reconstruction		$9,750,000
237	K-10/South Lawrence Trfwy. West Leg: 3500 ft N of K-10/ US-40 Junction, to K-10 US-59/ Iowa St. Junction (KA-3634-03)	2017-2030	Expansion	Widen to 4 lanes		$159,800,000
115x	Harper St.: 15th St. to 19th St.	2021-2025	Preservation	Reconstruction		$1,000,000
116x	15th & Haskell Intersection	2021-2025	Intersection	Improvements		$1,000,000
117x	Naismith Dr.: 19th St. to 23rd St.	2021-2025	Preservation	Reconstruction	Includes multimodal facilities	$2,300,000
124x	31st St.: O'Connell Rd. to Noria Rd.	2021-2025	Expansion	Construction		$11,806,982
247x	27th St. Bridge @ Naismith Valley Park	2021-2030	Bridge	Replacement		$500,000
120x	Iowa St.: Irving Hill to 23rd St.	2026-2030	Preservation	Reconstruction	Includes multimodal facilities	$5,500,000
129x	E 28th St.: O'Connell Rd. to E 1700 Rd.	2026-2030	Expansion	Construction		$5,375,485
128x	Franklin Rd.: E 25th St. to E 31St. St	2031-2035	Expansion	Construction		$2,101,005
127x	I-70/Kansas Turnpike: Eastern Lawrence Interchange (MM 204) to Douglas/Leavenworth County Line (MM 206)	2036-2030	Expansion	Widen to 6 lanes		$20,486,000
133x	I-70/Kansas Turnpike: K-10/ Lecompton Interchange E (MM 197) to Douglas/Leavenworth County Line (MM 206)	2017-2020	Preservation	Surfacing		$2,200,000
505	19th St. & Iowa St. Pedestrian and Bicycle Underpass	2017-2020	Non-motorized	Pedestrian/ bicycle underpass	Mulitmodal facility	$2,397,000
					Total	$237,366,472

Figure 7.1: Mapped Projects and the EJ Zone

Click below to view an interactive map



Note: Project 243 (US-56: Eisenhower St to 1st St) is located in Baldwin City and outside the frame of this map.

42% of the total county population is found in the EJ zone (Table 7.2). Table 7.3 shows 54% of the mapped project investments are in the EJ zone. The 19 projects includes 4 modernization projects, which will improve the safety of the roadway.

Table 7.2: EJ Zone Population Impacted by Mapped Investments

	EJ Zone	Non EJ Zone	Total
Percent of Total Population	42%	58%	100%

Source: 2015 Population Estimate

Table 7.3: Total Mapped Investments in EJ Zone

	EJ Zone	Non EJ Zone	Total
Total Investments	$237,366,472	$203,870,283	$441,236,755
Percent of Total Investments	54%	46%	100%

Source: T2040 Project List and EJ Zone from FFY17 TIP
Note: This list only includes mapped projects - not O&M expenses

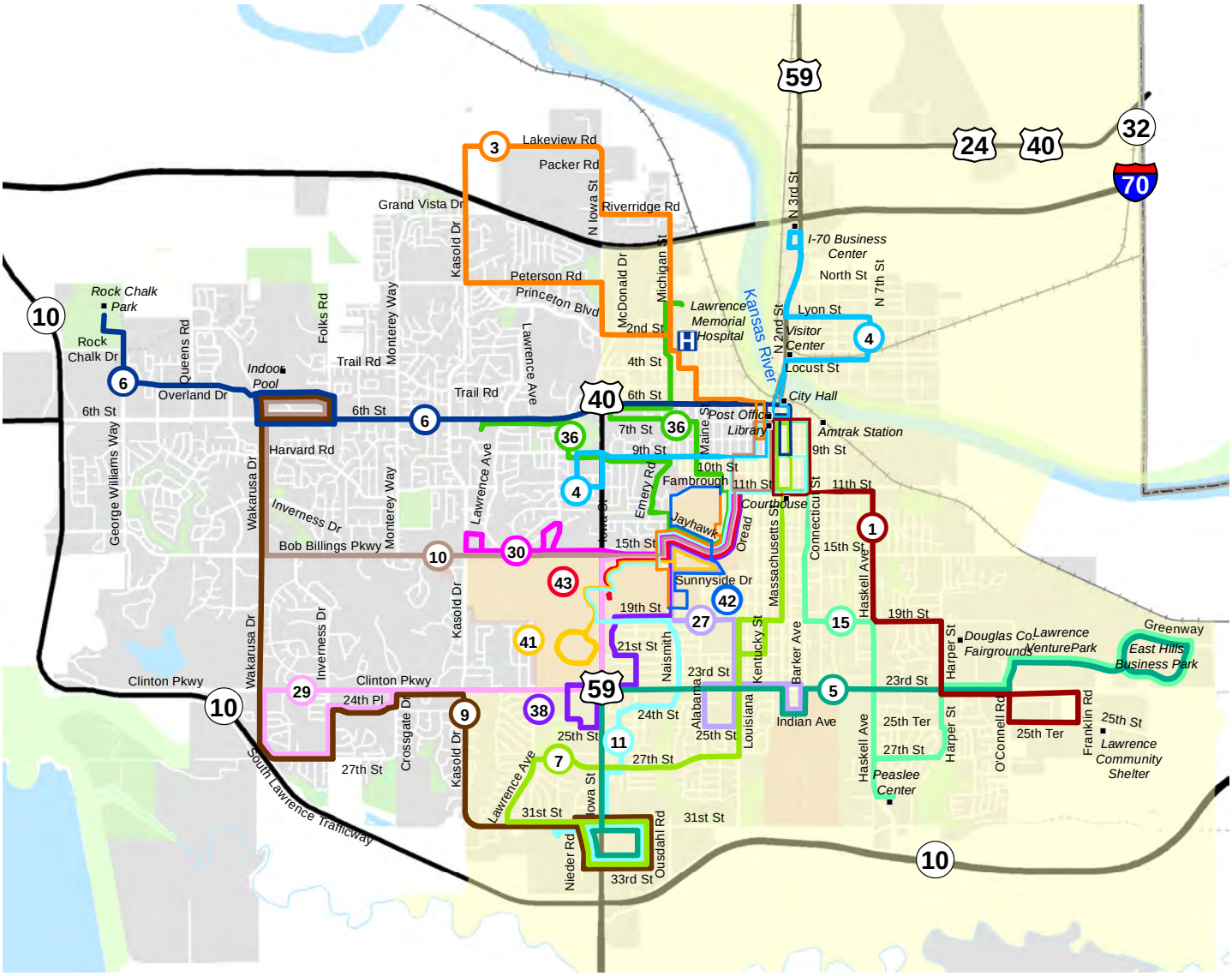
16 or 88% of the current routes have 30 minute or less service during peak times. Lawrence Transit and KU on Wheels are transitioning all routes to 30 minute or less service during peak times. This transition is occurring as resources become available. Transit projects are hard to quantify since their service occurs throughout the community and is not located in one fixed point, like a road or bridge project; therefore, none of Lawrence Transit projects were mapped. Lawrence Transit projects include operating costs for fixed route and paratransit services, as well as the capital costs associated with vehicle acquisition. Figure 7.2 shows the 2016-2017 transit service and the EJ zone.

What is a Transit Shed?

A transit shed or buffer is the area around transit service that generates walk ridership, generally a quarter mile.

Figure 7.2: Transit Service and the EJ Zone

Click below to view an interactive map



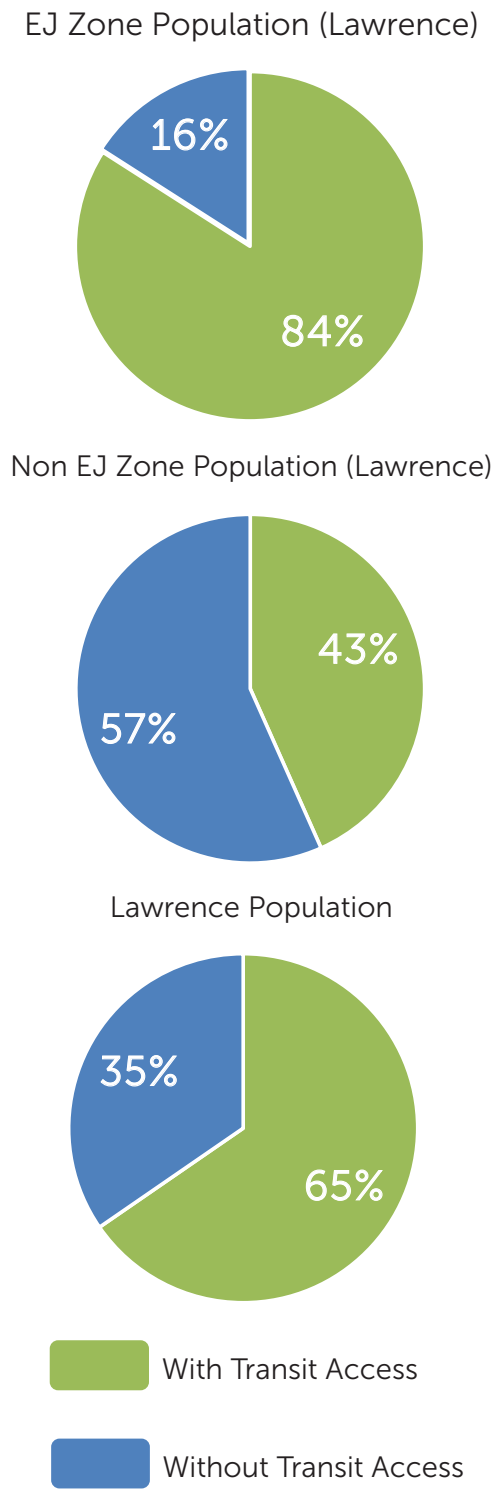
Source: Lawrence Transit (2016-2017)

Produced: Lawrence-Douglas County MPO (2017)

Additional review was performed to provide further mobility analysis in determining if there are any disparate or adverse impacts resulting from transit services included in T2040. Projects were evaluated to determine the percentage of people who live within the EJ zone that are within a ¼ mile buffer of transit stops and the people who live within the EJ zone that are zero vehicle households

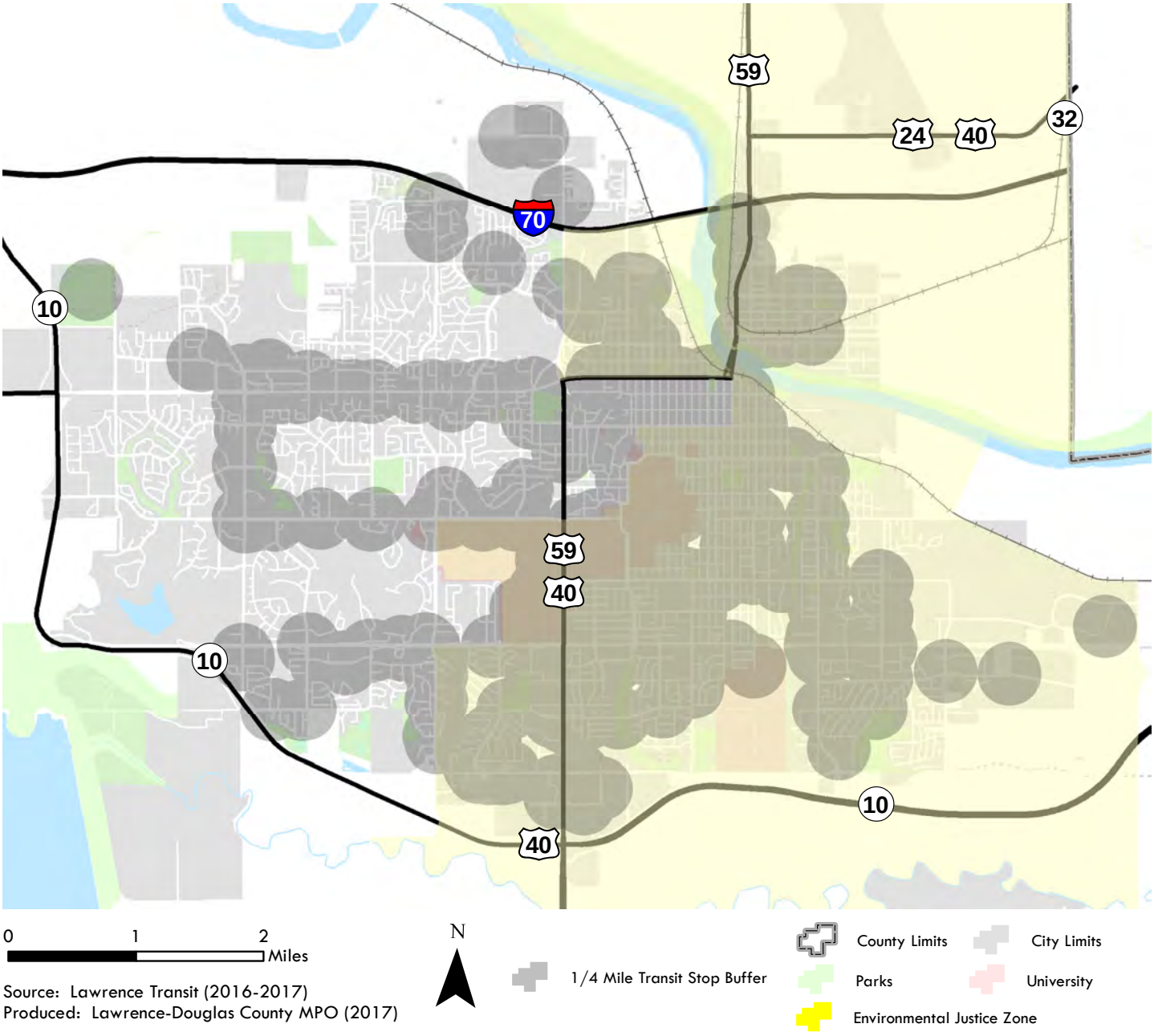
Figure 7.3 shows that approximately 42,556 people or 84% of people living within the EJ zone are within ¼ mile of a bus stop. Thus, 84% of people who live within the EJ zone have easy to access transit service, thereby expanding their mobility. Figure 7.4 displays the ¼ mile fixed route transit shed in relation to the EJ zone.

Figure 7.3: EJ Zone and Transit Access



Source: 2015 Population Estimate, EJ Zones, and Lawrence Transit Stops
2016-17
Note: All EJ Zones in Dogulas County are in or near the City of Lawrence.

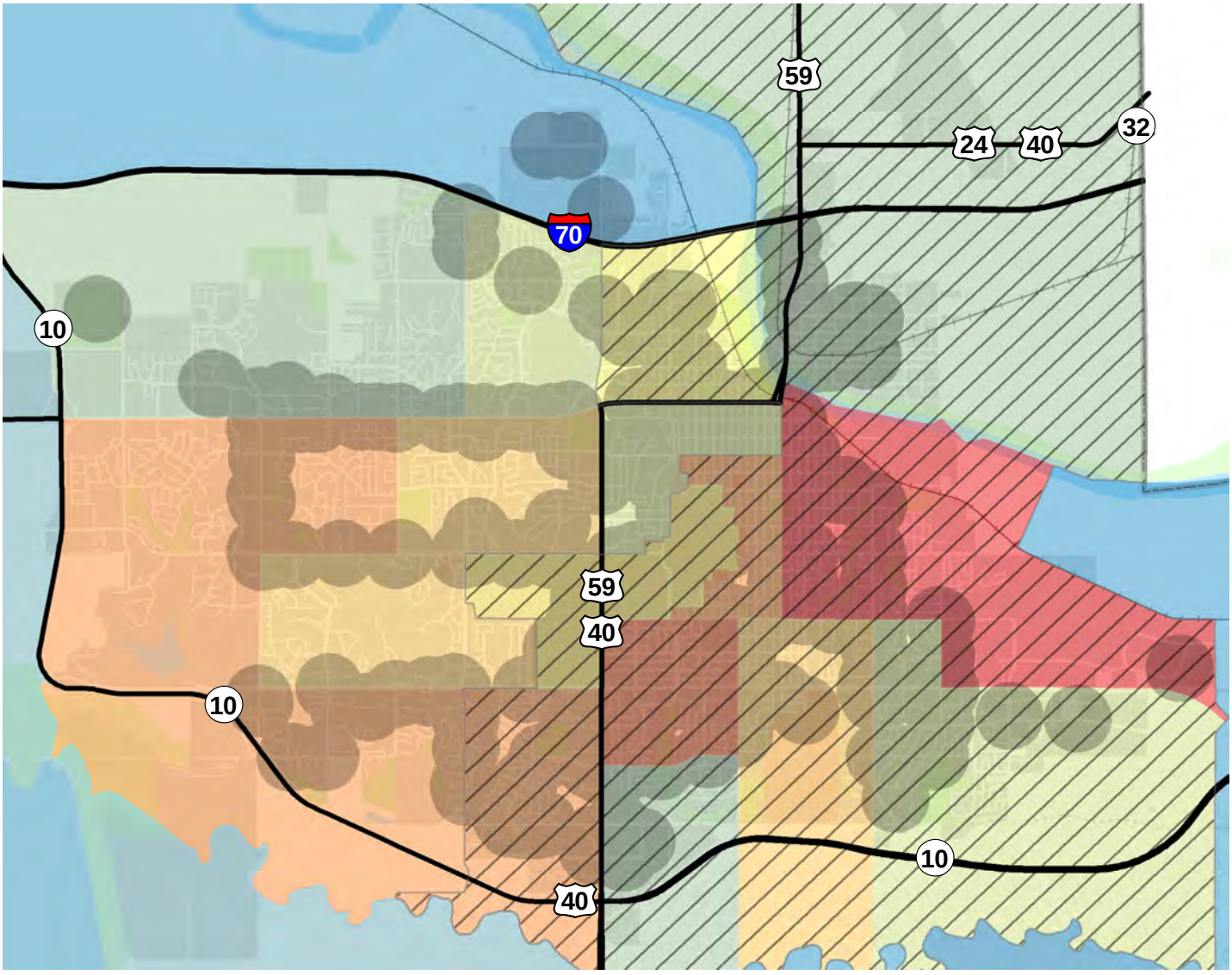
Figure 7.4: 1/4 Mile Fixed Route Transit Shed and the EJ Zone
Click below to view an interactive map



Zero vehicle households also access transit to gain mobility, but stops must be within walking distance to be easily used. Figure 7.5 displays the zero vehicle households in relation to the EJ zone. The higher concentration of people without vehicles is located in the EJ zone. 87% of the population living within the EJ Zone have easy access to the bikeway network (live within a ¼ mile of the network). Approximately 48% of the EJ zone has sidewalk on at least one side of the street. Access to the non-motorized networks provide improved mobility for walkability and bikeability.

Figure 7.5: Zero Vehicle Households and the EJ Zone

Click below to view an interactive map



1. EJ Analysis Conclusion

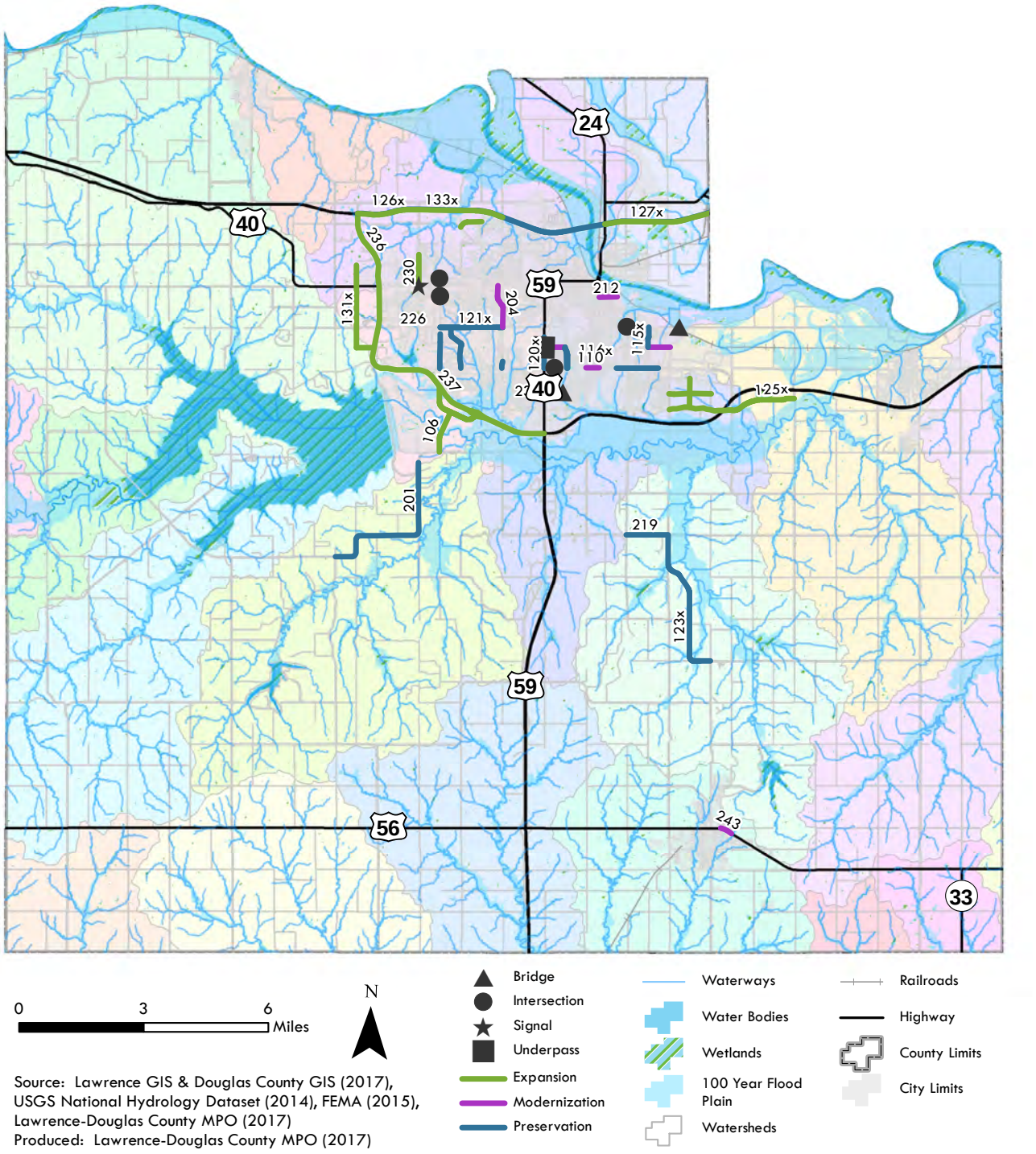
Reviewing the assessment and analysis in this chapter and throughout T2040, the MPO believes there are no significant EJ concerns with the selection of road, bridge, or transit projects in Douglas County. Considering the level of transit service and improved multimodal access there will be improved mobility for EJ areas with the investments projected in this plan. These services and networks provided transportation options and choices for residents and visitors alike.

T2040 includes projects inside and outside of EJ zones, and projects for this plan are selected based on objective planning and engineering criteria (e.g., bridge deterioration, pavement condition, transit demand, etc.). Local governments will need to utilize design to improve mobility and access for EJ populations.

B. Environmental Mitigation

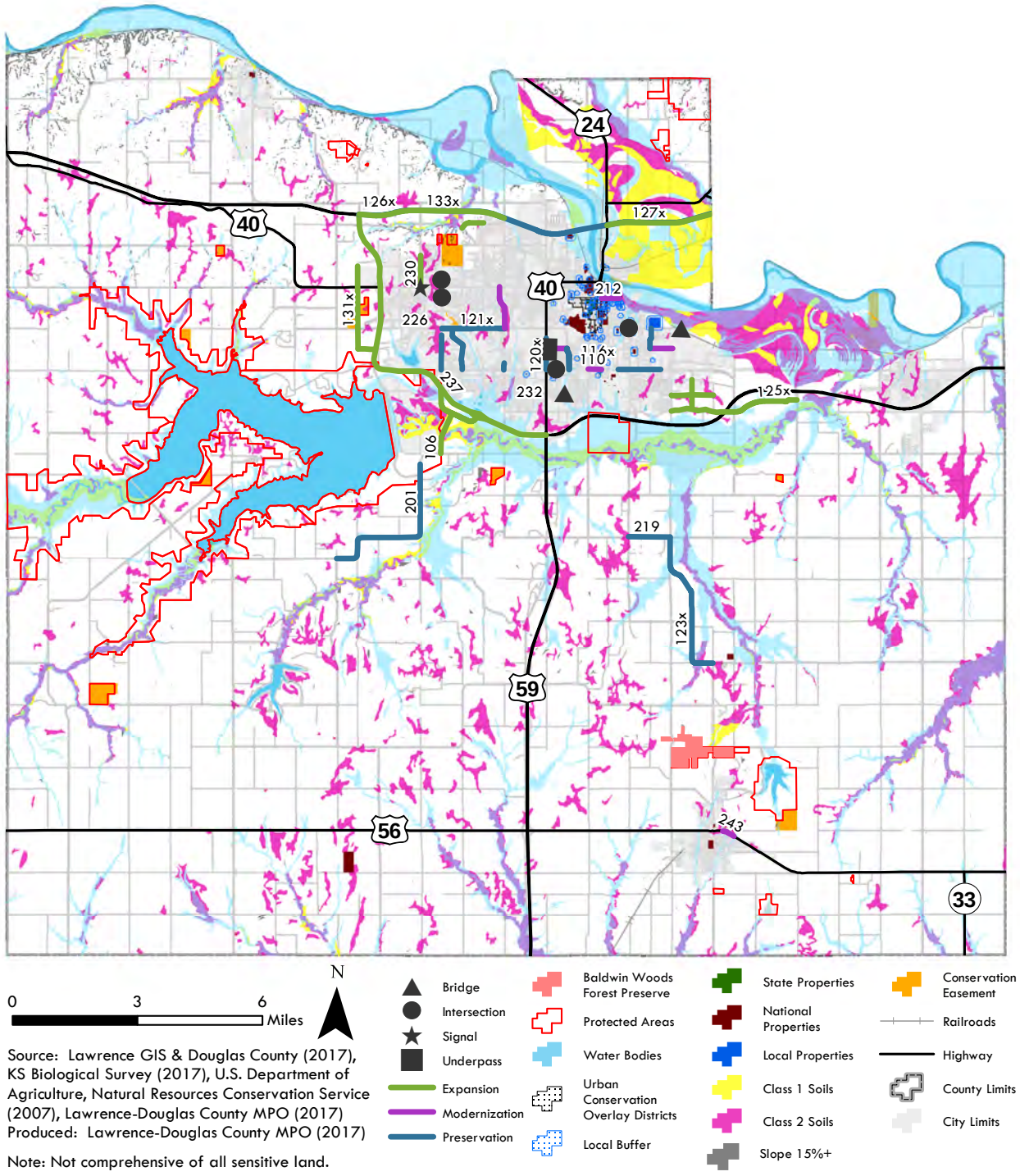
The environmental impacts of the road and bridge projects must be evaluated. This evaluation is a system-level summary of the potential impacts on the environment based on their interaction with floodplains, wetlands, other environmentally sensitive areas, threatened and endangered species, and historic resources (Figure 7.6 – 7.9). A deeper evaluation of potential environmental impacts should be conducted by local governments as projects are designed and implemented. The National Environmental Policy Act (NEPA) requires measures to be identified to avoid, minimize, or mitigate project impacts.

Figure 7.6: Floodplains and Wetlands and Mapped Projects
Click below to view an interactive map



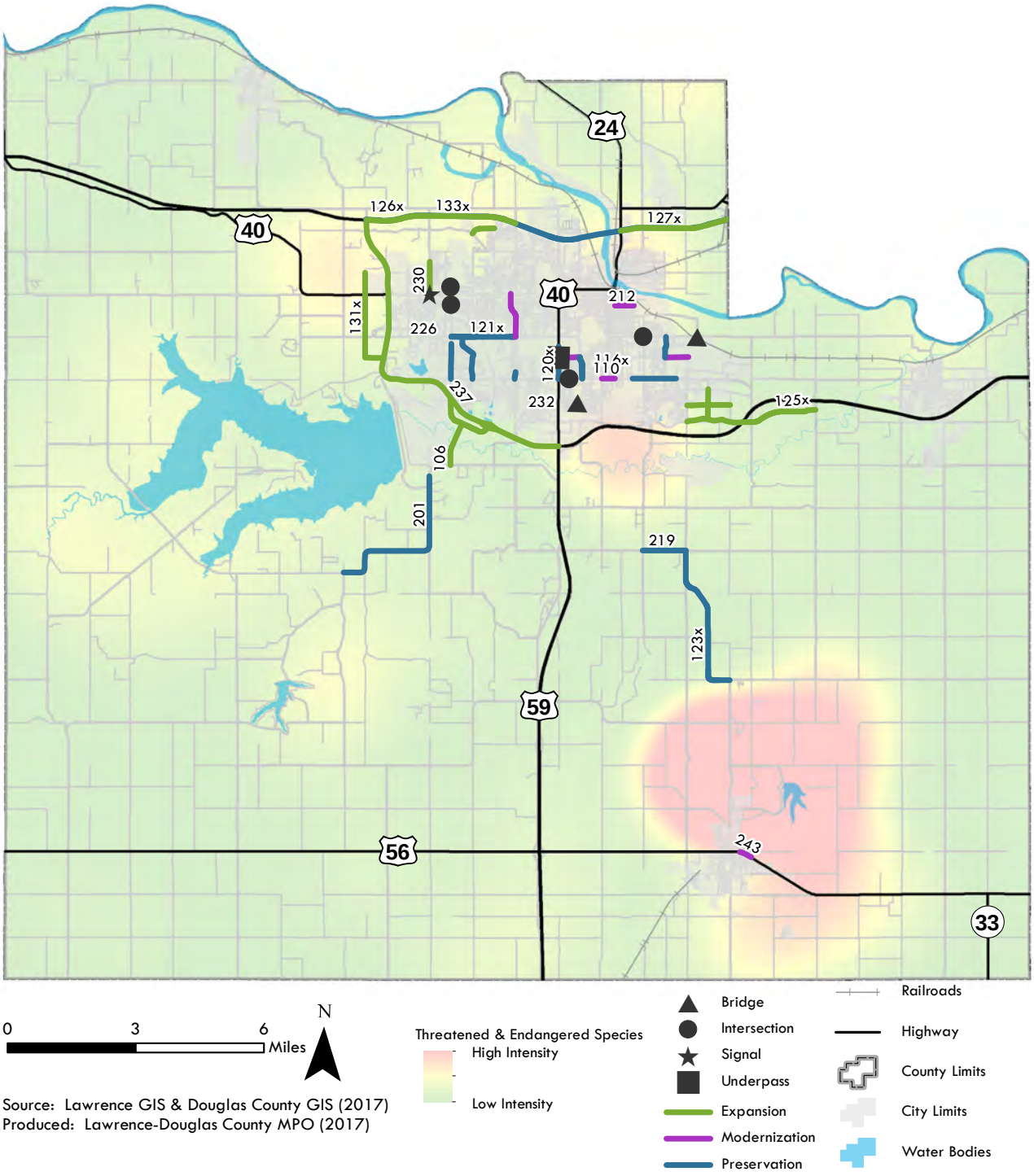
14 projects are found within the 100 year floodplain, 6 of which include multimodal elements. Project impacts on the floodplain are assessed during project design by the local government.

Figure 7.7: Other Environmentally Sensitive Areas and Mapped Projects
Click below to view an interactive map



4 projects are found within protected areas. Project impacts on protected areas are assessed during project design by the local government.

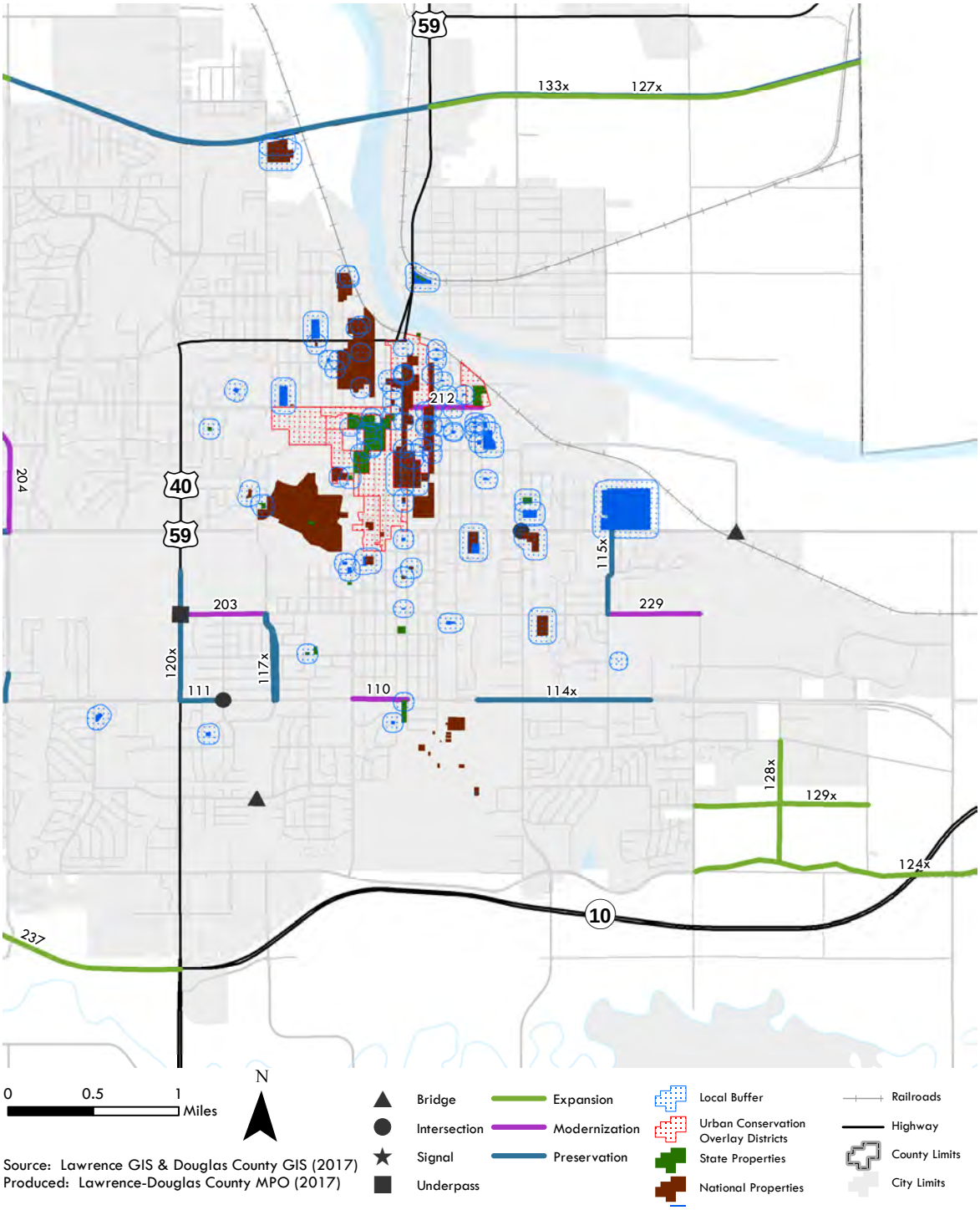
Figure 7.8: Threatened and Endangered Species and Mapped Projects
Click below to view an interactive map



10 projects are found within threatened and endangered species areas. Project impacts on threatened and endangered species are assessed during project design by the local government.

Figure 7.9: Historic Resources and Mapped Projects – Zoomed to Lawrence

Click below to view an interactive map



4 projects are located near historic resources. Project impacts on historic resources are assessed during project design by the local government.

Table 7.4 summarizes the high level review of potential concerns. 19 mapped projects are within the EJ zone, while 4 are in protected areas, 10 are in proximity to high/medium threatened and endangered species, 14 projects are within the 100 year floodplain, and 4 are found in proximity to historical resources. Each of these potential areas of concern will require project specific mitigation strategies that will be developed as projects move through the NEPA process into implementation.

Table 7.4: Summary of Road and Bridge Projects and EJ/Environmental Mitigation Concerns

#	Name	Type	EJ Zone	Protected Area	High/Medium Threatened & Endangered Species	100 Year Floodplain	Historical Resource
106	Wakarusa Dr. Extension: Rte. 458 to planned K-10 interchange	Expansion		X		X	
107	Kasold Dr.: Clinton Pkwy. to Hyvee	Preservation					
108	Wakarusa Dr.: 18th St. to 23rd St.	Preservation					
110	23rd St.: Louisiana St. to Massachusetts St.	Modernization	X		X		X
111	23rd St.: Iowa St. to Ousdahl Rd.	Preservation	X				
201	Rte. 458: E 800 Rd. to N 1175 Rd.	Preservation		X		X	
203	19th St.: Naismith Dr. to Iowa St./US-59	Modernization	X				
204	Kasold Dr.: W. 6th St. to Bob Billings Pkwy.	Modernization	X				
208	Rte. 1055 at North 700 Curve: Rte. 1055 from N 725 Rd. to E 1675 Rd.	Preservation				X	
212	9th St.: Massachusetts St. to Delaware St.	Modernization	X		X		X
214	Wakarusa Dr. (South): Research Pkwy. to 18th St.	Preservation					
219	Rte. 458: East 1500 Rd. to E 1600 Rd.	Preservation					
225	Culvert 1500-1624: N 1500 Rd./E 15th St. at E 1625 Rd. Intersection	Bridge				X	
226	Harvard Rd./Wakarusa Dr. Roundabout	Intersection					
229	19th St.: O'Connell Rd. to Harper St.	Modernization	X				
230	Queens Rd.: 6th St. to North City Limits	Expansion					
232	23rd St./Ousdahl Rd. Intersection	Intersection	X				
236	K-10/South Lawrence Trfwy. West Leg: I-70/K10 Junction South to 3500 ft N of K-10/US-40 Junction (KA-3634-02)	Expansion			X	X	
237	K-10/South Lawrence Trfwy. West Leg: 3500 ft N of K-10/US-40 Junction, to K-10 US-59/Iowa St. Junction (KA-3634-03)	Expansion	X	X	X	X	

Table 7.4: Summary of Mapped Projects and EJ/Environmental Mitigation Concerns Continued

#	Name	Type	EJ Zone	Protected Area	High/Medium Threatened & Endangered Species	100 Year Floodplain	Historical Resource
243	US-56: Eisenhower St. to 1st St.	Modernization			X		
114x	23rd St.: Haskell Bridge to FF St.	Preservation			X		
115x	Harper St.: 15th St. to 19th St.	Preservation	X				X
116x	15th & Haskell Intersection	Intersection	X				X
117x	Naismith Dr.: 19th St. to 23rd St.	Preservation	X			X	
118x	Inverness Dr.: Bob Billings Pkwy. to Clinton Pkwy.	Preservation					
119x	Overland Dr. & Wakarusa Dr. Intersection	Intersection					
120x	Iowa St.: Irving Hill to 23rd St.	Preservation	X				
121x	Bob Billings Pkwy.: Kasold Dr. to Wakarusa Dr.	Preservation					
122x	6th St. & Queens Rd. Intersection	Signal					
123x	Rte. 1055: Vinland to Rte. 458	Preservation				X	
124x	31st St.: O'Connell Rd. to Noria Rd.	Expansion	X			X	
125x	31st St Extension (Noria Rd/E 1750 Rd to Rte 1057/E 1900 Rd)	Expansion				X	
126x	I-70/Kansas Turnpike: K-10/ Lecompton Interchange E (MM 197) to MM 201	Expansion				X	
127x	I-70/Kansas Turnpike: Eastern Lawrence Interchange (MM 204) to Douglas/Leavenworth County Line (MM 206)	Expansion	X		X	X	
128x	Franklin Rd.: E 25th St. to E 31St. St	Expansion	X				
129x	E 28th St.: O'Connell Rd. to E 1700 Rd.	Expansion	X				
130x	Hunters Hill Dr.: Hill Song Cir. to N 1750 Rd.	Expansion					
131x	E 850 Rd.: Future N 1650 Rd. to Future N 1457 Rd.	Expansion		X	X		
132x	N 1457 Rd.: E 900 Rd. to E 850 Rd.	Expansion					
133x	I-70/Kansas Turnpike: K-10/ Lecompton Interchange E (MM 197) to Douglas/Leavenworth County Line (MM 206)	Preservation	X		X	X	
247x	27th St. Bridge @ Naismith Valley Park	Bridge	X		X	X	
505	19th St. & Iowa St. Pedestrian and Bicycle Underpass	Non-motorized	X				

1. Strategies

The mitigation strategies are described at a system level and are not project specific.

- Embrace the principles of Context Sensitive Solutions (CSS) and Context Sensitive Design (CSD) and use those ideas in developing transportation facilities that fit their physical setting and preserve scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility
- Continue to utilize the region's GIS to identify environmental features (both physical ones like wetlands and steep slopes, and man-made ones like historic buildings and sites) early in the planning process as a means of avoiding environmental impacts and/or establishing early mitigation action plans prior to project construction consistent with the Lawrence – Douglas County Plan 2040
- Where environmental impacts are unavoidable, develop appropriate mitigation strategies through an inclusive and collaborative process involving local governments and all identified groups impacted by the project

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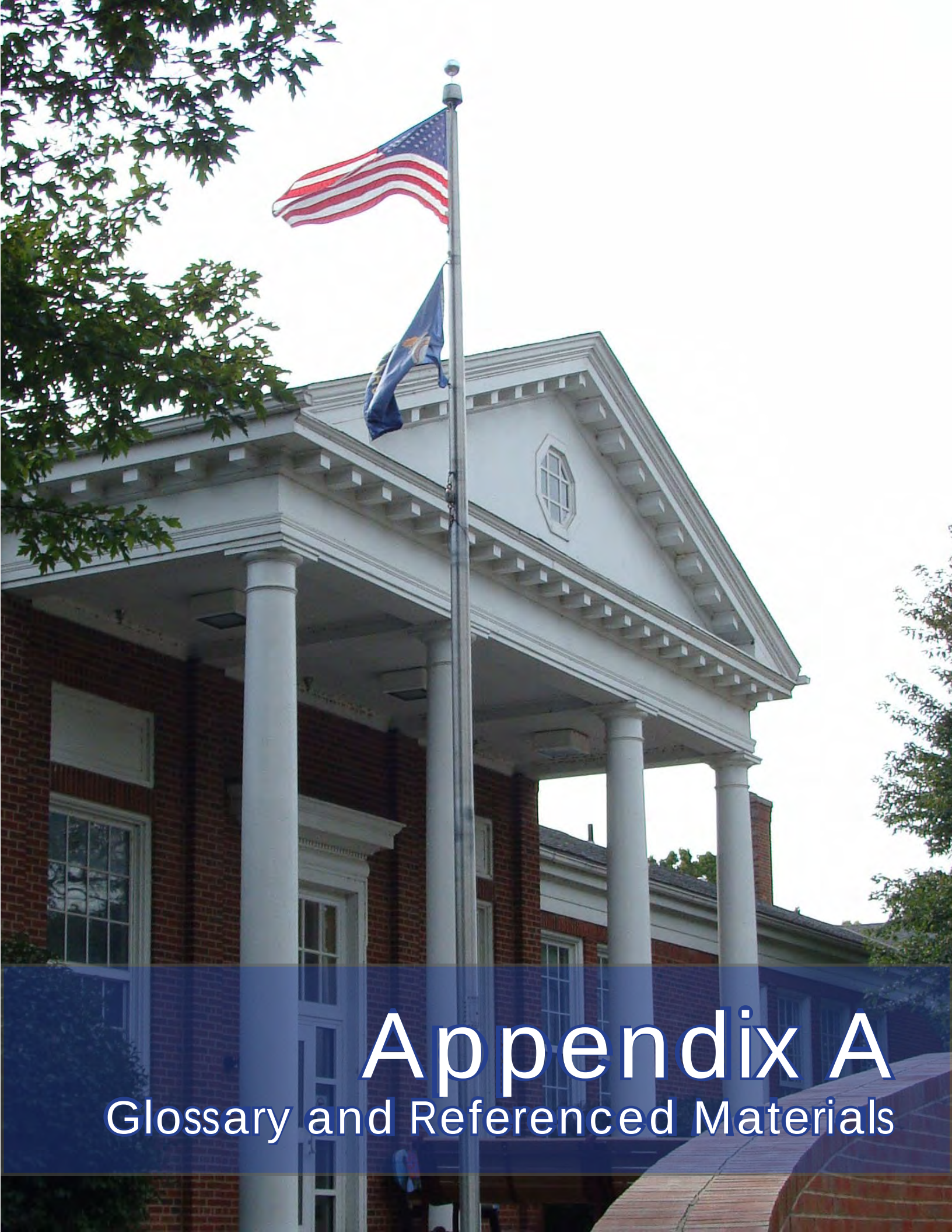


Appendix A

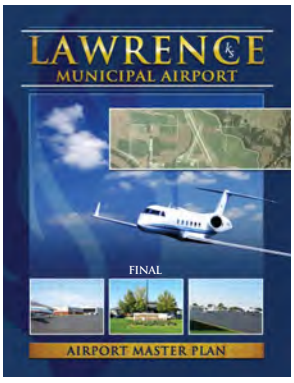
Glossary and Referenced Materials

American Association of State Highway and Transportation Officials

American Community Survey

Americans with Disabilities Act
Adopted: 1990

ADT **Average Daily Traffic**

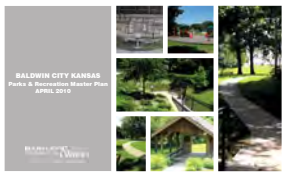


Lawrence Municipal Airport Master Plan
Adopted: 2011

Provides systematic guidelines for the airport's overall maintenance, development, and operation.

APC **Automated Passenger Counters**

American Transportation Research Institute

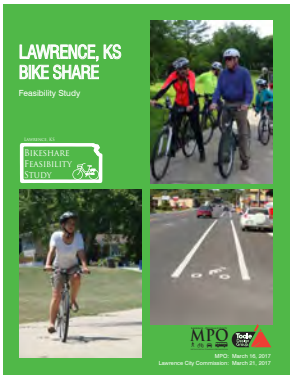


Baldwin City, Kansas Parks & Recreation Master Plan
Adopted: 2010

Guides the development and improvement of Baldwin City's parks, trails, and recreational amenities over the next 5 to 20 years.

Bike Share Feasibility Study
Adopted: 2017

Provides a framework for a bike share program that can be used by the region's stakeholders to guide its future development.



Burlington Northern-Santa Fe Railroad

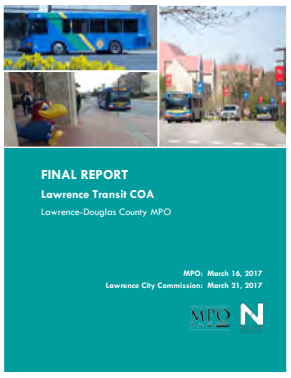
Bus Transfer Location Analysis
Adopted: 2018
Identifies and analyzes potential bus transfer locations in Lawrence.

Community Development Block Grant Program *CBDG*

Capital Improvement Program *CIP*

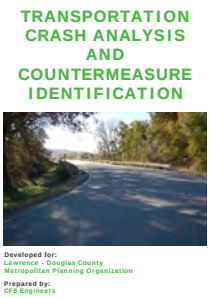
Comprehensive Operations Analysis
Adopted: 2017

Identifies the strengths and weaknesses of the existing transit system, and to develop recommendations that could be used for improving service and meeting future system goals.



Crash Safety Analysis and Countermeasure Identification
Adopted: 2017

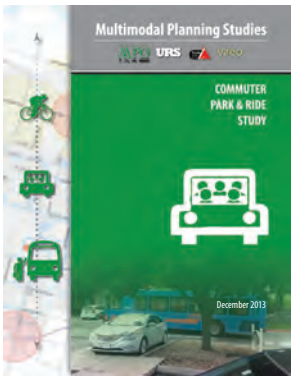
Compiled a geodatabase that identified locations with high traffic crash records for the county. Recommendations were made for cost-efficient crash countermeasures for the locations.



CSS **Context Sensitive Solutions**

CSD **Context Sensitive Design**

CTPP **Census Transportation Planning Packages**



Commuter Park & Ride Study
Adopted: 2014

Documents the evaluation process and recommendations to develop park & ride facilities within Douglas County.

Coordinated Public Transit and Human Services Transportation Plan
Adopted: 2016

Collects and analyzes meaningful organizational and consumer information to create a plan for future coordination and improvement of services in Douglas County.

DC EMD **Douglas County Emergency Management Department**

Douglas County Hazards Mitigation Plan
Adopted: 2008

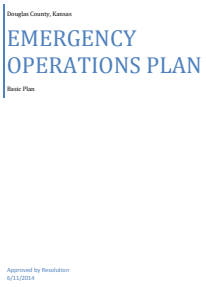
Identifies proactive mitigation planning at the local level that can help reduce the cost of disaster response and recovery to property owners and the government by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption.

Environmental Justice *EJ*

Environmental Justice provisions require agencies to take steps to identify and address disproportionately high and adverse impacts on minority and/or low-income populations through the development and implementation of T2040.

Emergency Operations Plan

The purpose of the EOP is to establish a comprehensive, countywide, all-hazards approach to incident management across a spectrum of activities including prevention, preparedness, response, and recovery, in the event of a disaster or emergency.

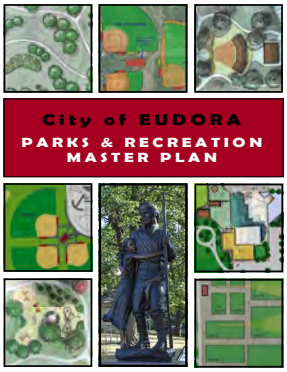


U.S. Environmental Protection Agency *EPA*

Transportation Emergency Support Fund *ESF-1*

City of Eudora Parks & Recreation Master Plan
Adopted: 2012

Guides the development, improvement, and maintenance of Eudora's parks, trails, and recreation programs over the next 10+ years.



Fixing America's Surface Transportation Act *FAST Act*

The current federal surface transportation legislation. MPOs are required to develop a Metropolitan Transportation plan that is fiscally constrained, contains performance measures, goals, and targets to identify needed transportation improvements and project selection.

FHWA **Federal Highway Administration**

Fixed-Route Transit & Pedestrian Accessibility Study
Adopted: 2014

Evaluation of fixed-route and pedestrian accessibility conditions within Lawrence.

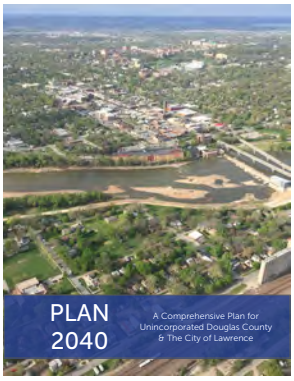
FTA **Federal Transit Administration**

FY **Fiscal Year**

FFY **Federal Fiscal Year**

GIS **Geographic Information System**

Haz-Mat **Hazardous Materials**



Comprehensive Plan for Unincorporated Douglas County

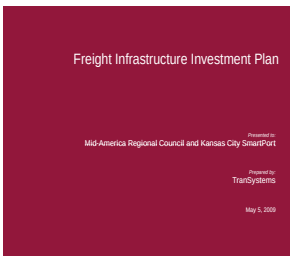
Provides a vision and expresses a community's desires about the future. Provides the foundation and framework for making future physical development and policy decisions. The Plan is also used by property owners to identify where and how development should occur; by residents to understand what the city and county anticipates for future land uses within the community; and by the city, county and other public agencies to plan for future improvements to serve the growing population of the community.

I-70 Corridor Transit Feasibility Study
Adopted: 2014

Examined the feasibility of providing transit service operating the I-70 corridor between downtown Kansas City, Missouri; Lawrence, Kansas; and Topeka, Kansas.

Intra-Regional Freight Study for Northeast Kansas
Adopted: 2010

Identified freight infrastructure needs and assessed Kansas City's regional transportation advantages, resulting in targeted strategies and messages for the region.

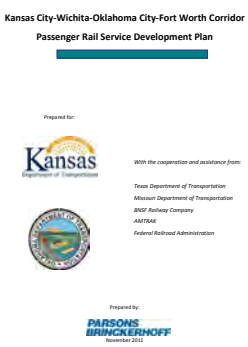


International Roughness Index *IRI*

Intelligent Transportation Systems *ITS*

Kansas City- Wichita- Oklahoma City- Forth Worth Corridor Passenger Rail Service Development Plan
Adopted: 2011

To facilitate further economic development opportunities and growth, the states of Kansas and Oklahoma, in cooperation with Texas and Missouri, have embarked on the initial stages of examining the potential for expanding passenger rail service from Kansas City to Fort Worth.



Kansas Statewide Freight Network Truck Parking Plan
Adopted: 2016

Studies and develops strategies for improving its statewide freight network's safety, efficiency, and competiveness. Allows better understanding of current and future freight truck parking needs in the state.

KDOT **Kansas Department of Transportation**

KTA **Kansas Turnpike Authority**

KU **Univeristy of Kansas, Lawrence**

2014-2014 University of Kansas Campus Master Plan
Adopted: 2013

Lays out future growth for KU's Lawrence and Edwards Campus.

KU Bicycle Master Plan
Adopted: 2016

Outlines short- and long-term recommendations that serve as a blueprint for making progress toward a more bicycle friendly campus environment over the next ten years.

KUOW **KU on Wheels Transit Service**

L-DC MPO **Lawrence-Douglas County Metropolitan Planning Organization**

Lawrence- Douglas Countywide Bikeway System Plan
Adopted: 2014

Provides updates to the existing and planned T2040 bikeway network for the Lawrence Urban Area and proposes bikeway connections throughout the remainder of Douglas County, including the Cities of Eudora, Baldwin City, and Lecompton.

Lawrence Loop Allignment Study
Adopted: 2017

This study analyzed alternative alignments to determine the feasibility and public preference for two incomplete sections of bikeway.

Longitudinal Employer Household Dynamics *LEHD*

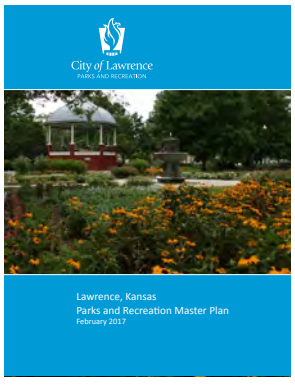
LEHD Origin- Destination Employment Statistics *LODES*

Level of Service *LOS*

Lawrence Municipal Airport Federal Aviation Administration Code *LWC*

Lawrence, Kansas Parks and Recreation Master Plan
Adopted: 2017

A planning tool that both establishes parks, recreation, and facilities standards and addresses future needs. In addition, this Plan provides recommendations for a systematic and prioritized approach to implementation of parks and recreation projects and organizational needs.



MAP-21 **Moving Ahead for Progress in the 21st Century**

MARC **Mid-America Regional Council**

MPA **Metropolitan Planning Area**

MPO **Metropolitan Planning Organization**

MTP **Metropolitan Transportation Plan**

NACTO **National Association of City Transportation Officials**

NEPA **National Environmental Policy Act**

NHS **National Highway Systems**

The Northeast Kansas Multi-Hazard, Multi- Jurisdictional Mitigation Plan
Adopted: 2014

The plan provides realistic actions to reduce potential vulnerability and exposure to identified hazards for the 9 participating counties and 1 participating tribe located in the northeast region of the State.

NPMRDS **National Performance Management Research Data Set**

O&M **Operations and Maintenance**

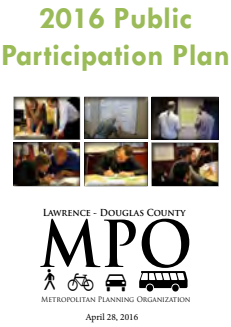
Pedestrian Bicycle Issues Task Force Report
Adopted: 2016

Findings and recommendations on ways Lawrence can invest in a transportation system geared toward providing additional safety and comfort for all ages and abilities.

Pavement Condition Index *PCI*

Public Participation Plan
Adopted: 2016

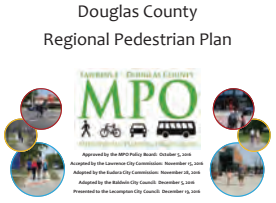
Outlines the public participation process and recommended methods to engage the public during the regional transportation planning decision making process.



Public Transit Advisory Committee *PTAC*

Regional Pedestian Plan
Adopted: 2016

Presents a toolbox of policy, program, and infrastructure ideas that cities in Douglas County can implement to improve the pedestrian environment.



Regional Transit Advisory Committee *RTAC*

SE **Socio-Economic Data**

KDOT Statewide Strategic Highway Safety Plan
Adopted: 2015

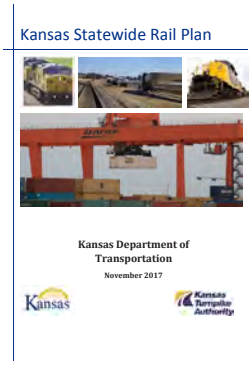
A strategic highway safety plan is a coordinated and informed approach to reducing highway fatalities and disabling injuries on all public roads.

SLT **South Lawrence Trafficway**

SRTS **Safe Routes to School**

Statewide Freight Plan
Adopted: 2017

Provides a better understanding of Kansas' existing freight transportation system, establishes goals and strategies for updating the system over the next 20 years, guides future investments in freight transportation, and prioritizes freight projects that would provide the most benefits.



Statewide Rail Plan
Adopted: 2017

Formulates a state vision for railroad transportation in the future and strategies to achieve that vision.

TA **Transportation Alternatives**

TAM **Transit Asset Management**

Traffic Analysis Zone	*TAZ*
Travel Demand Management	*TDM*
FTA Transit Economic Requirements Model Scale	*TERM*
Transportation Improvement Program	*TIP*
City of Lawrence Paratransit	*T-Lift*
Transportation Works for Kansas	*T-Works*
Urban Area Boundary	*UAB*
Urban Cluster	*UC*
Urban Growth Area	*UGA*
Useful Life Benchmark	*ULB*
Union Pacific	*UP*
Urbanized Area	*UZ*
United States Department of Transportation	*USDOT*
Vehicle Miles Traveled	*VMT*

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Appendix B
Public Input

Appendix B. Public Input

This appendix contains all of the public input collected during the Transportation 2040 update process.

A. Public Involvement Process

Public involvement is a critical component of in the transportation planning process and the development of the T2040 Plan. The Lawrence-Douglas County MPO's Public Involvement procedures documented reflect the region's rigorous approach to public involvement. It outlines a process that provides complete information, timely public notice, and full public access.

This planning process was divided into two public engagement phases. The first phase began with the release of the transportation survey on February 1, 2017. Stakeholder interviews were held to gather input regarding transportation needs and issues from public agencies and interested parties. Four open houses were held to garner public input.

The second phase of public engagement began on November 13, 2017 with the release of the second transportation survey and the first of five open houses held between November 13 and November 21, 2017.

B. T2040 Public Input

There were several ways public input was collected.

1. Open Houses

Nine open houses were held to gather public input in Lawrence, Eudora, and Baldwin City. Participants were able submit written comment and partake in exercises regarding transportation in Douglas County and provide feedback on their main priorities for the future of transportation in the area.

Phase 1

- Lawrence Aquatic Center, 4706 Overland Dr, Lawrence, March 27, 2017, 4-7 pm
- Lawrence Public Library, 707 Vermont St, Lawrence, March 30, 2017, 3-6 pm
- Baldwin City Public Library, 800 7th St, Baldwin City, April 3, 2017, 4-7 pm
- Eudora Community Center, 1630 Elm St, Eudora, April 6, 2017, 4-7 pm

Phase 2

- Baldwin City Public Library, 800 7th St, Baldwin City, November 13th, 4:30-6:30 pm
- Eudora Community Center, 1630 Elm St, Eudora, November 14th, 4:30-6:30 pm
- Lawrence Public Library, 707 Vermont St, Lawrence, November 16th, 3-5 pm
- Aunt Netters Cafe, 336 Elmore St, Lecompton, November 17th, 11-1 pm
- Lawrence Public Library, 707 Vermont St, Lawrence, November 21st, 5-7 pm

2. Surveys

Two surveys were utilized in this planning process. The first survey was centered on identifying respondents' experience and vision for transportation in the Lawrence-Douglas County region. The survey was available from February 1 to April 30, 2017. Surveys were collected online and through paper copies via mobile meetings. The online version utilized the Tell Us Portal through the City of Lawrence website and collected responses anonymously. Thirty-eight mobile meetings were held February 11 – April 30, 2017 during the first phase of public engagement and are listed below. Staff hours for the mobile meetings are estimated at 164 hours. A total of 1,555 surveys were collected.

- *Aunt Netters Café*
- *Baker University*
- *Baldwin City and Baker University Community Wellness Festival*
- *Baldwin City Chamber Luncheon*
- *Baldwin City Knights of Columbus*
- *Baldwin City PTO Spring Carnival*
- *Earth Day Celebration*
- *Eudora Area Historical Society Program*
- *Eudora Chamber of Commerce Lunch Meeting*
- *Eudora Family Fun Night*
- *Final Fridays*
- *Just Foods (4)*
- *KU Bike Event*
- *KU Faculty and Staff Wellness Fair 2017*
- *KU KS Union Lobby Tabling*
- *Lawrence Farmers Market*
- *Lawrence Helmet Fair*
- *Lawrence Kiwanis*
- *Lawrence Library (4)*
- *Lawrence Noon Lions Club*
- *Lawrence Rotary*
- *Lawrence Sports Pavilion (3)*
- *Lecompton City Council Meeting*
- *Library All Ages Carnival*
- *Library Tail Wagging Readers*
- *LiveWell Event*
- *Transit Annual Public Meeting*
- *Vinland Fair Pancake Supper*
- *Weather 101*
- *WowFest- Community Health Fair (and helmet event)*

The second survey asked participants to weigh in on the strategies and projects that will best address the transportation priorities in Lawrence and throughout Douglas County. The survey was available from November 13 to November 27, 2017. Surveys were collected through the Tell Us Portal and via paper copies at the five open house meetings held during the survey window. An email was sent to everyone who provided their email address on the first survey and a notice was sent through Tell Us Portal telling past participants a new survey opportunity was available. A total of 88 surveys were collected.

3. Stakeholder Interviews

Thirty-six interviews were conducted with various stakeholders to gather input regarding transportation needs and issues. These interviews included representatives from a wide cross section of the community including representatives of organizations, not normally included within transportation planning process such as the Kansas Department of Wildlife, Parks, and Tourism, the US Army Corps of Engineers, the Lawrence Shelter, League of Women Voters, Tenants to Homeowners, and many more. This diverse cross section of people provided varied input. However, it was remarkable how similar some of the responses were.

- *Army Corps of Engineering*
- *Baldwin City*
- *Baldwin City Schools*
- *Bert Nash*
- *Bike advocate*
- *City of Eudora*
- *City of Lawrence*
- *City of Lecompton*
- *Cottonwood, Inc.*
- *Douglas County*
- *Douglas County Community Foundation*
- *Douglas County Emergency Management Office*
- *Eudora Chamber*
- *Eudora Police Department*
- *Explore Lawrence*
- *Hamm*
- *Haskell Wetlands Preservation Organization*
- *Kansas Department of Wildlife, Parks and Tourism*
- *Kansas Turnpike Authority*
- *Lane Museum*
- *Lawrence Bike Club*
- *Lawrence Chamber of Commerce*
- *Lawrence Home Builders Association*
- *Lawrence Parks and Recreation*
- *Lawrence Shelter*
- *Lawrence Sustainability Division*
- *Lawrence-Douglas County Housing Authority*
- *League of Women voters*
- *Senior Resource Center*
- *Sustainability Action Network*
- *Tenants to Homeowners (Lawrence Community Housing Trust)*
- *University of Kansas*
- *Urban Corridor/Ride KC*

4. Mobile Meetings

Mobile meetings were held throughout the first phase of public engagement to promote the survey and participation in the planning process. In addition to providing paper copies of the survey, two mobile meetings were held with the Lawrence Sustainability Advisory Board and the LiveWell Lawrence Healthy Built Environment Group, participated in interactive exercises to gather further public input.

5. Written Comment

MPO staff accepted email and hand written comments, as well as public comments left in the general comment area within Tell Us Portal during the public participation process. Written comments about the draft T2040 Plan were collected from February 1 - March 2, 2018.

C. What we heard

Public input is highly valued in the planning process. In holding public involvement activities, many issues and concerns were voiced. The MPO has summarized all the comments collected through the T2040 Public Participation process below.

1. Open House Comments

a. Phase 1 Open Houses

There were 4 open houses held during the first public engagement phase. 68 people attended the open houses.

- Lawrence Aquatic Center – 7 attendees
- Lawrence Public Library – 56 attendees
- Baldwin City Public Library – 5 attendees
- Eudora Community Center – 0 attendees

Open house attendees were asked to provide comments to questions on large poster boards. Responses were grouped based on the number of comments. If a comment was stated multiple times the number of times the comment was provided is shown in parentheses.

How can we make it easier to travel within your city?

- Buses on weekends – Sundays especially (2)
- Center turn lanes
- Continuous bikeways
- Have buses run until 8pm – especially Route 36 for students who have evening classes but live off campus
- More frequent buses <15 min
- More K-10 connector stops on campus including on Daisy Hill for all day and evening routes and weekends

How can we make it easier to make connections between different forms of transportation?

- Bike share stations at all bus stops
- Ensure transit serves dense populations
- Improved pedestrian environments (trees for shade) (2)
- Intercity bus (Topeka to KC)
- More sidewalks or at least continuous sidewalks so you don't have to constantly cross the street
- Road diets to increase space for bicycle facilities – make riding a bike feel safer

How can we make it easier to commute in and out of the area?

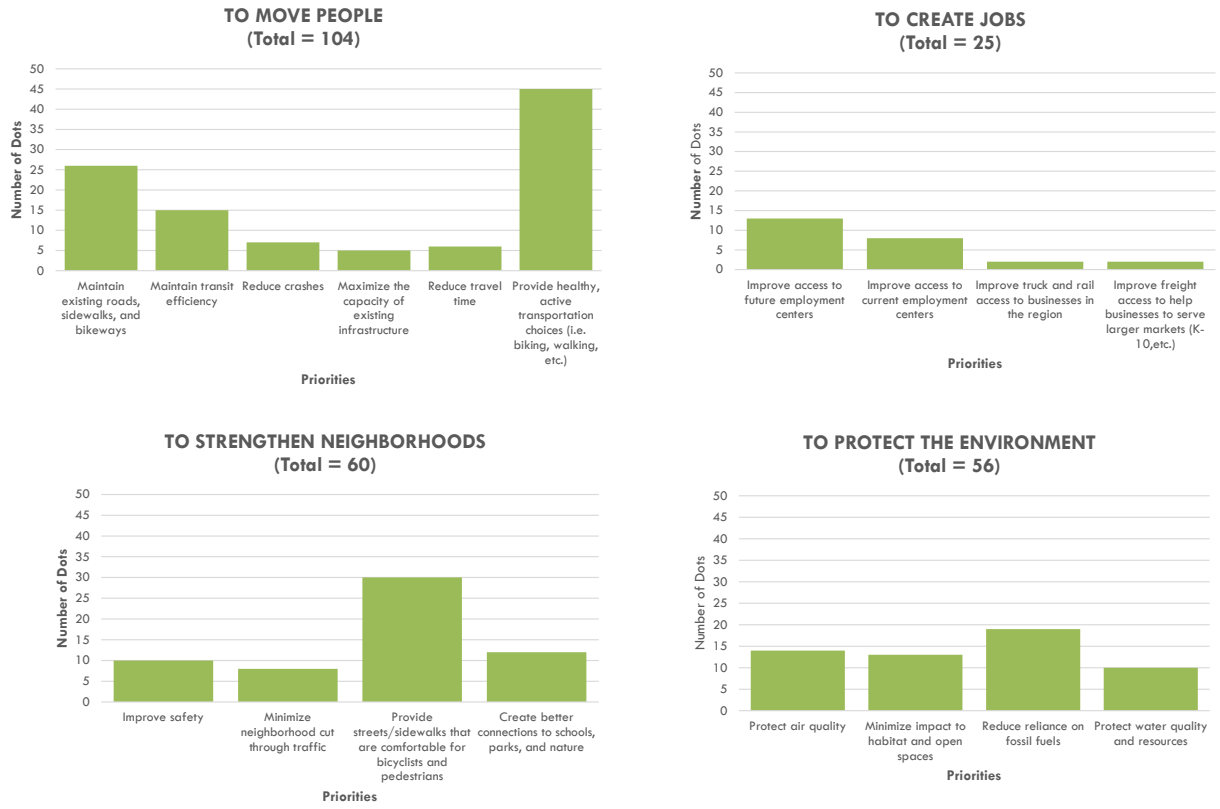
- Bus from Topeka to Lawrence that connects with the Lawrence to KC bus
- Busses between KC and Lawrence that go to places aside from JCCC (2)
- Open K-10 Connector routes on Daisy Hill for all days and evening hours. So we don't have to go so far to catch the bus. Or try to deal with Irving during school hours. (2)
- Places to lock up bike @ bus stops (2)

b. Interactive Exercises

Interactive exercises included a series of questions and a dot exercise to prioritize the objectives under the larger goals of moving people, creating jobs, strengthening neighborhoods, and protecting the environment. Participants were given four dots to place near their priorities. As shown in Figure B.1 "provide healthy, active transportation choices (i.e. biking, walking, etc.)" within the overall goal of moving people was the top choice with forty-five dots. The second highest choice was "provide streets/sidewalks that are comfortable for bicyclists and pedestrians" within the overall goal of strengthening neighborhoods received thirty dots. Overall moving people was the top goal, followed by strengthening neighborhoods, protecting the environment, and creating jobs.

What do you consider to be the most important priority? Place your dots on display 5. Explain below.

Figure B.1: Open House 1 Priorities for the Region Results



Participants were asked to provide reasons for their how they placed their dots. They are grouped below.

Biking/Pedestrians

- Connect sidewalks – I live between the Holidome and Folks Rd – both places become unsafe to walk
- Environmental, ped and bike, low fossil fuel
- Equally important: a) promote and incorporate legitimate bikeways that encourage bike riding as a form of transportation and b) promote and expand public bus transit (locally, that

is)

- Healthy active life
- I bike recreationally – being able to plan routes and move around safely is important to me.
- Linking more transportation systems together, having more direct way to get from one place to another –more bike/walking trails that connect (2)
- Maintaining sidewalks and people powered transportation options will be good for health, environment, and neighborhoods/community connections
- Providing streets and sidewalks that are comfortable and safe for bicyclers and walkers
- Safe biking in the areas so people can ride/walk to school, shop, work, entertainment
- To move people – I'd rather ride a bike than hop in a car and sit and not exercise
- Walk/bikability

Driving

- Maintain efficiency and improve access to future employment and not current. To protect what's already there, improve safety, and air quality
- Smooth flow of traffic, minimize wasted fuel (timed stop lights, sync), sensible separation of motor, trains, pedestrians, and bicyclists.

Transit

- Bus
- A transit hub decision
- Bus service to Baldwin and Perry Lake
- City planning and development to minimize transportation based on powered vehicles
- Fully functioning bus system
- I would like to see 1 or more transit routes that come every 15 minutes or less so I shouldn't need to use a schedule to check the times.
- If we protect and nurture all our neighborhoods, we will help those in need of public transportation to get where they need to go: e.g. the poor getting to work, the elderly getting to the store or the doctor
- Lawrence to Ottawa and Baldwin City to Lawrence – get more public transportation or increase bike routes from each city
- Less need for transit – meaning more access to services within walking distance of neighborhoods
- Maintain transit efficiency (2)

Environment

- 1 dot: healthy active transportation choices, 3 dots: reduce reliance on fossil fuels. These two aspects are intimately connected. Fossil fuels are providing the energy that should be coming from our legs. To me the current way of life is not sustainable and big shifts are needed. The community needs infrastructure that support those shifts.

- I think it is important to build and maintain public transit systems while protecting the environment (reducing reliance on fossil fuels, protecting water and air quality)
- My most important priority was the environment. I feel like it's most important before anything else.
- Reduction in fossil fuel use, provide healthy active transportation options, provide retreats/ sidewalks that are comfortable
- To protect the environment

Other

- 1) maintain existing roads, sidewalks and bikeways, 2) improve access to current and future employment centers, 3) maintain transit efficiency
- Ability of traffic system to accommodate projected growth. How will people get around? Type of work being done.
- Enhancing multimodal connections (walking -> biking -> transit) will be important to establish soon before Lawrence sprawls out to much to allow for it.
- I believe that roads and sidewalks need to be updated.
- Improve freight access – without the freight industry residences would not have the product and their safety us important.
- Maintain existing roads – it cost more residence taxes if city don't maintain what's there
- Maintain existing roads, etc
- Maintaining existing transportation routes and expanding routes for walkers and bikers is important. Lawrence is small enough that people walk and bike anyways especially those who don't own cars and because that is so prevalent it should be expanded and maintained.
- Minimize neighborhood cut through traffic
- Minimize neighborhood cut through traffic. So it's safer for kids. Protecting the environment because we only have one earth. Giving people a chance to fix their lives. Fixing the things when have now
- Moving people in ways other than the automobile allows us to replace street pavement and parking lots with businesses, parks, etc. this improves our quality of life.
- Need to improve other methods of transport vs automobile – better walking, biking, and transit
- Provide a better connection through Lawrence plus reduce travel time and increasing better air quality
- Safety in neighborhoods- children should be top priority
- Safety, safety, safety. Motorists need to understand that bikes service part of the road and to be aware of them as much as they are aware of cars.
- System preservation – maintain existing roads, sidewalks and bikeways (reduces costs, helps, maintain safety, efficiency)
- To move people -> if people lack transportation, less likely to have a good job and not able to shop adequately
- To move people. That's what transportation does.

How do you think employment and population growth will impact transportation?

Traffic

- Only will create congestion
- An increase in flow of traffic on US 59, US 56 between Baldwin City and US 59. Also there seems to be an increase on 1055 between Lawrence and Baldwin City.
- Congestion on throughways (2)
- Drive need for either more parking spaces or better public transit
- Employment growth influx of vehicles = greater congestion and traffic volumes into Lawrence-Douglas county region. Not a balance between inflow and outflow. Population gowning west creates more transportation needs and issues
- Further development at the west end of 6th will likely stress that arterial road more.
- I-70 and the state routes depicted on the display will become bumper-to-bumper but still quickly side roads will become more congested also. If mass transit become more frequent more people will use it.
- It can only result in more traffic
- It will be congested everyone will have a car.
- It will create more crosstown traffic
- More arterial roads needed
- More people -> more traffic. More traffic = destruction of roads
- More traffic and more parking issues
- Reduce grid flow
- Sadly population growth will promote more lops and bypasses for vehicles (4-wheeled or more) in fact with completion of the southern arm of K-10 bypass it's already begun. So more money will go to roads and less to public transit and transportation bikeways.
- The city will expand which will mean more vehicles trying to get more places

Transit

- As employment grows transportation will be more accessible.
- By a lot the bus is a lot more calm and peaceful
- Does transit system come before more job or does it follow?
- Growth put pressure on current systems – need to expand options – especially regional transport options
- I think it will stress the bus system and that expanding walking and biking paths could help to counter it. I think bus routes may have to be altered to accommodate the shift of population to south/west Lawrence
- Increase in both will cause a need for increase of buses, etc. and increase roads.
- It seems like business/employment centers are far enough from the densest populations

centers to necessitate mass transit to/from these locations

- More need for viable transit system
- Need more buses
- Need more public transportation
- People will want to build where there is accessible transportation. Easy access to employment and recreation is important.
- There will be need for greater safer transport in bulk for employment for further distances
- Transportation infrastructure will need to handle more trips
- We need some form of public transit to and from Lawrence for commuters

Employment and Residential

- Depends if we expand up or out. I hope we limit our outward growth so that a higher variety of things are within walking/bike distance
- Good planning of residential areas will help planning of their transportation needs
- I don't feel like it will change that much. Lawrence seems to be stagnating in job growth
- If the town grows in the way that benefits people they stay in town and won't move
- More people will be commuting got KC
- More redevelopment in established and blighted areas.
- Need more dense employment areas and residential
- Population growth will increase transportation needs. Aging population and sprawl increases need for public transportation – vans, buses, etc.
- Significantly if employment centers are separated from residential
- Spreading people out will be counter to good growth

Other

- I have no idea
- Accidents
- Autonomous vehicles will become common
- I think the demand will keep growing
- It will better it
- Make easier for residents/nonresidents to get around because nonresidents use own cars/ residents take transportation provided making traffic lower
- More impact on need to reduce carbon footprint
- More people (in general) will work remotely (from home)
- More people will be needing to get to work.
- The more population growth the more transits there are either their own car, public transit, bike, walking, and even freight transit the transportation will increase
- Traffic on K-10 will continue to increase, also resulting in increased crashes on K-10

How can we make it easier to make connections between different forms of transportation?

Transit

- Better bus routes
- Bus that travels fully from west to east and back – with no connections
- Continue to adjust transit routes in the direction of continued population growth if density permits
- Ensure sidewalks and curb ramps are in good repair and are continuous along transit routes
- Intercity bus!! Meet needs of commuters in and out of the L-CD region
- Just making physical connections to trails leading to bus route place mile markers/stories/ pictures along paths
- Mass transit will improve – perhaps or light rail running e/w and n/s
- More buses
- More connections through bus routes and run them later
- Secure bike parking at transit stops (covered or bike lockers)
- The bus should run more than every hour in north Lawrence.

Biking

- More trails and bike lanes
- More bike trails
- Better bike routes/trails (3)
- Bike share
- Bike share at bus stops
- Bus stops near the bike and walk way
- Complete networks of sidewalks and bike paths
- Create more bike lanes and more bus stops
- Dedicated bikeways suitable for less experienced users
- Make more bicycle friendly lanes
- Making it easier to just use one type of transportation – biking – actually possible from one side of town to another is the biggest priority to me. Make more trails like Burroughs creek trail that tactually connect parts of town that keep bikers off streets. Don't' make bike lanes that stop and start and zig zag around (9th St).
- Maybe a "cross-town" bike trail form Iowa St to Mass. St
- More bike racks on busses.
- More sidewalks, bike stations
- Places to lock up bikes at bus stops.
- Reclaiming lane space on wide roads and dedicating it to bikes would make biking more convenient, safer, and would encourage transit use along existing routes (since buses can hold bikes)

- Safe bike lanes and sidewalks. The city will be walkable and bike-able
- Safer bike routes; secure parking for bikes
- Wide sidewalks (like the one along Louisiana st or mass st by south park, well lit, and bike paths (that are clearly marked) may help
- Would be nice to have bike trail to Lawrence. As of now, bicyclists use the roads which is hazardous to bicyclists and cars
- You might start by putting a bike path along the bus system

Pedestrian

- Sidewalks
- Improve sidewalks and bike paths
- Better sidewalks, expand bike lanes to more parts of the city and have buses run more often (2)
- Decent sidewalks (2)
- Go over or under major arteries for foot and bike traffic.
- It seems like planned bike routes/lanes are thorough. I'd like to see more/better maintained sidewalks
- Street trees in lacking areas could encourage people to walk due to increased shade.

Automobiles

- Anticipation of driverless cars/vans
- Better roadways and sidewalks
- Encouragement for ride sharing
- Pathways and elevated roads/streets for cars

Other

- "Systems thinking" (apps, etcetc.). E.G. I want to get from A to B, what are my options?
- ¼ mile walking distance or less to system connect
- Better bike/car/truck laws and enforcement (and licensing of bikes for security/safety/theft protection)
- Cart parks and bike parking
- Improved signage
- Make sure bicycling persons and pedestrians follow traffic laws
- Maybe a larger buffer between major state streets and neighborhoods
- Meet around the same area to give people a chance
- Minimizing growth
- Parking lots behind buildings so that transit can drop off at street near front door of business
- Tough question, but... make sure sidewalk are uninterrupted, bike parking available at

destinations and transit stops, that transit stops and bike parking don't interfere with foot traffic.

How can we make it easier to commute in and out of the area?

Roadways

- By-passes
- Connect k-10 to US-40 at E700 rd rather than (or in addition to the current west SLT alignment). This would then also be aided by an exchange onto I-70 somewhere near E600 or E500 rd.
- Have a plan to expand and improve highway access!
- Increase the speed limit at toll road entrances for those with a K-Tag. Slowing to 20 mph seems unnecessary.
- It would be an improvement if county roads had shoulders because of bicycling
- Maybe more roads for less traffic
- More arterial roads
- More ride sharing
- More roads

Transit

- Add transit to downtown KC, KC airport and downtown Topeka
- Bike share at bus stops
- Bus stop out on Clinton
- By bus
- Central hub/good access
- Cheaper more accessible transport
- Efficient public transportation
- Faster bus time
- Have the number 10 bus resume stopping at the community building
- Help fund commuter bus to Topeka, continue connection to KC, link the two?
- I think we (Lawrence) are on the right track in finding local and out-of-area connections when the numbers call for them, for example, touting the benefits of bus transit to Johnson Co. Community College, and if the numbers are there to experiment with a bus connection to the destination
- Increase in outgoing public transportation
- Intercity buses or shuttles
- Intercity buses would be great!
- Light rail to KC
- Make rides cheaper – I'm only 17
- More and regularly scheduled buses traveling to KC, Topeka. Problem with Topeka is once

you get there they must coordinate
- More bike trails, busses
- No advance notice trains
- Park and rides, connections to KC and Topeka
- Provide shuttle services
- Public transit needs to go on more side streets
- Separate motorized transportation corridors from residential
- Transit is needed especially for seniors

Other
- Better follow and ease of transportation
- Don't think it's a problem now
- Help promote safety
- I actually don't have any difficulty commuting to Topeka – into or out of
- I have no problems with my current commute
- Info to schools/places at work – big places at work like hospital/KU/City o so all people that work in major places will know more – they can share info
- It will never happen but a train going from Lawrence to kc and back, m-f, with departures and arrivals attractive to commuters and at an affordable price would be lovely. Neither exist at present. Last I checked Lawrence to KC departure was around 5:30 am, return to KC-Lawrence of approx. 11 pm. With one-way ticket prices from $12-20. Luckily k-10 connector bus is a better option, but more geared to JOCO commuter.
- It's fairly easy now- but more frequent options would be great – especially to Topeka
- Looks good!
- More drinking fountains
- More trails so my young child can ride them
- Newspaper
- Rail?
- Regional airport
- Short term car rentals – look at car2go.com
- Unfamiliar with outside of Lawrence

Lawrence

How can we make it easier to travel within your city?

Biking
- Trails built to handle kids riding
- Cycling lanes at least along 6th St. and possibly along some north/south streets that connect to 6th St.

- Making it easier to just use one type of transportation – biking – actually possible from one side of town to another is the biggest priority to me. Make more trails like Burroughs creek trail that tactually connect parts of town that keep bikers off streets. Don't make bike lanes that stop and start and zig zag around (9th St).
- Bicycle specific highways. Amsterdam is a great example
- Wider/nicer sidewalks along major roads (9th, 19th, etc.) that lead towards downtown or parks
- Bikeways that make room for cyclists on the streets that are geared for transportation. This supposedly progressive city is woefully behind in this regarding. Instead we cyclists are given alternative "bike routes" that are not convenient taking much longer. And the token attempts at bike paths on the street are almost insulting. Ex. The "bike path" on 9th street with "disappears" as one heads west and begins up the hill towards Iowa St. So what? I'm supposed to stop, get off and walk across to sidewalk on the other side of the street?
- Connect, crosstown bikeways
- Build bike boulevards to create safer places for family bicycling.
- More bicycle routes/trails/lanes (4)
- Bike-ability
- Safer bike paths –maybe some bike shortcut through parks/campus – off road
- Ottawa – need more bike trails and busses
- Bike share would be great
- Continue bike lanes and sharrows
- Keep buses running in summer and during KU breaks

Roadways

- Don't get rid of center left turn lanes, and perhaps add more
- More bulb outs at intersections for shorter and more comfortable pedestrian crossings
- Improve infrastructure provide stop lights for crosswalks
- Build more shared use paths along arterials and perhaps a few collectors (maybe major collectors)
- Don't mess with Kasold
- Connect sidewalks and trails
- Synchronize traffic lights, increase transit frequency
- Make crosswalks safer between stoplights… guard rails same as at railroad tracks.
- Improve roads and sidewalks.

Transit

- More bus routes, to edge of neighborhood areas
- More transit frequency (2)
- Buses on Sundays

- Buses should be more punctual
- Open up public buses via JOCO and KC

Other

- Location of university makes it somewhat more difficult to traverse (vehicle) to some destinations.
- Less density
- I am pleased that this survey is taking place. It seems that we start with where people live, and then plan to get them to work, school, stores. I believe that Lawrence is doing very well in considering where actual needs exist before investing in transportation.
- More maps and resources
- Better education of options for all groups
- Fix sidewalks. More services (ex. food) close to neighborhoods
- Don't let freshmen bring cars to KU
- Keep finding ways to improve

What do you think are the main transportation issues facing Lawrence, Eudora, Baldwin City and Lecompton? (Consider Automobile, Freight, Bicycling and Walking.)

Lawrence:

- Passage of future transit sales taxes – need to happen to support our system.
- Continued implementation of multimodal studies
- Street network is not grid west of Iowa. Difficult crosstown bike trips because of that.
- Flow of traffic and the overuse of roundabouts
- Auto traffic – 6th St. and Iowa St. crowded, getting on and off can be a problem
- Align lanes on 8th st so that westbound left turn lane isn't head on with eastbound lane. (results in westbound drivers not using turn lane.)
- Motorists are generally young and don't seem to be paying attention. Safety is very important for pedestrians and bicyclists. I would ride my bike more but I am nervous to.
- Lawrence could be much more bike friendly. I want to use my bike as my main form of transportation (not recreation) and it doesn't feel safe. It is hard to get to different parts of town. Make a path like Burroughs creek trail that connects (for example) the east and west sides of town on the north side of town.
- Bicycling lanes that connect with each other. Having a sidewalk on at least one side of the street.
- Creating legitimate and real (as opposed to the pseudo attempts at present) bikeways, on streets that promote and encourage bicycle use as a form of transportation
- Need to have more bike trails to connect each neighboring town including to Ottawa
- Bicycle lanes would be a great addition

- "Intra" city – bus service to Baldwin and Perry
- The bus routes could be better adjusted to the shift in population along with better access to grocery stores. Safe places to park/lock a bike
- Expanding public bus transit
- It's hard to get to multiple places in town using mass transit
- Automobile, bike, t-bus
- Long times between bus arrival exp. in north Lawrence. Not enough stops in neighborhoods
- Infrequency of buses it's not super pedestrian friendly
- Sidewalks and roads need to be improved.
- Sidewalk and road maintenance on the east side
- Going north and south throughout the square – missing sidewalks
- Some crosswalks (Wakarusa and Legends area for example) are dangerous, need stop lights
- Bad sidewalks in many neighborhood and sidewalks that abruptly end (north Kasold)

Eudora:

- Sidewalks!!! Pedestrian issues – pedestrian bridge needed across K-10 (2)
- Automobile, walking
- Needs a bus system (2)
- Better sidewalks

Baldwin City:

- Increase in freight due to the intermodal facility – safety issues
- Hard for freight transportation
- Bus system (2)
- Automobile, walking

Lecompton:

- I suppose there may be a future need to get residents to a job in Lawrence or elsewhere.
- Bus system (2)
- Automobile, walking
- Hard for freight transportation

Baldwin City

How can we make it easier to travel within your city?

- Need more 4-way stops or lights for safety
- Not a problem
- Continue to be mindful of future growth

What do you think are the main transportation issues facing Lawrence, Eudora, Baldwin City and Lecompton? (Consider Automobile, Freight, Bicycling and Walking.)

Lawrence:

- Consider Lawrence rail with shuttles to and from other communities

c. Comment Cards

What are your issues or concerns you think we should consider when drafting Transportation 2040?

- Revenue – growth in revenue at local and state level dedicated to transportation
- Access to central Lawrence from south
- Expand nighttime transit service
- Build the Douglas County transportation infrastructure as if it were the model for other communities to follow. Make it maintainable, something that can be added onto as needed, and environmental friendly.

Is there anything not covered today that you would like to tell us?

- Expand nighttime transit service
- Create a legitimate bike path entryway into Lawrence along US 59 that connects to South Lawrence. Bicycle riders shouldn't have to brave US 59.

Lawrence

What are the top 3 things you would like to see in the transportation future in your community?

- Safe bike/ped everywhere to get more people moving
- Renewed transit sales tax
- Widened sidewalks
- Sidewalk maintenance, but some sort of city program so it isn't at the expense of citizens directly
- Continued implementation of safe routes to school programming
- Better communication/coordination between units of government
- Southward extension of Wakarusa to 458
- Expand nighttime transit service
- Bicycle highways
- Bike shares

Baldwin City

What are the top 3 things you would like to see in the transportation future in your community?

- A daily shuttle to and from Lawrence to each of the communities listed in this survey.

d. Phase 2 Open Houses

5 open houses held during the second public engagement phase, which 61 people attended.

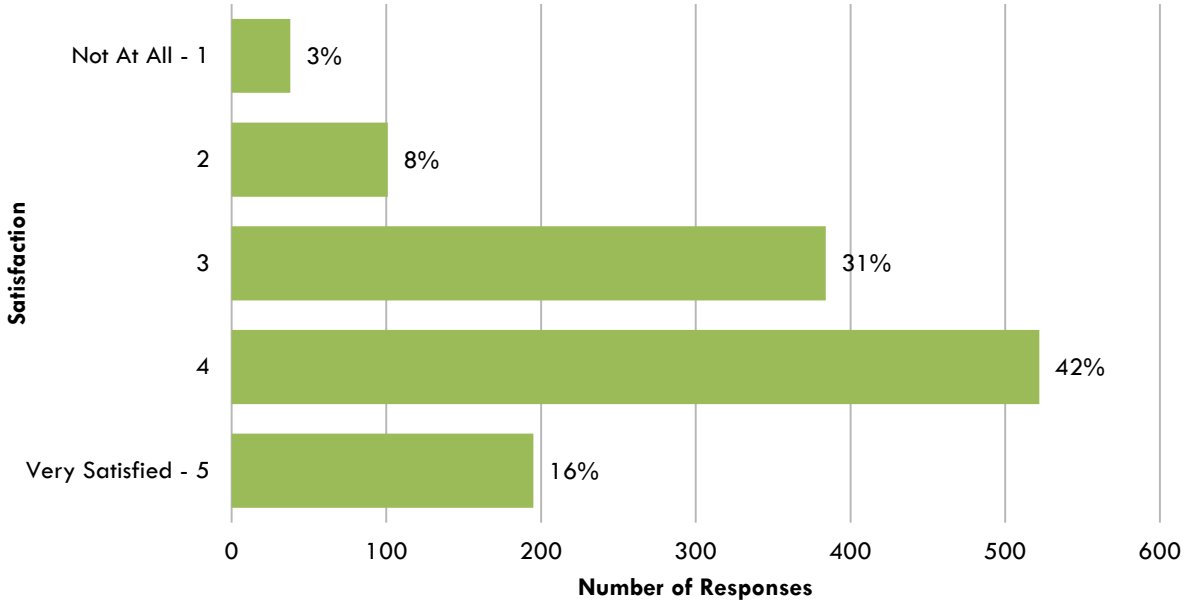
- Baldwin City Public Library – 8 attendees
- Eudora Community Center – 7 attendees
- Lawrence Public Library – 17 attendees
- Aunt Netters Cafe – 9 attendees
- Lawrence Public Library – 20 attendees

Rather than provide a separate comment card, open house attendees were asked to complete the survey. The survey included a question, "Is there anything these questions have not covered today that you would like to tell us about the transportation system?" Responses to this question are included in the survey two responses section.

2. Survey One Responses

When asked "The transportation system in our region consists of roads, buses, sidewalks, shared use paths and bicycle lanes & routes. How do you feel the transportation system meets your travel needs on a scale of '1' to '5' with '1' being 'Not At All' and '5' being 'Very Satisfied'? (Circle one.)" Respondents indicated:

Figure B.2: Satisfaction of Transportation System

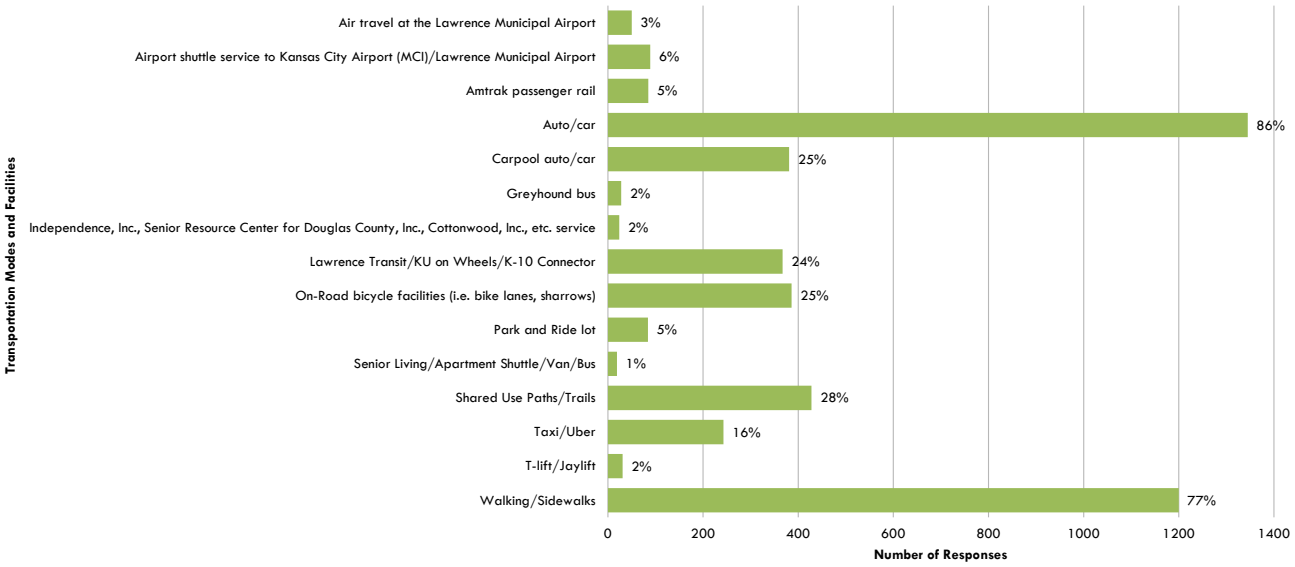


Average satisfaction - 3.59

Total number of responses – 1,240

When asked "Which of the following modes or facilities have you or your family used in the last month? (Select all that apply.)" Respondents indicated:

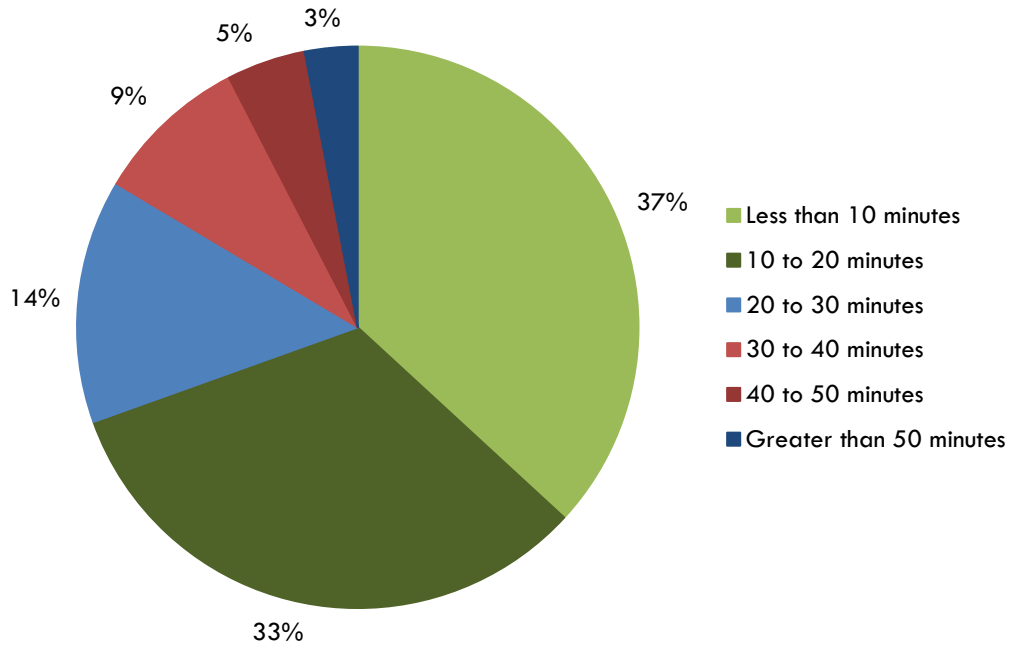
Figure B.3: Recently Used Transportation Modes and Facilities



Total number of responses – 4,760

When asked "How long is your typical commute to work/school? (Select one.)" Respondents indicated:

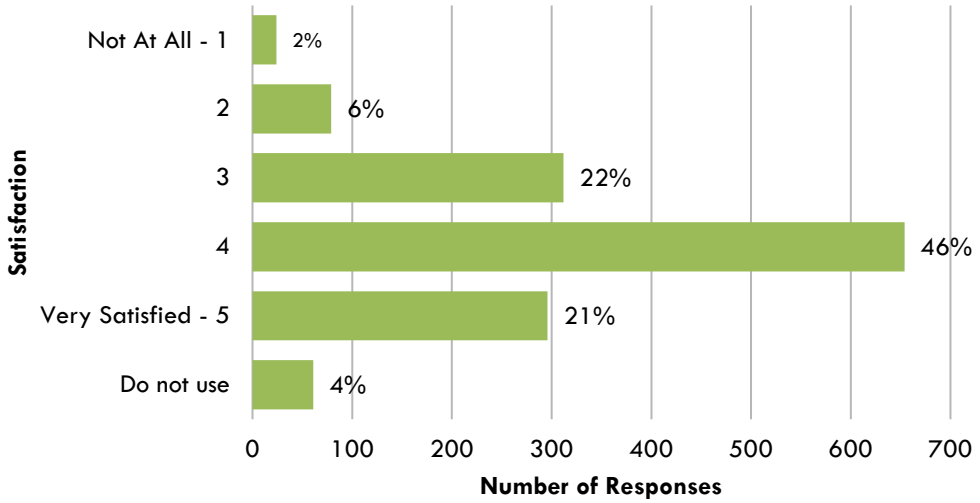
Figure B.4: Length of Commute to Work/School



Total number of responses – 1,319

When asked "How satisfied are you with your typical auto/car experience on a scale of '1' to '5' with '1' being 'Not At All' and '5' being 'Very Satisfied'? (Circle one.)" Respondents indicated:

Figure B.5: Auto/Car Satisfaction

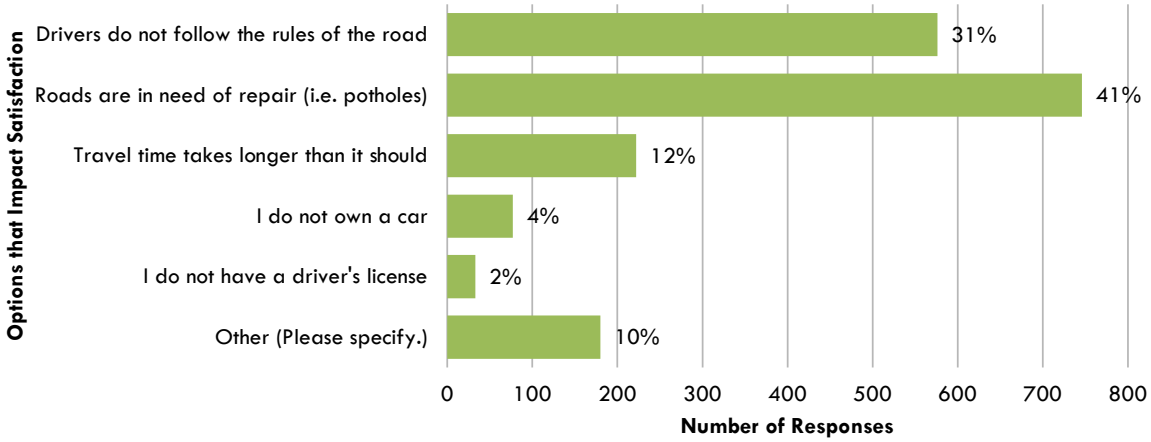


Average satisfaction - 3.82

Total number of responses – 1,426

When asked "Select the options that impact your auto/car satisfaction. (Select all that apply.)" Respondents indicated:

Figure B.6: Options that Impact Auto/Car Satisfaction



Total number of responses – 1,834

Other:

Access (4)

- Few high speed routes within the city of Lawrence and other communities. Lack of freeways connecting key roads that lie in different parts of the county and city of Lawrence
- It is very east to drive into Lawrence from Baldwin City.
- Lack of easy access to north Lawrence from K-10

- Not enough limited access thoroughfares

Bike/Ped. (9)

- Bike lanes (4)
- Not all cars respect bike lanes (2)
- Not enough bike paths on roads
- Putting a sign up on the side of a street does not create a safe bike path.
- Curbs and sidewalk; Princeton along school sidewalk
- I don't ride a bike but believe in encouraging their use would like to see real bike paths not shoulder on 1055, 460
- Off road bicycle transportation paths
- Pedestrians are ignored, particularly at the Legends roundabout.
- Sidewalks in poor condition

Congestion (14)

- Can't get onto 9th Street from Avalon at some times of day morning and 3-7 evenings.
- Congestion at times but nothing really bad.
- Heavy and Dangerous traffic in some areas (i.e. Iowa Street) (2)
- Driving during rush hour is awful
- Exiting off the highway at school time is difficult.
- I am satisfied with Lawrence car traffic
- Luckily I can avoid high traffic "rush hour".
- New highway good- saving time
- New private drive lights slowed route on Bob Billings
- Stressful highway commute
- Too much traffic, too few routes to KU
- Traffic is getting difficult - faster and more autos
- Unsafe intersections in NW rural areas of the county (1023 & Hwy40); No good access to I-70 from Lecompton; North side of I-70/K10 intersection is dangerous, can't turn left against traffic or exit left out of park & ride due to traffic

Construction (6)

- Construction take way too long
- Constructional diversions
- I realize that summer repair of roadways is necessary and inevitable, but last year for a good part of the summer we had one single avenue to get to and from our home.
- Road construction takes too long on seemingly all levels of projects.
- Satisfied with exception of 2 lanes going to 1 lane for construction activities.
- Temporary road repair and improvement disrupts traffic for months at a time.

Cost

- Toll still charged on I70

Drivers (20)

- Bad drivers
- College drivers aren't the best but overall okay.
- Distracted drivers (2)
- Drive too fast and tailgate
- Drivers are aggressive/angry
- Drivers don't use turn signals (3)
- Drivers should not text while driving (4)
- Drivers taking "J-turns" downtown. Causes unnecessary delays and increases chance of accidents
- Drivers who enter intersections late on the yellow light.
- Drunk college drivers
- Many drivers don't know that flashing red equals stop sign at pedestrian crossings - lots of waiting for no reason.
- Not just drivers don't follow rules.
- People don't know who to yield to at 4-way stops and it takes forever when it should take 10 seconds
- People can text all they want on a train or shuttle
- Some people drive recklessly
- Too many slow drivers and phone talkers

Infrastructure/roadway design (3)

- I need sidewalks
- Rural roads need shoulders and safer roadsides
- Road needs bike lane to make it safer

Intersection signalization (27)

- Excessive traffic signals
- Ill-timed traffic lights
- Insufficient stop light signals
- Invest in syncing up the stop light system to better move traffic through town. This can also discourage speeding create more dependable traffic patterns. Please don't widen any other roads besides planned arteries! No more mini highways through town.
- Lights don't seem to be synced for efficiency

- Long or timed stop lights
- Many inappropriate timed light; lights without left turn signals
- Some intersections are poorly designed and traffic signal programming causes unnecessary delay
- Some street lights aren't well synced; less traveled roads will get green lights longer than should
- Stop lights poorly timed. Long waits results in running red lights.
- Stoplight coordination
- Stoplight sensors are poor; don't work well in rain, fog, snow, ice
- Stoplights poorly timed at locations. Promotes traffic issues, added air pollution.
- (Too many) timed terribly
- The stop light from Maine St onto 6th is unreasonably short, once it decides to turn green. In addition, the left turn lane on Maine fills and blocks cars from the straight lane. This seems like it might be an issue for hospital access and departure.
- The way lights are set
- Timing of stoplights
- Too many stop lights on 6th Street
- Too many traffic lights between K-10 and Wakarusa, leads to high idle times, results in extra emissions for short trip.
- Traffic light sequencing needs to be looked at.
- Traffic light timing severely impedes travel
- Traffic lights are poorly timed. too long mostly causing wasteful idling.
- Traffic lights need to sync up on Iowa Street at rush hour.
- Traffic signals are not in sync. Construction barracading and signage is not consistant with MUTCD Standards.
- Traffic signals are poorly programmed and waste time unnecessarily.
- Trafficking issues with lights (timing system seems off)
- Waiting for a light to change when no one is in the cross lane

No major concerns. (3)

Other

- Left land fast, right lane slow!
- Need more roads for cars.

Parking (9)

- Hate finding parking - and bus routes don't serve my purpose - and i hate bicyclists because 9 times out of 10 they don't follow the rules of the road
- No parking (on campus).

- Parking at hospital inadequate
- Parking downtown (3)
- People park badly
- Removing many parking places from the north side of the library for the greyhound bus which appears twice a day is inefficient use of space and probably significant loss of revenue.
- Some streets are too narrow for on-street parking- VERY dangerous to "share" narrow streets with cars if bicycling (Lawrence Ave.!

Personal preference/lifestyle (14)

- Because of my disability, I do not own a car.
- Have to find a driver
- I do not enjoy driving. (5)
- I dislike the fact that I have to drive, Lawrence is small enough I should be able to bike everywhere, but I have to get motivated to fight traffic and stupid intersections.
- I hate driving but public transport is bad.
- Would rather not drive
- I do not have far to go
- I often have to get a ride to Lawrence if I need something
- I use my own car.
- I would prefer to walk, ride a bike or public transit. (3)
- I would prefer to walk or bike to work, but I am uncomfortable riding my bike on the major roads
- Mother drives me to Dr. & Dentist

Road conditions (12)

- Alleys in need of repair; (b) clumsily re-arranged intersections, especially when it's "fixing what ain't broke."
- Dividing lines need to be repainted - too faint now.
- Downtown streets need crosswalks repainted
- East Lawrence does not get the repairs it needs, it only happens in the west.
- Gravel roads need to be better maintained and dust abatement measures implemented next to and anywhere near all homes on gravel
- Pave Queen's Road to Farmer's Turnpike
- Pave Wakarusa!
- Potholes
- Road paved better on west side, except for east leg of T-way
- The roads are in terrible condition and there are not enough sidewalks that are walkable.
- The roads are rather bumpy which increases wear and tear on one's vehicle

- The road improvements save lots of time

Roundabouts (11)

- Dislike rotary circles
- Direct roads get split
- E.g. roundabouts community needs more instruction.
- Excessive use of traffic calming, and unconstitutional surveillance
- Not a fan of smaller roundabout/traffic calming. Speed bumps are better.
- Roundabouts, traffic calming, unsynchronized lights, and speed traps.
- Some people see confused about the roundabouts.
- Sometimes roundabouts!!
- Too many roundabouts and speed bumps. Through streets are designed to move through traffic.
- Traffic circles complicate intersections
- The newer roads in the back have helped. People do not know how to use the roundabouts

Safety (5)

- Bike lanes not wide/safe enough (2)
- Bike lanes are inadequate. I do not feel safe biking on the roads, especially with my children.
- Dangerous to walk
- I'm scared to hit someone on a bike.
- Walking routes are not safe from vehicular traffic.

South Lawrence Trafficway (9)

- Complete all 4 lanes of SLT
- I like the finished SLT, I hope it goes 4-lane west of 59 highway
- I take K-10 or Farmer's Turnpike from Lecompton to Lawrence M-F for work.
- K10 needs more lanes to kc
- K-10 was expanded over the Haskell Wetlands, disrupting the ecosystem there.
- Love that the K10 extension is finally finished. Saves me 30 min per day
- No left turn from southbound Kasold to eastbound K10. The intersection needs to go away for 4 lanes, but that is a long way out yet. 1 mile to the west is a light so why not another until both lights go away. Left turns light from 23rd to Kasold too short.
- Really want a K-10 to I-70 connection east of Lawrence
- Speed limit leaving Lawrence is too slow on k-10

Traffic laws (12)

- Bicyclists do not follow the rules of the road (8)

- Complete lack of enforcement of existing traffic laws; I've been told this is because of a lack of police resources, and I find this response to be a cop-out and highly suspect.
- Dead animals on road due to speeders and drivers not understanding round about rules
- Traffic laws aren't enforced

Transit (4)

- Buses stopping in driving lanes block traffic flow.
- City bus
- Too many bus stops too close together, not enough turn-outs for buses.
- Would like option of taking bus but stops too far from destinations.

Vehicle maintenance (6)

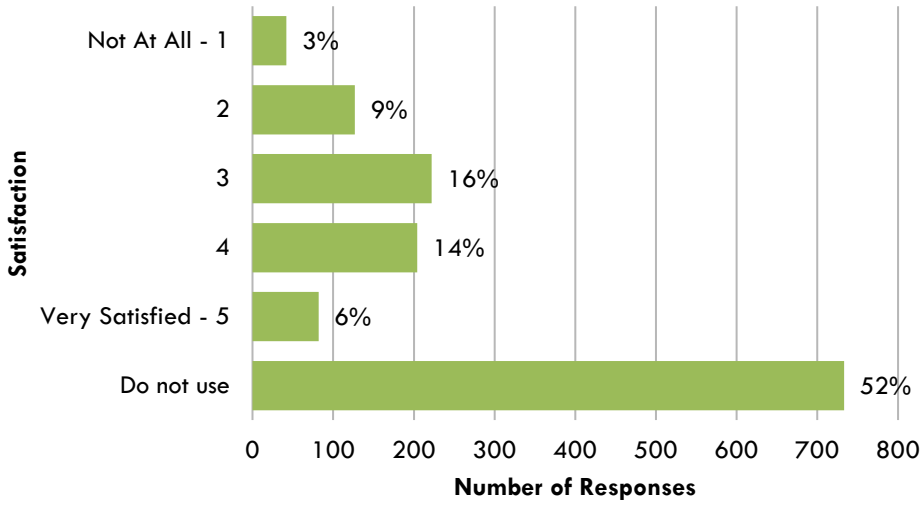
- Breaks down
- Car in need of repair (2)
- Four more years of car payments.
- I just don't enjoy fixing cars
- My car is terrible

Weather (2)

- Hazardous travel
- Would rather walk or bike but it's been too cold

When asked "How satisfied are you with your typical bicycling experience on a scale of '1' to '5' with '1' being 'Not At All' and '5' being 'Very Satisfied'? (Circle one.)" Respondents indicated:

Figure B.7: Bicycling Satisfaction

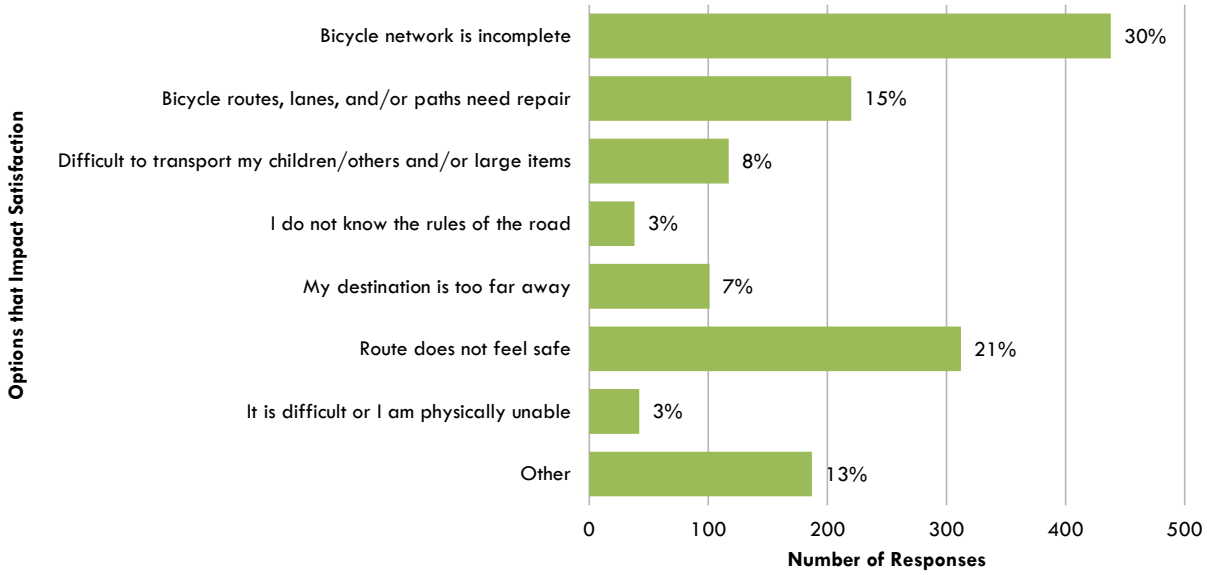


Average satisfaction – 3.23

Total number of responses – 1,410

When asked "Select the options that impact your bicycling satisfaction. (Select all that apply.)" Respondents indicated:

Figure B.8: Options that Impact Bicycling Satisfaction



Total number of responses – 1,455

Other:

Attitudes towards bicyclists (16)

- Aggression from motorists is the main concern I have when cycling through town.
- Auto drivers don't need bicycles.
- After an accident I have stopped cycling; I used to cycle 20 miles per day. Bike lanes are basically non-existent and there is absolutely no accountability for reckless drivers.
- Aggressive/inpatient car drivers
- Car drivers hit me all the time.
- Cars and rude drivers
- Cars do not share the road/pay attention to bikes
- Drivers do not respect bicyclists on the road.
- Drivers hate cyclists
- Drivers make me feel unsafe, i.e. verbal harassment, road rage, etc.
- DRIVERS NOT RESPECTFUL OF CYCLISTS/ DON'T KNOW RULES/ DRIVING DISTRACTED
- General lack of regard for bicycles
- On multiple occasions I (myself and family) have been aggressively and purposefully put in danger by motorists.
- I am a cyclist. Lawrence is not bicycle friendly. Also, the "bike" paths are actually dog paths and no fun

- I often don't ride because people honk & yell at bicyclists. I want way more trails, bike paths, & protected bike lanes
- Snobbish people are quite negative to people who bike, they insist they do not care because they do not ride bikes. She never invites me to go biking, bad attitude of Senator Marci Francisco!

Bike lanes/paths (35)

- Better/more clear bike routes/lanes/trails (9)
    - Need more dedicated bike paths. Develop the rails to trails to include county.. Plan bike paths in new developments, especially west Lawrence. "Sharing" of roads is bad idea.
    - Need more routes through center of city
    - Need more shared use paths. Do not feel safe on streets even with bike lanes.
    - There should be more protected lanes for bikes. Downtown isn't very bike friendly either
    - We need bicycle boulevards, protected bike lanes, and a way to punish bullies in cars who yell and intimidate bicyclists.
- Bicycles need wider lanes- hard when bicycle meets the little rd. islands in country- bikes ride all over rd.- will move but dangerous on curves
- Bike and vehicle lanes shift from 1 lane to 2 lane to 3 lane WAY too frequently and cars don't know how to treat bikes
- Bike lanes are stupid, all roads should accommodate all traffic, cops should actually enforce traffic laws, and there should be no speed limit over 30 mph in the city limits (New York does it so it's possible with strong leadership.).)
- Bike lanes suddenly end without warning or option to get onto sidewalk (2)
    - Bike lanes start and end abruptly without warning cyclists or drivers that bikes will start to share the lane with vehicles. This seems to especially be a problem at roundabouts. Drivers need education about how to pass cyclists safely. 3 feet to pass!
    - I hate the way the bike lanes just stop, dumping cyclists into traffic
- Bike Paths are great, very happy.
- Bike/ped. infrastructure is treated as an afterthought, to be implemented if convenient, and not as a priority over auto infrastructure. See, e.g., 9th Street bike lanes that start and end randomly.
- Difficult without lanes or path where I live. (Bob Billings Pkwy)
- Enjoy expanded sidewalks/bike routes
- Either keep bikes off County Road 1055 or add bike lanes to road.
- Greenways away from auto traffic would be much better than riding next to busy streets.
- I love the improvements made and look forward to more paths
- I ride mostly on trials which are very good. More is better.
- I would like to see an extensive shared use pedestrian- bike path system for safe recreational

and commuting purposes with small parks on the route to promote usage and enhance the experience

- Lawrence has the worst accommodations for bicycles I've seen in any of the many comparable towns I've been in in the last few years. We need bike paths that work for daily travel.
- Little to none bike paths in Baldwin. Usually ride along roadside
- Many -- perhaps most -- official "bike lanes" are a joke, forcing bicyclist to "compete" with motor vehicles. I'll ride on the sidewalk, thank you.
- Need more bike laws; cobblestones are quaint but really not cool bike on; need more bike trails across town.
- New sidewalks along major road arteries should be walking and biking width.
- Not comfortable on a bike on most streets.
- Not enough dedicated connected routes.
- Not enough on street bicycle infrastructure; sidewalks don't work for all bicyclists
- The "bicycle network" is not really incomplete - its non-existent, at least as regards to bike use for transportation (in contrast with recreation/exercise)
- Would like to see a designated foot and bicycle bridge connecting north Lawrence to east Lawrence. An ideal lineup would be new York street north to wall UT street

Bike riders do not pay attention to the road. (4)

- Bicyclists do not follow the rules of the road and are rude.
- Bicycling in Lawrence is a risky business at best, no matter where you are or where you are going. Bike riders don't follow the rules and vehicle drivers do not give enough room. Not enough space to address this issue here in detail.

Connectivity of routes (3)

- Cross town bike trail from Iowa Street to Mass. Street
- Crossing town west to east = no good route on a bike
- Generally poor connectivity of routes

Facilities (3)

- Bathrooms/facilities
- Lack of bike racks at some destinations
- Too many bicycle facilities

Hills (7)

Lack of education/obeying traffic laws (18)

- Drivers (cars) do not follow the rules of the road (4)

    - Esp. at roundabouts
- Drivers are unaware/not used to bicyclists/sharing the road with bicyclists (11)
- Drivers park across sidewalks while waiting to enter traffic. Inattentive drivers. Drivers do not yield to bikes entering crosswalks, when turning right. Getting down Iowa street, unharmed, on a bicycle is ridiculously challenging.
- It is possible but sometimes I do not feel safe biking on the road due to drivers not knowing bike/traffic safety (i.e. 3ft clearance)
- Seems great for areas but not complete so as a car driver I'm constantly having to worry about bicyclists on the 9th and Mass streets

Lawrence Loop (3)

- Complete the Loop!
- Complete the shared use path loop!
- Get that loop done; bike lanes on 9th Street
- No problem

Other (9)

- Easy to ride close, harder farther
- Good Douglas County efforts to improve bike friendly community
- I do not feel bikes should be allowed to use 1055 where there is no shoulder
- I think there should be taxes on bicycles using the highway to help pay for bike lanes
- Only on path around Lawrence not in.
- Rural resident - narrow roads especially Highway 56/59
- Shut mass-n. & s. for bikes and feet only
- Some traffic lights aren't traffic friendly
- What bicycle route?

Personal preference (22)

- I only bike on bike paths.
- My auto experience with bikes is something different
- My child rides in our neighborhood (cul de sac).
- My son was hit by motorist
- Do not own/use a bike (19)
    - Because of my disability, I do not own a bicycle.
    - Bicycle needs repaired
    - Do not have a bicycle that accommodates me as a wheelchair user
    - Have not yet been able - just moved here
    - Haven't been riding enough

- I do not bicycle and I will not use bike as transportation
- I do not know how to ride a bike (2)
- I must dress for work, cycling not practical.
- I gave away my bike because of above
- Live out of town and need to transport bike.
- Would like to get into biking.

Road conditions (10)

- Extremely risky to travel by bicycle in Lawrence. Roads are bumpy, and drivers tail bicyclists, and many do not seem to understand hand signals. Bicyclists also do not always obey the rules of the road themselves... It is all a bit of a disaster.
- I skate and the sidewalks are too rough to ride on.
- I live on a gravel road.
- Mixed, paths great, street not so much
- My son hit a pothole riding along curb - Peterson Rd.
- Naismith bike route from 19th-23rd is in serious need of leveling. There is a dedicated bike lane and road signs, but I end up riding in the middle of the road because the bike lane is too messed up.
- Poor road conditions make for uncomfortable and unsafe rides
- Pot holes in roads; too many drivers texting and/or w/out knowledge of bike signals; bike lanes abruptly end (19th st. etc)
- The shoulders on the Farmer's Turnpike and Lecompton road are very nice
- When riding on the road, I experience issues with infrastructure (sides of the roads are especially in disrepair) and drivers (they don't offer enough space)

Safety (41)

- 19th street is bicycle suicide. Most ride on sidewalks instead of in bike lanes.
- Bicycle path through Clinton Lake spillway has many wet and slick spots that are unsafe; City knows about them but does nothing except put up signs.
- Bike lanes need to be kept clean of debris/sand (5)
    - Bicycle paths that are on the side of the road usually collect trash, sand, salt, and other debris that are obstacles for cyclists and make it difficult to stay on the bicycle bath. (which means swerving into the car lane/ that is dangerous)
    - When have to get on street there is too much sand so road is slick plus drivers don't look out for bicyclists.
- Bike lanes painted onto the street are not acceptably safe for my children to ride with me.
- Commute 458 south of Clinton Lake specially dam road to turn off from/to Lone Star. Heavy bike traffic in bad sun conditions. Need extend sides for safer "lanes" for passing. County people may not like bicycle, but they aren't going away!
- Do not bicycle on roads because it feels unsafe with children, only bicycle on trails

- From 4th Street to Rockridge- crossing McDonald Drive my child in bike trailer doesn't feel safest
- Generally use bike paths as I don't feel safe riding in the street. (3)
    - Street riding is unsafe - distracted drivers and pot holes, storm drains, and decaying gutters and curbs.
- Hwy 40 is a death trap for bicycles.
- I have small children who are learning to bike to/from park...drivers on road make me nervous they aren't watching
- It is dangerous for bicycles to be on roads that the speed limit exceeds mph. There should be laws in place to prevent travel this way.
- I used to bicycle to work and school. Bicycle routes are improving the safety factor. I ride/walk for exercise/pleasure now.
- It's okay for me, but one must be watchful.
- Lawrence is not bicycle friendly - scary!
- Like just outside of city limits off US59 & it is not safe for bikes
- Major roads are intimidating and unsafe to use Iowa And 6th have to ride on sidewalks
- Make it safe, quick but low traffic routes, and easy to use and more people will use it!
- More bike facilities physically protected from vehicles
- More routes without cars or more safety barriers between bikes and cars on bike routes. More bike friendly routes to stopping destinations and parks.
- My analysis of the CPSC database show that the greater number of accidents is at intersections. The bike lanes which aren't at intersections become filled with debris making them more dangerous than just riding with traffic.
- Need safer bike lanes
- No safe way to get where I want to bicycle to
- On Naismith, just south of 19th, the curve does not feel safe as a bicyclist.
- Parked cars are often squeezing out bikes.
- People not moving over for bikes
- People ride bikes on sidewalks and don't warn others they approach from behind
- Prefer separate bike lanes from streets and roads. Lots of highway bike riders, very dangerous to riders.
- Recreationally, bike paths are great. I do not feel safe biking to work (W. Lawrence to KU)
- Riding on main arteries and in way of traffic
- Route to school is safe.
- Scary sidewalks
- Some streets too narrow for on street parking & bicycles
- The lanes are not kept well marked and cars don't pay attention, also there are not enough lanes on some of the busier streets, like 11th and I don't always feel very safe. Also Tennessee or Kentucky is not safe-car traffic, car parking and tight lanes.

- There are many bike/car accidents and deaths in Lawrence.
- Too much exhaust from cars.
- Very little bike routes (safe) in Eudora
- We need more/safer/wider bike lanes throughout all of Lawrence.
- While I admit that there are many bicyclists that have no problem bending traffic laws, I feel that drivers can and do place bicyclists in dangerous situations for no conceivable reason that to be mean.
- Why are they not connected. You have to drive to the nicer parts (which everyone knows is the nice side [west] of town) in order to get your bike out and feel safe riding

Signage/Wayfinding (4)

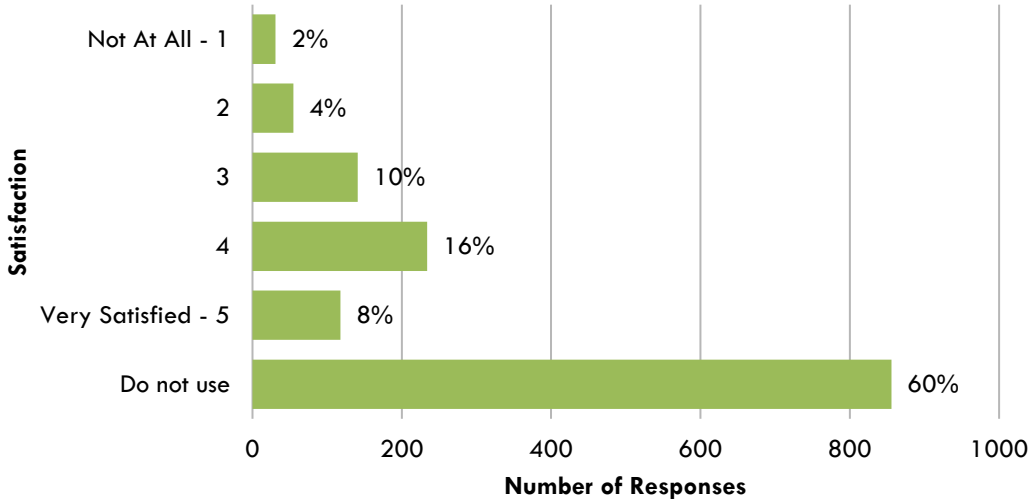
- Several different maps need to be compiled as one
- Useless shared lane marking
- Way finding on bike paths

Weather (4)

- Ice, snow, rain and extreme heat are problems for commuting
- Too cold or too hot most of the year

When asked "How satisfied are you with your typical transit/bus experience on a scale of '1' to '5' with '1' being 'Not At All' and '5' being 'Very Satisfied'? (Circle one.)" Respondents indicated:

Figure B.9: Transit/Bus Satisfaction

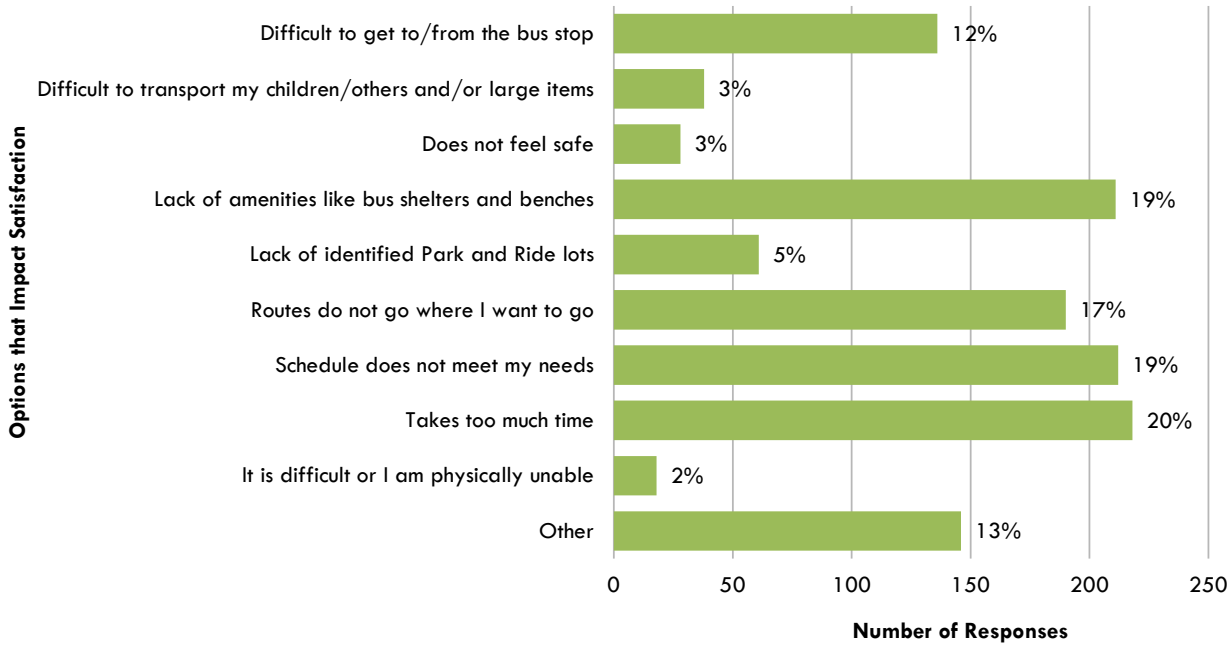


Average satisfaction – 3.61

Total number of responses – 1,435

When asked "Select the options that impact your transit/bus satisfaction. (Select all that apply.)" Respondents indicated:

Figure B.10: Options that Impact Transit/Bus Satisfaction



Total number of responses – 1,112

Other:

Atmosphere/cleanliness (8)

- Atmosphere noisy and depressing
- Bus crowding
- Drunk people (2)
- Other passengers are nasty and do not have good hygiene.
- The speakers are frequently too loud
- Very crowded.
- Uncomfortable

Bus drivers (5)

- Bus drivers helped disabled.
- Bus drivers need to be more patient when people are almost to stop (not during rush hour)
- Bus drivers not being safe.
- Some of the drivers won't drop people where they need if there isn't a bus stop there.

Bus schedule/hours of operation (40)

- Buses do not always adhere to schedule/can be difficult to predict. (10)
    - I love the bus but it is sometimes early (Harvard and Wakarusa - #10) or takes detours

on campus and misses me.

- Earlier/later bus service (11)
    - Schedules to downtown do not mesh with work start and work end hours (8-5), seems all set up for KU.
    - To amplify, when I need a bus, they aren't running. I would prefer to go downtown to eat, for example, and not drive home. That isn't possible on weekends.
- Holiday bus service
- No Sunday T-Lift or Buses (9)
    - My clients (UR) need Sunday service. T-Lift can be late - hard to use to get to work.
- Not frequent enough (6)
    - Bus route was cut to once an hour from twice an hour.
    - I would use the bus if there were more scheduled stop times, especially ones off-set from the top of the hour. If the bus gets to a stop at 9:00 but I have to be at work at 9:00, I'll be late. Unless I take the 8:30 bus but then I have to kill a lot time
    - One bus every 30 minutes is not enough.
- Schedules don't accommodate shifts at large employers.
- Takes too long (4)
    - Have looked into using, takes long time in between pickups
    - I find it problematic that a trip that would take me 11 minutes by car would take an hour + by bus. North Lawrence gets one bus an hour, and there is only a single line that serves only a portion of North Lawrence.
    - I often can walk to destination faster than I can walk to bus stop, wait, and travel.
    - I used to take the bus downtown, to work, and to LMH. Once it began to take longer to ride to work than to walk (route changes), I gave up the bus. But I'd go back to it if routes were more direct and less time-consuming.

Commuter transit (7)

- I want light rail & commuter rail (to KC & Topeka) & high speed rail like Japan has had for 70 years
- K-10 Connector has been great for my commute to work in Overland Park. However, I have to keep a car there to get to work.
- Lack of commuter bus networks to larger cities
- Lawrence transit and K-10 Connector don't coordinate at all. Makes getting out of Lawrence difficult.
- Would like connector to/from Topeka
- Would like to see public transit to Topeka & more often to KC/OP area

Cost/citizen support (7)

- Don't believe bus is utilized enough for the amount it is costing city

- Empty busses waste my tax money!
- For amount of ridership, the City spends too much money on this amenity. We should consider an alternative, like Uber/Lyft.
- It needs a lot more study to improve effectively.
- Not enough support from west Lawrence population
- Transit should get more support
- Underrated

Eudora (6)

- Eudora has no access to buses into Lawrence or Johnson County.
- Eudora needs a bus system!
- Eudora needs senior transportation on a regular basis.
- Need bus service in Eudora
- Route to Eudora
- We need bus connections between Eudora and Lawrence

Facilities (6)

- Also, stop need to be sheltered! - I live on W. 28th Circle and walk with a a cane. Bus stop on Lawrence Avenue too far away to use system
- Having seating at bus stops, ESPECIALLY in lower income parts of town/East L should be just as important as having accessible seating ON buses. There are benches and bus shelters all over West Lawrence, but buses seem to rarely be used by residents there!
- I wish the bridge from North Lawrence to downtown had a canopy or some form of windbreaker)
- Need bus stop shelters and night buses
- Not enough shelters!
- Shelter and bench at each stop

KU (4)

- Easy to get to campus, but it takes forever to get anywhere else.
- KU to home works great
- Only to get to the games - the parking shuttle
- Work with KU to develop a comprehensive route system that covers all of Lawrence and stop using mega busses for small rider routes.

Other (17)

- At airport parking
- Coming from Topeka, I'm not used to having a real bus system. I was very impressed when I started coming here for school and now that I live here, I'm very happy with the bus system.

- Connectivity (inter modal)
- I am trying to coordinate transportation for a friend in a nursing facility. Having to sign up at multiple places (Independence Inc, DG Sr Services, T-Lift) and so far in advance for individual rides is an obstacle.
- I wish there was a ride-share or bus that used for county road 458 around Clinton Lake
- Inner city bus
- More centrally located transit hub (19th & Iowa was great location)
- Needs to be more accessible to homeless population
- No problem
- No service to Baldwin City
- No transit options in Lecompton
- On foot, too many cul de sacs - increased mileage - need "passages," increase right of way to bus stops.
- Park & Ride needs to drop off at Daisy Hill. Timing point for #29 needs to move back to 27/ Scottsdale due to all temp drivers in the morning
- Poor planning for Greyhound bus station
- Sad no pickup at stop sign when no traffic
- Satisfied
- Why are the buses so big, yet so little people in them

Personal preference/lifestyle (18)

- Do not use (11)
    - Because of my disability, I do not use a bus transportation.
    - Habit of not using them (Bad habit)
    - I don't see the need for it. We're not that large of a community.
    - It's not cost effective when I already own a car and driving is more convenient
    - Since I have a car, I will not rely on the bus until/if driving and/or parking becomes more convenient via bus than via car.
- I am just beginning to use service.
- I love the bus.
- I use the bus when my car needs repairs, occasionally. It's okay for when the weather prevents driving.
- I use T-Lift
- Prefer to bike
- Prefer to walk
- When (old) car was in shop - before I retired.

Routes (14)

- #10 bus doesn't stop at the community center
- Bus stops are too far apart. Buses should stop at every intersection.
- Can't figure out the route to take
- I use my car in the evening because the bus routes vary at night. I notice often people struggling with many bags from Just Foods up the street to the nearest bus stop. The busses are clean and the drivers are generally kind.
- Need a north south option with transfer at Ninth and Iowa
- No stops close to my home
- Our family needs more accessible transportation. We are not on the bus lines.
- Route 10 doesn't stop at community building
- Routes too complicated for intuitive use. Would be easier if they traveled primarily along one street out and back.
- Some routes good, 11 not
- The 29 is wildly inconsistent with me waiting 34 minutes after missing bus by seconds on campus. KU buses seem great but the lines to west campus are ill-routed in my opinion (or maybe 1 too few per route during peak time. north of 6thKasold to 31stIowa
- The bus route serves my purpose
- There aren't normal bus routes in my area.
- There really needs to be a stop around 10-13th & Kentucky/Tennessee that travels up the hill to campus. This area is where a lot of students live and the hill is hard to walk up and makes us miss class. Gotten 5 ubers just to take me up the hill in 2017.

Safety (2)

- Only a handful of times but still...doesn't feel safe
- Sidewalks are awful, or not well lighted. East side of town does not feel safe. Need Sunday schedule

Signage/notifications (5)

- Horrible signage
- Notifications when buses are running late.
- Social media presence to announce route changes and news
- Text system has recently stopped working
- Twice bus stop signs were missing which led to confusion and extra walking.

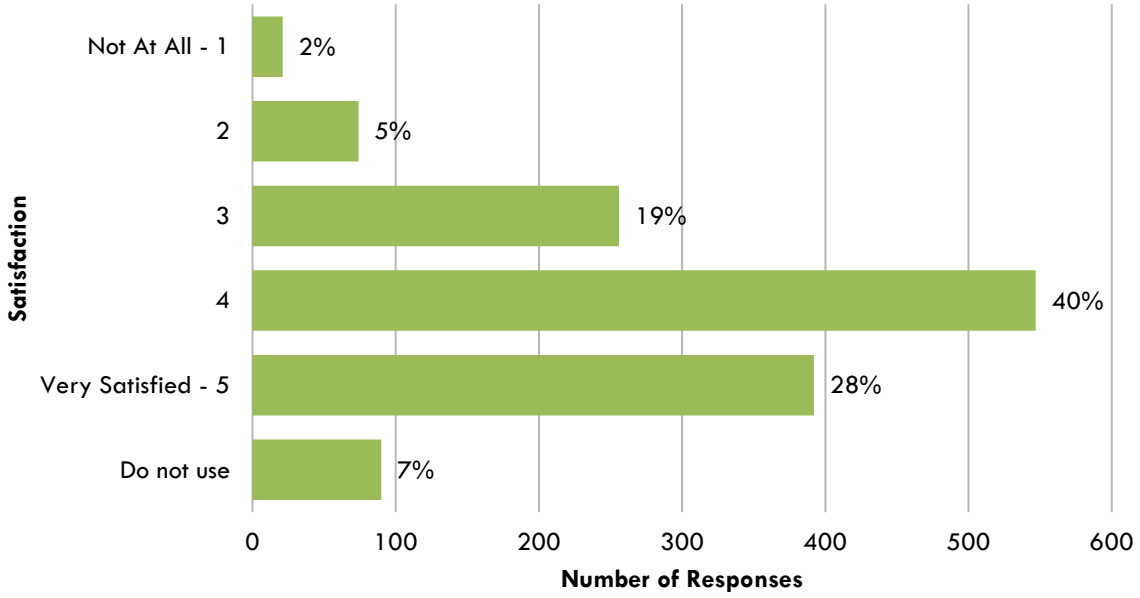
Transfer times (4)

- If the route doesn't require transfer its fine. But most transfer rides take too long, which is a typical problem in other cities too.
- If there were a more thorough and reliable public system I'd use it, but not fast enough/or requires too much time waiting between stops.

- Lengthy transfer times
- Long waits when transferring

When asked "How satisfied are you with your typical walking experience on a scale of '1' to '5' with '1' being 'Not At All' and '5' being 'Very Satisfied'? (Circle one.)" Respondents indicated:

Figure B.11: Walking Satisfaction

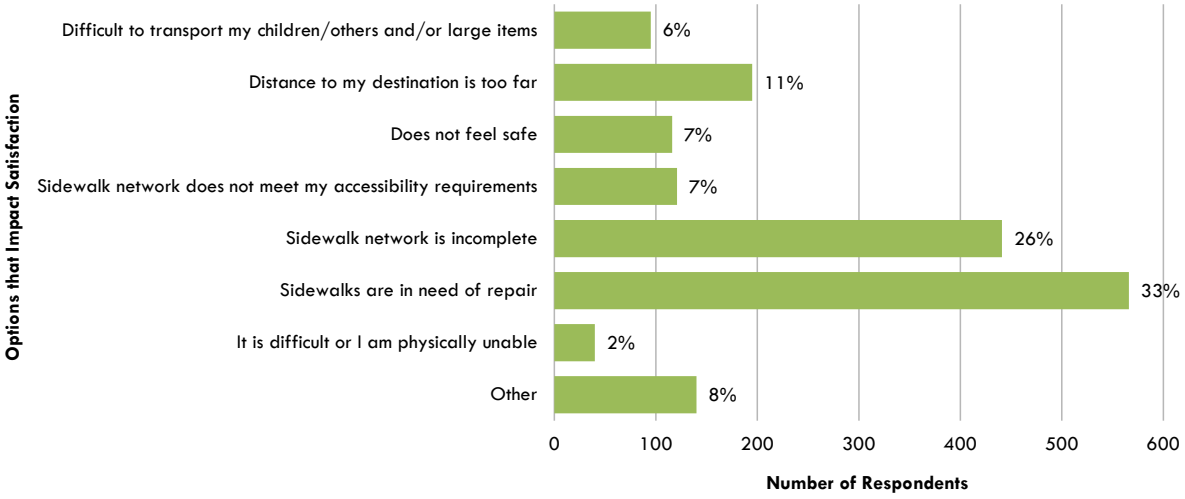


Average satisfaction – 3.94

Total number of responses – 1,380

When asked "Select the options that impact your walking satisfaction. (Select all that apply.)" Respondents indicated:

Figure B.12: Options that Impact Walking Satisfaction



Total number of responses – 1,714

Other:

Cleanliness/upkeep (4)

- Cyclists on narrow or downtown sidewalks, trash and debris on paths
- Homeowners and businesses let plant overgrowth block the sidewalks.
- Park areas along sidewalks (e.g. DeVictor) need to be cleaned. Trashy parks become dumps.
- People not trimming back bushes and trees

Cost (4)

- Bike/ped infrastructure should not be an afterthought, only available after roads are paid for. Existing budget should include bike/ped, not be something in addition to existing budget.
- Having home owners pay for sidewalk repair is a joke. So disappointed in city manager for suggesting a stupid idea. Lack of true leadership for a tough issue.
- Public amenity - city should share in upkeep
- Sidewalks should be city's responsibility and part of the transportation budget. Shifting to landowners will unfairly burden low-income, while subsidizing west Lawrence high value property owners, and fail to meet the needs of the community.

Crossing (intersections/roads, etc.) (11)

- 23rd and Louisiana as well as 23rd at Dillons are terrible/dangerous for pedestrians, the crosswalks need to be bigger and farther back in the lane
- Crossing at some intersections is a problem.
- Crossings in the west and south are further away from each other
- I walk 8 miles per day on average in Lawrence between 6th and 23rd. Too many streets do not have sidewalks, the cross-walks do not automatically give a walk signal and the button is often difficult to access, and cars do not yield!
- I recommend a crosswalk on the north side of 8th and Tennessee - pedestrian hazard as drivers are focused on traffic flowing from the north.
- Intersection@6th/8th Kentucky- crossing 6th needs repainting on crosswalk- drivers don't stop for us turning right from Kentucky on to 6th
- Need more audio signals at Clinton Parkway/Lawrence Ave and Clinton Parkway/Kasold
- Need pedestrian designated walk across bridge to north Lawrence.
- The crossing at the lights take too long
- Think of sending crossover or under major roads. (US56/Ames Baldwin City)
- Would like to see designated foot bicycle bridge over river connecting north Lawrence to east Lawrence in line with new York street to walnut street

East Lawrence (5)

- All of East Lawrence needs to be re-bricked. Sidewalks are hard to use.
- East Lawrence has some poor sidewalks
- East Lawrence sidewalk repair

- Generally good shape but East Lawrence needs much improvement.
- In East Lawrence only.

Lack of sidewalks and trails/need on both sides of the road (17)

- 12th Street in Eudora needs sidewalks.
- Don't have sidewalks in neighborhood where I live. Street walking fine for most areas. Hills (old Alvamar) a problem if carrying anything bulky or heavy.
- Incomplete in downtown residential Eudora
- My neighbor doesn't have many sidewalks 25th and Redbud neighborhood
- Need more sidewalks in Eudora
- Need more walking space.
- Need walking trails
- Network is incomplete
- No sidewalks in my part of Baldwin
- No sidewalks where I live
- Only one side of road have sidewalks.
- Outside of downtown most sidewalks are incomplete
- Sidewalks not on both sides of the roads in inner city (residential area)
- Sidewalks should be wider and on both sides of major road arteries.
- Sometimes sidewalks end and switch sides of road.
- Too many neighborhoods without sidewalks
- We should have sidewalks on both sides of every street as well as safe crosswalks.

Maintenance (10)

- I walk several miles a day with dog and often must walk in street because of poor sidewalks.
- I'm a runner and often choose to run on road because in better repair than sidewalk
- In Old West Lawrence sidewalks are really lumpy
- My elderly parents have each fallen on broken sidewalks owned by the City of Lecompton
- North Lawrence sidewalks are a mess.
- Only a few repair issues in my neighborhood - good lighting
- Riding bikes on our sidewalks is not safe due to repair issues.
- Sidewalks in Lawrence are the worst I've ever seen- incredibly uneven, if there is even a sidewalk at all
- Specifically sidewalks near downtown need repair & updates
- Yes, uneven - bad, sorry

No problems (13)

- For the most part the sidewalks are in decent shape. Others....not so much
- Good
- I believe the sidewalk system is good. No problems walking down town or in the area. Could use more sidewalks
- I walk on west side - west of Wakarusa, sidewalks in pretty good shape
- It seems good to me
- It's fine.
- Lawrence sidewalks are great
- Lawrence is good.
- Love sidewalks
- Most sidewalks are okay
- The sidewalks are good
- Walking is fine for me, typically one mile or less.

Personal preference/lifestyle (16)

- Do not use (6)
    - Have had hips and knees replaced.
    - Haven't done since I moved here.
    - I don't really do a lot of walking
    - I don't walk much using a bike instead. But I find the sidewalks in general pretty good.
    - I use the sports center
    - Rural, I walk on my own trails.
- Easy for me because I'm in good shape but I can see how sidewalks are hard for old/ disabled.
- I am susceptible to falls.
- I can't walk for a long time
- I don't mind walking on sidewalks in need of repair.
- I live in Eudora, so my walking experience is based on this location.
- I'm not a fan of brick sidewalks
- Live south of LHS - track is excellent for good weather not sure about Fieldhouse.
- Live too far away from where I want to go
- Skate
- Time it takes
- We live in the country on a gravel road.

Other (11)

- Bus is late

- Construction
- Eudora needs a bus!
- Except on Princeton and Peterson
- Hills
- I want complete streets!
- Loose dogs
- More ped.-favoring signals
- No more large concrete trails in nature areas. They are not used and waste land and resources.
- The historical path near 19th between Haskell and Mass.
- This category has only negative not even neutral responses

Recreation/exercise (9)

- Great exercise when you want to!
- I walk for exercise in the Quail Run School area.
- I walk a lot for health and fitness. If you want to walk for those reasons, there are plenty of opportunities.
- Just for exercise on gravel roads
- Travel for recreation only- Love the paths
- Walk for exercise, but not for transportation.
- Walk for recreation
- Walking isn't a convenient method of transportation; it tends to be only recreational
- Would like more recreational walking paths

Roundabouts

- Roundabouts can be challenging - Wakarusa for example. 2. Surprisingly drivers stop for walkers at intersections (great).

Safety (15)

- It's not safe or easy for people with strollers or my aging parents who roll their ankles a lot. There's either not enough shade, nothing helpful in walking distance, or the sidewalks are not well maintained/bumpy and poorly lit.
- Lighting at night needs improvement
- Lights are night aren't bright enough
- Not consistent through town. No sidewalk from Naismith/23rd to apts behind and the lights often go out at the same time, making it dark. Sidewalks are often too narrow to accompany bikes and people on the busiest streets, when there are sidewalks.
- Running and walking next to traffic is a bad experience. Need greenways.
- Safety concerns include inadequate lighting at night and drivers' inattention and/or unconcern re pedestrians

- Some sidewalks are difficult in high heels
- Stay on sidewalks! It is the law!
- Streets are not well lit at night, not safe to go alone
- Super hard to walk after dark on the sidewalks
- The smog walking mass ave in summer with idling cars makes air sickening
- Traffic laws not enforced.
- Various street lights do not work and make night travel less reliable.
- Way too much traffic near sidewalks - too few clear & safe pedestrian walkways!
- Why are there NO good street lights nor are there sidewalks in all subdivisions

Trails (3)

- I walk on sidewalks or nature trail.
- I walk trails mostly
- I walk trails mostly
- Use Burroughs Trail a lot - helpful went on east side

Traffic laws (10)

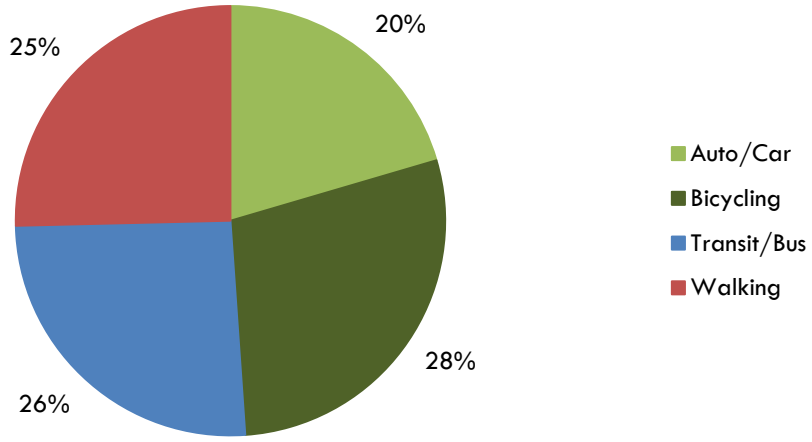
- Cars do not stop at stop signs or just speed up.
- Cars do not yield to pedestrians (3)
- Cars go too fast - drivers inattentive
- Drivers turning left onto pedestrian walkway when pedestrians have the green light.
- Drivers are not looking out for pedestrians (I've nearly been hit several times because a diver did not look)
- Drivers at intersections controlled by stoplights do not respect pedestrians.
- Drivers do not pay attention to crosswalks, signals, etc.
- Drivers do not respect what is clearly written in the manual that no matter where a pedestrian crosses he/she has the right of way. This is completely ignored at the Legends roundabout.

Weather (5)

- In the winter, not all the sidewalks are clean and free from snow / ice, even after days after the weather event
- Snow and ice removal not timely
- Sometimes flooded, muddy, etc. around neighborhoods.
- The city should enforce snow removal on sidewalks on west 6th St. - in front of Walmart and west. They are rarely shoveled. And large snow banks a left at the crossings impeding pedestrians. This happens every time it snows.

When asked "Which modes of travel would you like to be easier to use? (Select all that apply.)" Respondents indicated:

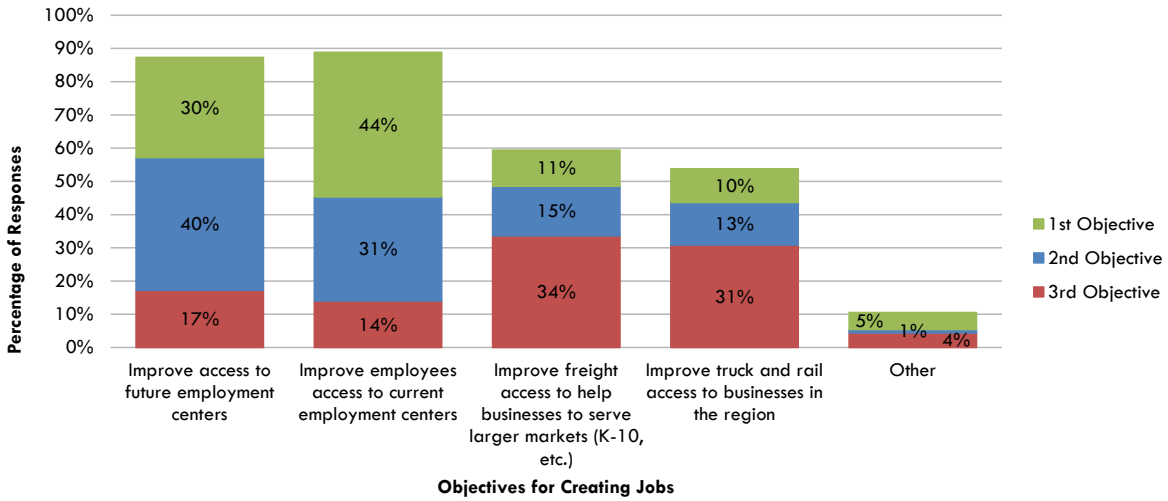
Figure B.13: Preference of What Mode of Travel Should be Easier to Use



Total number of responses – 2,317

When asked "Please rank your top three transportation objectives for creating jobs. Place a number '1' by your first selection, '2' by your second and '3' by your third." Respondents indicated:

Figure B.14: Top 3 Transportation Objectives for Creating Jobs



1st objective: Total number of responses – 1,205

2nd objective: Total number of responses – 1,002

3rd objective: Total number of responses – 882

Other:

Airport access (3)

- Better international airport access
- Continue airport improvements - allow businesses coming here to utilize effectively.

Attract businesses (3)

- Increase the requirements for government aid and require those who receive it to do community service
- Provide small art groups or small businesses with resources rather than providing the most (or all) funding to already stabilized large entities.
- Remove government barriers to businesses that would like to come to Lawrence.

Bike/ped. (13)

- Create pedestrian only blocks like downtown.
- Improve bicycle racks at businesses.
- Improve exercise path access
- Improve Trail/Bike system in Eudora (2)
- Improved bicycle routes and sidewalks
- Make riding a bike to work a better option by improving the network and making it safer to commute across town by bike
- Massive improvement/expansion in bike lanes and bike-able sidewalks (2)
- No more bike lanes
- Pedestrian and bike crossings across K-10 bike path along Kansas River, Lawrence to Eudora
- Sidewalks (2)
    - Not safe for walkers, canes, 23rd St., 6th street
- Walking Accessibility
- Walkable communities attract people.

Commuter/regional transit (18)

- Add light rail to KC
- Better rail connection
- Commuter service to Kansas City, Topeka, and Baldwin City
- Have JCCC Bus stop in Eudora en-route from Lawrence to JCCC and from JCCC back to Eudora
- High speed rail
- Make Kansas City/Topeka/etc. accessible for Lawrencians seeking employment in those areas, but do not have adequate transportation to and from their job. Imagine the employment possibilities for recent grads who still live in Lawrence, and other people who would succeed at a job out of Lawrence but simply cannot get there. Brings money into Lawrence because these people still pay to live here, too!
- Mass transit options (light rail): Lawrence - KCI, Lawrence - Johnson County.
- Public transit directly to downtown KC
- Public transport to Topeka for business commuters

- Rail to KC/Topeka (5)
    - Commuter train between Topeka--Lawrence--Kansas City. It would dramatically improve quality of life in the region and promote better match between employee/employer.
- Topeka shuttle (2)
    - Shuttle between Topeka and Lawrence for Washburn Tech. students etc.
- Would be nice to have more buses to Overland Park other than at 5am.

Design of roadways/transportation systems (4)

- Complete streets
- Design for "remote workers"
- Improve by-pass and highway lead-in (to business areas) to include Eudora and Baldwin
- Try and make more 4 lane roads for transportation

Environmental impacts (2)

- I would like to see the city, county, and state take the lead in lessening the need for fossil fuels and exploring options to make mass transportation vehicles operate on sustainable, renewable fuel sources. This would necessitate a new breed of energy worker to help maintain these vehicles/infrastructures with lessening outlay to the fossil fuel industry.
- Improve sustainability (find alternatives to fossil fuel-based options)

Improve access (6)

- Access to grocery
- Access to homeless shelters; evening access (swing shifts)
- Better access to Googols daycare.
- Improve access to specific jobs.
- Work force center - way too far out
- Work with DcF to help people get to employment centers

Other (15)

- Better drivers
- Don't close the train depot.
- Education and entertainment
- Give citizens options for different types of transportation. If you don't own a car in Lawrence, your choices are too limited given the city's current efforts.
- Good as is
- I do not understand "future employment centers". Kansas City? Topeka? East Lawrence Business Park?
- I don't think transportation is the issue with creating more jobs in Lawrence

- Improve kids' transportation
- Increase summer resources for construction
- Keep status of actively working
- More industrial ground
- Need high dollar wages in the community
- Stop sprawl
- The responses/categories as conceived are bogus.
- Why would my transportation objectives ever be about creating jobs? My objectives are to get from point A to point B safely, conveniently, and pleasantly. Poorly conceived question.
- With the cost of living in this region bring jobs to Kansas should not be difficult.

Parking (3)

- Adequate parking for employees in existing job areas, especially downtown.
- More parking spots in busy areas to help people get to work and school

Personal preference/lifestyle (2)

- Do not have bus stop close enough to my house to use. I am disabled and walk with cane
- Stay home

Road repairs/maintenance (7)

- Cracks/potholes!
- Improve alleys
- Improve county and township roads.
- Improve Highway 56
- Repairs to road (2)
- Re-surface roads and re-paint road/lane lines

South Lawrence Trafficway (5)

- Address the backed up traffic on the mornings at the west bound toll pass at the K-10/I-70 exit. Increased K-10 traffic has caused a backup each morning. I'd suggest adding another toll lane and a roundabout. Also need a safe walkway or underpass for cyclists and families to safely cross K-10 while traveling from Wakarusa to the Sports Complex/baseball fields. There have been several 'near' accidents there.
- Complete 4 lanes of SLT
- Four lanes on west SLT leg ASAP
- K-10 to downtown, north to KTA East side of Lawrence
- Turn K10 into a complete circle around Lawrence and expedite travel to the KC Metro area without entering Lawrence

Traffic (2)

- Reduce traffic/cars
- Traffic is too heavy major road need more lanes; Also no one knows how to use the roundabouts, get rid of them.

Transit (21)

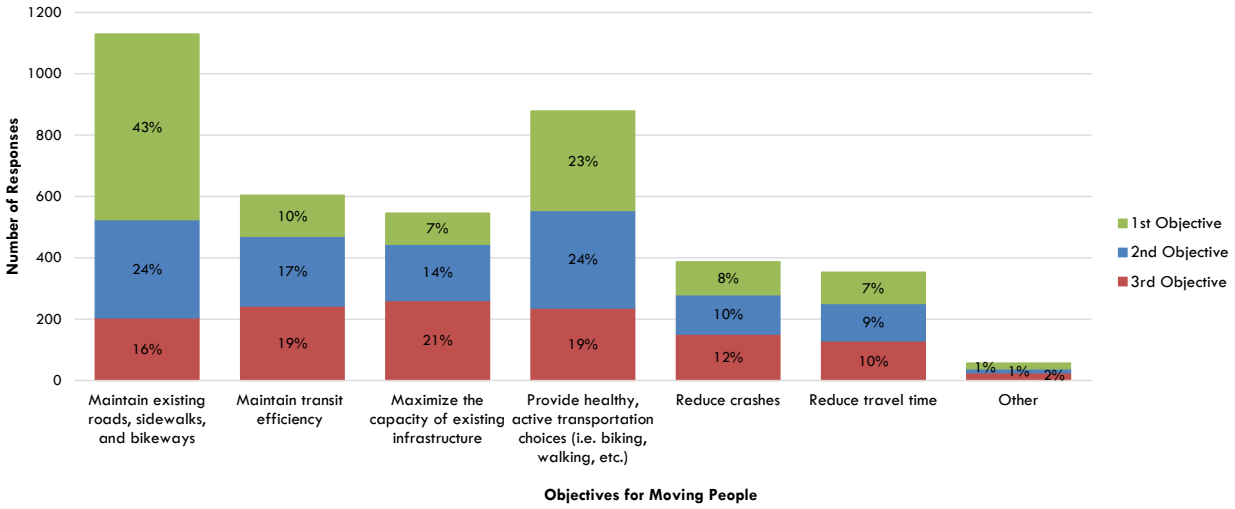
- Attract more transit riders.
- Better public transit and bike routes
- Buses on all days.
- Buses should pick up people between town and East Hills businesses
- Comprehensive transit system
- Expand public transit
- Get Greyhound/bus service back for Lawrence
- Improve Light Rail and Air accessibility.
- Improve mass transit for workers that do not have automobiles
- Improve rail access, but not truck access.
- Inter-city buses
- Light rail, tram, or free shuttles
- More and faster public-use transport options
- Pedestrian street for buses where buses meet downtown - Vermont; dangerous traffic.
- Public Transportation
- School bus transportation available to everyone regardless of current rules.
- Smaller buses and more of them
- Start putting electric buses which are health and cost saving mass transit choices as a priority
- Sunday transit.
- T-Lift on Sundays
- Using public transit to enhance 2, 3 above.

Truck access (4)

- Do not allow, and enforce, all farm trucks, and heavy equipment to use city roads. This slows down traffic.
- I support rail access but truck access should be highly controlled, and the burden of increased maintenance on infrastructure caused by trucks should be shifted to the trucking companies and business that use them.
- Move huge trucks out of neighborhoods
- Not sure what but I'm not in favor of making Lawrence more accessible to large trucks.
- Reduce truck impact on 56 HWY

When asked "Please rank your top three transportation objectives for moving people. Place a number '1' by your first selection, '2' by your second and '3' by your third." Respondents indicated:

Figure B.15: Top 3 Transportation Objectives for Moving People



1st objective: Total number of responses – 1,396

2nd objective: Total number of responses – 1,312

3rd objective: Total number of responses – 1,248

Other:

Bike/ped. (12)

- Add more bike lanes
- Create a bikeway to East Hill Business Park; there is none that is safe. The area employs a very large population.
- Create more safe "OFF ROAD" transportation corridors
- I'd like Lawrence to improve walkability and livability over travel time. We need to decrease and slow traffic through neighborhoods and increase flow at main arteries. 19th Street should not be an artery. 23rd street is the artery. 19th Street cuts through neighborhoods where lots of children walk to school.
- Improve sidewalk access for people with disabilities and seniors with mobility limitations
- Increase bike/walking infrastructure. (3)
- Make roads efficient for cars while allowing cyclists to coexist
- More bike paths, bike highway
- Stop building more roads - you can't out-build traffic. (See: SLT.) Make cycling/walking safe and people will do it. Stop treating it as an afterthought or a luxury only to be done after cars are taken care of.
- We need better pedestrian routes across or over major roadways

Commuter/regional transit (7)

- A commuter train to/from Lawrence & Kansas City would be wonderful.
- Better train service
- Improve commuting options
- Improve public transportation between Lawrence and KC
- Public transportation to metro KC and Plaza
- Rail System
- Reinstate KS rail system, connect every town express Topeka to KC 3x a day. Prevent wrecks save money prevent pollution. We have the electric tech. Bring big oil down.

Environmental impacts (6)

- Doing what can be done to improve air quality. Several cities in Europe and Asia are banning vehicles in city centers on certain days. That will have to happen here the way that air quality is declining.
- Good for environment
- Make maintaining existing ecosystems (natural) a top priority in road building decisions
- Minimize impact on environment---especially by use of gasoline
- Reduce carbon use and cars.
- Reduce fuel consumption

Improve access (6)

- Add high speed freeways to connect key roadways with each other
- Better access to K-10 bypass at 27th Street (stoplight currently) by ballfields/ YSI.
- Improve existing roads, sidewalks, bikeways and mass transportation (passenger rail, national bus service) access
- Improved access for the disabled, homeless
- Senior/handicapped is difficult
- Study options for more primary streets

Maintenance (4)

- Fix roads.
- Fix sidewalks
- Maintain roads
- Repair/rebuild alley ways

Other

- But you can't- it just takes time
- Charging stations for electric/power wheelchairs
- Develop and maintain long-range transportation plan to move growing traffic around

community

- For living and recreational resources
- Get rid of the hill.
- Make more 4 lane roads (2 lanes both directions)
- Really all are equally important
- Reduce need for cars.
- Roads like 9th Street between Tenn. & Iowa cannot handle any traffic
- Still too many entrances to the same shopping centers and other businesses. Expensive outside audit told city this, but nothing changes.
- Stop building roads, you can't out-build traffic. Reducing travel time shouldn't even be an option, because it leads to the mentality that having to wait a few seconds is an inconvenience, and that driving as fast as possible with little regard for the welfare of other people is a birthright.
- Stop traffic calming, policing for profit, and get those traffic signals synchronized.
- We should be able to move people in multiple ways while preserving the quality and social functions of neighborhoods.
- Work with county/state to make K10 Bypass four lane for the entire route.

Safety (5)

- Education: too many car drivers don't know the basic bike signals or even look out for bikes!
- More lights on trails.
- People running yellow lights, texting while driving
- Reduce texting/calling/phone activity on road.
- Track accident locations, lessen risks (intersections).

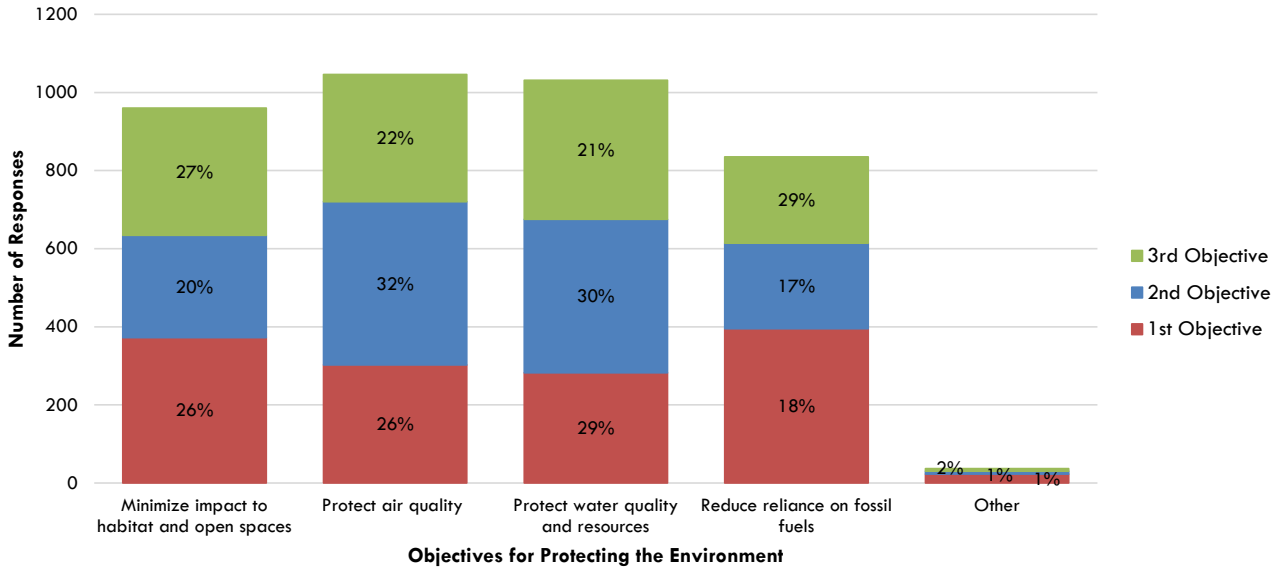
Transit (19)

- Bus Routes
- Bus System!
- Bus/rail to reduce individual car use
- Improve on existing public transit (6)
    - Create a better bus system that requires less wait time, has sitting/shelter, and provides time of arrival on site.
    - Please increase bus service areas. Bus service on Sunday. T-lift service on Sunday.
    - Prioritize transit and bike travel speed over auto. It's just more efficient.
    - Provide a better transit system where people rely on it (e.g. Buses!)
    - RUN BUSES AT NIGHT
- Improve transit efficiency (5)
    - I do not think the current bus system is at all efficient. I see bus after bus traveling around with only a couple of people riding.

    - I would advocate for improving transit efficiency as opposed to simply maintaining it.
    - Maximize public transportation alternatives. More routes, more frequent schedule. All days in the week. All hours in the day
    - Other or more efficient public transit/park and ride to downtown
- It is preposterous that so many bus stops in east Lawrence are not equipped a bench at a minimum
- Regional bus service (3)
    - Bus to Eudora
    - It would be nice to have limited bus service between Baldwin and Lawrence, and between Eudora and Lawrence.
    - There needs to be a public transport between some of the smaller towns I.E. Baldwin City, Wellsville etc., to Lawrence for those that do not have a license or vehicle
- We need a free trolley or pedicabs to go just up and down Mass. Street

When asked "Please rank your top three transportation objectives for protecting the environment? Place a number '1' by your first selection, '2' by your second and '3' by your third." Respondents indicated:

Figure B.16: Top 3 Transportation Objectives for Protecting the Environment



1st objective: Total number of responses – 1,374

2nd objective: Total number of responses – 1,299

3rd objective: Total number of responses – 1,236

Other:

All are equally important (16)

- The other three options (air, water, and open space quality) are all extremely important to me. I feel that if you prioritize one, you are really prioritizing all of them. So my second priority is "all".

- These are all SUPER important!

Bike/ped. (2)

- Make bikeways like NYCs
- More people walking/riding bikes

Free market (2)

- Let a free market determine people's choices for energy. Stop dictating wind and solar.
- Let the free market work to decide what energies to use - get government out of the business of choosing winners and losers.

Litter (2)

- Enforce litter laws to catch and punish people who throw trash from motor vehicles, especially fire starter like smoking items and brown glass
- Pick up the parks along the walkways. This is visual and actual pollution as most have running water moving through at certain points.

Noise (2)

- Noise reduction, load vehicles, mufflers
- Reduce noise pollution

Other (15)

- Coordinate traffic signals to reduce stops
- Education!
- Environment's ok
- I don't care about the environment
- Limit development in the Wakarusa River and Kansas River floodplains
- Maintain status, replacing quality.
- Make lane that dogs/cats can't poop on others walls and areas
- Offer better engineered routes so more people taking cleaner transit than congesting traffic and increasing emissions through their own driving of personal cars.
- Reduce reliance on foreign oil.
- Reduce VMT's by offering viable transportation alternatives.
- Roads and infrastructure are needed regardless of location.
- Screw the oil barons
- Sink agenda 21.
- Use existing buildings
- Use of fossil fuel as lowest cost fuel

Recycle (2)

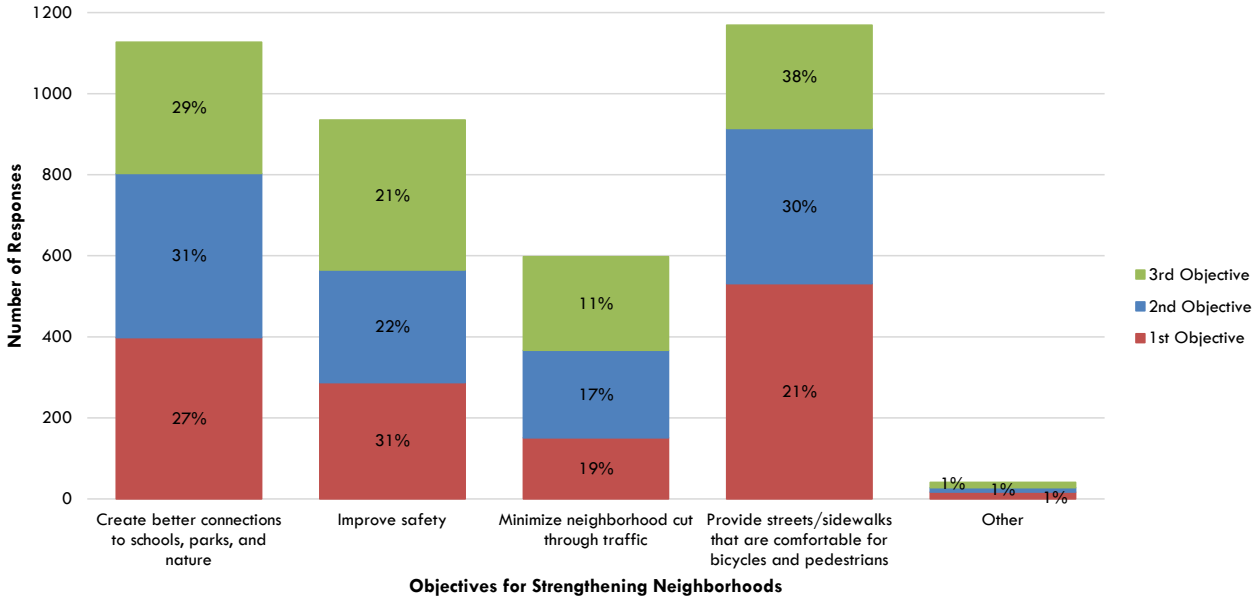
- Recycle more! Too much waste

Transit (3)

- Improve public/ mass transit.
- Maintain bus/car emissions
- Stop running big empty busses for a handful of people, who could be better served by non-diesel vans with less harmful emissions.

When asked "Please rank your top three transportation objectives for strengthening neighborhoods. Place a number '1' by your first selection, '2' by your second and '3' by your third." Respondents indicated:

Figure B.17: Top 3 Transportation Objectives for Strengthening Neighborhoods



1st objective: Total number of responses – 1,384

2nd objective: Total number of responses – 1,293

3rd objective: Total number of responses – 1,193

Other:

Bike/ped. (5)

- Bicycles do NOT belong on sidewalks. Enforce traffic regulations on cyclists.
- Bike paths
- More bike paths in Eudora
- On shared use pathways - pedestrian and bikes, make sure each knows their responsibilities, like riders telling walkers "passing on your left" and making sure walkers stay single file on the right. Common courtesy is needed and it goes a long way. And, bikes shouldn't ride two or

three abreast on roadways!!!!

- Provide parks, trails, and gardens to neighborhoods that lack them (example: the neighborhood south of 23rd- Lawrence KS)

Community/public focus (3)

- Create free public spaces where community members can see each other, chat, and social connections that build community
- More public spaces for kids/adults.
- Public events to connect people in a community

Improve access (6)

- Access to grocery stores
- Better connections to businesses
- Evacuation friendly.
- Maximizing good access to all roads to distribute traffic and avoid congestion
- When saying minimizing neighborhood cut through traffic, it means doing so with better access to arterial streets, not creating more dead-end or cul-de-sac neighborhoods with streets that do not connect. With the completion of the SLTW/K10-Bypass, it's nice, but the Kasold curve access has from K10 been greatly reduced, So ease of access to business on that stretch of roadway are less as easily accessed. Just creates frustration
- While minimizing traffic in residential neighborhoods, especially cut-through traffic, is good, these residential "islands" with one or two ingress/egress points are a nightmare for cyclists. When restricting access to neighborhoods, provide accommodations for non-auto traffic.

Infrastructure (2)

- Improve energy/networking infrastructure to be able to handle alternate sources of energy and the ability to easily expand network infrastructure for the highest internet speeds possible.
- Provide streets that are comfortable for motorist to use. Provide sidewalks that are comfortable for pedestrians to use. THEN bike traffic

Maintenance (5)

- Fix sidewalks
- Improve rural roads
- Keep parks clean. Parks and Rec does a horrible job of cleaning their parks.
- Repair sidewalks
- Repair streets - new materials for roads.

Other (11)

- Get government out of the anti-automobile business. Tear down the speed bumps and mid-block stop signs.
- I have no complaints here re: Quail Run Elementary School area
- I totally disagree with minimizing neighborhood cut through traffic. We all pay for all streets and if we want to drive down a neighborhood street instead of Iowa that should not be vilified or hindered. People who are concerned about traffic should not buy houses on thru streets.
- Increase Diversity
- Look at how other cities have problems- e.g. Fort Collins, CO
- Neighborhood Associations are the worst people.
- None of these are a priority
- Police DO NOT enforce school zones and crossings
- School buses should pick up kids at a lesser distance than the current 2.5 miles or more. Not environmentally friendly nor Family Friendly or convenient
- This is not an unbiased survey! These questions are "leading!"
- This survey is obviously biased against auto use

Roundabouts/traffic calming devices/speed management (5)

- Decrease speed bumps, "calmers" - major intersection roundabouts okay; decrease cul de sacs, winding streets - increase grid.
- More speed bumps on older straight-aways like Greever Terrace
- My biggest Concern - West of Wakarusa on Harvard. Dump trucks, semis cut through and very load. Please put in speed control devices to avoid 6th and Wakarusa.
- Please consider adding speed humps on Harvard Road west of Wakarusa.
- Roundabout at 19th & Learnard.

Safety (9)

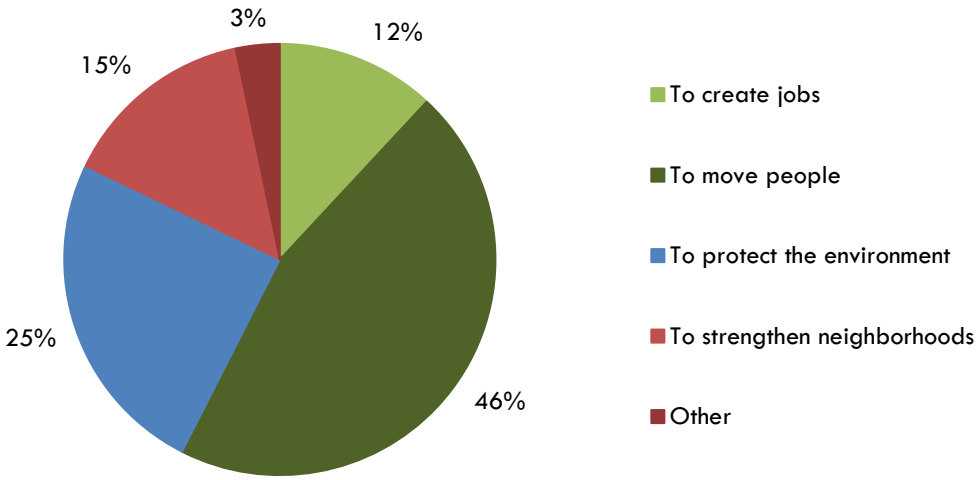
- Better monitoring of unsafe driving, especially in school zones
- Better night time lighting
- Culture of safety for walkers/bikers/children
- Have city work on lines that have trees falling onto the electric lines
- Improve safety and provide streets/sidewalks that are comfortable for bicycles and pedestrians
- Provide more lighting in neighborhoods so they are safe
- Provide streets/sidewalks that are comfortable and SAFE! for bicycles and pedestrians
- Reduce dangerous walking from Eudora schools, across K-10 bridge into town.
- Safe pedestrian crossing of through streets like 19th and Alabama.

Zoning (2)

- Shopping resources within walking distance - ex. groceries.
- ZONING! Put things near neighborhoods!!!

When asked "What should be the Lawrence-Douglas County MPO's number one priority for planning a regional comprehensive transportation system? (Select one)." Respondents indicated:

Figure B.18: Number One Priority for Planning a Regional Comprehensive Transportation System



Total number of responses – 1,367

Other:

Accessibility for seniors (2)

- To move senior citizens who can no longer drive to get to needed services.

All of the above (8)

Efficiency (2)

- Energy saving with efficiency

Environment (2)

- Become independent of fossil fuels, adopt green practices.
- See EU, etc. integrated-user environmentally friendly

I

nfrastructure (3)

- Maintain roads as established routes
- Make a solid plan for the future. Place the infrastructure to be the best.
- Pave gravel roads in Douglas County

Other (4)

- Live-able communities
- This is a biased survey. Sometimes all answers are equally important - but I'm asked to prioritize. Also, the survey sets us up to select you first listed option as our first choice, the #2 and # are random
- To create more accessibility to travel freely in the Lawrence-Eudora -DeSoto area
- ZONING! (To strengthen neighborhoods)

Providing active transportation choices (3)

- Educate and encourage bicycle commuting and create bike-friendly infrastructure
- Provide excellent support for bicycles.

Safety (6)

- Provide a system that is safe and comprehensive for pedestrians and bicyclists and not just vehicles.

To move people in an environmental friendly way (6)

- Create jobs, move people, protect the environment
- My number one priority is two pronged: the principal goal should to move people safely, efficiently, and with the minimum negative impact to the environment possible.

To protect the environment and to strengthen neighborhoods (2)

To reduce automobile reliance (2)

- To reduce need for cars, increase biking, walking opportunities

Transit (3)

- Invest massively on public transportation. Frequent time schedule, all days and hours in a week.
- Should transit assist affordable housing
- There isn't enough space for me to give my actual opinion on Lawrence's transportation system

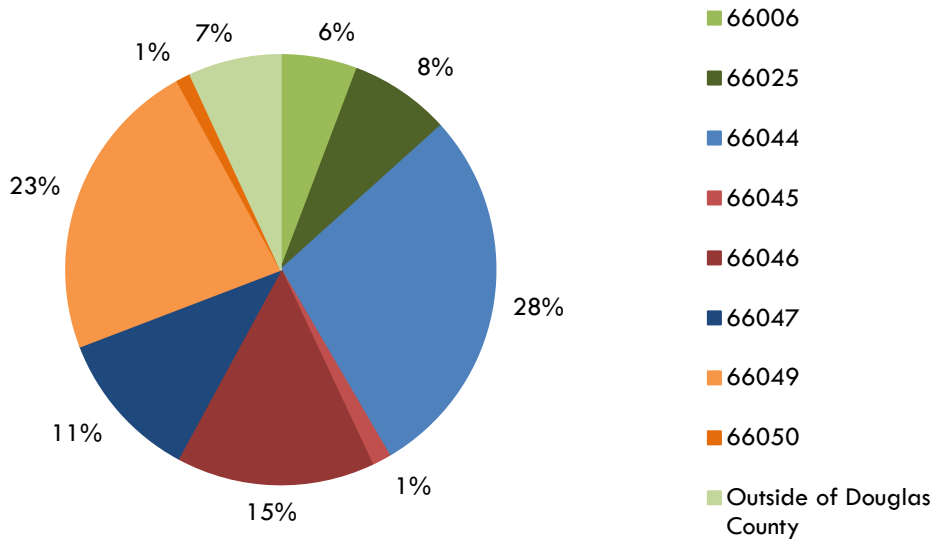
When asked "Is this your first time participating in the Lawrence–Douglas County MPO transportation planning process?" Respondents indicated:

Figure B.19: First Time Participating in the Lawrence-Douglas County MPO Planning Process

Total number of responses – 1,473

When asked "What is your zip code - Home" Respondents indicated:

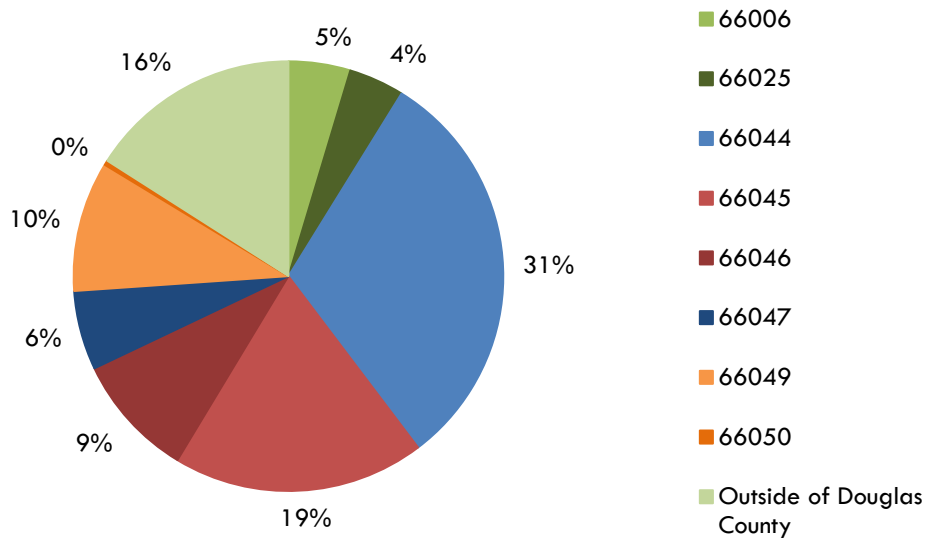
Figure B.20: Home Zip Code



Total number of responses – 1,402

When asked "What is your zip code - Work" Respondents indicated:

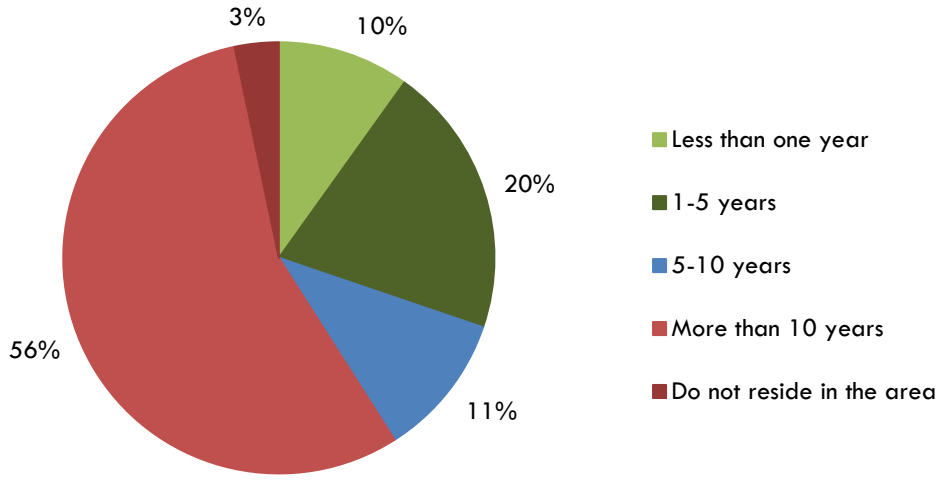
Figure B.21: Work Zip Code



Total number of responses – 839

When asked "How long have you lived in the Lawrence- Douglas County area?" Respondents indicated:

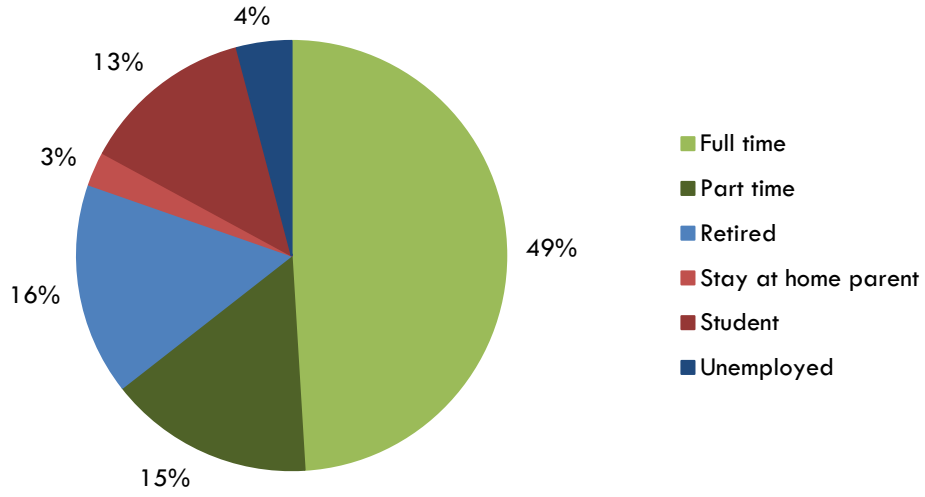
Figure B.22: Length of Residency in Lawrence-Douglas County Area



Total number of responses – 1,486

When asked "What best describes your employment status? (Select all that apply.)" Respondents indicated:

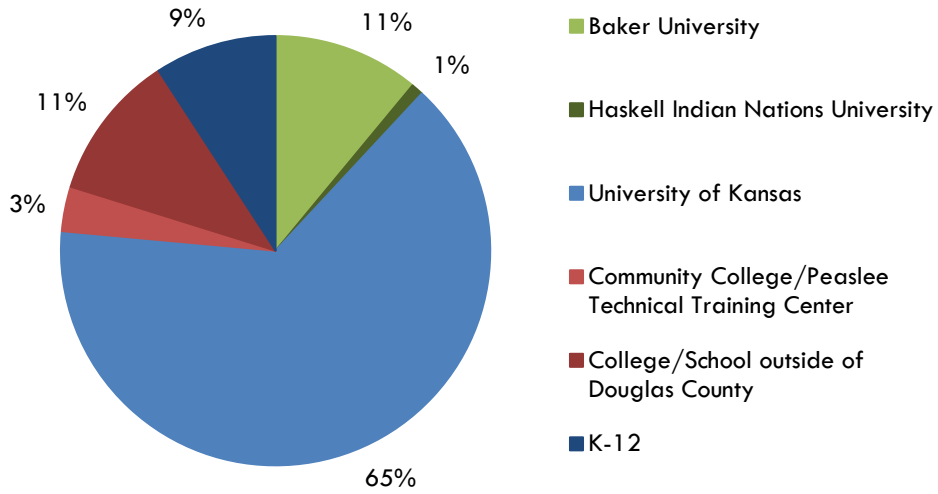
Figure B.23: Employment Status



Total number of responses – 1,603

When asked "If you are a student, select all that apply." Respondents indicated:

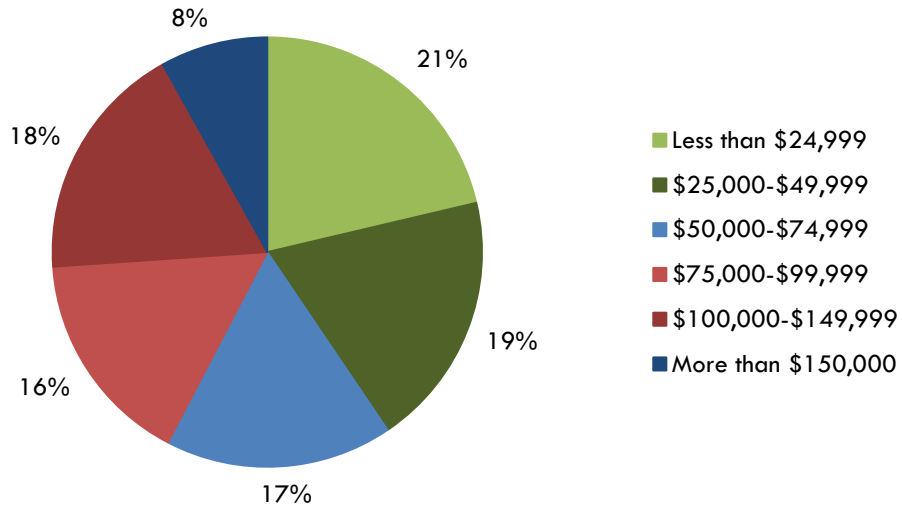
Figure B.24: School of Attendance



Total number of responses – 327

When asked "What is the approximate average household income? (Select one.)" Respondents indicated:

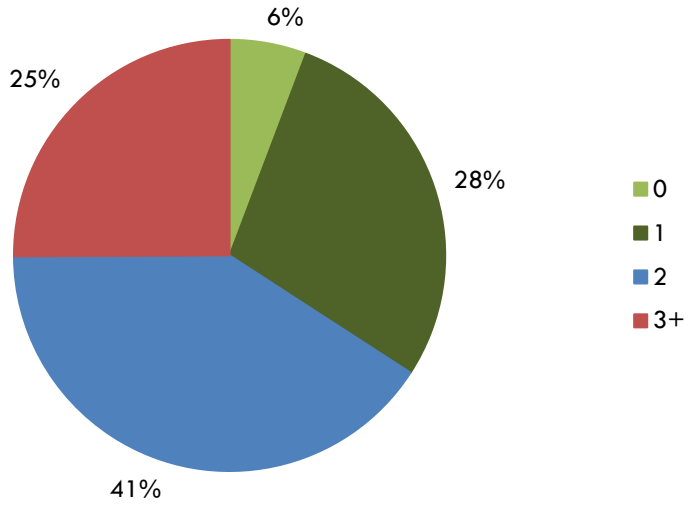
Figure B.25: Average Household Income



Total number of responses – 1,384

When asked "How many vehicles are in your household, including motorcycles and electric vehicles? (Circle one.)" Respondents indicated:

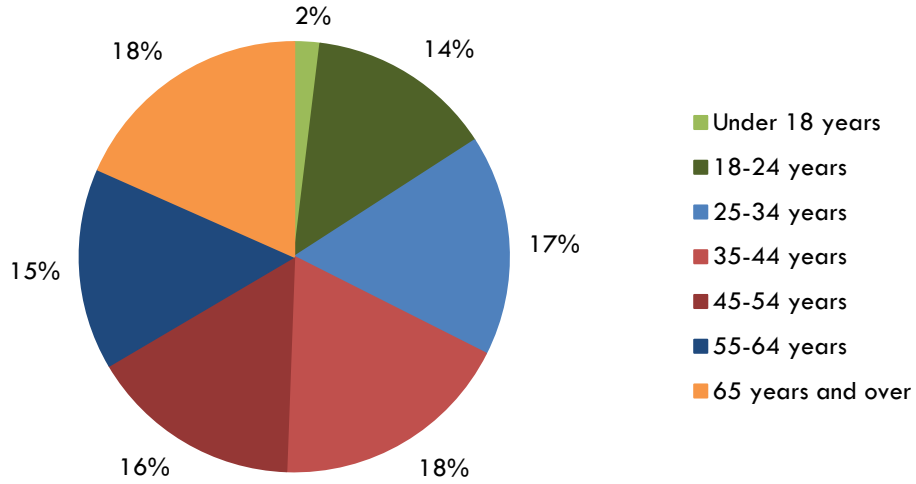
Figure B.26: Number of Vehicles in Household



Total number of responses – 1,388

When asked "What is your age? (Select one.)" Respondents indicated:

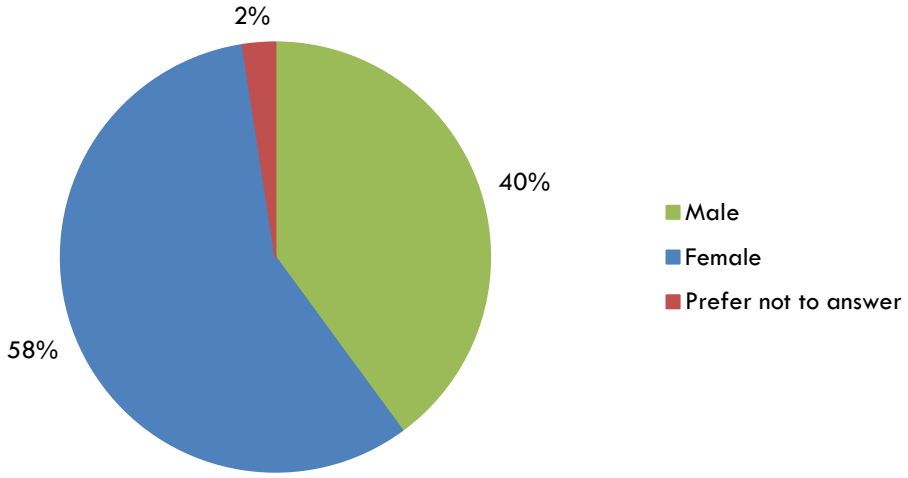
Figure B.27: Age



Total number of responses – 1,449

When asked "What is your sex? (Select one.)" Respondents indicated:

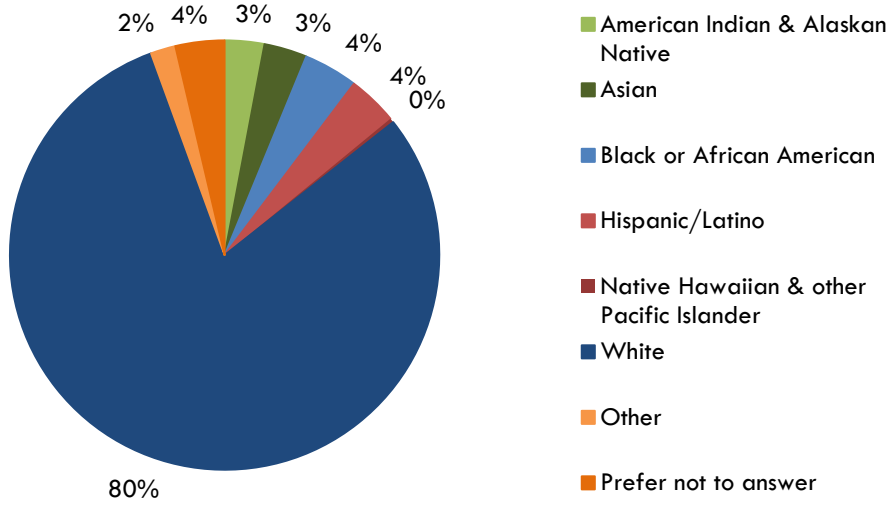
Figure B.28: Sex



Total number of responses – 1,475

When asked "Which race/ethnicity best describes you? (Select all that apply.)" Respondents indicated:

Figure B.29: Race/Ethnicity



Total number of responses – 1,545

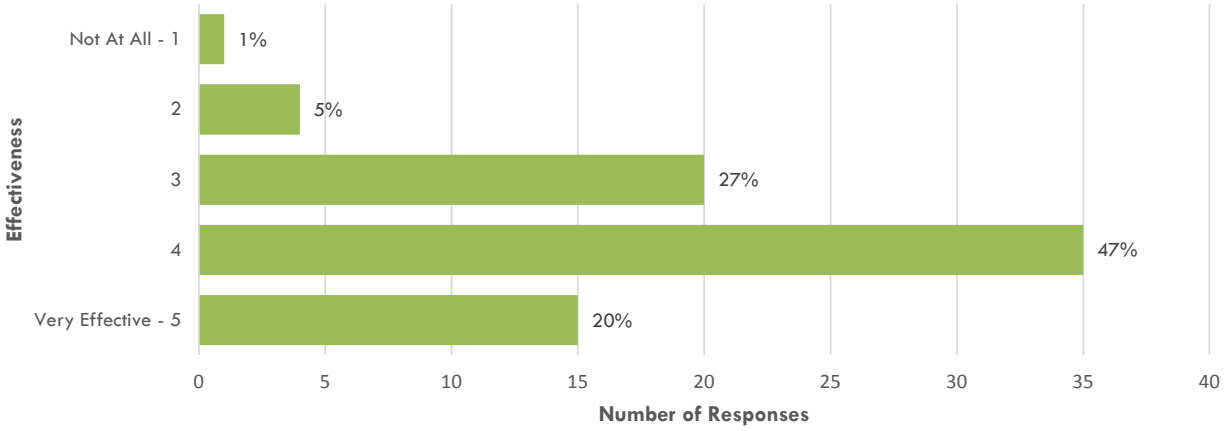
Other:

- A little of this, a little of that
- American 100%
- Arab (2)
- Belgian
- Creole
- Generally Awesome
- Human (6)
- If we are to think as one then this question should not apply. A person filling out this survey should have a firm grasp on what the people of Lawrence prefer. You should really start @ DcF!!!! Both High schools, this should be given to their parents.
- Italian
- Jew
- Latinx (the term Hispanic is related to Spain and used for people who speaks Spanish) (Latino/a is in regards to culture) If this is trying to determine my skin color: It is brown.
- Multi-racial (4)
- Brazilian, Japanese, and Caucasian
- Negro
- Semitic
- TEXAN
- We all are!

3. Survey Two Responses

When asked "How well do the goals & objectives meet the overall transportation needs? (Select one)" Respondents indicated:

Figure B.30: Effectiveness of goals & objectives



Average Effectiveness - 3.79

Total Number of Responses – 75

When asked "Are there additional goals & objectives that should be considered to address the transportation needs?" Respondents indicated:

Financial

- An explanation of the financial impact and structuring of appropriated funds to pursue goals and objectives

- KDOT has been bled dry during the Brownback administration. As a result, they are unable to maintain their system to acceptable levels, and are not in a position to provide any leadership that will be necessary to push for solutions to regional transportation problems. We should therefore establish a regional goal to lobby elected officials in Topeka to adequately fund the highway department.

Transit

- Hoping "Access" looks closely at riders who have physical mobility issues, and also increases routes/hours for homeless patrons. Also, a focus on sheltering riders who are waiting for their buses (aka actual bus benches and/or sheltered structures!)
- Rail system in Eudora?
- Anticipate autonomous vehicles. Encourage ride sharing. Reduce commute time. Improve accessibility to schedule for mobile users.
- The objectives should be more inclusive/specific when referring to "enhance" transit services. We need more options for transit (bus, train, light rail, bike, vanpool, etc.) and we need more routes and more availability during a given 24 hour period.
- Some people live in outlying areas and require an auto. The bus stops are inconveniently placed or nonexistent. There needs to be better coordination of bus routes and accessible bus stops.

Goals

- There is no direct reference to time. A goal of reducing average travel time of riders should be included.
- Under choices should be added the objective "Enhance active transportation (walking, biking, etc.) opportunities"
- These Goals and Objectives are too nebulous. They could be met or not met by simple relativism. Put some meat on the bone! For example:
    - "Preserve or enhance the pavement conditions of the roadway network"" becomes ""Increase the average pavement condition from the current X% to Y% while holding roadway network spending flat at $Z per capita"

Connectivity

- Transport to and from Eudora
- The current problem in my opinion is East Lawrence, Baldwin City, and Eudora routes. Consider celebrations like maple leaf. There are profits to be had.
- Eudora connectivity and road improvements need to be specifically called out. Too often Douglas County is seen just as Lawrence.

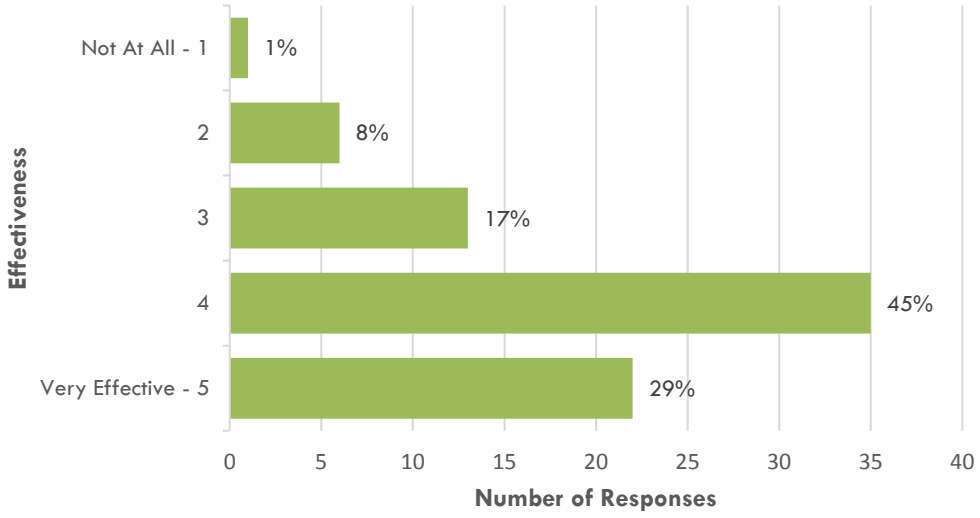
Other

- These are very generalized … it's difficult to evaluate such unspecific goals and objectives - these could apply to any community anywhere!

- This is a lot! I'm not sure if it is wise to try to tackle more!
- Yes. Preserve and enhance the neighborhoods and people living in them.
- 10. "Preserve or enhance surface conditions of sidewalk network"
- More bicycle lanes in the country as well as in towns. Even 2 foot shoulders are better than riding the white line boundary b/t road and limited shoulders.
- #1 K-10 to 4 Lanes North Leg #2 Pave 1023 from State 120 to HWY 40, #3 Improve HWY 40
- Some things should be stated more explicitly 1. reduce carbon footprint of transportation 2. reduce all forms of pollution including air, water, soil, noise, light, etc. 3. predictability is an important part of reliability, knowing how long it will take to travel is good (e.g. walking has predictable travel times except for crosswalks).

When asked "How well do the strategies address the transportation needs? (Select one)" Respondents indicated:

Figure B.31: Effectiveness of strategies for ACCESS & CHOICES



Average Effectiveness – 3.92

Total Number of Responses – 77

When asked "Are there additional strategies that should be considered?" Respondents indicated:

Connectivity

- Regional connectivity is important for Baldwin City residents.
- Increase access routes to grocery stores from low income housing.
- There is more to Douglas County than Lawrence, and unless you have your own vehicle, transportation outside your own community is non-existent.
- Improve walkability in and between neighborhoods and commercial areas (not just sidewalks along 6th & other busy streets, which aren't enjoyable/safe places to walk/bike). More through streets and less cul-de-sacs and dead ends. Fewer 6-to-8-lane intersections in the future. More connecting streets between downtown, campus, and outer areas.

- Reduce the travel time for each patron. This can be accomplished in many ways - buses could run on more regularly or additional buses could be added to reduce the route length of various buses. Having a maximum wait of 15 minutes at a bus stop would be great, and reducing the number of stops each bus makes would also help reduce actual travel time.

Amenities

- Bus stop shelters are needed at all stops with ventilation, garbage receptacles, and posted rules that protect all commuters such as: No smoking inside the shelter.
- ADA=Yes! Complete Streets= Yes! Think about rideshare drop off & self-driving vehicles.
- To make any non-car alternatives feasible, Planning and Zoning must be engaged to ensure the type of dense development that would actually promote walkability and effective transit.
- More frequent regular bus lines. More bicycle amenities that make it easier to be a bicycle commuter.

Pedestrian

- These look good- definitely better sidewalks/bikes are important.
- I would like to see way more focus on needs of pedestrians & bicyclists. This is too motor-vehicle oriented.
- These are broad, yet specific. Can Lawrence actually follow through with all of these strategies? I would say that, from my own perspective, designated bicycle paths, OFF STREET, running both north/south and east/west - THROUGH THE CITY, are vital! While Lawrence is contem-plating a path to circle the city, this path is not practical for those of us living within the community, nor is it in any way scenic, restorative or a source of relaxation.

Information/Awareness

- More frequent buses. Buses available past 7:00 pm. Basic route and time information posted at each stop. Increase number of bikeways and pedestrian networks. Improve and maintain sidewalks
- Better and increased signage for points of interest and destinations with ample advance notice to driver.

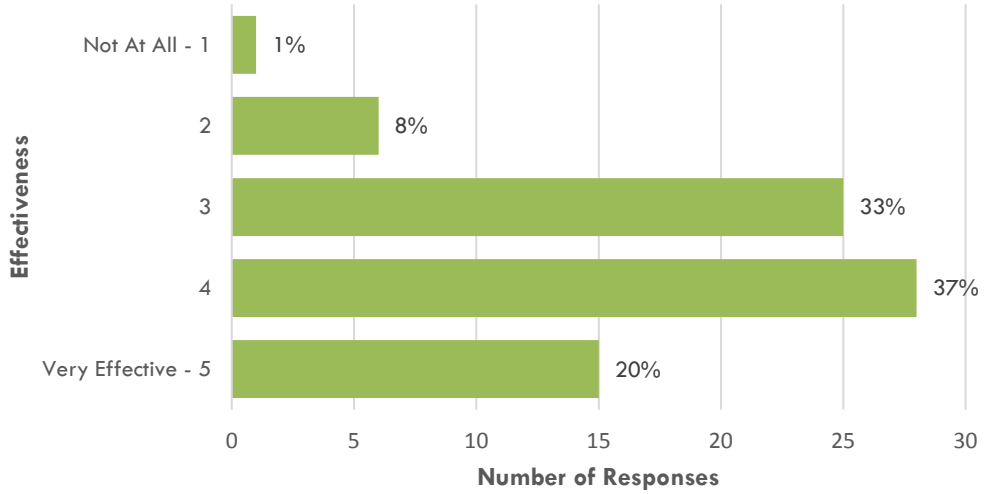
Other

- Doesn't seem to concern Baldwin City - just Lawrence. Baldwin does need improved sidewalks - business owners in Baldwin downtown need to sweep outside store fronts.
- Identifying the most cost effective and timely improvements is a huge challenge. How will projects be prioritized? This seems a key part of any strategy.
- Anticipate autonomous vehicles. Encourage ride sharing. Reduce commute time. Improve accessibility to schedule for mobile users.
- Think of enhancing traffic flow.
- Later hours on Sundays!!
- These strategies work only in Lawrence and urban areas, and do nothing for smaller

communities or rural areas.

When asked "How well do the strategies address the transportation goals and objectives for Mobility and Prosperity? (Select One)" Respondents indicated:

Figure B.32: Effectiveness of strategies for MOBILITY & PROSPERITY



Average Satisfaction – 3.67

Total Number of Responses – 75

When asked "Are there additional strategies that should be considered?" Respondents indicated:

Connectivity

- A strategy for connecting Lawrence to the other communities in Douglas County, such as Eudora and Baldwin.
- I fully support enhancing thoroughfares to the appropriate Vehicle Level of Service, but care must be exercised to not overdo this for roads in Lawrence. Projections and preemptive road widening initiate a cycle of increasing usage due to induced demands.
- East/West is very important
- Improve north/south connections
- Enlarging roads and increasing traffic through residential areas is not an answer. Use and improve existing roadways to move traffic.
- Improve North Lawrence access. One road is not enough. Roundabouts - good ones - are great. One is needed at 31st & Louisiana. Antici-pate autonomous vehicles. Encourage ride sharing. Reduce commute time. Improve accessibility to schedule for mobile users.
- Highway 56 from Baldwin Junction to Baldwin City limits.
- Provide more interconnecting medium-use streets rather than wide, suburban-like, high-traffic streets.
- Goal seems to focus on vehicle trans. Are other modes included? What about workforce

transportation to large employers?

Other

- These are hard to visualize
- Not too familiar with these needs but think it's okay
- Not enough specifics
- Closer bus stops

Bike/Pedestrian

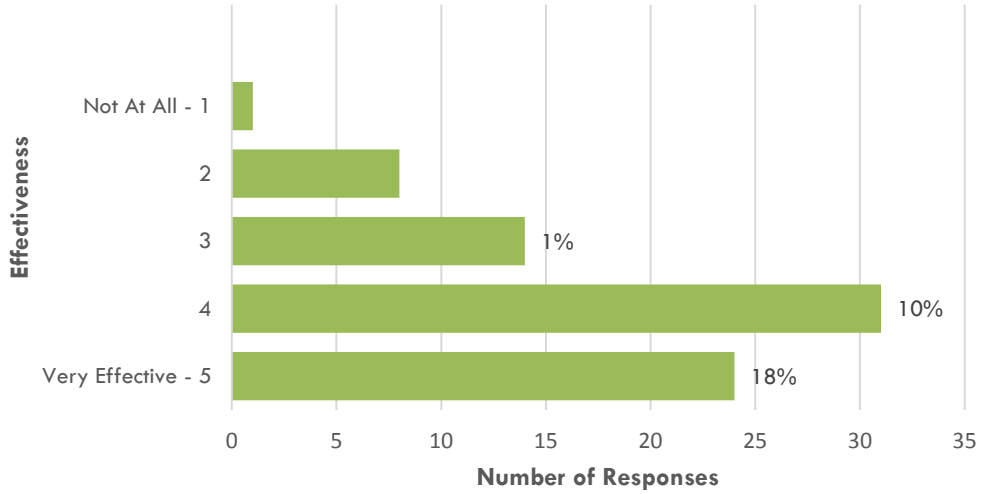
- Make it easier for bicycles to ride. Keep them separated from truck traffic.
- No mention of needs of walkers and cyclists
- Pay more attention to topography especially for cyclists and pedestrians. Lawrence isn't that hilly but the transportation network currently doesn't seem to avoid extra ups and downs especially for cyclists. Is there a need to identify where some traffic has development priority? Freight and pedestrians don't mix well, can conflicts be avoid or at least managed at the planning stages?
- Increase bicycle parking on bike routes and downtown. The downtown corner racks are defeating the point of cycling. Place a rack in the middle of the blocks as well.

Freight

- Taking the lead in a statewide freight plan seems more ambitious but appropriate, given Douglas County's location in proximity to Johnson and Shawnee
- Freight plan is important more on statewide/county level

When asked "How well do the strategies address the transportation goals and objectives for Preservation, Safety, and Security (Select One)" Respondents indicated:

Figure B.33: Effectiveness of strategies for PRESERVATION, SAFETY, & SECURITY?



Average Satisfaction – 3.88

Total Number of Responses – 78

When asked "Are there additional strategies that should be considered?" Respondents indicated:

Safety

- Safety is a big issue for us.
- Improved lighting
- More consistent signage types & placement, curb painting, safety design features for low visibility conditions senior drivers. Those with night blindness.
- Enhance safety of rural roads! Limited sightlines are a problem. Where old blacktops exist, make upgrades to realign sightlines
- Push for slower more steady traffic streams in the city.
- Please consider 23rd and Church St in Eudora, it is a danger zone for our youth!

Bike/Pedestrian

- Conduct walkability surveys to identify safety and access issues at high priority locations.
- Under objectives should be added: enhance pedestrian safety with contiguous sidewalks maintained to safe standards
- Pedestrians should be part of the transportation networks.

Design

- Don't place traffic calmers (i.e. traffic circles) on local streets that are too narrow to make them effective and safe for large vehicles and pedestrians.
- Smaller round-abouts should never have been implemented. Just watch a fire truck pass through. The larger ones are fine.
- Identify best practices for infrastructure and follow them to create a reviewable, consistent standard that can be evaluated. Widening sidewalks does not create a shared use path! Such paths around Bob Billings pkwy and Kasold are not fit for purpose (issues include: too steep, does not have clear priority at junctions with side streets, too close to road, too narrow, poor visibility with junctions…). Phase out diesel in favor of electric to achieve environmental objectives. Evaluate and address perceived safety. From poor lighting to bike lanes too close to the street it's important. People won't use infrastructure if it doesn't seem safe, even if it statistically is.
- Consider other traffic structures such as roundabouts and bike lanes between sidewalk and on-street parking
- Make all roads conducive for public safety personnel and vehicles to work and travel on. The constant adding of traffic barriers (AKA calming devices) definitely slow them to responses or add route changes. Does not seem to help with traffic anyway.

Maintenance/ Construction

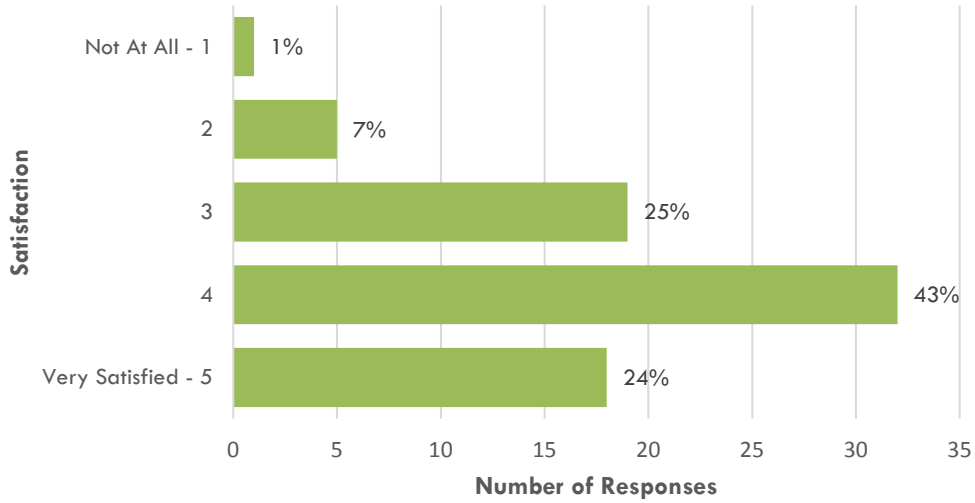
- Cities need to take responsibility for the maintenance and construction of sidewalks within the road right-of-way, rather than pushing that off onto the property owners. Why on earth do cities in Kansas think sidewalks are the property owner's responsibility? They are just as much a public transportation infrastructure element as are the streets and curbs.
- It's very frustrating when road construction happens all at once. Don't close multiple lanes/ streets all at once. Stagger repairs

Other

- Collaborate with the Douglas County Food Policy newly adopted plan (Preservation & Other collaborations to food and land use)
- Consider rewording goal to focus on network
- Improve transportation from Baldwin to Lawrence for seniors
- Anticipate autonomous vehicles. Encourage ride sharing. Reduce commute time. Improve accessibility to schedule for mobile users.
- Better integration with surrounding transit systems to provide alternatives to single passenger vehicle trips (KC area & Topeka).
- Improve schedule to KC for commuters. I would use more public transport if it didn't take 4 hours to get to work in the morning and evening.
- Again, there is nothing in these strategies that addresses the people living on or near traffic on the roads.
- Sidewalks & streets make it difficult to get around- like the focus

When asked "How well do the strategies address the transportation goals and objectives for SUSTAIN & ENHANCE? (Select One)" Respondents indicated:

Figure B.34: Effectiveness of strategies for SUSTAIN & ENHANCE?



Average Satisfaction – 3.81

Total Number of Responses – 75

When asked "Are there additional strategies that should be considered?" Respondents indicated:

Density

- Disagree that greater density should be encouraged because open infrastructure is inadequate
- Not all people want to live in high density areas or settings. That needs to be respected. Improving the east/west transportation would be most helpful.
- How do we get folks to believe they should walk or ride bikes rather than drive cars. Especially in winter. Make shopping less concentrated and more distributed.
- Density isn't a huge issue in Baldwin City
- Wording on #10 great. Add density and mixed use to strategies.

Transit

- Reduce travel time for transit riders
- Later hours and Sundays!!
- If "reducing single occupancy vehicle trips" includes closing the night line. Please create an alternative for the night line. Some people get out of work late and miss the regular bus.
- Too much time to get somewhere
- Figure out a way to reduce traffic delays due to public transportation for cars following buses
- Be sure to maintain bus on Connecticut.

Sustainability

- Green infrastructure plan- use vegetated areas to mitigate flooding, pollution sheeting off streets, protect watershed- design to preserve, create wildlife corridors- bike friendly- community ranking -> silver or higher.
- The vehicle focus isn't sustainable, need to be more forward thinking, to be more aware of concerns of neighborhoods (i.e 19th St. primarily residential, should not be opened up for more traffic.
- Encourage electric vehicles. Be very careful with carpool lots and discouraging SOVs. That may work well for football/basketball games, but in general, it may severely discourage commerce.

Bike/ Pedestrian

- Don't suddenly end bike lanes in a hard to negotiate traffic bump (i.e. Folks Rd. and Mulberry) or at an unsafe place on the street. Painting bikes on a narrow street to make it a "bike route" doesn't appear to make it any friendlier for bikes. Most streets in Lawrence designated "bike routes" don't seem to have any advantage over other streets.
- These are very broad goals... Lawrence is vastly lacking in walkability routes. Sidewalks are in poor repair, vehicle traffic is threatening and those paths that are present are, for the most part, very unfriendly concrete. Asphalt is MUCH MORE conducive to pedestrian travel.

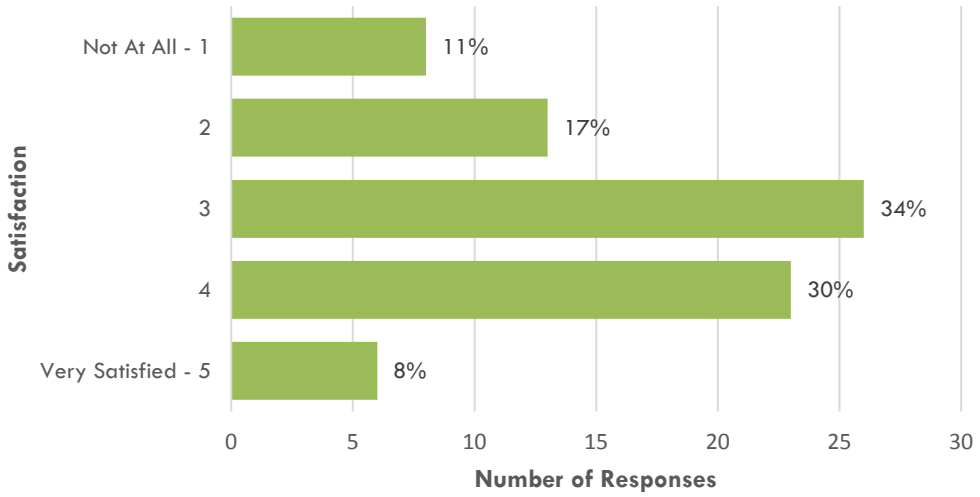
- Encourage the local bicyclists to stay off major roads. I realize they have road rights, but they seem to place themselves in bad situations, inhibit travel by vehicles, and then will blame everyone else.

Other

- You should reconsider your strategy when making surveys. This survey was poorly designed.
- Looks good
- I love the strategies you are bringing into the community.
- Anticipate autonomous vehicles. Encourage ride sharing. Reduce commute time. Improve accessibility to schedule for mobile users.
- We can plan for years and years, and a commission can throw it out in 30 seconds for a trans-SLT non-pedestrian-accessible strip mall. Teeth beyond disposable plans.
- Stop allowing "Big Box" development at the edge of town with acres of surrounding parking lots
- Considering fundamental changes in local economy and how home/work arrangements effect transportation patterns
- The strategies to minimize automobile trips will be fruitless without charging more appropriate parking fees, especially downtown. People will always drive there if they know it is free to park - it's simply the easiest option, and humans are predictable.
- If outlying communities use their own vehicle to get to Lawrence, they will stay in own vehicle while running errands, entrainment etc, only adding to the traffic. As these communities grow, unless there is a joining plan, the traffic in Lawrence will continue to grow. Must look at all around flow as Lawrence is a central hub for all surrounding areas. Even Franklin County and western Johnson county frequent Lawrence for Groceries, home supplies (Walmart, Target, etc), lawn, garden, home repair (home depot), entertainment, recreation, etc.
- Redesign Bike ride map for better visibility.
- Mobile apps: bike riders, transit users.
- Make the new Lawrence residential streets wider- parking on side & 2 lanes.
- Create more one way streets to better move traffic, especially in the downtown area

When asked "How satisfied are you with traveling EAST-WEST across town? (Select One)" Respondents indicated:

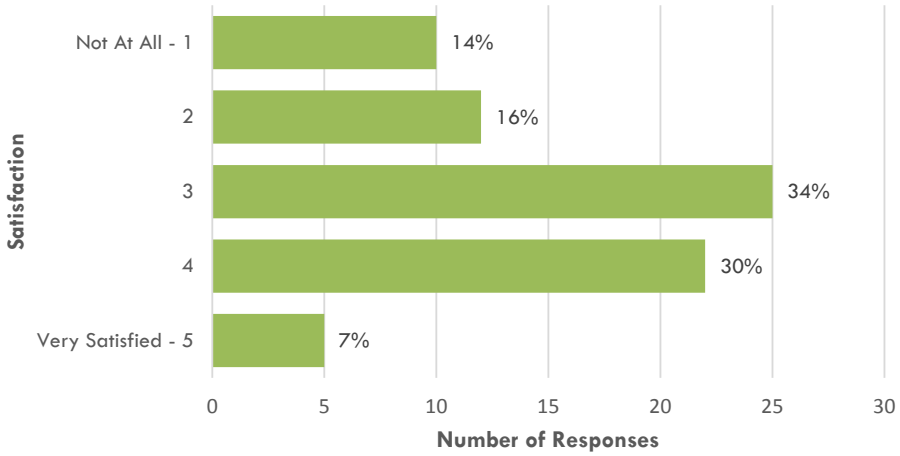
Figure B.35: Satisfaction with EAST-WEST connections?



Average Satisfaction – 3.08

Total Number of Responses – 76

When asked "How satisfied are you with traveling NORTH-SOUTH across town? (Select One)" Respondents indicated:



Average Satisfaction – 3.00

Total Number of Responses – 74

When asked "Are there any other improvements or services you feel should be discussed?" Respondents indicated:

Condition

- The streets in Eudora are horrible. Chip and seal is not an effective method of repair for high traffic areas. Traffic near the schools is dreadful and needs to be thought out better. Traffic lights in that area, etc. Also not good for brand new drivers
- Pave 1500 West of SLC all the way to 700. Please

- Resurface streets that have a washboard appearance and feel when driving on them

Transit

- Bus to the KCI airport
- Daily transit routes to Kansas City and Topeka
- Is there a plan for transit stops & bike facilities. Pedestrian facilities multimodal elements seem missing. Is it on another map?
- For goodness sake, put the transit hub at 21st and Iowa. Those lots used to be full of fraternities. I'm tired of folks who bought houses in areas they knew would be developed complaining about it when change happens. Those houses were cheap because of the likelihood of development. Complaints about using that space to improve the quality of life and reduce the environmental impact of transportation in Lawrence are self-serving and denying the obvious risk the buyers took on when the house was bought. Now they want to get both the cheap price and the increased value of stopping the planned use of the land.
- Independence Inc, SRS and other transporters in that category need to improve their access and dependability

Facilities

- bridge into N. Lawrence
- Turn outs on narrow roads for flat tires & vehicle breakdowns if you are not going to have shoulders
- I'm not sure I understand all of what I've read. This much I know. Wakarusa Dr. is not anywhere adequate. Right turn lanes should have been implemented from the start and are needed to help the flow of traffic, especially at the intersections of Bob Billings, and 23rd. Wakarusa from 23rd south to the bypass is a joke. It needs turn a lane as well as shoulders. At the intersection of 23rd and Wakarusa, the south connection, there should be right and left turn lanes as well as two lanes of north/south travel to accommodate traffic flow. As it stands now a motorist traveling north from hwy 10 can block very long lines of traffic just to turn into the convenient store. It's impossible to turn left onto hwy 10 from Wakarusa when there are sports events at the fields south of hwy 10 causing major backups in traffic. This is a well used sports complex that is used most days. Lastly, hwy 10 NEEDS to have four lanes, as well as left turning lanes on 1200 Rd. The city seems to think this road is not important and has tried to close it off in the past. It is very important, and well used. It helps the west/east flow of traffic in Lawrence tremendously, and as we all know this particular traffic flow has been a problem in Lawrence from the start.
- 1) 23rd & Mass St intersection dangerous. People take risks trying to get through the light before it turns red. Southbound traffic on Mass st often cuts off northbound traffic when turning left. 2) speed bumps on Mass street between 23rd and Indian Ave are too tall and not clearly visible. Shadows in the late afternoon make them near impossible to see if you don't know they are there. Signs are so far from the side of the road and are obscured by trees in the spring and summer.

Congestion

- Kasold between 6th & Bob Billings is pretty nightmarish depending on time of day. And K-10 bypass has already outgrown its western leg
- Crazy that it takes longer to get through Lawrence than traveling 119th from I35 to MO border, and 119th us one if the busiest streets in any of the NE Kansas counties.
- Also, please fix the nightmare and congestion that is getting in and out of the Youth Sports complex! A separate interchange for the highway and an under or overpass for the complex would solve many of the issues the poorly designed intersection, stoplight, and lack of access roads that make up that mess! Sometimes it literally takes 20 min just to get into or out of that place. Ridiculous!
- In Eudora, the intersection of Church and 23rd Street is a very dangerous area when schools let out. It is a headache and I'm fearful a child will be run over or a bad car accident could happen any day. There has to be a solution.

Connectivity

- When developers are allowed to build small, non-interconnecting neighborhoods (made up wholly of circular streets and cul-de-sacs), they create environments that discourages foot & bike traffic and encourages vehicle traffic for even small trips. For example, neighbors living back-to-back may have to drive several blocks to reach each others' driveways.
- Considering there is one street in town that goes all the way from eastern boundary to the western boundary, and only 2 or 3 that go northern boundary to southern boundary, options are limited. It will be very hard to move away from the awkward routing we have to use to go across town. Quit building arterials, collectors and cul de sacs. Build street grid systems with access to small scale shopping so that folks can walk and ride places to meet their needs. Don't concentrate density in one location, spread it out. Require higher density in lower density areas. Start on the outskirts of town for this and new developments, not just the oldest development in town.
- Anything to help the increased intermodal traffic get thru our city - the best and safest!
- I strongly oppose major road service capacity expansions to the south and west of K-10. Doing so makes it fairly likely that sprawl will extend outside the core of the city/county. It will increase development pressure on excellent ag land, promote more car oriented travel (with all the negative economic, environment, and social impacts), and further fragment the more pastoral areas of the county.
- The intersection on Church Street at the entrance to the Eudora High School and Meadowlark house addition in Eudora.
- Once again the emphasis is on the major roadways. There never seems to be any leftovers for local streets. Biking on local streets is a nightmare of potholes. I'd like to see the money to be spent on connecting 19th and O'Connell spent on local street improvements until such a time that there is something in Venture Park worth connecting to.

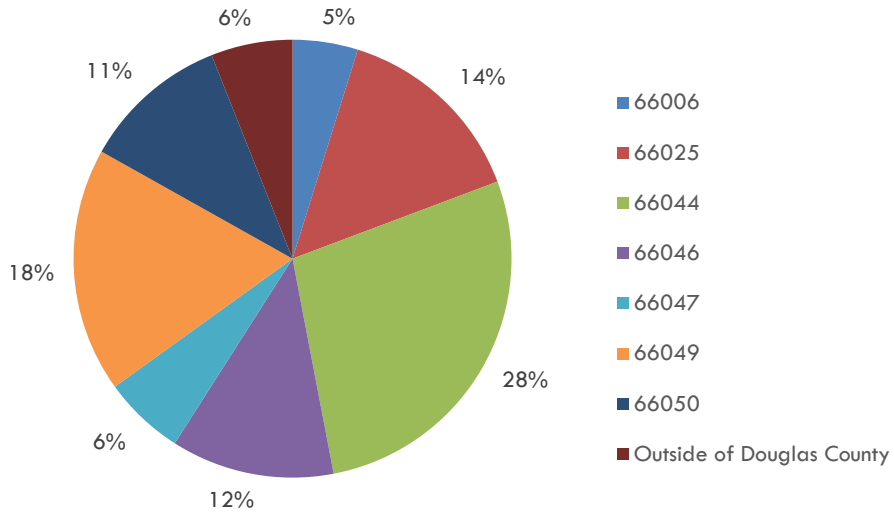
Other

- I truck route on Delaware between river & 11th
- None at this time. Good.
- All Lawrence, where are the other cities in Douglas County?

- Looks good to me!
- Protect farm land & good soil
- Most of my issues deal with lack of KDOT money
- No new lights on 6th Street
- Why did E 11th & E 15th get closed at the same time. Traffic from these areas can only access Lawrence on N 1300 Rd. This is a 35mph residential road.
- Need to discuss with Scott McCullough, Keith Browning about detail on extending 31st from 1600 E to Noria- can't discern from maps
- Encourage smaller grocery stores in spread out locations. I would bike to the store if the closest one wasn't 3 miles away.
- "A few things, to recap: Ensure denser, mixed use development so people don't have to rely solely on cars for simple errands. Charge appropriate parking fees (and fines). If you want people to drive slowly on neighborhood streets, design them so drivers naturally slow down."
- 229 should be scrapped. Maybe an emergency access for emergency vehicles. No 19th St connection to O'Connell.
- The county, simply MUST work with the State to address issues on Hwy 40. Absolutely NO road projects can be proposed or undertaken that will increase road use on Hwy 40 without the needed and appropriate upgrades

When asked "What is your zip code (Home)?" Respondents indicated:

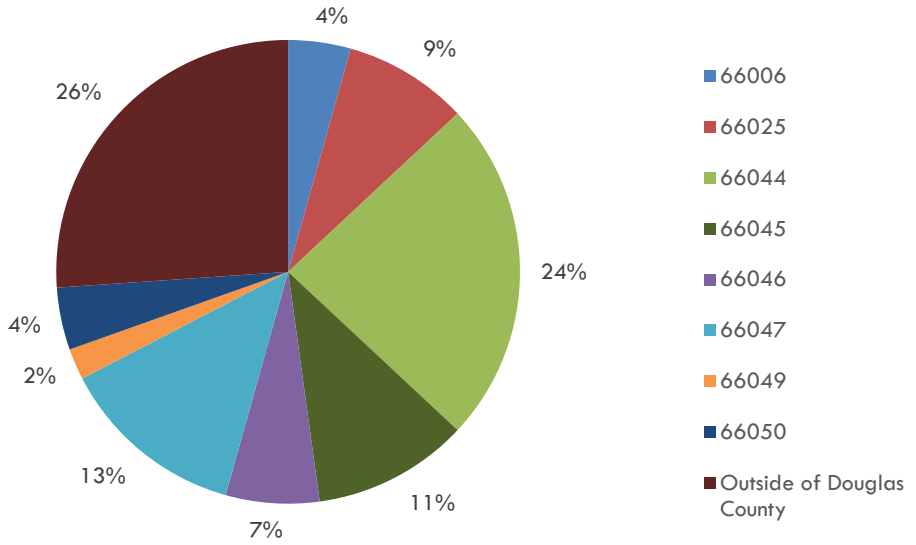
Figure B.37: Home zip code



Total Number of Responses – 83

When asked "What is your zip code (Work)" Respondents indicated:

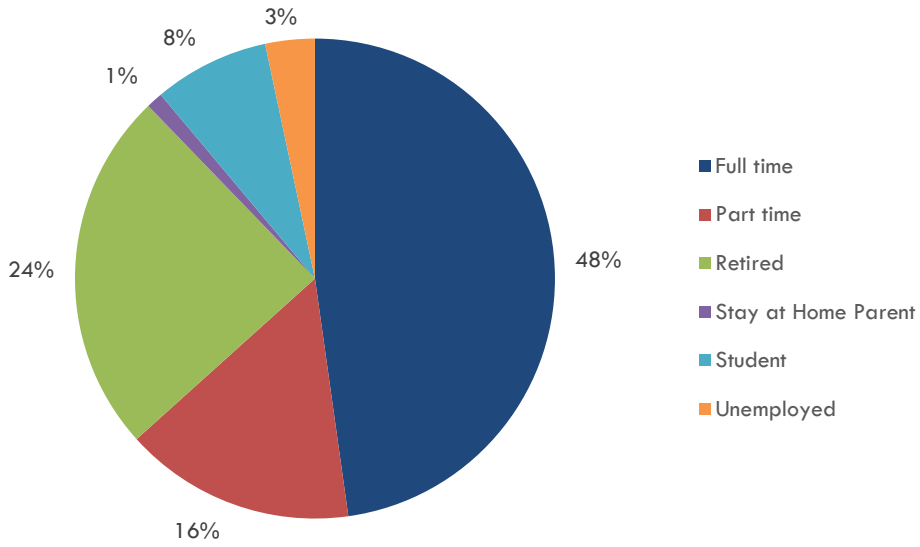
Figure B.38: Work zip code



Total Number of Responses – 46

When asked "What best describes your employment status? (Select all that apply.)" Respondents indicated:

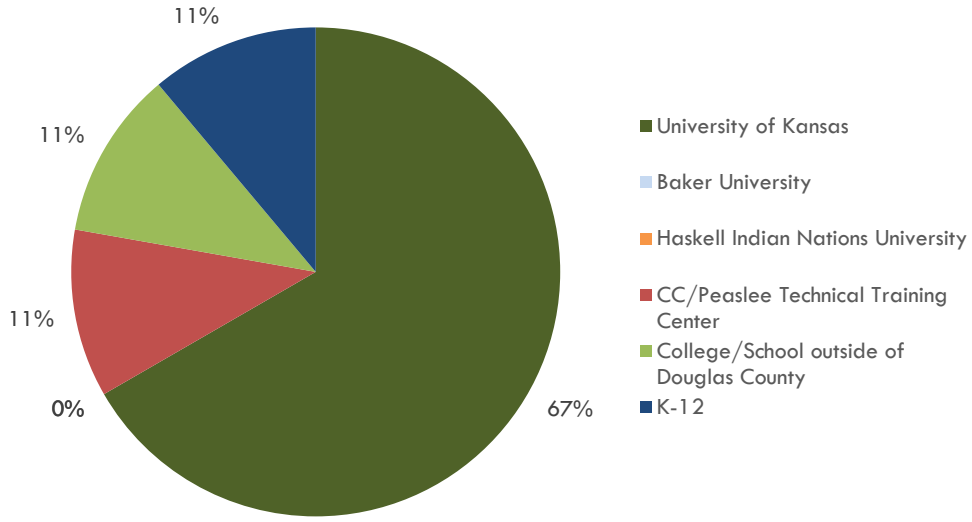
Figure B.39: Employment Status



Total Number of Responses – 90

When asked "If you are a student, select all that apply." Respondents indicated:

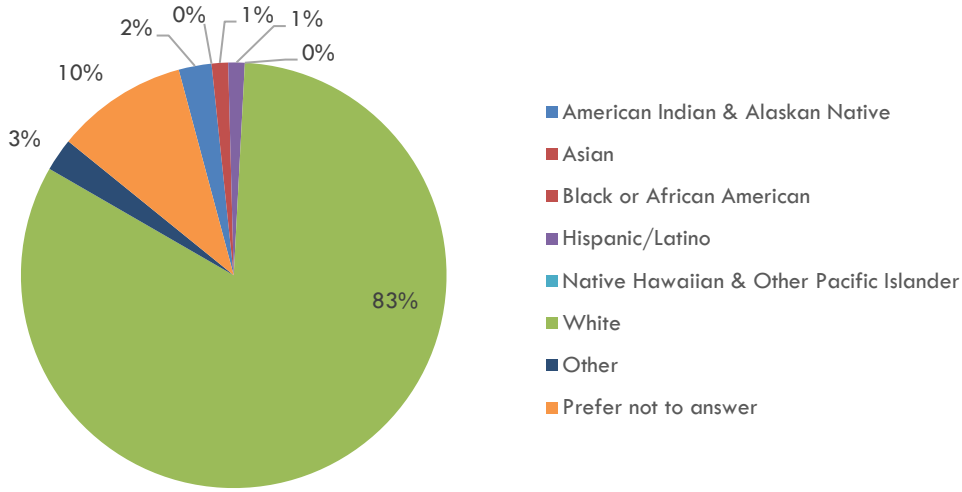
Figure B.40: School of Attendance



Total Number of Responses – 9

When asked "Which race/ethnicity best describes you? (Select all that apply.)" Respondents indicated:

Figure B.41: Race/Ethnicity



Total Number of Responses – 80

Other:

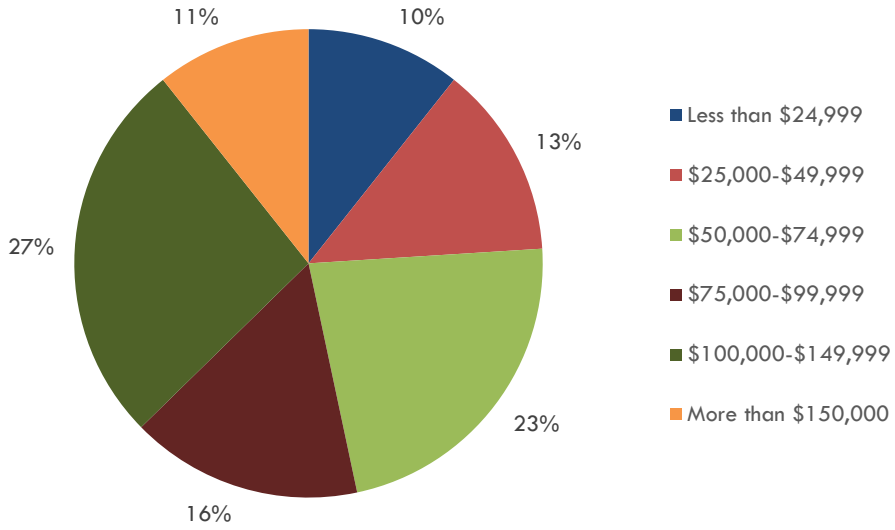
-Croatian

-I object on principle to classifying by race in a survey like this, although I know it is standard practice

-Italian

When asked "What is the approximate average household income? (Select one.)" Respondents indicated:

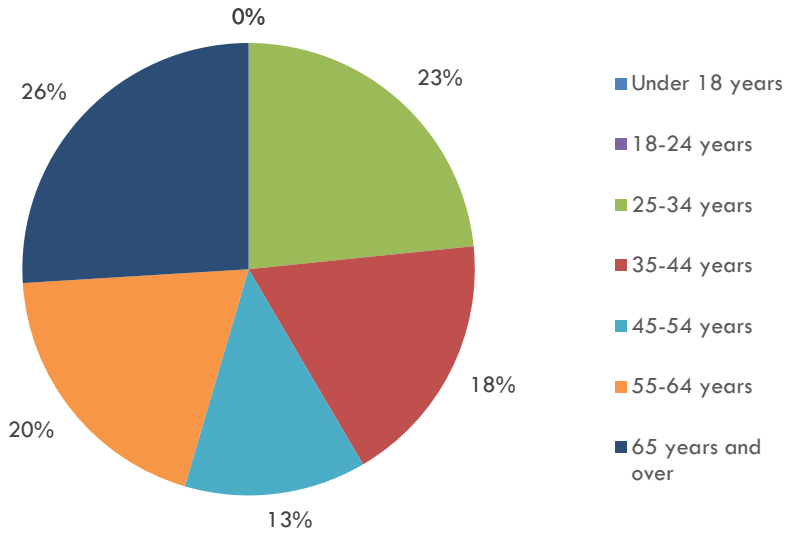
Figure B.42: Average Household Income



Total number of responses – 75

When asked "What is your age? (Select one.)" Respondents indicated:

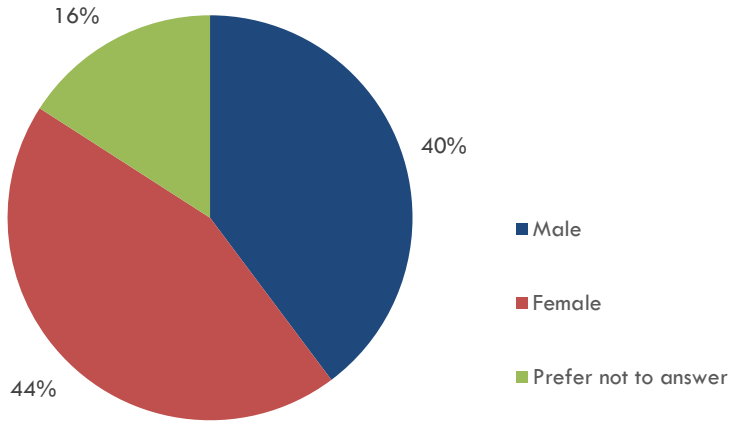
Figure B.43: Age



Total number of responses – 77

When asked "What is your sex? (Select one.)" Respondents indicated:

Figure B.44: Sex



Total number of responses – 88

When asked "Is there anything not included in the survey you would like to tell us?" Respondents indicated:

- That should do it!
- Would like to emphasize the importance of extending Wakarusa to the south to intersect with CR 458. Boards 12 & 13 indicate that this project has been changed/realigned. What changes have been made and why? Is this going to slow down the implementation of this project? This project is going to require cooperation and coordination between multiple units of government: city, county, KDOT, & federal government. Are they all on board and willing to work together and share the costs? North/South access from the area south of K-10/Hwy 40 is becoming increasingly limited and needs to be addressed ASAP.
- Boards 14,15 &16: Travel Demand Model 2040- Fiscally Constrained Projects. Of particular interest is the change proposed at the I70- N 1750 Rd intersection and the Hwy 40/E 600 Rd interchange. Any closure of the I70/Farmer's Turnpike access will ABSOLUTELY add traffic to the Hwy 40/E 600 Rd interchange AND to Hwy 40. Hwy 40 cannot handle that. People are already dying. More traffic will only increase the dangers already present. Board 5: See comment on the other side! Sight-lines on country roads- especially older blacktops- ESPECIALLY Hwy 40- are real problems. This is a safety issue which should be addressed.
- I'm interested in more detail on the K-10 west leg expansion discussions. I realize that is a state-level project, but it definitely affects Dgco residents and when it is expanded at some future date. I've been pretty disappointed by the lack of info that has come out in the 15-18 months since the dramatic public meetings re: the State's plan. Also, where the multi-use path ends on Queens road near N 1750 is a growing safety concern. There is some casual car traffic most of the time but church traffic is heavy Sunday AM & Wednesday PM. There is no official parking area but lots of ""creative"" parking and zero pedestrian safety structure for folks crossing.
- Thank you
- Encourage better sidewalks in East Lawrence, especially the 13th & New Jersey Area
- Are more North-South bus routes possible (Iowa,Kasold)? Is it possible to work with the Lawrence planning department to encourage transit oriented development?

- Great work! Thank you
- I am very concerned with the lack of later hours and Sunday routes. For people who do not have other transportation, getting around on Sundays can be a huge challenge (to work, errands, etc.) Working at the library has made evident how much an expansion of hours would help our patrons with and without homes.
- What to D are Boards 14-16 based on? Can 6-11th Mass. be closed to motor-propelled vehicles?
- Good Job!
- These questions seem to be too detailed for general public input. It discourages participation. Simpler would be better.
- * Looking at the draft, why are commuters to Wyandotte County (KU Med) not counted? It seems like there might be demand for bus service between KU-Lawrence and KU-Med (my partner makes the trip 4-5 times/week) *What sort of scenario planning around Autonomous Electric Vehicles are you doing? Given the demographics of Douglas County, I expect heavy adoption if they prove more affordable- and as baby boomers age, enabling mobility options. I'm very interested in how AEVs will impact road capacity, parking, and public transit over the next 5-20 years
- That the County doesn't enforce (lack of manpower.) 128X Franklin Rd from E 25th to E 31st to E 31st Blvd, 124X E 31st Street from O'Connell Rd to Noria Rd (E 1700 Rd) will be on a new E 31st Blvd, E 31st Blvd travels from O'Connell Rd round-about towards the North, continues East to E 1700 Rd, N 1300 Rd is to be dead ended between O'Connell Rd and E 1700 Rd. There are to be 2 access roads between E 31st and E 31st Blvd., 237 Kasold Rd needs access onto and off of Hwy 10 (may be via the new Wakarusa interchange), 229 This is really needed
- Northern Douglas Co. needs free access to K-10!
- The turnpike access is very important to us & the Lecompton community for economic development
- It is very important that rural areas have access to K-10 without having to pay
- It is absolutely necessary that NW rural Douglas County has access to K-10 without a fee. Lecompton must not be isolated from I-70/or K-10
- I am concerned that Queens Rd. be preserved- Lecompton & Perry access to West Lawrence NOT be compromised. The west side of Lawrence businesses should be concerned that good access be maintained, 40 is NOT a good option. Will study the material & have more input later.
- It is important that Lecompton will always have a turnpike interchange. If there us not access from the Kansas Farmers Turnpike, then it should be free from directly south of Lecompton to the present by-pass location. With modern technology people entering south of Lecompton to the present entrance could travel free the two miles east. The original location was to be directly south of Lecompton as agreed to by the Kansas Turnpike Authority in a Wichita meeting 20 years ago. Lawrence after the fact had the power to get it changed to the present location. This interchange is economic development for Lecompton and that is economic development for all of Douglas County. Our history is national in importance.
- Kill the Traffic Circles
- I was on steering committee for this extension plan.
- I am a cyclist but a cautious one. I've recently been looking at biking around Lawrence more

instead of just using the levy trails and found the Lawrence bike routes map that left me disappointed. Please try to do better than on street bike lanes, particularly those only marked by paint. They're only appealing to people who already are willing to ride in traffic with cars and, frequently abruptly end forcing cyclists to do just that. As a result I don't trust the map or signage and review my routes using google earth and streetview before a ride. Maps for cycle parking would be appreciated. Much consideration is given to making pedestrians feel comfortable but virtually none for cyclists. If, absent cyclists, pedestrians wouldn't want to walk in the cycle lane then they won't want to be in it on a bicycle either. Cyclists are encouraged to use the road rather than sidewalk but it seems that it was erroneously thought that making the sidewalks wider would somehow change this. The bike routes map marks some wide sidewalks as bike routes but there is often no indication on the sidewalk of this designation. Instead it will be signed as if the street is the bike route. This should be rectified immediately.

- Lawrence is sadly lacking in walking and recreational biking opportunities. There are small pockets of public parks, but the paths are generally short, muddy in wet weather and choked with rocks, roots and ruts. Lawrence Nature Park on Folks is an excellent example of a park with a REAL trail experience, but is iffy for use due to unleashed dogs and roots on the trails. There is a fine extension that has not been maintained. Where are the open space areas similar to the Kaw River State Park in nearby Topeka/Governor's Residence walking area? A community to attract modern, profitable businesses offering rewarding salary incentives offers EXCELLENT EDUCATION OPPORTUNITIES, K-12. as well as a commitment to the arts, excellent recreation opportunities, well maintained and creative public spaces and attractive infrastructure. Right now, Lawrence is a hodge-podge. More attention is devoted to the growth on the West end of town than to maintenance of the downtown areas and North Lawrence.
- Baldwin City - needs to maintain their brick streets. Business owners need to sweep in front of their businesses keeping leaves etc away from front doors. Baldwin town - need to keep culverts clean out - especially when full of leaves - cracks need to be repaired - brick streets maintain sidewalks are in terrible shape for walkers so they go into the streets.
- We need faster internet in Lawrence...with more options.
- Your goals are fine; it's how they get translated into projects that needs work
- No Thanks.
- Keep making bicycle and walking routes safer and in the plan

4. Stakeholder Interviews

As part of the T2040 Transportation Plan Update, public agencies and interested parties were identified to gain their input on transportation needs and issues of the region. Thirty-six stakeholder interviews were held January 25 – April 30, 2017 during the first phase of public engagement. Listed below are the different groups that were interviewed and the questions they were asked.

- *Army Corps of Engineering*
- *Baldwin City*
- *Baldwin City Schools*
- *Bert Nash*
- *Bike advocate*
- *City of Eudora*
- *City of Lawrence*
- *City of Lecompton*
- *Cottonwood, Inc.*
- *Douglas County*
- *Douglas County Community Foundation*
- *Douglas County Emergency Management Office*
- *Eudora Chamber*
- *Eudora Police Department*
- *Explore Lawrence*
- *Hamm*
- *Haskell Wetlands Preservation Organization*
- *Kansas City Area Transportation Authority*
- *Kansas Department of Wildlife, Parks and Tourism*
- *Kansas Turnpike Authority*
- *Lane Museum*
- *Lawrence Bike Club*
- *Lawrence Chamber of Commerce*
- *Lawrence Home Builders Association*
- *Lawrence Parks and Recreation*
- *Lawrence Shelter*
- *Lawrence Sustainability Advisory Board*
- *Lawrence-Douglas County Housing Authority*
- *Lawrence-Douglas County Sustainability Office*
- *League of Women voters*
- *LiveWell Lawrence Healthy Built Environment Group Senior Resource Center*
- *Sustainability Action Network*
- *Tenants to Homeowners (Lawrence Community Housing Trust)*
- *University of Kansas*

Stakeholder Interview Responses

1. What transportation improvements have been most successful since 2012?

- 1055 improvements – widen = safer
    - Extra wide sidewalks north/south walking
- 15th Street (4)
    - 15th St. and K-10 interchange (2)
    - 15th/Iowa – turn lanes, etc. – improvements
    - Access to KU easier
    - Overlay was good – sidewalk isn't consistent width
- 23rd and Iowa (5)
    - Improve pavement
    - Great for pedestrians and bikers
- 23rd improvements
- 458 improvements (2)
    - From 59 highway to the dam
    - Widened to Dam Rd. – connecting Southside construction
        - Bike route, narrow now, widening
- 6th and Iowa (8)
    - Bigger impact on how things moves

    - Turn Lane (2)
- Bike/Ped (36)
    - Allocation of $450,000 in Lawrence budget for bicycle-pedestrian projects - policies will govern
    - Bike corrals
    - Bike lanes on west Bob Billings
    - Bike racks
    - Bike/pedestrian conscientiousness – marking the street makes you more aware in the future
    - Bikeway network planning (2)
    - Improved bike lanes
    - Improvements to walking and biking network in and around Lawrence (i.e. trails, shared-use, etc.)
    - Naismith and Crescent for traffic reduction (better for pedestrians; however, needs sidewalks)
    - New focus on pedestrian improvements
    - Pedestrian network planning (2)
    - Safe Routes to School planning
    - Lawrence Loop (8)
        - Progress and community engagement on idea
        - Baldwin Creek and Rock Chalk all-weather, ADA segment of Lawrence Loop
        - Additions to the Lawrence Loop
    - Linkages as part of SLT in Lawrence
    - Momentum around bike/ped.
        - MPO studies and LiveWell Coalition
    - More bike paths (2)
        - Caution left turn signals
        - Two way left turn lanes
        - Widened paths
    - Public's opinion- reasonable job with bike alternatives – pretty good
        - Bike repair stands, maintenance of bike paths, additional bike lanes where appropriate not put on storm drain or other hazards like other municipalities
    - Safe routes work and what housing authority is doing
    - Shared Use Paths (2)
        - SUP to schools – perhaps volume isn't there yet
    - Sidewalk expansion – filling in gaps – Boroughs Creek Trail is great
    - Sidewalk gaps and ADA ramps fixing
    - Trail development (6)

        - Burroughs Rail Trail (5)
            - Baker Wetlands
            - To the south – concrete
        - Connectivity – hike-able/bike-able
        - Eudora lots of use
        - Trails at schools
            - Elementary school policy change about biking to school
                - Allowed – see kids riding bikes, racks are full
            - High school – path from high school to 20th St.
                - Lead to phase 2 TA grant award
    - Transportation commitment – out of bike/ped. task force
    - Walkability of Lawrence, bike-ability, crosswalks
    - Walking paths in Eudora
- Bob Billings Parkway (2)
    - Bob Billings and K-10 – convenient
- Chip/seal/asphalt of N. Eisenhower Road
    - Was gravel – (N. Lake Rd.) backway to get to school – instead of Eisenhower & Quail St.
- Concrete on Kasold
    - BBP to CPW – was asphalt
    - Storm water improvement/drainage was helpful
- County is doing well
    - Work closely with public works
- County road shoulder widening to 10 feet as defacto bicycle way (i.e. N. 1800 Rd./Farmer's Turnpike, E. 600 Rd., N. 1200 Rd/Co. 458).
- Depot to city ownership
- Design of Crescent Rd./Naismith Dr. intersection management.
    - Very good – experience it for other locations
- Highway 59 (3)
    - Expansion to 4 lanes
    - Improvement of Highway 59 going south
- How can first responders get to where they need to go?
    - Access vulnerable population
    - Evacuations, hazardous material situation
- Increase in roundabouts/traffic calming devices (5)
    - Alternative intersections
    - Roundabout at Wakarusa and inverness

        - Roundabouts used in place of traffic signals or 4-way stops, at any opportunity.
            - Get people to understand benefits
- Iowa St – 12-17th improvements
- Lack of major construction at same time = more limited construction
- Left hand turn to lanes St on Highway 56
    - At White Water Tower go into school
- Lights in East Lawrence (1200 Rd into Prairie Park)
- O'Connell has been good
- Potential for Interdepartmental Coordinated Design Team for Lawrence (effectiveness remains to be seen).
- Right lane turn west hand could be better
- RTAC – ability to talk with each other
    - Support Lawrence Transit/KU on Wheels
- Signage
    - Except at 23rd St. on K10
- South Lawrence Traffic way (24)
    - Associated bike/hike
    - Businesses on 23rd St. – enjoy a reduction of traffic – helpful haven't heard though
    - Connection to west Lawrence
    - Connectionism and south Lawrence
    - East leg
    - From business standpoint excess traffic with access with freight
    - Good drive times
    - Improvement with commerce but not at how much time it takes to get across town
    - Interest in land in Eudora due to the easy access
    - Only issue is the 23rd street sign doesn't say Lawrence
    - West-leg
    - Working on since '92 – has been county admin since then
- Snow and ice road treatment/pass ability
- Traffic entrance around South Middle School and Broken Arrow school
- Transit (22)
    - Added bike racks on buses
    - Added bus service to south Lawrence has been great
        - Coordination of bus service KU/city
    - Bus hub in front of library – access to library with parking garage is nice
    - Bus stop movement – now is at the least bad location near the shelter
    - Bus, transit – fixed routes but still flexible

    - Continued partnership with KU and Lawrence Transit
    - Increased bus ridership/T-Lift ridership (2)
    - K10 Connector (2)
        - Connecting with the JO – very cost effective – 19th and Haskell
        - Has grown – more buses and lower fare so access has increased
    - More buses – faster/frequency
    - Nightline bus – impact people who work at night
    - Overall Lawrence transit improvements (4)
    - Relationship with transit – staff has improved over time to be good
    - Responsive with bus routes
    - Summer Bus passes for K-12 (3)
    - T-lift
- Transportation Commission – hopefully/possibly
- Wakarusa improvements (2)
    - Bike lanes and roundabouts

2. What transportation improvements have been successful since 2012?

- Monster "uncomplete street" intersection at Iowa and Bob Billings (2)
- 23rd Street (3)
    - 23rd St. and Church (Eudora) – high school congestion issues put in 4-way flashing red light – didn't work
        - Not operating now
        - Waiting for it to turn green
    - 23rd and Iowa – for the money, just repair but not improve flow
        - Disjointed corner with entry points – convolutes
        - Less of an impact for moving traffic, need longer merging lanes
    - 23rd St., significant pavement improvements needed; hard to use, rough, access management
- 6th Street – fast until recently
- 9th Street (5)
    - Became more congested due to road diet – forced traffic to other streets
    - East 9th – could have been a great thing
    - Excessive level of funds ($6M and up) targeted for a mere 5/8 mile of E. 9th St.
    - Languished and wasn't delivered
- 19th and Ousdahl intersection (3)
    - Light
- 31st Street rebuilding/movements

- As roads are designed – first responders in mind
    - 6th and Wakarusa – fire trucks have to go up-and-over roundabout
- Bike/Ped. (20)
    - 5ft sidewalk requirement in neighborhoods on both sides of the street is a heavy cost to homeowners. One side of the street is fine. Both sides is unnecessary
    - 9th St. bike lane ending – bike infrastructure connectivity
    - Bike connections
    - Bike friendly – need to make safer
    - Bike lanes on 9th are bad – just ends at Avalon – not thought out
    - Bike on street/Shared-Use Path
        - Lack of knowledge to use facility – still needs more education about where to ride
        - Wider shoulders on county/rural city roads – for bikes
    - Bob Billings, Kasold to Wakarusa, without a two-way bicycle track on north side - SUP
    - Connect Boroughs Creek Trail to downtown – hasn't happened yet
    - Iowa – 12th-17th – bike path on west side would have been great- was in the works but didn't happen
    - Not that bike friendly
    - Sharrows (5)
        - Concept is good, but installed in wrong spots – some are in the middle of streets, while some are in the bike lane. Connecticut is a good example of doing sharrows correctly.
        - Give false sense of security – people don't know how to go – bike/car
        - Practice of using sharrows as if they make a street a bikeway, irrespective of these streets being inherently dangerous for bicyclists.
            - Good within context of directional wayfinding/ identifying symbol, reconsider location
    - Sidewalks – no money, instead of enforcing
        - Equity issue
    - Understand bike passing rules
        - 3 ft. wide with vertical bollards with buffer – W. 9th St.
    - Unprotected bicycle lanes anywhere, especially on arterial streets.
    - Walking bridge over K-10 is needed. Some sort of connection north/south is needed, but it is cost prohibitive
    - West to east near 6th on a bike – safe and effective route – north of 21st St
- East/West and North/South connectivity
- Environmental also – chemicals, water contamination
- Going south to go back to Baldwin City – safety roads understandable

        - Over/underpass would be helpful
- Haskell configuration – need to close down Haskell Lane – the cut through is dangerous – 2 stop signs close to each other in order to turn onto Haskell Ave
- Jobs at Haskell 31st St
- Kasold (14)
    - Design and proposal process blunder for Kasold, 15th St. to 8th St.
        - Cycle track on Kasold would be great
        - Kasold – local decisions effect the entire city – the local thoughts can be over emphasized
    - Kasold roundabout
        - Languished and wasn't delivered
    - Kasold and Harvard – process of listening to staff/experts
    - Roll-out of the Kasold project into the community- suboptimal
    - Kasold and K-10 – barriers
    - Kasold curve closure (2)
        - Difficult to get to Hy-Vee on CPW
        - Left turn/straight across – issue
        - S. Iowa – lots of lights to get back to where you want to go
    - Kasold curve/K-10 intersection (2)
- Lack of understanding/listening of city staff and young people
- Look at all sides – Lecompton access to K-10 – fair access – keep open
- Make sure traffic sensors work
    - Example: Movie theater road
- Old 31st Prairie Restoration – needed and fast
- O'Connell Rd. light (too short on green for K-10, too much idling)
- Plat and construction of O'Connell Rd. to connect with E. 19th St.
    - No property vetted – neighborhoods opposing
- Road repair – pot holes, general maintenance
- Roads in rural areas
    - Only one way in/one way out
- Roundabouts
- South Lawrence Traffic way (6)
    - 27th/K-10 – dangerous
    - 31st (Kasold Curve) and K10 connection is a major hazard – should not be connected
    - 32nd St. alignment of the South Lawrence Traffic way
        - Wrong place – should have been at 38th Street
    - Lack of construction notification

        - Machinery and chemicals – kids weren't aware to stay away
        - Lack of communication that occurred
    - Signage for 23rd Street (2)
        - Signs for Lawrence
- Still building mainly for motorized vehicles only and missing opportunities for facilities
- Stoplight at Bob Billings and Bob White (2)
- The guard rails down the middle of K10 have caused the accident rate to increase as people run into them
- Traffic – bad all day long; peak times now start at 2pm
    - Hard for parents picking up kids; grocery shopping
- No K-10/23rd St. access @ E1900 Rd (east of east hills business park)
- Traffic signals need to be synced (2)
    - Light sync – 9th on Vermont, Kentucky
- Transit (8)
    - Building lasting partnerships to pay for K-10 connector with KU and the City of Lawrence – this would allow for more stops and greater frequency
    - Bus stop movement at the shelter
    - Bus system more regular rates
        - Routes work for more people – later hour, more frequent routes
    - Choices
    - Maybe not enough changes
    - Night line – restrictions
        - Call so many days in advance and expensive
    - Transit Center approval (2)
        - Failed to get transportation hub, even with money set aside
        - This would be a great asset to Lawrence
- Weird street alignments (George Williams way N & S of 6th St)

3. **What top 3 transportation improvements must succeed in the next 5 Years?**

- 10th, 12th St. – storm water infrastructure and sidewalks/accessible to ped./bike
- 19th Street (2)
    - Expand/connect 19th Street to East Hills
    - New entrance into KU
- 458 (2)
    - Improvements and light at 59 highway
    - Widening
- 9th/Harvard, 15th, 6th, 23rd – potential east/west routes

- Access management (3)
    - Improve KU campus community connections, many people are employed or attend school
        - Need to make routes more accessible
        - No obvious routes for pedestrians/bicyclists between campus and downtown
    - North/south access points – areas to improve
- Bike/Ped. (47)
    - Accessibility (4)
        - Accessibility (sidewalks, wheelchair ramps that are not ADA code), need to fix existing sidewalks and ramps and enforce code on new ones being built
        - Sidewalks (16)
            - Brick replace, repair
            - Connecting sidewalks/trails in Eudora – especially north of town and ADA ramps are needed
            - East Lawrence sidewalk fixing
            - Eudora to be more walkable – sidewalks and trails
            - Issues that need repaired and motorists don't look at the sidewalk to check for bicyclists before turning, crossing, etc. – dangerous
            - More sidewalks – causes school to bus in Baldwin City
            - Sidewalk policy – incorporate into CIP – not on property owner (2)
            - Equitable sidewalk policy/fundraising
            - Sidewalks – 1st priority maintenance, 2nd gap fill (2)
            - Sidewalks – gaps
            - Sidewalks/Lawrence loop (2)
            - Sidewalks/Lawrence loop other trails and trail connections, bike boulevards (2)
    - Better bike racks to encourage more to bike and Shared-Use path
    - Bike routes (11)
        - 19th St. needs work – bikes
        - Bike paths – spokes – 2/3 cross town/ E/W routes
        - Bikeways (4)
        - Continuously add bike lanes to streets
        - Buffered if on high speed
        - Cyclist - be able to go west to east near 6th on a bike
        - Encouragement of bike paths – increased signage/hawk signals is needed at crossings to provide safety.
        - Get to Loop and Downtown easier/safer
        - Good example is Kasold's Shared Use Path

    - Increased safety for bicyclists
    - Lack of education
    - More Shared Use Paths and buffered bike lanes
    - More signs
    - Wider lanes
- Bike/ped continuity between downtown and river
- Complete Lawrence Loop (8)
    - Lawrence Loop – downtown and Hobbs to constant
- Concentrate available bicycle funds into one/two comprehensively designed, destination-to-destination, major bicycle transportation projects per budget year, rather than spreading it thinly over many ineffective areas such as sharrows or little green bike route signs.
    - CIP Projects
        - 6th St. shared use path, Monterey Way to Wisconsin St.
        - East 13th St. and Oak Hill Ave. bikewalk street, Massachusetts St. to Elmwood St.
        - Massachusetts St. – protected bicycle lanes
        - Naismith Shared Use Path
    - Projects SAN submitted
- Connect bikeway network pieces (across town, between neighborhoods, etc.)
    - Continuously add bike lanes to streets
    - Cyclist - be able to go west to east near 6th on a bike
    - Encouragement of bike paths – increased signage/hawk signals is needed at crossings to provide safety.
- Expand walkability to downtown from existing shared use paths
- Hire a Bicycle-Pedestrian Coordinator Engineer in Lawrence Public Works
- Implement planning (3)
    - Complete connector/arterial gaps identified in regional ped plan
    - Complete all ped/bike recommendations in ped/bike task force report (2)
- Increase by $500,000 per year the Lawrence bicycle transportation funding level, distinct from pedestrian funding which has many options (such as property owner responsibility, opt-in/opt-out sidewalk fee, issuing bonds, etc).
- Improve safety for peds- Naismith Drive, Mass St, 21st St
- Ongoing trail development – connectivity between Baldwin City, Eudora, Lecompton to others – the possibility of the Midland rail line from Ottawa to Baldwin City
- Sunshine Trail – Ottawa to Baldwin City on rail line
    - Then here to Highway 59 linkage
- SUP, bike lanes – protected
- River bridge- new or improved (safe) ped bike crossing

- Bob Billings/Kasold – continued repair but doesn't last
    - More cost effective, new materials?
- Clear communication about process
- Complete streets progress
- Congestion – Lawrence continues to grow and traffic is an issue
- Connect to Topeka and KC (3)
    - Amtrak, ride share, commuter bus (besides K-10 Connector)
    - Bus system/light rail from KC –Lawrence
    - Coordinate service with Topeka and KC – ADA accessibility and not
- Dialogue about how to integrate commuters particularly ADA and elderly – there is the potential for better commute patterns using mobile apps and micro transit
- Education (3)
    - Educate cyclists to know rules of road and police enforce Kansas laws
    - Education in hawk signals and j turns on Massachusetts St. to park
        - Hawk signal at 10th/Connecticut is too close to the intersection, so it confuses people
    - Rules of the road for both bikes and vehicles
- Environmental friendly options
    - More bike lanes
    - More electronic buses
- Farmers turnpike and K-10 interchange (4)
    - Lecompton/Perry access to Lawrence
    - Maintain Farmer's Turnpike – access to K-10
        - Highway 40 isn't safe – other route option
        - Or move I-70 interchange to directly south of Lecompton – make free from Lecompton to K-10 access
    - Needs to be figured out – If closed Lecompton could be isolated
        - If major event happened – overwhelmed and would rely on surrounding areas – efficiency
    - Solving I-70/K-10/Farmers Turnpike discussion
- Fixing missing/broken sidewalks
- Highway 40/442, needs shoulder added
- Highway 59 (3)
    - 56 Highway improvement through Baldwin City
    - Pedestrian crossing (2)
        - Student/pedestrians cross 56 Highway – improvements
        - Over/underpass bridge
- I-70 Interchanges (2)

    - Interchange between N. 2nd Street and I-70
        - Pedestrian gap
        - Needs to be redesigned – beautification
        - Similarly situation at McDonald Road and I-70 interchange
    - System to system K-10/70
- K-10 Connector (2)
    - Create stop in Eudora
    - Maintaining the K-10 connector service
- Keep all forms of transportation in mind when planning for affordable housing – be thoughtful about expanding affordable housing with transportation access – especially for senior living
- Light sync is needed
- Maintain sales tax revenue (3)
    - Approval for Lawrence Tax Referendum for Public Transit Operations and capital investment
    - Losing revenue – maintenance and repair
    - Perhaps get on a permanent basis so not sunset
- Multimodal (2)
    - Balance multi-modal priorities – bike/pedestrian
    - Increase use of other modes – biking, public transit, walking
- Perception – KCI is closer than people think
    - Transportation linkage – bus or other businesses that provide it
- Rail spur at Venture Park – federal funding, niche territory, transit access
- Road maintenance (4)
    - Continue to improve roads
    - Potholes and road conditions are bad – missing sidewalks
    - Preserve existing infrastructure – goal
    - Preventative maintenance on existing roads and sidewalks – maintained and install where there are gaps
- Roundabouts – not built correctly/too small
    - Fire trucks need to access neighborhoods
    - Lawrence used as example of what not to do
- Rural towns – direct bus to town
- Safer - more lights, bus stops, shelters with lights
    - Emergency phones
    - Specifically Tennessee St., Kentucky St., Ohio St., near the stadium
- Signage
- Slow speed down on 6th, 23rd, Iowa – Major roads

- South Lawrence Trafficway (16)
    - Commodity flow study
        - New opening has changed that, how does it affect what coming through the county – Eudora/eastern side
    - Contrived planning preliminary design for expansion for west SLT to 4 lane
    - Make west-leg of K-10 as functional as possible
    - Pedestrian bridge over K-10 in Eudora
    - Perhaps slow down speeds on K-10
    - Turn left on K-10 from I-70
        - People don't stop at the stop sign and don't see people from Farmers Turnpike – better markings are needed
    - Widen west leg of SLT (10)
        - Financing with state, at grade crossing fixed for safety, safety and capacity is important
        - Need state funding though
        - Widening, K-DOT wants to reroute drainage into river
        - With improvements (shared use paths, etc.)
    - Winchester exit (Eudora) of K-10 – needed
- Solution of truck traffic through Eudora – possibly limit trucks going through town can so east or west
    - 32 – church
    - I-70 – I-35
- Transit (16)
    - Bus stop right in front of shelter
    - Bus system – more resemble to law/road
        - Educate on how to use the bus – stop locations, times, rates optimized
    - Commuter bus (2)
    - Completion of a Lawrence Transit Center (2)
    - Expanded mass transit (2)
        - Bus service from Eudora to Lawrence
    - Increase bus service – greater frequency
    - More bus stops near students living right off campus
    - Resolve the questions about whether or not to have a transit hub (2)
    - Street carTeach people how to use fixed route public transit
- Transportation commission succeed – all voices heard – transition power from BAC and TSC
- Wakarusa (3)
    - Complete Wakarusa – Clinton parkway to 6th rebuild
    - Wakarusa Extension

    - Wakarusa/K-10 at grade intersection is very dangerous
- Want to turn Dam Rd. over to county for routine maintenance (pavement/guardrails) since the traffic is mainly commuters and not recreational
    - There are too many bicyclists on the Dam Rd. but not enough space

4. How do we know when our transportation systems are working? What factors would you use to evaluate our system?

- Accident rates (10)
    - Bike fatalities
    - Reduce traffic accidents
    - Statistics on accidents – what was the cause? Design flaw, traffic
- Accessibility (3)
    - ADA easily use the bus
    - Least mobile are well served
    - Transportation system success can be seen with accessibility, increased usage, public support, and support from local government, T-Lift use
- All communities use a selection of indices to evaluate conditions and progress in system operations. Lawrence makes considerable use of such objective measuring tools for motor vehicles, but is lacking such indices for bicycle transportation. Public Works uses the Pavement Condition Index to gage when to repair motorways. The Planning Department uses a traffic impact study to plan the capacity of intersections or streets. The Utilities Department uses operational metrics to schedule treatment plant and sewer improvements. In any case, it is critical to know the data points before and after installing a new capital project.
- Bike/vehicle education
- Clear lines of communication – public contacting correct person
- Congestion (6)
    - Minimize congestion; not waiting for multiple lights to go
    - Reduce of congestion/better traffic flow
- Cost Analysis (3)
    - Bus cost – very expensive – how to find, new bus hub? Tax vote?
    - Look at viability of service through the cost per rider
        - Taking into account
            - Ridership
            - Total cost/operation
    - Overall monetary sustainability – the ability to provide the necessary service with sufficient funding
- Critical infrastructure – commuter population
    - Can people get to work (whether inside or outside)
- Efficiency/congestion (15)

        - Congestion (6)
            - Minimal congestion and efficiency with traffic flow
                - Delay – public feedback
            - Minimize congestion; not waiting for multiple lights to go
            - Reduce of congestion/better traffic flow
        - Decreased drive time across town
        - Delay – people are able to get where they need to go
        - Efficient routes from activity centers
        - Free-flow traffic – level of service
        - Length of time to get across town accomplished by looking at bus time table
        - Options to travel – more than one
        - People get where need to in efficient amount of time
        - Response times – how well we can get to places
            - One big exercise – MPO could observe
        - Traffic flow- high public concern
- Engineering – delay, traffic intersections, crashes
- Environmental impact (3)
        - Chemical/gas/leaching into water
            - Water is getting worse
        - Is contaminating air/water at higher rate?
        - Noise
- Equitable distribution of improvements (2)
        - Equity, ability to get to and from work
- Feedback/complaints (5)
        - Feedback from guests and Transit staff
        - Positive community discourse
        - Public perception – user experience
            - Example 6th at champion/private drive – traffic light – always stopped
- Less people are able to correct themselves to do it wrong
- Maintenance (43)
        - Calls for service related to traffic issues
        - County does a good job near them
        - Fleet maintenance the number of breakdowns per mile
        - Quality of roads
- More driverless cars
- Objectives (3)
        - Needs being met – flexible to meet demands

    - What do you want to measure?
        - Designed for cars might leave out other factors
        - Smart street design – Kasold
        - Sustainable – multi-modal, integrated
- Peer comparisons
- People using the systems correctly
- Performance measures – project zero – crashes, facilities
- Performance measures accessibility, ridership, frequency, Multi-Modal- bike and pedestrian activity and safety, performance monitoring, level of service, productivity, increased public awareness, capacity, need, demand, track environmental impact
- Quantitative counts (10)
    - Bike facilities/sidewalk use
    - Counts of rush hour traffic, bicyclists
    - Number of transit riders at peak hours and where going on bus – need medicine? Target? Walmart?
    - Reduction of VMT
    - Ridership
    - Statistics on commute time/time it takes from point A to B
    - Trail use
    - Trips per hour for the demand response service
    - Usage – busses used to capacity
- Reaching out to marginalized groups
- Safety (5)
    - Feel comfortable riding the bike to grocery store
    - How safe feel crossing a street without light
    - If a child can cross a street on their own
    - Safety officers already in schools, do bike safety
    - Sense of ease among residents
- Seeing kids riding bikes and all racks are full
- Shared-Use Path – they are busy – do drive by surveillance
- Signage, lighting improvements if necessary
- Star-mode split - journey to work trips – drive along/max 60%
    - 50% of HH
    - Less than 15% of income on transportation
    - Move the needle
- Successful transportation system – flexible
- Surveys/questionnaires (11)
    - Bike shop – questionnaires at Walmart where selling bikes

        - Can be biased
        - On-bus questionnaires in boxes – short surveys
            - Do one on bike racks
        - Online options every 4 months – evaluations
        - Qualitative – satisfaction surveys
            - Quarterly surveys/summaries from users
- Sustainable network within constraints
- To avoid guesswork, bicycle transportation design should employ at least three quantifiable and measurable protocols:
    - A Functional Conditions Index (F.C.I.), conducted annually – to maintain the bicycle lane according to a comprehensive evaluation and grading protocol, using multiple factors to score the lane from 0-100. The F.C.I. can use factors such as: condition of pavement, striping, barriers, signage, ramps, curbs, and presence of sand or debris, etc.
    - A level of service (L.O.S.) evaluation, conducted on a five year cycle – to correlate the data from an O.D.S. with the type and size of adjoining motorway, its motorist speeds and volume, and other such conditions. This data is to be used in the initial sizing and placement choice of type of bicycle lanes, and in re-evaluating the performance over time.
    - An origin-destination study (O.D.S.), conducted on a five year cycle – to identify the community's main originators of bicycle transportation users, the multiple destinations traveled to, the existing number of cyclists traveling, and the level of cyclists latent demand if a safe and convenient bicycle lane-track-path were to be installed in the corridor.
- Weather condition difference affecting accessibility
- When improvement happens

5. What should be the Lawrence-Douglas County MPO's priorities for planning a regional comprehensive transportation system? Please put the following in priority order. A) To move people, B) To create jobs, C) To strengthen neighborhoods, D) To protect the environment? Why?

First Priority

- A. To move people (26)
    - A, B, and C – sustain the livelihood of people
        - More and protect the environment
        - Even priority – interwoven/related
        - If do it – the rest will fall into place
    - All are very important – hard to prioritize, but A is the top one because the transportation network is to move people. Traffic design/layout has a lot to do with the success of a neighborhood.
    - Essence of transportation

        - Good transit is doing the protecting the environment because it gets cars off the road
        - Great transit systems= jobs, strong neighborhoods, reduce emissions, boost economy
        - If you move people, then creating jobs comes on its own
        - Important for public safety
        - Mobility, by all modes, is the purpose of transportation
        - Move people – whole reason of transportation – get where they want to go
        - Moving people – other come from it – except protect the environment
        - Primary goal is to move people get to work and school; however the others are important as well
        - Purpose of transportation is to move people
        - Quality of life – moving people
        - Safely and encourage variety of transportation modes, reduce carbon
        - There are studies that have already been done & we can use them to improve upon. There are less options for roads
        - Transport – move to point to point
        - Transport people
        - Transportation is about getting to jobs, not creating jobs, 3 and 4 are wide view of moving people safely and efficiently
            - Move people creating connectivity that strengthen neighborhoods.
        - Transportation is moving people
- B. To create jobs (6)
    - Creating jobs goes with moving people
    - Ease of getting to Lawrence – can hurt the Baldwin City economy
    - Grow economy is good, services are key, employment center access
    - If don't have job, can't afford to get to places - transit needs to be accessible, need guaranteed ride in emergency
    - If transportation is a job creator, environment is asset moving people transportation is all about, transportation doesn't play strong role in neighborhood
    - More important to keep people employed – transportation is integrally connect to employment and sustainability
- C. To strengthen neighborhoods (3)
    - Community safety is #1 – usability and accessibility is also important
    - Create community
    - Strong neighborhoods attract jobs, have already thought about protecting the environment, and how to move people
- D. To protect the environment (2)
    - Difference in thinking
        - Basic needs vs. altruistic thoughts

- Necessity

Second Priority

- A. To move people (8)
    - Existing infrastructure is critical, maintenance of existing
- B. To create jobs (9)
    - A and B go together
    - Jobs are important
    - Jobs are important – sustainable
    - Practical that A and B go together
- C. To strengthen neighborhoods (8)
    - Bikeable and walkable neighborhoods make for an equitable and livable city
    - Neighborhoods are important – getting in and out – knowing neighbors
    - Neighborhoods are most basic things – lead to job creation
    - Schools, walkability
    - Walk safely to schools, kids in shape – Lawrence loop hub/spoke with sidewalks
- D. To protect the environment (9)
    - "To create jobs" -> Support Jobs (not expressed)
    - Air quality and reduce car use
    - All are of equal importance/compatible goals
    - Lead to creating more jobs
    - Move people is self-evident

Third Priority

- A. To move people (1)
- B. To create jobs (9)
    - Ease of access
    - Impact on employment
    - Jobs is priority
    - Resolve self in a way
    - South Lawrence Traffic way takes care of jobs
- C. To strengthen neighborhoods (14)
    - Accessibility is also a function of land use
    - Better walking etc. – get people out
    - Ensuring connectivity and safety to major corridors
    - Having a link from a neighborhood to a larger bike/ped network is huge
    - Quality of life after foundation of moving people and access to jobs

        - From trails/sidewalks, less vehicles
        - Occurs naturally – priority but relationship to others are lower
- D. To protect the environment (8)
    - Consideration give safe space for bikes
    - Environment is important
    - Fossil fuel reduction from fewer single-occupancy cars reduces climate disruption
    - Give/take – higher up mandates – focus on things we can focus on at local level

Fourth Priority

- A. To move people (1)
- B. To create jobs (8)
    - Achieving the first three will make Lawrence attractive for the job market
    - If transit was later and on Sunday – then wouldn't have to worry about parking/ downtown work
        - Those who work downtown having to worry about
            - Increase police surveillance
            - Paying off parking and making sure they have car insurance
    - Increasing mobility of all modes increases access
    - Not necessity – can live without specific job doing urban agriculture
    - Not purpose of transportation
    - Supporting jobs – make easier
    - Economic lifelines – advocacy groups – doesn't think transportation system should be concerned with jobs
- C. To strengthen neighborhoods (9)
    - Impact ability to get back on feet
        - While at shelter navigate community resources is critical
        - Even after move out – navigate
    - Stream of income to move out or homelessness
- D. To protect the environment (15)
    - All transportation should protect the environment
    - Do environment as part of project when build roads
    - Environmental impact to doing A
    - Important, but others are more important, good managers will keep in mind when doing the others
    - Needs balance
        - Because the is a roads guy the ultimate purpose of the transportation system is to move people
    - People have to come first

- They all intertwine
- Unfortunate but do everything in environmentally friendly way

6. How can we make it easier to make connections between different forms of transportation?

- Airport shuttle service – even from Lawrence then Baldwin City could go to it
- Autonomous vehicles (AVs) will be accessed at any bicycle-pedestrian node or designated AV rendezvous zone located on the motor vehicle network.
- Bike/Ped. (42)
    - Bike parking (12)
        - Bike racks on buses (2)
        - Continuing bike corals/racks – make it accessible
            - Adds to active lifestyle – viable even if for recreation
        - Lockers or racks
            - Connect to public transit/park & ride
        - More accessible bike parking, lockers for rent through the city or private
        - Secure bike lock up at major bus hubs
        - Secure/protected bike parking at bus stops and other key places (3)
    - Bike rental with kid carrier – rent kid carrier
    - Bike share (3)
    - Reduce gaps in bike network (2)
    - Bikes to buses
    - Sidewalks (13)
        - Better/more complete sidewalks connected to concreate pads at bus stops (2)
        - Complete sidewalk gaps
        - Enhance trail/bike lane connections
        - Lecompton – sidewalks are needed/improvement needed (2)
        - Maintain bike/ped paths so it is accessible and clean
        - More trails/sidewalks
        - Sidewalk repairs in east Lawrence , but keep the brick sidewalks (3)
        - Sidewalks/trails from Lawrence to Eudora – back roads
    - First of all, as with the three-tier motor vehicle network of local, collector, and arterial streets, the bicycle transportation network should be three-tier, though not mirroring the tiers for motorways.
    - Highway 56-59 linkage in bikes
    - K-10 Connector stop with bike parking and bike repair stand
    - Make it easy to take bike on bus
    - Ottawa to Baldwin City – trail would be good

        - Public info on bike racks, which bus stops have bike racks - promotion
        - More bike trails available so people do not have to transport their bike
        - Tier #1 is the spine of the bicycle network, consisting of high-speed (20-25mph) through corridors of bicycle tracks or bicycle boulevards. Tier #2 are the bicycle-pedestrian nodes of the system, consisting of low-speed (5-15mph) sectors such as neighborhoods or activity centers (commercial, recreation, schools) where bicyclists intermingle with pedestrians and motor vehicles. Tier #3 are connector bikeways that link the nodes with the through corridors, by way of on-street protected bicycle lanes, or chicanes and curb extensions, or bicycle lanes to the inside of auto parking.
            - Create connector streets for bikes using traffic management devices
            - Non-stop for the major bicycle network system
            - Use traffic management to slow down cars and increase bike speed on street– use chicans and speed cushions
        - To achieve inter-modal connections, transit routes will be the spine of the motor vehicle network. The bicycle network will feed into the transit network, typically at nodes or along connector bikeways. Pedestrians who congregate at the nodes will either walk to transit stops, or else make use of a bike share bicycle located at the nodes and key transit stops.
            - Bike share – connect to bus
            - Bring bikes into the bus
        - Very bike friendly, many options for a town this size
- Complete streets – Mass St (11th -23rd St), Naismith Dr (23rd to KU), 21st St (Iowa to Conn) (3)
- Connection on Winchester to K-10 (Eudora)
- Connectivity between commercial areas would be helpful, so you can walk between commercial areas rather than having to drive
- Doesn't see this as a major problem in current system
- Education (6)
        - Better job at educating about environmental issues, parking, transit system
            - Marketing better
        - Educate and push towards non-car rides
        - Educate how to use bus time table
            - Keep real time into going
        - Educate possibility of park and ride lots
        - Get people to understand road/transit design in a sustainable way that adds to community
        - Integrated mobility management concepts so people know how to get where they need to go
        - People know about services that are available
- Information needs to be coordinated across all levels of government and funding to increase accessibility is needed as well as coordination among all providers – don't want to duplicate

work
        - Local land use policies should include multimodal infrastructure
- It is already possible and works okay
- Multimodal way finding system (2)
- Park and ride (4)
    - At some point the city will park and ride with commuter buses to Topeka and KC and Washburn
    - Maybe in Baldwin City to Lawrence
        - Carpool and bus – to KC also from Baldwin City
    - Surface parking for park and ride
- Parking (6)
    - Downtown parking – walk to work
        - Perhaps more employee parking – another floor of garage for employees
    - Downtown parking issue in Baldwin City
        - Sometimes parking isn't available right in front
        - Possibility timed parking is needed
    - Make it harder to park
    - Parking downtown – encourage walking?
    - Parking pass serve as transit pass, unlock bike lockers
        - Technology – smart parking
    - Parking should be free to the public downtown because economic development; however, she doesn't feel hardship when she has to park and walk to her final destination downtown
- Planning with investment where feasible cost/benefit
- Signage (2)
    - More signage around bike lanes/bike paths
    - Wayfinding signs with time for each mode
- Transit (21)
    - Benches and amenities at bus stops (4)
        - Bus benches
        - Bus shelters
        - Covered bus seating (waiting)
    - Bus schedule – realistic for store use (3)
        - Bus scheduled posed at stops (2)
    - Bus stop at bike lanes – strategic placement of hubs and improvements
    - Bus takes too long – sometimes faster to walk, bike or drive (3)
        - Shorter wait time for buses (2)
    - Connection for people from Baldwin City to Lawrence bus system

        - Regular service – couple of times a week
    - Downtown transit circulator – connect with other transit routes
    - Having appropriately located bus stops near neighborhoods that have routes that go by employment centers
    - Master scheduling between train, bus – communication of the way things work
        - Have at bus shelters – example - go to this bus stop to pick up the greyhound bus
    - Targeted maps for specific locations – transit
        - Living facilities to grocery
        - Travel training – teach them
        - Instructions geared to population
        - Bike maps as well – target
    - Transit Hub (6)
        - Connection with KU and City
            - Clearly defined hub for emergency management
        - Multimodal – communicate various modes
        - Multi-modal
            - Connect with Greyhound bus, public transit, bike parking, park & ride, Amtrak etc.
            - Think bigger than just buses/locally
        - Make easier to store bike at center
        - Park and ride
        - The K-10 Connector – walk, drive, bike
    - Transportation Center, park and ride, sidewalks
- Transportation app that ties it all together
- Use community centers to engage with smaller groups to organize activities together

7. How can we make it easier to commute in and out of the area?

- 11th Street work was helpful – paved
- 59 Highway is a good connection to the south
- Advocate Clinton Parkway access/ramp
    - Think about this in conjunction with Wakarusa
- Airport connection (5)
    - More than just private shuttle
    - Rideshare to the airport
    - Shuttle to airport run by government
- Anticipate new developments/obstacles
- Any direction works well in a car

- Bike/Ped. (4)
    - Bike – easy to get south, north, and to Eudora, but not safe way to get to Topeka – highway 40/6th St. is scary, hills, narrow, fast – not a good way to go
    - Interconnected bike trails between communities
    - Trail Eudora to Lawrence
        - Also to De Soto – old K-10/ KC metro
        - Back roads
        - Trail along the Wakarusa and Kansas Rivers
    - Trail system to connect communities – off road or buffered bike lane
    - Widening shoulders everywhere for running/biking
- Consider closing the movie theater entrance
- Continual monitoring of flow
- Don't close Farmer's Turnpike – K-10/I-70 access
- Easier access to North Lawrence – DMV area
- Education (2)
    - Make people aware of options – independence Inc. and Senior Resource Center for Douglas County
    - Understand multi-modal/shared economy
- Environmental justice, increased traffic
- Good connections to K-10, I-35, I-70 right now
- Highway 40 (2)
    - Needs work but if turnpike access to Lecompton is directly south of Lecompton people won't use 40 as much
    - 24/40 has different sections that don't feel safe, they must have been developed under different safety standards.
- How can we make it easier to commute in and out of the area?
- Iowa St. (South Bypass) traffic congestion (need to sync signals, too many lights right next to each other, not enough space)
- K-10 Connector (3)
    - Nice to have parking there
    - K-10 connector is good
- Kasold (2)
    - Kasold and South Lawrence Traffic way – stoplight
    - Kasold curve overpass needed with access
- Marketplace has potential to take care of it – Uber/Lyft/taxi
- Minimize congestion and delay
- More funding of all modes
- Once people get to destination – need options to get around rest of the city

- Park and ride (4)
    - Besides just the Turnpike
        - Grocery store parking lots could be utilized?
    - Park and ride at Lawrence venture park – k10 connector stop
    - Park and ride lot at north Lawrence I70 access point
    - Park and ride on K10 is needed
- Perhaps eastern bypass
- Replace traffic signals with roundabouts.
- Rideshare (4)
    - Carpool matching system
    - Within Douglas county, KC, Topeka
- Signage (2)
    - Downtown for cars/bikes/walking
    - More signage saying to Lawrence is needed on K-10
    - Track meet at Rock Chalk Park – out of towners
- South Lawrence Traffic way (9)
    - K-10/sports complex intersection – overpass or flashing light saying red is ahead should be installed for safety
    - SLT made a big difference to Topeka and KC
    - Widen West Leg (6)
    - Wakarusa connection to N. Leg K-10 to 485
- Smaller scale – more rural areas
    - Increasing, maintaining away from major highways in more rural areas
- Stop thinking auto-centric
    - Commuter population
    - Want to be a place people want to live 20 years from now
- Synchronize traffic signals on principal arterials.
- The southwest traffic way has been good, three turnpike exits, improved 59 highway, airport, highway 24/40
- Train system advancement (11)
    - Amtrak – more routes, better times; connect to Topeka and KC (3)
        - Regular train availability (2)
    - City and county elected officials should work with MARC, Topeka MPO, and Wichita MPO to establish a commuter rail line on the BNSF tracks.
        - Expand the K-10 connector to do this for now
    - KC, Topeka – other connectors to get places
        - Recover after major natural disaster
    - Light rail (2)

        - Light rail – Manhattan to KC
        - Light-rail between KC, Lawrence, Topeka
            - More state funding
- Transit (20)
    - Baldwin City to Lawrence bus
    - Bus service from Eudora to Lawrence (3)
    - Bus stop closer to building
    - Commuter bus to between Lawrence and Topeka and KC (11)
        - Bus service to other locations in KC (medical) and Topeka (medical, VA, state offices)
        - Commuter bus between cities that intersects with other systems
            - Not as feasible in the Midwest
        - Other places besides JCCC
        - Regular bus- regional, Topeka, Eudora, KC (maybe Eudora to MCI airport too) (4)
    - Encouragement of knowledge/messaging of transit service
        - The K-10 Connector is good – need to invest in opportunities/services and market them so people are aware
    - Maybe a northern KC bus to commute
    - More knowledge – which bus will take you to get to K-10 connector
    - Parking near bus/train locations
    - Good, covered bus waiting, restroom access
    - Timing of transfers – if transfer lapses – have to use same pass to get back to the shelter
        - Possibility of not having time limit on transfer time
    - Hyperloop (2)

8. How can we make it easier to travel within your city?

- 1023 Rd. – trucks go from sand pit to 1023 to Big Springs rock quarry
    - Dangerous – residential street
- 19th Street is a major east/west corridor – need creative solutions to smooth travel given constraints
- 23rd Street (2)
    - Access management needed on 23rd St.
    - Feels less congested since South Lawrence Trafficway was opened
- Complete streets (5)
    - Complete streets (roundabouts) (2)
    - Complete streets (3)

- Bike/Ped. (40)
    - Better bike/ped in older neighborhoods
    - Bicycle Boulevards (3)
        - Bicycle boulevards – 21st St – make sure 19th St is vehicle friendly to keep 21st st clean
        - "real" bike boulevards and better crossings at intersections for bike/ped especially kids (2)
    - Bike lanes (6)
        - Dedicated bike lanes
        - Increase bike lanes
        - Make sure bike lanes are continuous and don't randomly stop
        - Protected bike lanes (3)
    - Bike trail map is hard to use (graphics vs. written descriptions)
    - Biking downtown is problematic – bike is adequate with lanes
    - Bridge over K-10 in Eudora – safe walking
    - City elected officials should work with our Kansas Legislative Representatives to adopt a Kansas Statute that legalizes a "bike yield" law that allows bicyclists to roll slowly and cautiously through a stop sign, provided there is no conflict with motor vehicles or pedestrians.
    - Completion of fully connected system of bike infrastructure (shared paths; marked bike lanes – more than sharrows) (4)
    - Connect from one mode to another – sidewalks and bike routes/lanes shouldn't have gaps
    - Connectivity of bike/ped paths is good, but should be continued
    - Continue to be bike friendly
    - Continue to expand sidewalk, bike lane connectivity and consistent routes
    - East/West bike connections
    - Eudora – places to walk/ride bikes
        - Crossing K-10 on bike/walk is problematic
    - Get people off roads - bike/Ped. Increase
    - Improve safety for bicyclist and peds (4)
    - Increase Shared-Use Paths throughout town - spider web/spokes
    - Lawrence Loop (2)
        - Lawrence Loop - Completion of the downtown segment
        - More hikable/bikeable community amenities – spokes from the Lawrence loop trail
    - Sidewalks (15)
        - More sidewalks in Eudora
            - Shared expense with sidewalks – public sidewalk

        - Sidewalk issues/better sidewalks needed (5)
        - Sidewalk major improvements (3)
        - Sidewalk policy – consistency of having sidewalks – treat sidewalk like treat streets should be maintained by the city because it is for the public good.
        - Sidewalk repair with city share of cost
        - Sidewalks
        - Sidewalks – Baldwin City
            - Program through country/city to pay for it – cost sharing
        - Sidewalks for people to walk safely
    - Strictly enforce the requirement that bicyclists display a front white light and a rear red light between dusk and dawn, that are visible for a minimum of 500 feet away.
    - Walking path across K-10 bridge
    - Wayfinding system for bike/ped
- Connect walking routes with neighborhoods (2)
- Connect to food access
- Car sharing – promote it more – incentives would be good
- City elected officials should work with our Kansas Legislative Representatives to adopt a Kansas Statute appended to KSA 8-1560 that grants local authority to designate improvement districts (to be defined as all local streets) in which the minimum speed limit may be lowered below 20mph and down to 10mph.
    - Wabunsee County did it – subset of 8-1560
- Coordination of signals (3)
- Design/land use (3)
    - Land-use design
        - More dense opportunities to live downtown/stopping suburbanization
    - New neighborhood layouts that have the cul-de-sac and windy streets aren't efficient- would like to see more grid streets encouraged.
    - Plays huge part
- Don't extend K-10 over the river
    - 10th/12th St. bike/ped. Accessibility
    - Lighting everywhere
    - Sidewalks/trails/ADA with benches and lights
    - Straight north from Farmer's Turnpike
    - Training/education on how to use bike repair stands, maps
- East/west roads construction coordination
- Easy already
- Education (3)
    - On what programs are available

        - Ex. bikers know about the Loop, but do others?
    - Raising awareness about cross-city routes that aren't 6th St./ 23rd St.
        - Identify alternative routes
    - Workshops how to use bus system
- Environmental factors
- Fewer cars on road by encouraging more bike/ped timed traffic lights
- Focus on social engineering – Iowa and 23rd is a major thoroughfare, use traffic calming to funnel people to major roads, but then maintain arterials
- Improve other mode options besides auto
- KU (4)
    - Connections exist to the north and south and to the east and west; except for where KU is
    - Having to drive around it
    - Pretty good – problem with the university in the middle of the city – cuts off east/ west traffic – no way to fix it
    - Underpass over campus
- Lack of truck route in Baldwin City
- Lawrence - more turn lanes – left and right
- Lawrence elected officials should adopt an ordinance that establishes a "yield hierarchy", by which bicycles yield to pedestrians, autos yield to bicycles, buses yield to autos, trucks yield to buses, and any vehicle that is higher on the scale always yields to any other lower on the scale.
    - California has this
- Lawrence should purchase a street sweeper with a 6 foot sweeper path (such as the Sentinel) and dedicate it to clearing bicycle lanes of debris and obstacles.
    - For protected bike lanes
- Likes roundabouts
- Limit new access points on major roads
- Maintenance (6)
    - Brick roads are problematic not made for truck traffic – need to redo bases and curbs/gutter in Baldwin City
    - Can do – maintain commitment to maintenance – complete streets when practical
    - Investment of quality of roads – get people out of taking alternate routes
    - Maintain county roads
    - More efficient ways to fix roads – design process, traffic flow
    - Potholes
        - Knowledge can report potholes
    - Until 5 years ago the city did a horrible job in maintenance
        - Iowa – between 23rd and 6th was horrendous, as was 19th St –moonscape –

but visual so was able to get the sales tax referendum to fix it

- Multimodal approach to transportation when designing any new roads/road improvements
- Parking (2)
    - Parking along one-way streets is scary because people work across the street
        - Perhaps another main street rather than Tennessee/Kentucky and Massachusetts Streets
    - Parking near trailheads/bike paths
- Provide efficiency for all modes and how they interact
- Reduce auto traffic cutting through neighborhoods multimodal wayfinding (walk/bike/bus)
- Signage/wayfinding/directional signage for all – motorists, bikers, walkers
- Since the sale tax referendum – much better
- Safe Routes to School (SRTS) (2)
    - Crossing 56
    - Next section? used to walk/bike to work
- Transit (8)
    - Bus consistent routes with predictable service
        - Education on the system – ways to get around and learn the system
    - Bus stop – Lecompton – if people want
    - Encourage people to use public transportation
    - Evening transit service from outlying hotels to downtown
    - Improve weekend night bus routes – be able to go downtown and take bus home
    - In and out of KU using the bus rather than parking – for everyone, not only students – evening and weekend activities
    - Some sort of bus system with Lecompton, Eudora, Baldwin City
    - Transit based on where people are coming from
- Travel updates (2)
    - Texts with travel updates?
    - Traffic apps for cell-phones, include bus schedules with travel times

9. **Where are you getting your information about the transportation system?**

- Bike maps
- Case managers
- City bus (3)
    - Start and go website
- City discussion
- Clients – people they house – generally under the 80% Area median income
- Committees (2)

    - RTAC (2)
    - PTAC, Urban Corridor Transit Council, CTD
- Community feedback
- Community organizations
- Craig Weinaug – Keeps bike club up to date with construction updates
- Email (7)
    - City emails (5)
- Government affairs committee – KDOT updates
- Grocery stores (Dillons)
- Guests
- Incident reports
- Job (3)
- KDOT
- KLWN Lawrence
- Knowing who to talk to
- Lack of communications director with the city is an issue if emergency happens
- Library
- Local meetings- stakeholder, K-DOT, City, etc.
- Neighborhood
- Newspaper (8)
    - LJWorld (6)
- Not a lot of attention from the positive side – people get mad
- Online (11)
    - City website (4)
    - Lawrencetransit.org – very pleased with online map
    - Public Works and Planning Department web pages
- Personal experience/exploration/observation (6)
    - Industry experience
- Public radio (2)
- School system
- Staff (15)
    - Lawrence Transit Staff
    - MPO (10)
    - City staff
    - County staff
    - Contact city planning office/public works
    - Conversation with city staff at Eudora

- Transit app for transit service in KC
- Transportation planning documents
- Twitter
- Watch out for "Lingo" or "technical jargon", this makes it difficult for the average person
- Word of mouth
- Work with individuals that benefit from the transit system everyday

10. How can we best communicate with you?

- Already doing good job with communicating (3)
    - Can't do it any better. The city does a great job putting everything online in case someone wants to see it.
    - City does great job with communicating
    - Feels like we reach out
- Being very public about what you are doing
- Calendar appointments
- Coordination among departments
- Email (23)
    - Short blurbs in emails
    - Weekly city wide update email – perhaps take CM report for email
- In person
- KLWN Lawrence
- Local media
- Newspaper (4)
    - Balancing groups who know a lot/know nothing
    - Communicating overall goal/mission – why we are doing this – people care and participate
    - Include rural areas – Baldwin City, Eudora, Lecompton
    - LJWorld
    - Story in newspaper
- Online (3)
- Phone
- Possible app or sign up for information
- Press release (3)
    - Media releases for public comment through the city
        - Make sure that the city commission understands the importance of growth of transportation
- Reach out to specific groups
- Send grant opportunities

- Signage (4)
    - Bill boards and posters
    - Cork boards/message boards
    - DSM and flyers and signs on hawk signal
- Social media (2)
    - Twitter, Facebook
- Tell us what happens after the plan- connect to the average person
- Text – would be open to updates (road closures, etc.) and survey link
- Website
- Where's my bus app

11. Is there anything these questions have not covered today that you would like to tell us about the transportation system?

- 750,000 people go to Clinton state park annually
- After 31st St. was taken out and the SLT was built
- Agricultural Tourism – connections – bike/car
    - Rural communities
- Appreciate input/plan update process (4)
    - The MPO staff is a strength and is very approachable
- Balance technical expertise and knowledge with political realities – concepts like complete streets and what will be creditable with the public – very different trying to balance
- Bike/Ped. (10)
    - Bike taxes similar to motor vehicle taxes to pay for bike paths
    - Create better routes and paths for ped./bikes
        - Look at Columbia, MO, Lincoln, NE, Portland, OR
    - Lack of grid makes it hard on the bike system
    - Lawrence does a good job of walkability
    - More bike lanes
    - Perhaps don't need bike corrals on Massachusetts St.
    - Farmer's Turnpike needs bike path/wider shoulder
    - Local points of interest just outside of city limits – link up with bike paths – things to do
    - There is a sense of inequity between west and east Lawrence, especially in the sidewalks, need to work on that
    - To compliment Administrative Policy 117 by which a property owner is legally required to pay for sidewalk maintenance and repair, Lawrence elected officials should create a sidewalk repair fund that is capitalized by a City-wide fee collection, but from which property owners are entitled to either "opt-out" or "opt-in" of paying the fee. The policy would then establish that if a sidewalk on a given property is in

need of repair, either the property owner would pay for the repair if they had opted out, or else the sidewalk repair fund would pay for the repair if the property owner had opted in.

- City hall should continue transportation improvements
- Old 31st St - contouring was good, but didn't have equipment to do what needs to do – erosion where road used to be. They need to figure out how to approach the situation to stop water from pooling.
- Customer questionnaires at gas station pumps
    - Yes/no – would you take the bus to get to x?
- Dam Road, turn over to the County
    - Long range plan to turn over to county's maintenance program, Wakarusa Rd. could change this though
- EV changing stations – or at least the planning for it. It should be part of the downtown parking plan that is currently under development.
- Funding (5)
    - Assist local cities to apply for future grants
    - Money – mostly tolls
        - Service users – lease agreement – additional revenue
    - Cooperative bids idea might be a good idea. Include Eudora projects in a Lawrence project that is put out for bid to get economies of scale.
    - MPO money for study – don't need study to do project – just need to do construction
    - Talk with KDOT – money for actual construction if don't need planning
- Highway 24 needs work
- How long it takes to get from point A to point B (across town)
- I-70/K-10 – continued planning and preliminary engineering
- If traffic warrants widening - continued monitor and PE
    - Placeholder for I-70/K-10 interchange
    - Placeholder widening 204 to 212 at end of 10 years
- In better shape than other places
- Keep in mind integrated transportation
- Keith Browning has been wonderful to work with
- Likes increase of traffic calming – like roundabouts
- Made some incredible improvements since 2003 - on the right path
- Maintenance (2)
    - County praised for winter maintenance work
        - Snow and mow
        - Contrast between Jefferson/Douglas County is night and day
    - Douglas County does a good job taking care of roads and bridges

        - Perry/Lecompton bridge
        - Snow clearing
- Paratransit has worked well
- Parking (2)
    - Parallel parking on east/west street – the painting isn't well utilized – needs to be shifted to better use street
    - Issues with access – car parking at wetlands
- Participating in RTAC – knowledge – has been great. She is so much more aware of what others are doing know and has resources to contact if she runs into any issues.
- People in the county are state leaders
- Possible upcoming project –KS outdoor white water rafting – tom sprout
- Safety – perception of safety with the train and bus
- The strategic plan should coordinate with the transportation plan and vice versa
- Transit (4)
    - More public transit stops by grocery stores (in lots)
    - Ridership and costs
        - Rideshare/Uber/reduce buses?
    - Intra-city bus routes with state support at some level – either assistance or coordination would be great
    - Partnership with KU in transit is good
- When South Lawrence Trafficway is expanded need to think about access

5. Written Comments

MPO staff accepted email and hand written comments, as well as public comments left in the general comment area within Tell Us Portal during the public participation process. Written comments about the draft T2040 Plan were collected from February 1 – March 2, 2018.

Carol Bowen inside 66046

The transportation plan should start with an introduction of what people need and how they currently use the transportation system - behavior-wise. There also should be a description of overall goal or purpose such as future planning for a more dense city (infill) or upgrading existing infrastructure and improvements or whatever. The purpose should link to the city's mission and goals. The last draft I read was merely a technical document that promised more of the same. The only plan I have read so far that has a clear purpose is the Parks and Recreation plan.

There needs to be a discussion of major arterials in urban areas and connectivity in the county, both within urban areas and between urban areas. While the maps are impressive, simple line drawings might clarify network needs better.

Discussion within urban areas should include land use, function, purpose, and potential. For example, if Kasold had had an existing street plan, there would have been less controversy. The

plan would have been vetted, no surprises. The plan to continue the bike lanes/paths would obviously be part of the street's overall plan. Pedestrian crossings would not be incidental. The purpose of the street would have been identified. It would have had a ""complete street"" plan.

-23rd Street was recently vacated by the state. It is no longer a highway. It is a street with many needs and no plan.

-19th Street is being developed with no plan to address the integrity of abutting land uses. If there is an overall plan for the entire length of 19th Street, I have not read it. The plan seems to be an unspoken dread of more street development and its consequences.

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From the draft of the new Comprehensive Plan:

""Connectivity in neighborhoods, as well as surrounding neighborhoods, is critical. Grid designs create an interconnected street system offering pedestrians and vehicles many choices in navigating through their neighborhood. Neighborhoods with limited connections force traffic onto collectors causing jams and access problems. Curvilinear streets should be avoided."" - p33

Is this statement in the new Transportation Plan? I question the wisdom here. Collector streets collect local/residential traffic, last I knew. Are there really traffic jams on collector streets? On the contrary, collector streets in Lawrence that are straight and have connectivity become arterials through use. Louisiana Street, Harvard Road, 27th Street, all have difficulty trying to function as collectors by design while supporting the competing function of an arterial street. A total grid system might be ideal, but in Lawrence, through streets in neighborhoods are a problem. Chicago is known for its grid system. In Chicago, even streets parallel to busy streets with lots of traffics lights, have very little traffic and no speeding. That's not what happens here.

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Our approach to transportation planning varies from a watch-what-happened to a wonder-what-happened. We never plan ahead. Doing only what is required is minimally passing, ""D"" work. I'd like to see our city earn a ""B"". That requires more thinking outside of the box of requirements. If we stretch a little bit in the plan, we will have more future-seeking goals. We may not achieve some of them, but we would have a strong sense of direction. The transportation plan is reviewed every five years. That gives us a chance to adjust our direction.

How about decreasing parking requirements while increasing bus service?

How about designing streets to reduce speed?

Design intersections that are safer for pedestrians?

Requiring pedestrian-safe parking lot design/layouts?

Create a new definition of ""traffic flow"" to include all forms of transportation.

Literally create school zones (areas) within .25 or .5 mile radius?

How well does T2040 sync with the draft comprehensive plan's chapter on transportation? Are any of the concepts contradictory? Do the transportation vision statements fit within the vision for the city?

Name not shown inside 66044

I want to see slower traffic sidewalks where they are missing wider, protected bike lanes more roundabouts more public awareness campaigns about driving to protect cyclists and pedestrians more bike boulevards City Commission that votes for Complete Streets projects more road diets more contiguous shared use paths smaller commercial parking lots instead of parking lots built for Xmas shopping pedestrian mall on Mass St. between 11th & 6th Street town cars to borrow, not to own such as Zipcars smaller high school parking lots, more students using public transit to get to/from home/school

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Chris Sorrentino inside 66044

As a career transportation and logistics officer in the United States Air Force, I managed large organizations and hundreds of millions of dollars worth of property and equipment during my 20 year career. Needless to say, I have a bit of experience in the arena.

I have tried to get involved, volunteering my time to numerous organizations and non-profits (I am also a licensed professional counselor in MO) in Lawrence, with little interest or no response from community organizations in the 3+ years we have lived here. Because we have had great difficulty being accepted into the Lawrence community, either professionally or personally, we are selling our home and moving to the West Coast in June of this year. However, as a member of this community with civic pride and responsibility, I would still like to contribute to Lawrence, Kansas in any way I can before we depart.

If I can be of service in any way in this endeavor or others over the next 3+ months, feel free to contact me.

Respectfully,

Chris Sorrentino, LtCol, USAF (Ret)

MS, LPC, NCC

Name not shown inside 66049

Tinting the windows does not hide the fact that many of the large T buses carry very few passengers most of the day. I understand the city gets federal grant money, which requires these larger buses, but is it really worth the added fuel cost and heavy pollutants produced by these diesel vehicles to transport so few? How is it any more efficient then the 1 guy in the 1 ton pickup?

Name not shown inside 66047

I would like there to be Sunday bus service. I really think that people would benefit from it person's with disabilities and to go grocery shopping or for church. I personally don't know anyone with a car that could take me somewhere and I don't have family here so I really think that I could benefit from this if there would be Sunday bus service and I think a lot of other people could benefit from this.

Name not shown inside 66044

For those that live in town a route that runs down Iowa from 31st to 6th, a route that runs down 6th from Wakarusa to mass st, and one more route that runs a square around 23rd/mass/6th/

Iowa would help improve mobility as well as helping support tourism to mass street.

Name not available

I have moved to Lawrence about six months for graduate school at Univeristy of Kansas and live by the corner of wakarusa and bob billings. There is not a bus stop that I can easily walk to by me. I know it's quiter on this part of town and mostly everyone has a car but it would be nice to have a bus stop that comes by George Williams Way every so often for the supermarkets on W 6st.

Andrew St James inside 66046

If it is at all feasible it would be beneficial to have a transit system that not only ran in Lawrence, but also connected Eudora and Baldwin City to Lawrence and each out lying area. This could create a web of transportation lines that would be freeing to those needing transportation to find work or going to college. It would at least offer choices that are not currently present. The waterways could be used where possible and also trains.

This may also reduce some of the stigma of using public transportation. It seems as though people in Lawrence have a poor view and stigmatize those who use public transportation. Removing that stigma would help improve the reputation of public transportation and let the users feel more comfortable.

Another idea might be to have rental bikes throughout the communities. It would seem as if these would do well. I've seen these in Topeka, and have noticed they are being utilized by the public. This could be a cost efficient way for public transportation as well as emphasize physical alternatives and promote healthy lifestyles.

Name not shown inside 66046

I am curious about the degree to which the deployment of Autonomous Electric Vehicles in fleets providing transportation as a service (TAAS) (anticipated launch: 2021) is being considered as part of this planning process. Sources such as rethinkx.com lead me to believe that investments in short distance public transit (bus service within Lawrence) may be wasted. Even now, I suspect that people on many bus routes might be better served by some sort of voucher that helps them to buy trips with uber/lyft--it is much faster, door-to-door, and in Lawrence runs about $6-$10 per trip (versus what I understand is about $4 per trip on the bus including the public subsidy). Until the AEV/TAAS revolution has played out, it seems like a bad idea to invest public money in any sort of hard infrastructure (a large bus transfer station on campus, for example.) If Tesla/GM/Ford/etc. start missing their launch targets or it in some other way becomes clear that the predictions are way overblown, then we can pour millions into hard infrastructure--but for now, I urge a wait-and-see approach.

Marilyn Hull inside 66044

In general I think we have a good transportation system. I'm grateful for the hard work of those who plan it, build it and maintain it.

Thank you for the strides made in making the community more walk-, bike- and wheel-friendly. Please keep working on connecting existing infrastructure in ways that create networks that

make active transportation easy and accessible to all.

Name not shown inside 66044

The transportation system is pretty good; the buses are efficient and usually on time. However, aside from the morning rush, I notice throughout the day a definite difference in the number of buses running each route. For example, I ride the bus route 36 each weekday. Sometimes I will have to wait 40+ minutes for the bus to arrive so that I can get home, whereas I will see 4 or more of the 46 bus route in that same timeframe. Worse yet, as the day progresses almost no one will board these buses at the stop while I am waiting for my route. It is frustrating that other routes have so many buses allocated to them when few ride them later in the day, whereas I am almost always stuck waiting for ages. I would suggest reallocating bus routes as the day progresses so that these routes believed to be busy (46) are not unnecessarily running every 5 or so minutes, leaving other routes unattended for much longer.

Gary Webber inside 66049

When planning for transportation, please consider all modes of travel. Making our city safe for walkers and bikers is more than just installing sharrows and narrow unprotected bike lanes. We need to design our city to make active transportation safe for all. This means bike lanes protected from traffic, either by separating them with barriers or moving them away from vehicular traffic entirely. It also means planning development in a way that promotes active transportation, by returning to grid street design, integrating businesses into residential neighborhoods , and reducing vehicular speeds city-wide with aggressive traffic-calming design. The safer you make Lawrence for bikers and walkers, the more active transportation will occur. The more active transportation occurs, the healthier our environment and residents.

Name not available

As a KU student, I find the bus system to be incredibly useful. The only drawback is that many buses (including the one I take every day) stop running to/from campus around 6 PM, which can be a pretty big inconvenience when I have exams or other events later in the evening.

Name not available

23rd street is problematic. The bypass was supposed to alleviate traffic on 23rd but it did not. Such things rarely do.

If you live near 23rd, you know that it is terrifying to be a pedestrian and try to cross 23rd, let alone walk along it.

The crosswalks are right at the corner of each intersection. As far as I can tell, the reason for this is so that cars can be as close to the center of the intersection as possible. If I take my children for a walk and try to cross at 23rd and louisiana, then the crosswalk tells me, that the cars are valued and I am not. I cannot understand why crosswalks cannot be luxurious things. The cars can simply stop one car length back and wait. I realize they like to make rights on red, but, as long as there is not a human being crossing, they should be able to complete this time saving trick.

And sidewalks need to be wide enough and with a grass gap, to where, if my child trips, she

does not tumble into the street.

If city ordinance allows city sidewalks to be touching the curb, then the ordinance needs to change.

Name not available

There currently is limited transportation options for seniors outside the city of Lawrence. If you do not drive and are still living in your home you have to rely on friends to take you places. The senior ride system is booked a long time ahead. If you have a sudden need to see your Doctor someone has to take off work to take you.

Venus Stafford inside 66044

I love the bus it makes life easier

Carey Maynard-Moody inside 66044

I have been an advocate for the rehabilitation of the historic Santa Fe Station in Lawrence, KS for many years. I have worked with other advocates and Amtrak to improve the safety and comfort of rail passengers using this building while waiting for the train. Recognizing the value of this classic midcentury modern building that continues to function as a working depot and a gateway to our city, members of the community have come forward in support of bringing it back to its highest and best use. The TE grant to the City received four years ago was hard to come by. Projected costs of the project have changed in that time. It is important that we not let this grant slip away.

Therefore I encourage the Transp. Advisory Board to approve the 2017-2020 Transportation Improvement Program – Amendment #4 which includes the addition and revision of costs and schedules for multimodal roadway and rail depot projects.

Thank you.

Kevin Boatright inside 66049

The Santa Fe Station in East Lawrence is both the city's gateway to the national Amtrak passenger rail service and - potentially - a key component of the emerging Warehouse Arts District. Rehabilitation of this facility will improve the safety and enhance the comfort of travelers arriving in and departing from Lawrence. It can also lead to greater use of the facility for any number of worthwhile purposes, given its strategic location just east of the city center. An advocacy group known as Depot Redux has worked tirelessly for several years in support of the restoration of this mid-century modern landmark. The project enjoys substantial support in the community and within the municipal government. The highly competitive TE grant, awarded in 2014, is essential to the success of the project. It is crucial that this grant not be allowed to slip away. Along with other members of the Depot Redux group, I encourage the Transportation Advisory Board to approve the 2017-2020 Transportation Improvement Program – Amendment #4 which includes the addition and revision of costs and schedules for multi-modal roadway and rail depot projects.

Name not available

We need better transportation.

1055 needs a lot of work.

People would need to relocate but 1055 needs to be some a 4 lane highway

19th Street Neighborhoods Coalition

Bryan Culver, Chair or ranking member
T2040 Steering Committee
P.O. Box 708
Lawrence, KS 66044

22 June 2017

re: amendments to the Draft 2017 T2040 Major Thoroughfares Map, and
amendments to the Draft 2017 MPO-KDOT-FHWA Roadway Functional Classification Map

Mr. Culver:
Since July 2016, four neighborhoods along all of 19th St. have formed a coalition consisting of neighborhood associations as well as hundreds of individual residents. This large contingent is opposed to 19th St. being designated a Minor Arterial through-corridor on the 2013 T2040 Major Thoroughfares Map, and a combination Minor Arterial/Major Collector on the 2013 T2040 MPO-KDOT-FHWA Roadway Functional Classification Map.

At the 5 July 2016 MPO Policy Board meeting, we requested that "MPO Project #229: 19th Street Reconstruction, Harper St. to O'Connell Rd." not be rescheduled to 2018, but rather be deleted from the TIP. MPO staff recommended against our request, because "T2040 identifies that section of 19th Street as a Major Collector on the 2016 MPO-KDOT-FHWA Roadway Functional Classification Map" and that the map would first need to be amended.

At the 23 February 2017 MPO Policy Board meeting, we requested that 19th St. be designated at a lower classification over its entire length during "Action Item 7: Review and Approve the Functional Classification Map Revision". MPO staff recommended against our request with what appeared to be self-fulfilling justifications about "system planning", "marketability aspirations for Venture Business Park", and "development standards for roadways". The Planning Director said the time and place to amend the maps would be "during the T2040 Update process, with the map amendment deadline being 21 March 2018".

Therefore, the 19th Street Neighborhoods Coalition requests that the T2040 Steering Committee initiate the following amendments to both the Draft 2017 T2040 Major Thoroughfares Map, and the Draft 2017 MPO-KDOT-FHWA Roadway Functional Classification Map:

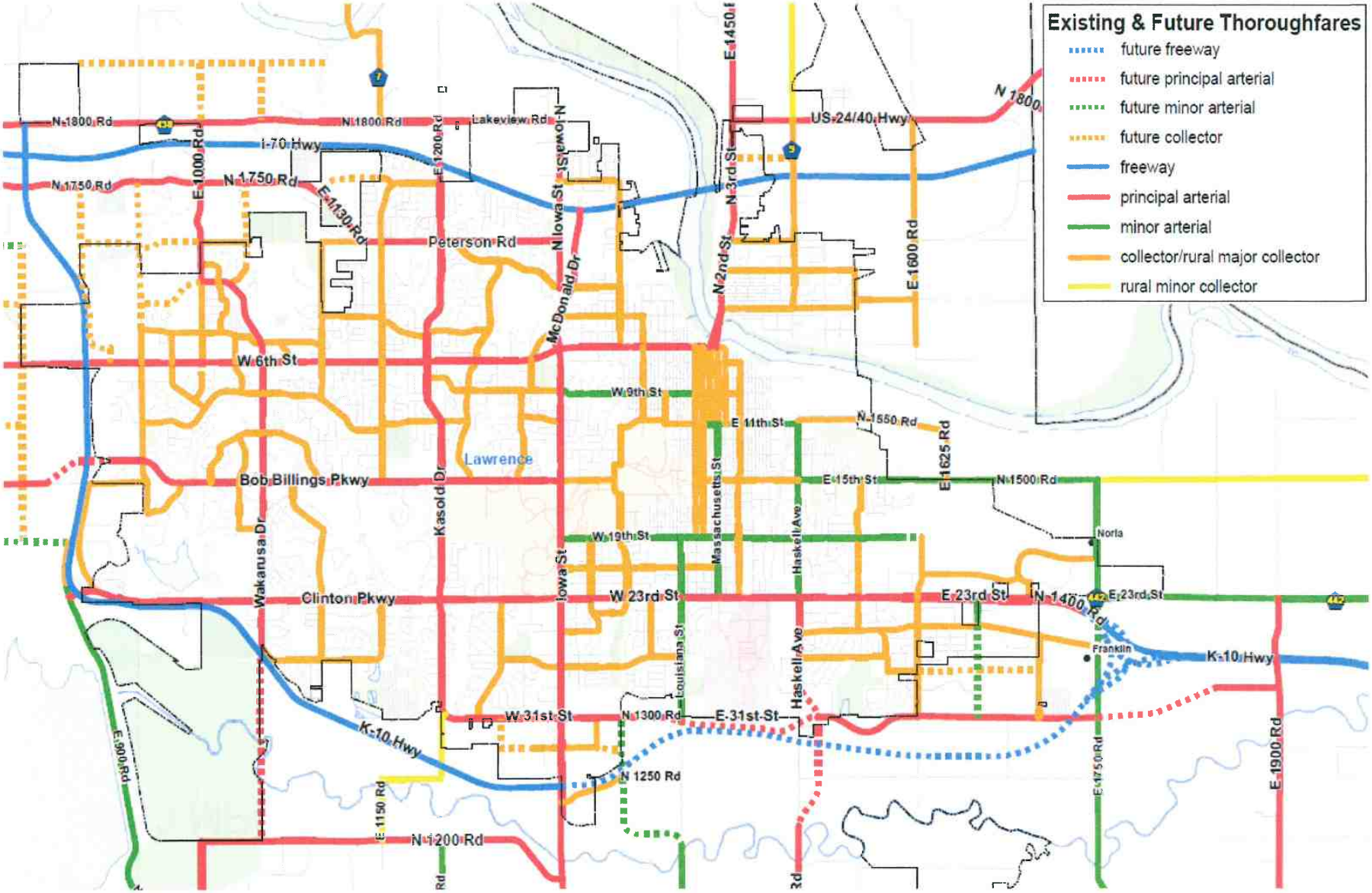
1) Return 19th St. to Local classification, Harper St. to its eastern terminus (at Venture Business Park)
2) Classify 19th St. as Major Collector, Harper St. to Iowa St.
3) Reclassify Naismith Dr. from Major Collector to Minor Arterial, 19th St. to 23rd St.

Please incorporate these map amendments in the Draft T2040 Update for 2018, and forward them to MPO Policy Board and the City Commission.

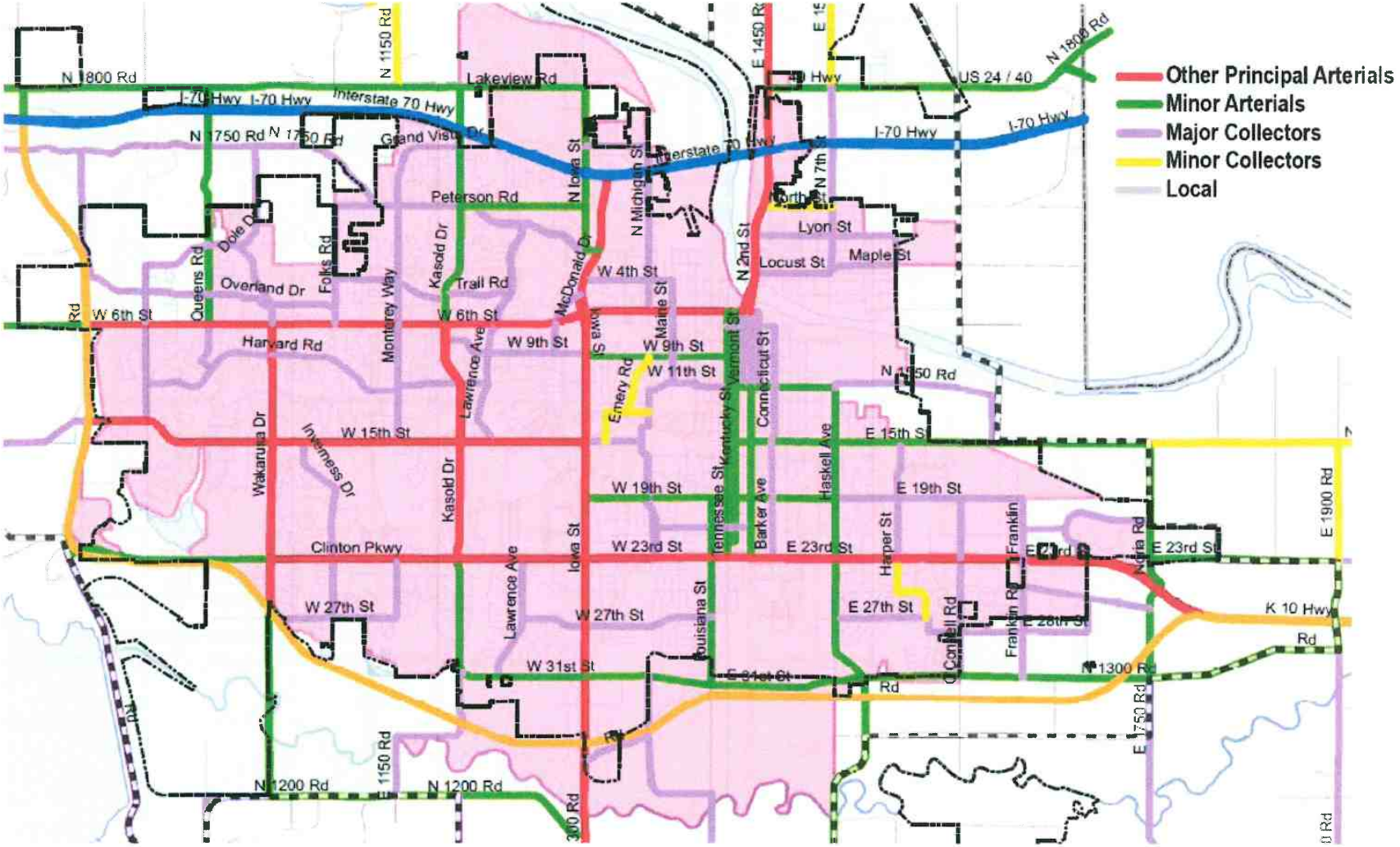
for the 19th Street Neighborhoods Coalition,
Michael Almon

T2040 Major Thoroughfares Map, Douglas County, Kansas

21 March 2013



2013 MPO-KDOT-FHWA Roadway Functional Classification Map
Lawrence-Douglas County, Kansas



Venture Business Park Access
19th St-O'Connell is inferior to Franklin Rd at 23rd

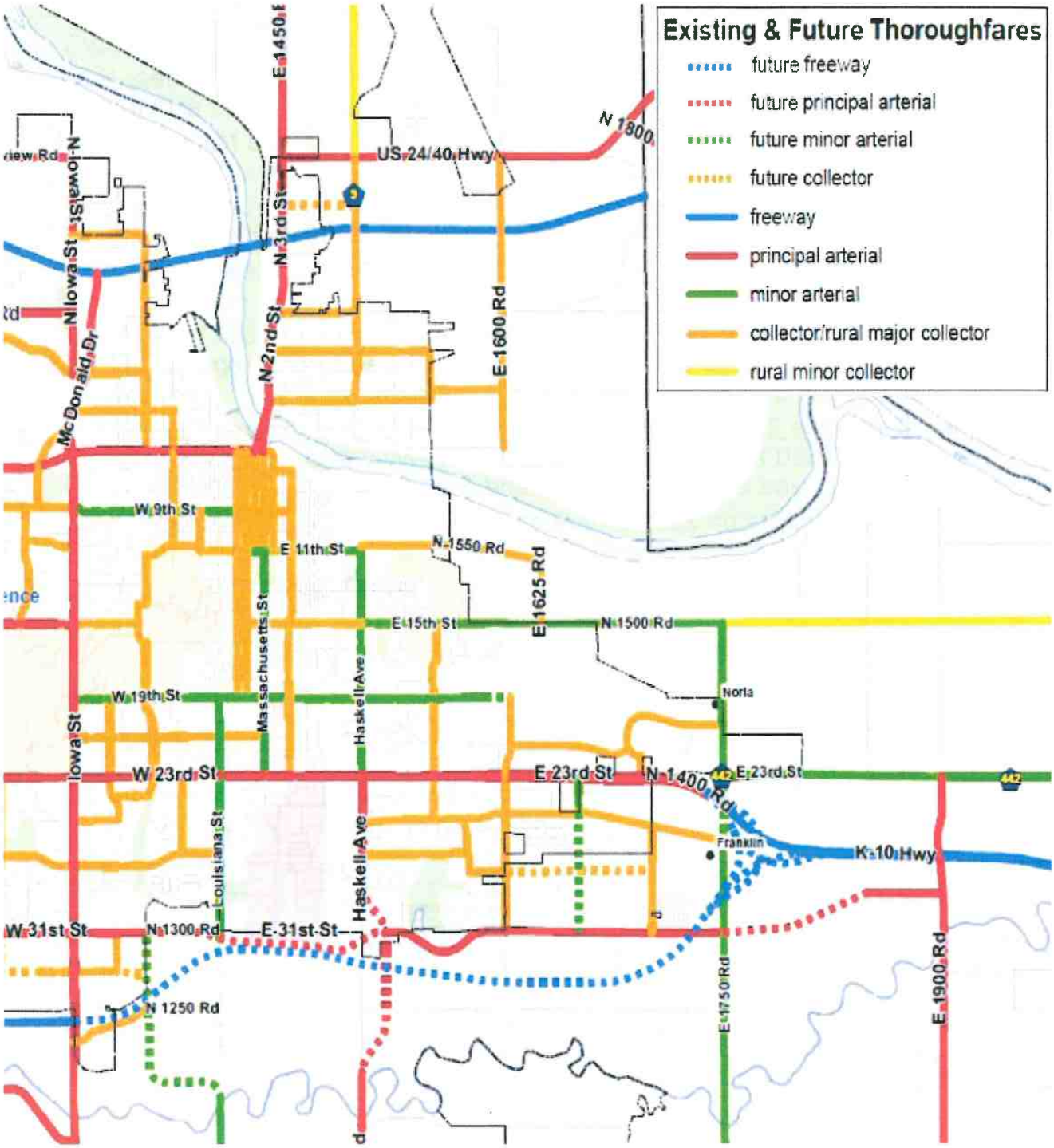
Facts:

1. O'Connell Rd. (23rd-19th) was designated a Main Trafficway in August 2011, before Venture Business Park was platted in December 2012.
2. KSA 12-685 states the primary function of a Main Trafficway is "the movement of through traffic between areas of concentrated activity".
3. 19th St. (Harper-O'Connell) is a local residential street with less than 1000 vehicles per day. It is not "an area of concentrated activity".
4. 19th St. (Harper-O'Connell) is currently classified as a Minor Arterial, with no traffic warrants to justify it.
5. Venture Business Park/East Hills Business Park is the only industrial park in town directly on a 4-lane, divided, Principal Arterial – 23rd St.
6. Franklin Rd. (East 1650 Rd.) is platted, but unbuilt, between 23rd St. and Venture Park Drive.
7. The KDOT 23rd St. Turnback Agreement of 11 April 2017 gives full access control to the City of Lawrence, to set 23rd St. speed limits and build an intersection at 23rd St. and Franklin Rd.
8. The three 23rd St. access points of O'Connell Rd., Franklin Road. (East 1650 Rd.), and East Hills Dr. can easily accommodate all delivery and employee trips to and from VBP/EHBP.
9. Traffic counts on 23rd St. are down by 3000 VPD (according to KDOT) with the opening of the SLT.
10. Fire/Rescue Station #2 on Harper St. is only 900ft from 23rd St., making 23rd St. the quickest route to VBP.

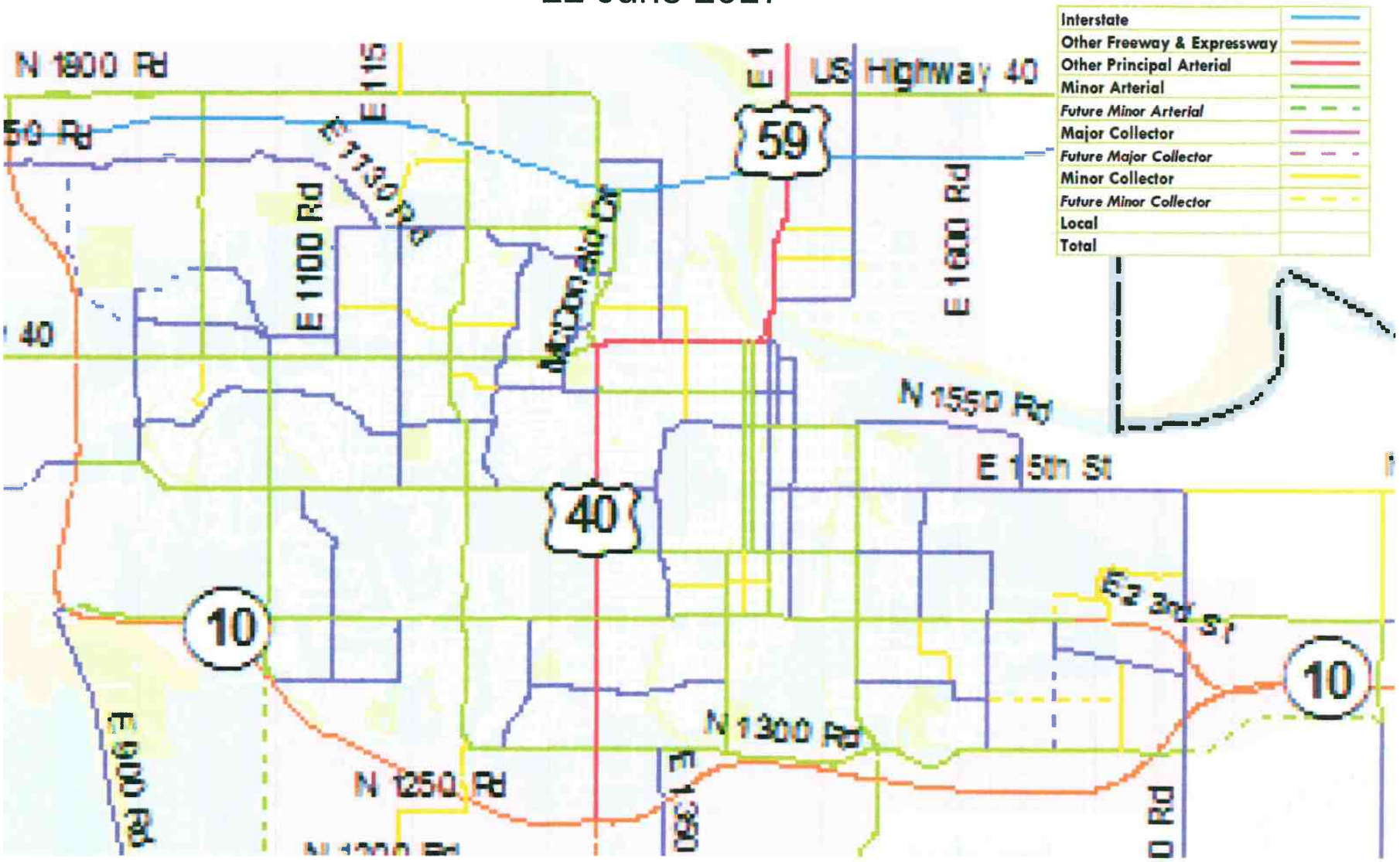
Venture Business Park

Franklin Rd. connection to 23rd St.

T2040 Major Thoroughfares Map, Douglas County, KS



2017 MPO-KDOT-FHWA Roadway Functional Classification Map
Lawrence-Douglas County, Kansas
22 June 2017



Sustainability Action Network
Local Solutions for Transition to a Sustainable Economy
P.O. Box 1064, Lawrence KS 66044
a Kansas 501(C)(3) not-for-profit

Bryan Culver, ranking member
T2040 Steering Committee
P.O. Box 708
Lawrence, KS 66044

5 October 2017

re: amendments to Draft T2040, Goals, Objectives and Performance Measures

Mr. Culver:
I want to address bicycle transportation aspects of the T2040 Metropolitan Transportation Plan. Since the adoption of the 2013 Update of the T2040 Plan, bicycle transportation concerns have become high profile, and increased funding has gained greater support. Yet the current draft of the T2040 Plan seems to be following the five-year old template, without updated bicycle categories.

The foremost question for the City Commission and the Transportation Commission has become "What criteria and matrix can be used to set funding priorities?" As you know, the Metropolitan Transportation Plan is one of the main tools to help answer that question, for any mode of transportation. And the section of the Plan for Goals, Objectives and Performance Measures is where those questions are vetted.

Therefore, I have some additional performance measures to propose that address the following: percentages of the bicycle network that are safe and protected bikeways, user access to safe and protected bikeways, degree of the bikeway network reliability, and percentages of "good" or "poor" pavement for safe and protected bikeways. These amendments are in the attached document.

In March of this year, the Transportation Planners requested input from Sustainability Action, and I provided answers to a list of interview questions. One question was "How do we know when our transportation systems are working? What factors would you use to evaluate our system?" In short, I answered that bicycle priorities should be guided by origin-destination studies, level of service evaluation, and a functional conditions index. These are addressed to a degree in the T2040 amendments that I am proposing herein. Please give them due consideration.

Thank you,
Michael Almon
Bicycle and Alternate Transportation Chair

Theme:	Access and Choices
Goal:	Enhance transportation options and choices for improved system performance
Objective:	1.a Improve regional connectivity (urban/rural) of all modes of the transportation networks
Measure #:	1.a.1
Measure:	Percentage of people who have access within a ¼ mile to the bikeway network (by City/County/EJ)
Required Federal PM:	No
Data Source:	MPO - 2015 Population Estimate and Bikeway Network
Trend:	Baseline

	2015 Population Estimate	Population Estimate With Bike Network Access	%
Lawrence	95,358	83,425	87%
EJ Zone	50,627	44,856	89%
Eudora	6,379	2,145	34%
Baldwin City	4,677	796	17%
Lecompton	638	-	0%
Total	**157,679**	**131,222**	**83%**

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Access and Choices
Goal:	Enhance transportation options and choices for improved system performance
Objective:	1.a Improve regional connectivity (urban/rural) of all modes of the transportation networks
Measure #:	1.a.4
Measure:	Percentage of people who have access within a ¼ mile to Bike Lanes or Shared Use Paths (by City/County/EJ)
Required Federal PM:	No
Data Source:	MPO – Lawrence Existing and Proposed Bikeways Map
Trend:	Baseline

Theme:	Access and Choices
Goal:	Enhance transportation options and choices for improved system performance
Objective:	1.a Improve regional connectivity (urban/rural) of all modes of the transportation networks
Measure #:	1.a.2
Measure:	Percentage of public streets with no sidewalks on either side (by City/EJ)
Required Federal PM:	No
Data Source:	MPO - Pedestrian Plan
Trend:	Baseline

	Missing Sidewalk on Both Sides of Streets	
	Miles	%
Lawrence	68.4	18%
EJ Zone	48.5	26%
Eudora	25.6	59%
Baldwin City	25.3	62%
Lecompton	3.0	33%

Source: MPO - Data as of - Lawrence - 2017, Eudora - 2014, Baldwin City - 2014, Lecompton - 2015

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Access and Choices
Goal:	Enhance transportation options and choices for improved system performance
Objective:	1.a Improve regional connectivity (urban/rural) of all modes of the transportation networks
Measure #:	1.a.5
Measure:	Percentage of public non-NHS major roads (collector and above) with no bikeway on either side (by City/EJ)
Required Federal PM:	No
Data Source:	MPO – Lawrence Existing and Proposed Bikeways Map
Trend:	Baseline

Theme:	Mobility and Prosperity
Goal:	Efficient movement of people, goods, and freight
Objective:	2.a Implement strategies that address system performance
Measure #:	2.a.1
Measure:	Percent of the Person-Miles Traveled on the Interstate That Are Reliable
Required Federal PM:	Yes
Data Source:	National Performance Management Research Data Set (NPMRDS)
Trend:	

Theme:	Mobility and Prosperity
Goal:	Efficient movement of people, goods, and freight
Objective:	2.a Implement strategies that address system performance
Measure #:	2.a.2
Measure:	Percent of the Person-Miles Traveled on the Non-Interstate NHS That Are Reliable
Required Federal PM:	Yes
Data Source:	National Performance Management Research Data Set (NPMRDS)
Trend:	

In progress. May need to wait for KDOT to complete analysis rather than completing our own.

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Mobility and Prosperity
Goal:	Efficient movement of people, goods, and freight
Objective:	2.a Implement strategies that address system performance
Measure #:	2.a.3
Measure:	Percent of the Person-Miles Traveled on the Bikeway Network That Are Reliable
Required Federal PM:	No
Data Source:	MPO - Extrapolation From the Annual Bicycle and Pedestrian Counts
Trend:	Baseline

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Mobility and Prosperity
Goal:	Efficient movement of people, goods, and freight
Objective:	2.a Implement strategies that address system performance
Measure #:	2.a.4
Measure:	Percent of the Person-Miles Traveled by Bicycle on Sidewalks That Are Reliable
Required Federal PM:	No
Data Source:	MPO - Extrapolation From the Annual Bicycle and Pedestrian Counts
Trend:	Baseline

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Preservation, Safety, and Security
Goal:	Prioritize preservation, safety, and security of users on the transportation network
Objective:	3.e Preserve or enhance the pavement conditions of the bikeway network
Measure #:	3.e.1
Measure:	Percentage of bikeways that are protected lanes or physically separated from roadways (by City/EJ)
Required Federal PM:	No
Data Source:	MPO – Lawrence Existing and Proposed Bikeways Map
Trend:	Baseline

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Preservation, Safety, and Security
Goal:	Prioritize preservation, safety, and security of users on the transportation network
Objective:	3.e Preserve or enhance the pavement conditions of the bikeway network
Measure #:	3.e.2
Measure:	Percentage of pavements of the protected and separated bikeways in Good condition
Required Federal PM:	No
Data Source:	KDOT - IRI + Other Components
Trend:	Baseline

(suggested performance measure by Almon, Sustainability Action Network)

Theme:	Preservation, Safety, and Security
Goal:	Prioritize preservation, safety, and security of users on the transportation network
Objective:	3.e Preserve or enhance the pavement conditions of the bikeway network
Measure #:	3.e.3
Measure:	Percentage of pavements of the protected and separated bikeways in Poor condition
Required Federal PM:	No
Data Source:	KDOT - IRI + Other Components
Trend:	Baseline

6. T2040 Draft Plan - 30 day public Comment period

Name not shown - Tell Us

There is much to be commended about this document and its contents - the readability, illustrations, and emphasis on walkability, bikeability, and transit are laudable. However, I do want to express multiple concerns: 1. Where is the contextualization of our transportation planning in the global and local need to deal with climate change - both reducing greenhouse gas emissions and preparing for the impacts of increased heat, changes in precipitation patterns, and extreme events? Avoiding this topic is deeply problematic. 2. At this moment in time, I hope the MPO will be quite reluctant to recommend any expansion in road capacity outside of the K-10 and I-70 envelope. Once the seal is broken on roadway capacity, so too will the seal on sprawling development. In turn, decreases in economic efficiency, livability, and environmental sustainability will follow. 3. For EJ analysis, where is the consideration of the broader impacts outside of the Lawrence/Douglas County community. What about the air quality downwind, as well as the broader global impact of continuation of our autodominated transportation system.

James Bartle

We are submitting the following comments regarding the T-2040 Plan within the 30-day public comment period. Our primary concern has to do with project #106, which is the southward extension of Wakarusa Drive coupled with the construction of a new K-10 interchange. We are strongly in favor this project because access to and from Lawrence and the areas south of the Wakarusa River must be improved. The Plan describes in detail how there is substantial north/south commuter traffic in this area and a roadway system that not capable of providing the required level of service. The Plan indicates that the cost for this project is $5.4 million, which is a significant amount. But these costs should be shared by the city, county, state and federal governments, since they all have land and existing infrastructure that would become part of the project. It's a great opportunity for multiple units of government to show that they can work together, share resources and minimize costs that are ultimately paid for by the taxpayers. It is important for implementation of this project to be coordinated with the owners of the lands needed to construct these roads, bridges and other improvements. Their ongoing activities and operations shouldn't be disrupted and they need to be appropriately compensated for any property taken from them via the process of eminent domain. Thank you for the opportunity to provide these comments.

Ardith and John Pierce

I live at 1724 Mississippi St. We wish to express our strong objection to any decision which would increase traffic on 19th street as a huge threat to the safety of our children and families who attend schools and school events on or near that street and as a threat to the core urban neighborhoods along that route. We are particularly opposed to public access at 19th and O'Connell

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Bonnie Uffman

I live in the Barker neighborhood. This neighborhood is a member of the 19th Street Neighborhoods Coalition, This coalition has consistently expressed concern about any project that increases traffic on 19th Street. Together with the rest of the coalition, I am opposed to any plan to open public assess from 19th Street to O'Connell Road. I believe that doing so would be an invitation to increased traffic on 19th Street and that this traffic would be detrimental to the various neighborhoods along it's narrow route. I believe that it is appropriate to open this connection to emergency vehicles only. I believe that 23rd Street should be the major east/west traffic way. Please consider this as my public comment on the Transportation 2040 Plan and thank you for the opportunity to provide this input.

Linda Watts

I am a member of the Barker Neighborhood, 1817 Learnard Ave, just one block off of 19th. I do not like the idea of expanding and widening 19th. My concern is regarding two schools on that route, Cordley and LHS. During busy times 19th is very busy and we don't need to encourage more traffic. For emergency vehicles the added time to use 23rd is only a couple of minutes. Thanks for receiving community input.

Jenny Trucano Muller

I'm writing because I'm concerned about how Transportation Plan 2040 will increase traffic in my neighborhood. I live on 19th and Rhode Island with my husband and toddler. One of the reasons we love the Barker neighborhood is because we can safely walk, bike, pull a little red wagon, and push a scooter or stroller just about anywhere in our neighborhood. I'm concerned that widening 19th Street will dramatically increase traffic and make the neighborhood both less safe and less pleasant for pedestrians, particularly children. We also love the residential feel of the neighborhood. If 19th St were wider, it would lose much of the charm that we love and that keeps us in the neighborhood. We've walked on 23rd St a few times and it's a pretty unpleasant experience-- loud, unshaded, cars failing to yield to us at intersections, unattractive. I'd hate for 19th St. to end up like 23rd St. This is of particular concern to me because we are considering buying a home on 18th and Barker and widening 19th St would hurt likely hurt the value of the property we are looking at. We also walk all the time to nearby businesses-- 1900 Barker Bakery, Cottin's Farmers Market, the farmers' market at Cottin's, On the Rocks, Sunrise Coffee. If 19th St were a busy thoroughfare, it would be a lot less pleasant for us to walk to businesses in our neighborhood, which I'm afraid would hurt local businesses. Thank you for considering comments from the public.

Judith Dutton

My name is Judith Dutton and I live in the University Place Neighborhood within the city of Lawrence. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This coalition is very concerned about increases to the amount of traffic on 19th Street in Lawrence. I share this concern. You are currently accepting public comment on the Transportation Plan 2040. I wish to voice my strong opposition to any project in this plan that increases traffic on 19th Street. Specifically, I oppose a connection of 19th Street to O'Connell Road for public use, while endorsing a connection for emergency vehicle use only. Thank you for this opportunity to offer public comment.

Susan Craig

I have lived in the University Place neighborhood for more than 35 years. I realized when I moved here that being between the high school and university would mean both vehicular and pedestrian traffic would be a factor on Indiana St and I'm ok with that. What I didn't realize was how busy 19th Street would be so that backups can last through several light changes and pedestrians are imperiled as they try to walk their children or pets. With the new development of KU's "central" campus, 19th will carry even more traffic through our neighborhood and those adjacent to it. Now that the south bypass is open, traffic on 23rd has decreased and that seems to be the logical place for Lawrence to focus for entrance to Venture Park. By widening 19th and making that a major arterial, the city would not only create an unnecessary entrance to Venture but also create a heavily traveled route for anyone traveling east-west or west- east through the city. Neighborhoods with homes, driveways, parks, and schools are not appropriate locations for heavy traffic when an alternate route is only 4 blocks away.

Mary Lou Wright

I wish to voice my concern on making 19th St. any busier than it already is. for sure it needs paving, especially up where KU has torn up the street with its heavy construction. But from Naismith to Haskell, 19th should not be widened, these are neighborhoods, after you pass two busy schools, LHS and Cordley. 23rd St has been designed to handle the main traffic and can do so, especially since traffic has decreased there due to the by pass. Actually the merchants want the traffic on 23rd, they depend on patrons. So don't put these people on 19th where they'll just be frustrated and endanger our students.

Norma Pierce

I am writing to voice my strong opposition to any project in this plan that promises to increase traffic on 19th Street. Specifically, I oppose a connection of 19th Street to O'Connell Road for public use, while endorsing a connection for emergency vehicle use only. My name is Norma Pierce and I live in the University Place Neighborhood within the city of Lawrence. My neighborhood is a member of the 19th Street Neighborhoods Coalition. I am concerned about increasing traffic on 19th Street, which already is quite congested during rush periods of the day, because it is almost to only way to get to and from our house. The safety of the children who attend the several public schools on 19th Street is a major concern. Have you tried to cross 19th Street as a pedestrian lately? It can be a truly frightening experience, even at the lowest traffic times of day. I thought improving the "walkability" of Lawrence was a goal of the city management. Walkability is a top attraction for many people, including me. I also am concerned for the residents of many, many homes that face 19th Street across South Lawrence. I believe the city plan should encourage traffic on nearby 23rd Street, which is almost entirely commercial with much wider easements, which would allow widening of the street, should it become needed, without causing negative impact on the huge majority of property owners. Thank you for this opportunity to offer public comment.

Arturo A. Thompson

My name is Arturo A. Thompson and I live in the University Place Neighborhood within the city of Lawrence. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This coalition is very concerned about increases to the amount of traffic on 19th Street in Lawrence.

I share this concern. Since you are accepting public comment on the Transportation Plan 2040, I wish to voice my strong opposition to any project in this plan that increases traffic on 19th Street. Specifically, I oppose a connection of 19th Street to O'Connell Road for public use, and support a connection for emergency vehicle use only. Thank you for this opportunity to offer public comment.

Pam Burkhead

I live in the University Place Neighborhood in Lawrence. My neighborhood has membership on the 19th Street Neighborhoods Coalition. This coalition is very concerned about increases to the amount of traffic on 19th Street in Lawrence. I have listen to several presentations and reviewed comments. As you are currently accepting public comment on the Transportation Plan 2040 I would like to put in my 2 cents. I would like for you to register me (Pam Burkhead) with a very strong opposition to any project in this plan that increases traffic on 19th Street. Specifically, I oppose a connection of 19th Street to O'Connell Road for public use, while endorsing a connection for emergency vehicle use only. I feel that 23rd Street was designed as the main artery for this type of traffic and not 19th. I have significant concerns for the safety of the pedestrians (grade school and up) and bicycle traffic on 19th. Thank you in advance for considering my concerns.

Susan Gronbeck-Tedesco

During this public comment period, I am sending my strong opposition for turning 19th Street into a major arterial corridor in Lawrence. I am opposed to any plan that increases the public traffic on 19th Street when an alternate option is available just four blocks away on 23rd Street. I have heard verbal claims that with the full functioning of the Southwest Trafficway, the traffic on 23rd Street has dwindled by over a thousand cars every day. Clearly, there is unused capacity on 23rd Street and that street does not have three public schools, an extended neighborhood, the University proper, and religious centers which, in themselves, generate high volumes of traffic. I have lived in the University Place Neighborhood for 17 years and in that time have experienced a considerable increase in traffic, particularly as the KU moves central operations to 19th Street. While I value a neighborhood with a mixture of students and long-term residents, I do not support a city plan that would increase public usage on 19th when 23rd Street is available. Thank you for this opportunity to make a comment.

Margaret Gille

I am opposed to increasing the lanes on 19th street; it will create more congestion on already busy road and the families that live on that street, especially the ones with children would be at greater risk. I am supporting this as I use 19th street often, and feel the traffic is already plenty.

Dickie Heckler

I live in the Brook Creek Neighborhood. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd., or any project in this plan that increases traffic on 19th Street. I recognize the importance of an emergency-vehicle-only

connection from 19th to O'Connell, but no other raffic. In addition to the above concerns It seems to me the contamination on this property is the larger question which in fact may limit use of this property thus a new roadway will not be necessary. Let's get put the cart before the horse. Plus this road would be congested with Jayhawk sporting event traffic not to mention a new road will encourage speeding. All traffic should be funneled on to K-10 the road that is designed to carry this type of traffic. Thank you for this opportunity to offer public comment

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Branden Smith

My name is Branden and I live in the Brook Creek Neighborhood. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd., or any project in this plan that increases traffic on 19th Street. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but no other traffic. Thank you for this opportunity to offer public comment.

Brad Kemp

I live in the Barker Neighborhood — right at the intersection of 19th Street and Barker Ave. My neighborhood association is a member of the 19th Street Neighborhoods Coalition. Other members of our neighborhood association and I are very concerned about increased traffic on all of 19th Street. I am writing to express my opposition to widening 19th Street east of Harper to 47 feet and connecting it to O'Connell Road — or any other project in this plan that would add traffic to 19th Street. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but think other traffic should be prevented. In the 23 years that I have lived here, I have seen increases in traffic on 19th Street — and I fear that if the trend accelerates, it will not be long before 19th Street is no longer tenable as a residential street. Widening 19th Street would accelerate the growth in traffic. Widening the street also would divide the neighborhood in ways that could not be undone and that would undermine the influence and well being of the residents. I note, for instance, the widespread perception that Old West Lawrence and Pinckney are different neighborhoods, which was decidedly not the case historically, before the city widened 6th Street dramatically and sundered a single neighborhood. The neighborhoods along 19th Street are in many ways more fragile that those two neighborhoods, and deserve not to be divided. Thank you for this opportunity to offer public comment.

Gretchen Auten

I am going to keep this short since I realize you're probably getting a lot of comments. I know that I would bike more and feel safer biking if there were protected biking lanes around town, especially around downtown. I also live within biking distance of Checkers but crossing Mass street or crossing 23rd street is a doozy. Protected bike lanes and extra crosswalks would be helpful for me to make that trip!

Kevin Kelly

My name is Kevin Kelly, I live in the Schwegler neighborhood. Our neighborhood association has

voted to oppose the proposed connection of 19th St to O'Connell Rd. We have concerns with traffic increases due to the proposed connection even at our location. I am sure there is a way to accommodate emergency vehicles at 19th and O'Connell but otherwise we don't want the increase in traffic past our homes. I appreciate the opportunity for public comment and I hope "Lawrence Listens" isn't just a slogan.

Amanda Williams

My name is Amanda Williams and I live in the Brook Creek Neighborhood. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd., or any project in this plan that increases traffic on 19th Street. Every day 19th St. is a busy street. However, traffic especially increases any time there is an event at the fair grounds (4-H club, comic con, Harvester's food give away, the county fair, etc.) or any hometown sporting event. Please do not allow traffic to increase even more. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but no other traffic. Thank you for this opportunity to offer public comment.

George Romine

My name is George Romine and I live in the Brook Creek Neighborhood. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd., or any project in this plan that increases traffic on 19th Street. Every day 19th St. is a busy street. However, traffic especially increases any time there is an event at the fair grounds (4-H club, comic con, Harvester's food give away, the county fair, etc.) or any hometown sporting event. Please do not allow traffic to increase even more, as I do not own a car and frequently have to walk on 19th St. and take the bus. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but no other traffic. Thank you for this opportunity to offer public comment.

Austin Turney

I am concerned about possible "improvements" to 19th street and the effect upon the Barker neighborhood. The Barker neighborhood is one of the most homogeneous residential neighborhoods in Lawrence. The only apartments and neighborhood retail developments front on Massachusetts St. except for a very small development at 19th and Barker and another one at 15th and Learnard. Barker Avenue serves as a north-south collector and has traffic calming features. 19th street now serves as an east-west collector from Massachusetts to Harper and has a speed control roundabout at Barker. 19th street has a number of residences facing the street. To "improve" 19th either as a three lane street with a center turn lane or as a four lane street will have the effect on inviting a large influx of traffic and cutting the Barker neighborhood in half. Such improvement would invite traffic to and from K.U. and from the Venture Park. This would have a very negative effect of hollowing out the Barker neighborhood at its center. My own property fronts on 15th street, which, like 23rd is an alternate route so I am not writing with my own interest in view.

Pat Kehde

My family and I have lived in Barker neighborhood since 1982. We love the mature trees, the variety of affordable housing, the quiet green space, the many shops on Mass. St and 19th , and three schools all within walking distance. This neighborhood has been a hidden gem in the city. Recently these qualities of Barker have been discovered because very few houses that are for sale reach the market, almost all are sold before being advertised for sale. The market is telling us something: quiet, tree-lined streets with a mix of affordable housing, some historic landmark houses, small neighborhood schools, and pedestrian friendly streets, appeal to people. This appeal is threatened by a proposal in T2040, Project 229, to open the road connection between Harper Rd, east to O'Connell Rd, widen this road to 47 feet, and encourage traffic onto 19th Street, not only to and from Venture Park, but from 23rd St and the neighborhoods across 23rd, such as Prairie Park. More traffic on 19th Street will damage our neighborhoods' quality of life by increasing noise and pollution especially for the residents in houses built only 20 feet from the edge of the road bed of 19th St, it will be dangerous to pedestrians, especially kids going to Kennedy, Cordley or Lawrence High. The 19th Street Coalition, which consists of members who are residents of Brook Creek, Barker, University Place and Schwegler neighborhoods, asks that Proposal 229 be modified to the following: rebuild the road between Harper and O'Connell, have it remain 22 feet, add a sidewalk and a bike path, and a transponder gate that would only allow emergency vehicles to enter or return on O'Connell Rd to Venture Park. The 19th Street Coalition also asks that 23rd Street be designated and remain the major four lane arterial for east-west traffic in the south central part of Lawrence. In several recent meetings on transportation issues, city staff has expressed a desire to see 19th street become a major east-west arterial road. Widening 19th street would destroy many affordable single family homes, it would damage the environs of the Miller House on 19th near Haskell, which is on the National Historic Register, it would drastically affect the safety for students in three different schools along 19th, and it would totally disrupt the quiet, green space of our neighborhoods. These are all good reasons to use 23rd Street as the major 4 lane east-west road.

Pat Lechtenberg

My name is Patricia Lechtenberg and my husband, Michael, and I have lived in the Barker Neighborhood since 1070. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd., or any project in this plan that increases traffic on 19th Street. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but no other traffic. Thank you for this opportunity to offer public comment.

Name not shown - Tell Us

Access and choices

1. Assuming everyone has cell phone access or is able to access web information on bus routes and times is frustrating to residents, especially potential new users. It is also an impediment to visitors. Bus routes and times should be posted at every stop. At busier stops, a solar powered electronic read out could inform bus users as to when the last bus left and when the next one will come. A user friendly system means greater ridership.
2. Evening hours for buses that serve downtown. There is no bus option for taking in a show or

going to dinner downtown (or anywhere in town for that matter). Expanding the hours that the bus serves downtown would free up parking and bring in more people.

3. Targeting K-12 students for bus education. As a parent of a high school student, my mind would be much more at ease if I felt that students could access the bus more readily. One of the strategies mentioned is an education program designed to encourage bus ridership. Introducing teens to the bus (using reduced fees among other incentives, routes at key times to downtown and city recreational facilities) would potentially take more inexperienced drivers off the road or give more independence to those teens who do not yet drive.
4. Sidewalks are public infrastructure and a key feature in reducing cars on the road and enhancing the health and well-being of our community. Having safe, maintained, and plentiful sidewalks addresses numerous goals

Safety and Security

1. Improving rather than maintaining existing infrastructure should be emphasized. Currently, the existing road conditions on low traffic streets in the central and eastern portions of the city are deplorable and unsafe for bicyclists, especially at night.
2. I would like to see bike lanes separated from traffic on streets such as Massachusetts, Kasold, and portions of 19th and 21st. Such bike lanes on key N-S and E-W corridors provide a measure of safety and security for bicyclists. It was a lost opportunity to demonstrate such bike lanes on Kasold. I would like to see the city actually build a complete street with a dedicated, separate bike lane rather than continually call for such improvements in planning documents.

Chpt. 6 road projects

1. Connecting 19th to O'Connell road will only increase congestion on 19th and allow for unsafe traffic conditions near two elementary schools and Lawrence High School. An emergency access only gate can be installed to allow passage.

Chris Snyder - Tell Us

T2040 should address transition to electric fleets, connecting Horizon2020 Goal 4, particularly Strategy 4.1.2: 'Improve the linkages between transportation planning and environmental planning,' Strategy 4.1.3: Maintain and improve air quality to meet or exceed the National Ambient Air Quality Standards…' & Strategy 4.1.4: Promote alternative-fueled vehicles that reduce emissions and support the development of needed infrastructure..'

Debby Duncan

I am a resident of Lawrence and also own property south of Lawrence by the Baldwin Junction. I have been hoping for several years to advocate for bike lanes that are more substantial, not just a painted white line narrow space, with devoting an actual space for bikes separated from cars. I know it is too much to ask and is a county issue, not a city one, but I would be thrilled if there was a bike trail from Lawrence toward Ottawa (that way, I could ride to my property in the country). I strongly encourage you to make Lawrence a more bike friendly town as a form of transportation rather than just going for a bike ride sort of bike friendly.

Jim McCrary

As a a homeowner and citizen I am writing with concern about a city plan that would more than double the width of 19th St between O'Connell Rd and Harper. I do not think this plan would serve the larger community or those of us in East Lawrence that depend on 19th St for access to the wider community. The plan considered seems overdone and not needed. There is plenty of access to the so called Venture Park, which frankly, may never reach the presumed function with which it was sold to City planners. As well, increased thru traffic on Harper, Haskell and 19th St will only funnel traffic into an establish single family neighborhood. I would ask that the city take a breath an step back from this expansion of E 19th St. Take the time to consider alternatives.

Sharon Davis

My name is Sharon Davis and I am writing you with my concern and opposition on the city's plan to widen 19th St and connect it to O'Connell Rd. I live in the Brook Creek Neighborhood. My neighborhood is a member of the 19th Street Neighborhoods Coalition. I also have smallgrandchildren who live near 19th St and I am opposed to any plan that increases traffic in this family area. There are many school children who cross 19th St to and from school. Less traffic is needed here, not more. On KU game days 19th St is already a steady stream of traffic dodging 23rd Street to get to campus. I feel the proposed plan would also increase potential truck and industrial traffic if the business park area develops. I know the importance of an emergency-vehicle-only connection from 19th to O'Connell, (my son is fireman) but I feel that can be addressed successfully by the city. Thank you for this opportunity for me to offer public comment and your time to consider all views.

Travis Robinett - Tell Us

Hello, I will be speaking from my personal opinions, but would like to mention that I am a member of the City of Lawrence Sustainability Advisory Board, and the Chairperson of the Schwegler Neighborhood Association. 1) I am extremely disappointed that T2040 barely mentions on-road Separated Bicycle Lanes or Buffered Bicycle Lanes. I searched with control-f for "separated" and didn't find it mentioned once in reference to on-road bicycle lanes, but then found "buffered" lanes mentioned only twice. To point to an example, on page 35 the document lists "Types of Bikeways," and doesn't list Separated Bicycle Lanes as its own option, it's lumped in with all bicycle lanes and not at all emphasized like it should be. People do not feel safe riding on streets with no separation from cars. Shared Use Paths aren't much better because turning traffic that crosses the path won't always watch for bicycles. I know because I've been hit while riding the Lawrence Loop. If bicycles are on the road with (potentially) their own traffic signals, like you can see in quite a few American cities these days, they are more likely to be seen and less likely to be hit. And if they are separated they feel safe, and are in reality much safer. That's backed up by studies like this: https://www.citylab.com/transportation/2014/06/protected-bike-lanes-arent-just-safer-they-can-also-increase-cycling/371958/ "So is the assurance of a protected bike lane enough to make a cyclist of those who might otherwise choose another transportation mode? New research suggests that, to a modest extent, the answer is yes. Today a study team led by Christopher Monsere of Portland State University released a thorough analysis of new protected bike lanes in five major U.S. cities. The researchers videotaped the new lanes, conducted local surveys, and gathered data on cycling trends to get a full picture of life in these new corridors — comparing what they found to rider habits before the protected

lanes were installed. They found that ridership increased anywhere from 21 to 171 percent, with about 10 percent of new riders drawn from other modes." And on page 120, the T2040 plan says "Surveyed community members indicate that bicycle routes are incomplete; participants also feel that there needs to be more and safer bicycles routes," along with page 121 saying the top priority for protecting the environment is to "Reduce reliance on fossil fuels," while the top priority for strengthening neighborhoods is "Provide streets/sidewalks that are comfortable for bicycles and pedestrians." To go further on this point, on page 33 there is a table that lists percentage of the types of bicycle infrastructure in Douglas County. Protected Bicycle Lanes are at 0% in every community. This is unacceptable, and improving those numbers needs to be especially emphasized. There is also a goal on pg 157 that says "Enhance multimodal friendliness and minimize crashes and injuries of bicyclists through design." So really, what is the hold up for pushing as hard as possible for separated lanes by 2040, and highlighting their benefits as much as possible in the plan? If we as a City are really serious about trying to push for more people to ditch taking their cars for bicycles, that should be the case. I'd like to request that the plan be adjusted to at the very least include "Separated Bicycle Lanes" or "Buffered Bicycle Lanes" in the Types of Bikeways section, and include these documented benefits cited in this academic study.

I'd also like to see the MPO / Lawrence / Douglas County communities adopt the Urban Bikeway Design Guide by the National Association of City Transportation Officials (NACTO), which is also pictured on pg 157. This is a fantastic book of resources with the best practices for designing safe bicycle lanes that significantly more people feel comfortable riding on.

2) One a similar note, the picture on page 30 is a pretty shabby representation of a Complete Street, in fact it's the bear minimum of what one looks like. The small sidewalk and unprotected bicycle lane are not ideal for pedestrian and cyclist safety. I'd like to see the picture replaced with a more ideal Complete Street, so people can really get a true picture of what they look like, where bike lanes are separated and perhaps transit has its own lane.

3) On Page 173 it discusses the 19th and O'Connell project that plans to connect 19th to O'Connell to all traffic. My neighborhood is a member of the 19th Street Neighborhoods Coalition, and I share their concern about increases to the amount of traffic that this will bring to the rest of the 19th street corridor, when there is no potential for widening in the central area by Lawrence High School. The impact to Cordley and Kennedy Elementary schools could also be significant. I support an emergency and transit connection with a barrier to other vehicles that can raise up when an emergency vehicle or transit bus comes through. Of course, include access for pedestrians and cyclists too, as this would encourage nearby workers at future Venture Park sites to skip their single vehicle trip to work.A rebuild of the road to improve pavement conditions, water lines, and other important infrastructure should absolutely be done. Add sidewalks and maybe bicycle lanes (which aren't as necessary at that speed limit). But there is no need to widen the street and connect it to O'Connell, especially with the risk of increasing traffic on a street that's mainly residential and passes by three schools. Also on the next page (173), I favor widening the narrow lanes of Naismith Drive south of 19th Street to become the main arterial and a true gateway to KU's campus, adding separated bicycle lanes in the interior green space, along with a shared use path on the east side of the street. Either would connect the Lawrence Loop and the Naismith Valley Trails to campus, as well as the potential to connect to a bicycle boulevard on 21st, which could be an easy bicycle connection to Mass Street and

then downtown from the southern KU campus. Thank you, I hope you take my ideas into consideration.

Marilyn Figuieras

My name is Marilyn Figuieras and I live in Schwegler Neighborhood. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but no other traffic. I also favor widening the narrow lanes of Naismith Dr. south of 19th St. to better carry the K.U. traffic to 23rd St. Thank you for this opportunity to offer public comment.

Ray Beaumont

My name is Ray Beaumont and I own a property on 19th Street. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This Coalition is very concerned about increases to the amount of traffic on all of 19th Street. I share this concern. I am particularly opposed to widening 19th St. east of Harper to 47 feet, and connecting it to O'Connell Rd. I recognize the importance of an emergency-vehicle-only connection from 19th to O'Connell, but no other traffic. I also favor widening the narrow lanes of Naismith Dr. south of 19th St. to better carry the K.U. traffic to 23rd St. Thank you for this opportunity to offer public comment.

Kerry Altenbernd

I am adamantly opposed to the T2040 proposal to extend 19th Street east to connect with O'Connell Road and put in a roundabout at 19th and Harper. This connection would result in significantly increased cut-through traffic on 19th Street from drivers trying to avoid 23rd Street, which would be a terrible thing for the neighborhoods adjacent to and, in the case of Barker Neighborhood, split by 19th Street. There is already enough traffic on the street and doing something that would increase the traffic is a terrible idea and should be rejected outright. There is an alternate route to connect the fire station at 2128 Harper to Venture Park that would not involve using 19th Street. This route would involve utilizing the unnamed road directly east of the fire station as an access to Venture Park Drive for fire department equipment. 19th Street between Harper Street and Massachusetts Street should not be widened to accommodate more traffic. If anything, significant traffic calming infrastructure should be installed to discourage the amount of cut-through traffic it currently is forced to handle.

Dan Coleman

I'm writing to state my deep concern for the future of my neighborhood if 19th St. is extended and expanded to become a major arterial eastwest connection in Lawrence. I live at 622 Greever Terr., in a home my wife and I puchased in 2005. Over the past 13 years, we've seen our neighborhood and street gradually becoming more occupied by rentals, which often sit empty or fall into disrepair. I have a 5 and 7 year old, and we believe in a pedestrian lifestyle. I want them to continue to ride their bikes to school at Cordley, and walk to Vet's Park to play. If 19th becomes another 23rd St., which I fear, I'm not sure if we will be able to continue as we do now in a neighborhood we love. We and other homeowners with kids, and older homeowners

who have anchored our neighborhood for years, will increasingly move elsewhere, and the blocks surrounding 19th may become yet another "student ghetto" instead of the scalable area of central Lawrence we now love. Thank you for taking these thoughts into account when planning for the future of 19th St.

Carol Bowen

I have to admit that I did not have a chance to read the most recent draft of the Transportation Plan. But here is a concept that I think is important. Major streets should have a plan that services its land use areas as well as moves traffic from one land use to another. Kasold, 19th, 23rd, 6th streets all should have a plan not just technical improvements. If the streets are planned ahead, there should be less controversy. There were a lot of critics of the Kasold reconstruction that included comments on the purpose if the road, the discontinuity of bike lanes, and whether or not pedestrians needed to cross. Currently, 23rd Street is no longer a highway, but it is being finished as a highway regardless. Given that the curb cuts are so close together, the road could be something different. We could teach traffic to use the SLT by not increasing traffic flow on 23rd. The left turn lane improvements on 19th and 31st and Louisiana have increased the volume and speed on Louisiana Street. Constructing a continuous left turn lane on 23rd Street will make left turns onto Louisiana Street easier. The impact on the Parkhill neighborhood are very real. Reconstructing 19th Street will impact many vulnerable neighborhoods, etc. Land use planning and transportation planning should be integrated. Transportation planning should be more than very technical applications.

Liz Koch

I am a home owner in the University Place Neighborhood within the city of Lawrence. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This coalition is very concerned about increases to the amount of traffic on 19th Street in Lawrence. I share this concern. I oppose a connection of 19th Street to O'Connell Road for public use, while endorsing a connection for emergency vehicle use only. University Place borders on 19th Street and currently experiences heavy traffic to and from the University and High School, making bike and pedestrian access already unappealing on 19th. Increasing traffic would only make 19th more dangerous crossings for our children attending schools in our neighborhood as well as increasing sound and air pollution. As having access and providing quality walkable livable streets is one of the major focuses of the Transportation 2040 plan, opening 19th will not serve our neighborhood but jeopardize the quality of life in our walkable neighborhood. Thank you for this opportunity to offer public comment.

Lawrence Association of Neighborhoods

LAN is committed to supporting existing neighborhood associations as they endeavor to maintain the integrity of their environs. We support reasonable solutions to issues that face our growing community. To this end LAN is engaged with the neighborhood associations that comprise the 19th Street Coalition and with other residents affected by the suggested changes in T2040. After consideration of the Project 229 recommendation to connect 19th Street to O'Connell Road, including future projects that could extend O'Connell Road to a new segment of 31st Street, we believe Project 229 should be modified to prevent an increase in traffic through neighborhoods, specifically traffic on 19th Street. We ask that you consider:

Not widening 19th Street between Harper and O'Connell; only repave it at the current 22 feet wide. Installing an operable gate connection at 19th and O'Connell; transponders on transit and emergency vehicles would operate it. No public motor vehicle traffic, either eastbound or westbound, should go through the gate on the street. Bicycles and pedestrians shall have ready access around the sides of the gate. Continuing updates that the City deems necessary, including water lines, sewer lines, a 6ft sidewalk on the north side and a 10ft bicycle track on south side. Thank you for the opportunity to provide comment on T2040.

Name not shown - Tell Us

I support relocating the I-70/K-10 interchange at the Lecompton Turnpike exit to a proposed location approx. at the intersection of Douglas Co road N 1800 & E 600. The current configuration of the Lecompton turnpike exchange is mixing low speed traffic with high speed traffic resulting in injury accidents and fatalities. The current at-grade intersection of K-10 & W 27th (at the sports fields) creates an impediment to traffic flow; I believe that allowing traffic lights on K-10 was a mistake and a re-design of the intersection should be considered that allows for 27th St access without stop lights. Perhaps a dedicated pedestrian bridge can be incorporated into the design. Also, a pedestrian bridge should have been incorporated into the design of the intersection of US-59 & K-10. I support the complete closure of Kasold Drive extended where it meets K-10. I do not support monies spent on bike lanes; Lawrence is too spread out to dedicated lanes for bikes on our major arteries. Ninth Street between Emery Road and Mississippi Street is a prime example of a waste of space for car/truck movements, especially given the *fair weather* seasonal use of the dedicated bike lanes. I'm sure there are a few hardy souls who will ride their bikes thru the winter, but there are certainly fewer bike riders than car/truck drivers using that stretch of Ninth Street. Lastly, the condition of our streets is horrible; the City should re-focus their spending priorities on repairing our streets. Regarding new road construction/repairs, the combination of large amounts of money spent on road construction/repair combined with the award of these projects to the lowest bidder WITHOUT funding construction inspection oversight is a recipe for substandard work. This can be witnessed by crumbling medians along 23rd St/Clinton Parkway as a result of concrete crews adding water to the mix during the finishing process. If the City refuses to maintain a permanent construction inspection staff, perhaps the salary of construction inspectors can be built into the cost of the projects.

Name not shown - Tell Us

Please prioritize the work on K-10 from South Iowa to I-70. Driving from Iowa to Kasold feels borderline unsafe and the Clinton curve needs to be addressed. The project will take a long time to complete and needs to start as soon as possible. Thanks for your consideration.

Name not shown - Tell Us

I am in favor of the 19th Street connection to O'Connell Road. The current state of 19th east of Haskell is dreadful and this connection provides an opportunity to improve the safety and mobility for one of the least advantaged areas of town.

1. a. It will increase the mobility options for some of the most economically disadvantaged residents of Lawrence, those residing in the mobile home parks at the eastern end of 19th. Completing the connection will allow a bus route to serve the 400 households in that area with

improved access to jobs, shopping, and schools.

b. It will provide a safe way for the children living east of Harper to walk or ride to school. Currently, there are no sidewalks along a very narrow street with open ditches and steep hills.

2. Improvements to sidewalks and intersections along 19th Street (raised crosswalks, speed tables, pedestrian activated signals) would increase the safety of all children needing to cross 19th to reach Kennedy and LMCMS.

3. Increased connectivity for the office park will help attract more businesses to Lawrence and add well paying jobs in an area sorely in need of them. Rather than polarizing the issue, I urge the city, the MPO, and the neighborhood associations to acknowledge there are valid concerns for both positions on 19th street. The goals are not mutually exclusive, so taking a careful look at what can be accomplished to achieve desired outcomes for all parties seems to be the proper course of action.

Frank Male - Tell Us

With regard to the connection between Wakarusa Dr --an 8 million dollar bridge over the Wakarusa River--and connection to County Rd 458, there is a much more fiscally-responsible solution. Slide the proposed K-10 Wakarusa Interchange south and east so it lines up with existing Brown's Grove Bridge over the Wakarusa River and existing road connection to County Road 458. From the re-positioned K-10 Interchange, access can be provided to YSI, Wakarusa Dr, Crossgate Dr, Kasold Dr and 31st Street, as well as N 1250 Rd and County Road 458. This fiscally-responsible alternative should be fully considered in light of Lawrence and Douglas County's budget constraints. Another alternative during the reconstruction of the western leg of K-10, is to lengthen the bridge over Yankee Tank Creek, allowing Kasold Dr Extended to continue under K-10 from 31st St to County Road 458. --Respectfully submitted--Frank Male

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T2040 Steering Committee Members

Include Olympic Drive Underpass in Illustrative project list

February 12, 2018

Dear Ms. Mortinger,

I am writing regarding the proposed changes to 19th Street in the 2040 Transportation Plan. I am a resident of the University Place Neighborhood and strongly oppose any changes that will increase traffic on this street between O'Connell and Naismith. 19th Street runs through multiple residential neighborhoods and past several schools. While I support a gate at the O'Connell and 19th location to allow access to emergency vehicles and the repaving of that section of the road, changes to widen or to change the designation of this corridor are not necessary or advantageous. 23rd Street, only four blocks south, is a perfectly adequate and more direct corridor accommodating east- west traffic. Using this existing corridor is also a wiser use of our tax dollars.

Thank you for your consideration of public comments.

Margie Coggins
625 Sunnyside Ave.

19th Street Neighborhoods Coalition

Metropolitan Planning Office Policy Board 13 February 2018
P.O. Box 708
Lawrence, KS 66044

re: Metropolitan Transportation Plan Update 2018

MPO Chairperson:
The 19th Street Neighborhoods Coalition finds the final draft of the 2018 Metropolitan Transportation Plan (T2040) inadequate for addressing the protection of our neighborhoods from excess motor vehicle traffic. Our neighborhoods span the entire length of the 19th Street corridor, from it's eastern 22 foot wide dead-end macadam road to it's western 76 foot wide intersection with US. 40/59. We have registered our displeasure with MPO staff and committees, to no avail, about Lawrence intentions to add more traffic to the east and west ends of 19th St., with the predictable result of increased traffic pressure throughout our neighborhoods.

In separate actions in 2016, we opposed large traffic generators on both ends of 19th St. The first was a Lawrence proposal for a transit hub/3,250-car parking garage just north of 19th and Naismith Dr., adding to the already large traffic pressure from the $350 million K.U. Central District. The second was a Lawrence capital project to widen E. 19th St. from 22 feet to 47 feet, and connect it to O'Connell Rd. in the Venture Business Park.

We formally opposed these projects, and constructively proposed alternative solutions, to the MPO Policy Board, Technical Advisory Committee, T2040 Steering Committee, the Transportation Commission, and the Planning and City Commissions. While transit hub grant funding at that location failed, and the project folded, the K.U. Central District traffic impact is growing. And the bloated 19th St. Harper-to-O'Connell project persists.

The largest failure of the T2040 draft is – and we consider this important – it completely ignores Travel Demand Management (TDM). The authors cloud the issue by using Traffic Demand "Modeling" as their methodology, creating further confusion by calling <u>that</u> TDM. Yet in the guiding document on TDM from the Federal Highway Administration, "Integrating Demand Management into the Transportation Planning Process", every chapter's glossary lists TDM as meaning Travel Demand <u>Management</u> (hereinafter called TDM).

Why is this important? Because we are diametrically opposed to the MPO staff as to the most cost-effective method to address traffic pressure. Using the outdated approach of "modeling" past traffic pressure to justify future transportation expansion, staff has adopted what we call the "free range traffic" option. This approach allows cars to go any which way they want to, and in response, engineers must then throw concrete and dollars at the network to expand road capacity. Demand Management, on the other hand, reduces demand, to either reduce or delay the need for expansion of roadway network capacity.

That same FHWA document says "Costs, environmental concerns, time requirements, have contributed to our inability to 'build our way out' of the congestion problem".

Indeed, every traffic engineer will confirm the statistical validity of the Braess Paradox which says "Adding extra capacity to a road network when motorists are allowed to choose their route can reduce overall performance". Regardless, the the Director of Planning and the Senior Transportation Planner finally admitted at the 9 January 2018 T2040 Steering Committee meeting their real reason for insisting that 19th St. Harper-to-O'Connell must be widened to 47 feet. They both maintained that this segment was needed to increase the road network capacity, flying in the face of the Braess Paradox.

Their eleventh-hour admission contradicts the repeated denials by City staff that the 2011 designation of O'Connell Rd. as a "Main Trafficway" from 23rd to 19th was intended to funnel traffic to 19th St. Another committee member confirmed this on 9 January by stating that the road network needed 19th St. as an east-west corridor to Iowa St.

Our Coalition recognizes that 19th St. is important to the road network – but only at it's current capacity level. It's already congesting. Please use TDM methods to restrict any additional motor vehicle traffic on 19th St., either from the K.U. Central District or from O'Connell Rd. Traffic counts along 23rd St. at O'Connell Rd, according to KDOT, have dropped 8,820 trips per day since the SLT opened. Using this new-found capacity will employ TDM, save capital costs, and protect our neighborhoods. All of our coalition's member neighborhoods are EJ neighborhoods, both Minority and Low/Moderate Income.

1) Please define Project 117X "Naismith Dr: 19th to 23rd St" to be the widening of the four 10 foot lanes to 12 feet each. Please reclassify this section of Naismith as a Minor Arterial. This would be an excellent example of TDM by channeling traffic south from 19th to 23rd St.

2) Please delete Project 229 "19th St: O'Connell Rd. to Harper St" as another TDM example. We support an upgrade of the water line and installlation of a 6ft sidewalk on one side and a 10ft shared use path on the other. Please reclassify this street segment back to "Local".

3) Instead of a 47 foot wide reconstruction by Project 229, 19th St. Harper-to-O'Connell should be repaved at its current 22 feet width, just like Public Works repaves many other crown-and-ditch streets in Lawrence. We want the tacit, but historical, M.O.U. respected that retains our open drainage ditches as having superior stormwater capacity.

4) Please add a project to Table 6.4 of T2040 for a traffic control gate at the intersection of 19th St. and O'Connell Rd. that is operable by transponders on all emergency and transit vehicles, but which prevents private motor vehicles from passing.

5) Please add CIP Project CI-1808 "Construction of East 1650 Rd between Venture Park Dr. and 23rd St" to Table 6.4 of T2040, as a major access to Venture Business Park. This is also called EE St. or Franklin Rd. This can be built with some of the KDOT E. 23rd St. Turnback money, or else in conjunction with Project 128X "Franklin Rd: 25th to 31st St".

6) Please reclassify 19th St. from Haskell Ave. to Naismith Dr. as a Major Collector.

The 19th Street Neighborhoods Coalition has engaged in the public participation process more so than 98% of all respondents, and in a far more creative manner. Yet Staff has included none of the above solutions in T2040. Surely our neighborhoods' livability, bikeability, and walkability, and the safety of students at the four schools along 19th St. are worth protecting from excess motor vehicle traffic.

For the 19th Street Neighborhoods Coalition,
Michael Almon, Brook Creek Neighborhood

Sustainability Action Network
Local Solutions for Transition to a Sustainable Economy
P.O. Box 1064, Lawrence KS 66044
a Kansas 501(C)(3) not-for-profit

Metropolitan Planning Office Policy Board 17 February 2018
P.O. Box 708
Lawrence, KS 66044

re: Metropolitan Transportation Plan Update 2018

MPO Chariperson:
Sustainability Action has been promoting bicycle transportation longer than any other local organization. Our priority is bicycle transportation before recreation. Recreational cycling may be enjoyable for a fraction of a percent of Lawrence citizens, but bicycle transportation has significant potential to reduce overall travel demand for single-occupancy vehicle (SOV) use. This is important not just to reduce motor vehicle demand and congestion and attendant system costs, but also to reduce petroleum use and greenhouse gas emissions.

According to figures from the U.S. Department of Transportation and the Government Accounting Office, SOVs account for 79% of light vehicles, which consume 60% of all petroleum used by the transportation sector. Those transportation fuels amount to a yearly average of 27.9 Quads – the largest energy end-use in our economy, and a full 72% of the total 35.9 Quads of annual U.S. petroleum use. One Quad equals 8,007,000,000 gallons of gasoline. (see attached)

Every vehicle trip taken by bycycle instead of a SOV is a 100% increase in fuel efficiency. The bicycle is the most efficient vehicle of all, using only 180 Watts to travel at 20 mph, 400 miles per gallon equivalent, powered entirely by carbohydrates, not hydrocarbons.

While the draft Metropolitan Transportation Plan (T2040) is generally strong on a vision for bicycle transportation, some key sections undermine effective implementation.

In Chapter 6 Multimodal Strategies, Section B, Non-Motorized, lumps together bicycling and walking as “real alternatives for transportation”. This assertion, while valid for bicycling, falsly implies that walking across town to places of employment or medical appointments or the library can substitute for SOV trips. Walking can offset only a fraction of motor vehicle trips, those less than one mile. A 10 mile round trip traveled by car in 20 minutes can be done by bicycle in 30 minutes (assuming unimpeded bikeways exist), whereas walking that same trip would take hours. Cycling is about 300% more efficient than walking, at an average speed three-times faster than walking. The two are not equivalent, and should not be lumped together. In order to offset SOV trips, this plan should emphasize capital expenditures for bikeway infrastructure.

In Chapter 2 Existing Conditions, Section E, Multimodal Assetts, sets a skewed perspective on bikeway performance measures. Table 1, Percent of people within 1/4 mile of a bikeway, has highly inflated numbers. Any residential street is effectively part of the bikeway network by virtue of being low volume and speed. Some residential streets “qualify” as Bike Routes simply because they have little green bikeway signs,

but no geometric improvements. The 87% network access figure ignores the fact that most of the network is fragmented and unimproved. This unwarranted percentage boost gives the false impression that hefty investment is not needed.

The Chapter 2 bullet point, Additional Bikeway Types Needed, provides a good lists of all bikeway design types shown in the National Association of City Transportation Officials (NACTO) Bikeway Design Guide. But the Street Cross-Section bullet point (and related figure) downplays all those design options by showcasing a "Typical 36' Street Cross Section", pushing it to the forefront as the default bikeway design. Community bicycle advocates have repeatedly called for abandoning this "6 inch white stripe" bicycle lane design, and adopting protected bicycle lanes, whether on-street or separated cycle tracks. For this plan to be a guide for the next five years, it must state that protected bicycle lanes are the default bikeway design.

The white stripe bicycle lane design should be replaced by two on-street options. The Subdivision Regulations should be revised to define the standard residential street as 28 feet wide, consisting of two 10 foot travel lanes and one 8 foot parking lane. The standard Collector street should be defined as 38 feet wide, consisting of two 11 foot travel lanes, and two 5 foot bicycle lanes, protected by two 3 foot buffers, preferably with resiliant lane delineators. On street bicycle lanes shall not be located on Arterial streets, but instead be separated cycle tracks.

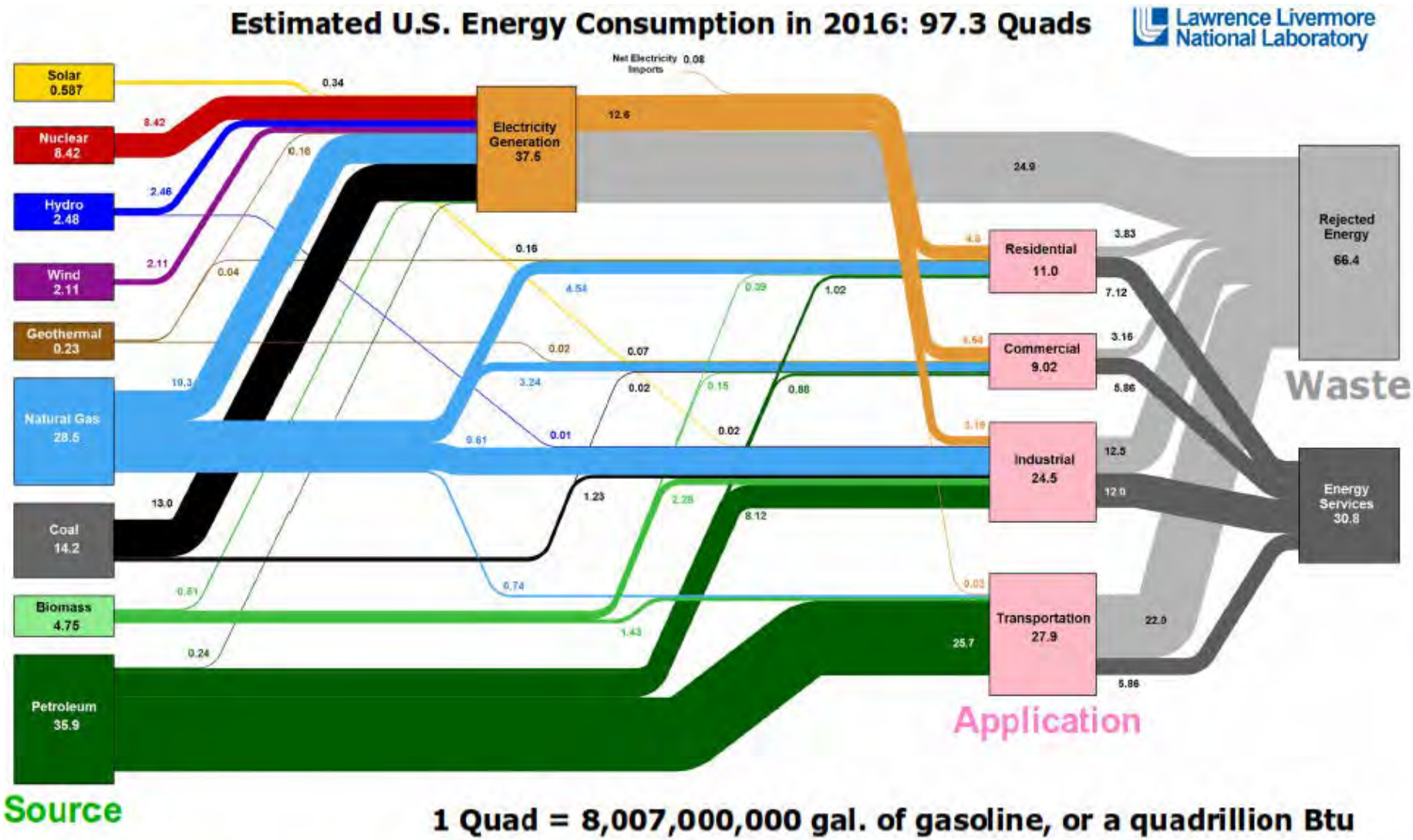
Even more problematic is the Chapter 2 bullet point, Share the Road Etiquette. This bullet point, and the previous one on Safety, both clearly state that lack of safety is the primary obsticle for more people choosing bicycling. Statistically, 61% of the population would like to bicycle, but find it unsafe to maneuver among 4000lb vehicles travelling at 45MPH. So it is unconscionable that the "solution" promulgated in this plan is for cyclists to "take the lane". To make such a behavioral act by the potential victims the centerpiece of bikeable streets is tantamount to negligence. It is irresponsible to tell a 10-year old, or a mother with a toddler in a bike trailer, to "take the lane". Only an engineering solution of safe and protected bikeways will increase bicyling.

In Chapter 6, Section A, Overall Strategies, includes a very good list of multimodal objectives. However, the entire list of operative verbs is neutered by the caption "Encourage" safe and efficient travelling. Each of the objectives is for the City itself to employ, so there's no one to encourage other than the City. The caption should read "Develop safe and efficient travelling through the multimodal networks".

Chapter 6 also has a good list of objectives under "Coordinate decision making to balance land use and environmental impacts". To accomplish this, City strategies, and the bullet point list itself should begin with "Revise the subdivision regulations to design for a safe and slower multimodal mix from the outset. All new streets shall be on a grid pattern, with narrower lanes and cross sections, more pedestrian friendly intersections, and incorporate continuous bikeway corridors". This should be followed by "Officially adopt the full compliment of NACTO Design Guides – bicycle, street, and transit".

Thank you,

Michael Almon



U.S. Petroleum Energy

37% - largest of all energy sources
29% - 2nd largest of all applications (after electric genratn.)
23% - 2nd largest of energy wasted (after electric genratn.)

Transportation Enduse

72% of petroleum	for transportation enduse (this chart)
60% of transportation enduse	for light vehicles (Government Accting. Office, 2007)
79% of light vehicle trips	are single occupancy autos (US DOT, 2009)
61% of population	want to bicycle (Portland OR Office of Transportation)
89% of potential cyclists	won't bicycle because it's unsafe (IBID)
conserve significant petroleum	offsetting automobile trips with bicycle trips

1311 Prairie Ave.
Lawrence KS 66044

23 February 2018

Metropolitan Planning Office Policy Board
P.O. Box 708
Lawrence, KS 66044

re: Metropolitan Transportation Plan Update 2018

MPO Chairperson:
Thanks for the opportunity to comment on the T2040 Draft Plan. I would like to focus on a problem I see with "Figure 2.10: Plan 2040 Population Growth Tiers Map", on page 24. First, allow me to offer this observation.

In Chapter 2, Section A, Land Use, it is interesting to read the sentences "Expanded or new transportation facilities and services. . . allow a community to grow into new areas as development occurs. Land use and transportation are inextricably linked". Linked indeed. But the above statement begs the question "Does the development growing into new areas allow for expanded transportation facilities and services as well?"

Which is enabling the other? No developer will risk investment to develop open land unless they are assured that streets shall be extended. And likewise, no Lawrence budget will invest in extending new streets unless there is assurance that a tax-paying development will be built. In reality, both parties point to the other to justify their choice of sprawl development, saying "They made me do it".

If this self-reinforcing practice seems far fetched, consider that the H2020 Comprehensive Plan Update, which is being rewritten at the same time as T2040, contains its own Transportation section, in parallel with this T2040 Land Use section. Again, it is interesting to read the sentences "Linking transportation to land use planning is critical, because each aspect dictates the design of the other". Dictates indeed. Developers and City Planners both plead, that when it comes to sprawl development, there's no choice in the matter, saying "They made me do it".

This circular syndrome is exemplified by two maps – one each in H2020 and T2040. The H2020 map is "Map 2.1: Growth & Development / Future Land Use Map" on page 14. The T2040 map is "Figure 2.10: Plan 2040 Population Growth Tiers Map" on page 24. Both maps are exactly the same.

Having consistent data across platforms, of course, is important. But these maps don't display data, like a map of crash data does, or even as projections of population growth does. No, these maps are about the political choice of <u>where</u> some parties want urban growth to take place. The choice to sprawl into certain areas will invariably be defended by referring to the corresponding map in the corresponding plan – each one supposedly validating the other.

In "Figure 2.10: Plan 2040 Population Growth Tiers Map", the specific problem that I see is to the east and west of US. 59, south of K-10 and north of the Wakarusa River.

T2040 Population Growth Tiers Map

H2020 Population Growth Tiers Map

This is an area listed as Tier 2 growth in the maps, but which the current H2020 Plan protects from urbanization as 100-year floodplain and wetlands. From H2020:

- Chapter 16, Environment, lists several policies for the retention of floodplain, wetland, sensitive lands, and riparian areas.
- Chapter 6, Commercial (p 6-15), also very specifically says "K-10 provides a physical barrier and edge to the commercial corridor that has developed. Additional retail commercial uses shall not occur south of the highway".

But according to both these maps, this area is targeted for urban expansion of Tier 2 growth all the way to the Wakarusa River. Nowhere else in T2040, and only by slipping it into this map, is there any stated intent for this large scale expansion of Lawrence into the 100-year regulatory floodplain and Wakarusa River wetlands.

If the M.P.O. unquestioningly adopts this draft of the T2040 Plan without deleting this Tier 2 growth area south of K-10 and north of the Wakarusa River, you will be in violation of the existing Horizon 2020 Comprehensive Plan. You also will play into the game of circular logic that justifies this map because it also appears in the new draft of H2020, while giving the H2020 Comprehensive Plan Steering Committee cover to do the same.

Please delete the entire Tier 2 growth area south of K-10 and north of the Wakarusa River from the " Figure 2.10: Plan 2040 Population Growth Tiers Map".

Thank you,

Michael Almon

TO: Jessica Mortinger, Lawrence - Douglas County Metropolitan Planning Organization (MPO)
FROM: Sharon Ashworth
DATE: 2/23/18
RE: Transportation Plan 2040

Dear Ms. Mortinger,

My name is Sharon Ashworth and I live in the University Place Neighborhood within the city of Lawrence. My neighborhood is a member of the 19th Street Neighborhoods Coalition. This coalition is very concerned about increases to the amount of traffic on 19th Street in Lawrence. I share this concern. You are currently accepting public comment on the Transportation Plan 2040. I wish to voice my strong opposition to any project in this plan that increases traffic on 19th Street. Specifically, I oppose a connection of 19th Street to O'Connell Road for public use, while endorsing a connection for emergency vehicle use only. Thank you for this opportunity to offer public comment.

Sincerely yours,
Sharon Ashworth

Brook Creek Neighborhood Association

Melissa Fahrenbruch, President
1322 Maple Lane, Lawrence KS 66044
Telephone: (970) 534-7987
e-mail: brookcreekna@gmail.com; meljofah@gmail.com

February 28, 2018

MPO Chairperson:

The Brook Creek Neighborhood Association (BCNA) has a few concerns with the final draft of the 2018 Metropolitan Transportation Plan (T2040).

The Brook Creek neighborhood is directly affected by efforts to unnecessarily increase the traffic load on 19th Street. This will ultimately increase cut-through traffic, an issue that we have tried for many years to curtail. Speeding vehicles make it unsafe for children and residents. There are a lot of school children in the 19th Street and Harper zone. Efforts to increase traffic can only add to the the children's peril. Both Kennedy and Cordley children are affected. The opening of the SLT has already significantly curtailed the traffic load on 23rd street, therefore reducing any need to add traffic to 19th Street instead of directing it to 23rd Street where it belongs.

There is a significant financial and environmental cost when creating new structure, structure that will also require future maintenance. The financial burden is both long and short-term. There are significant energy costs that are not so easily noticed. Tremendous energy resources are required for the manufacturing of the concrete, including extraction and transportation. This increases the CO_2 footprint.

Please delete Project 229, the widening of the street form Harper to O'Connell Road. We support an upgrade of the waterline, the creation of a 6 foot sidewalk and a 10 foot shared use path. Instead of the 47 foot wide reconstruction, it should just be repaved (maintained) at its current 22 foot width. Please change the classification of this street segment to "local." Please maintain the open drainage ditches in this zone because of their excellent capacity to carry storm water, to keep roads and residential properties from flooding.

We think that the best solution for access to the back end of the Venture Business park is to add a traffic control gate that would allow access for emergency vehicles and public transportation. This would make it unnecessary to widen the road resulting in the increase of traffic throughout the neighborhood.

The livability of our neighborhood is important and a deep concern of the BCNA. Aside from cut-through traffic that will affect children and residents, we are concerned about the tremendous cost of this segment of the proposed project. The proposed project seems to be a waist of financial resources that could be utilized on more important projects or to maintain what is already in existence.

Sincerely yours,

Melissa Fahrenbruch,
President, Brook Creek Neighborhood Association

March 1, 2018

Byron Wiley
1200 Almira St.
Lawrence, KS 66044

RE: Comments on T2040, 19th Street proposal

MPO Chairperson:

I am concerned about the draft proposal of the 2018 Metropolitan Transportation Plan that pertains to 19th Street.

The big concern throughout the neighborhood and my concern is the invitation to increase traffic at the eastern end of 19th Street. This includes not only passenger cars but the potential for larger trucks using this route. The increase in traffic is problematic because it affects the livability of our neighborhood.

Increased traffic brings more intolerable noise to the adjacent residences. Increased traffic also poses a safety hazard to school children walking to and from school. Directing more traffic to 19th Street also opens up more opportunities for speeding cut-through traffic, causing additional safety issues for neighbors and children. The SLT has greatly reduced traffic on 23rd Street and do not see why 19th Street suddenly needs to be enlarged and take on more traffic and additional headaches for the people living there.

I am personally concerned about the economic and environmental costs that are tied to this project that is functionally unnecessary. Why spend resources on something that is really not critical? It is a waste of financial and energy resources, resources that should be used to maintain what we already have.

I support the idea of having an unmanned traffic control box that would allow emergency vehicles and public transportation vehicles access. These systems are in place on the KU campus and in airports, parking garages, etc.

Please remove the proposed plan for widening 19th Street from Harper to O'Connell Road. I like the idea of creating a 6 foot sidewalk and a shared use path. The 47 food wide proposed road is excessive and unnecessary.

Sincerely yours,

Byron Wiley

Metropolitan Planning Office Policy Board
P.O. Box 708
Lawrence, KS 66044

Re: Metropolitan Transportation 2040 Plan

I live in the University Place Neighborhood and am part of the 19th Street Coalition. My involvement with this group relates to concerns I have about pedestrian safety, especially for children, and the overall livability of our neighborhoods if traffic is significantly increased on 19th Street. Children from 2 elementary schools (Kennedy and Cordley) and students at Lawrence High School (including my two boys) walk along and across 19th Street daily. It already seems crowded and dangerous for them.

The City of Lawrence spent millions developing Venture Park and City transportation staff are planning for 19th Street to be a major exit/entrance to the facility. As you know, among other things, the Transportation 2040 plan calls for spending $3M to open the connection at 19th & O'Connell, reconstruct 19th Street between Harper and O'Connell from its current 22 feet width to a width of 47 feet, and build a roundabout at 19th & Harper. While there are currently no occupants at Venture Park, the City is actively working to find tenants. In his November 9, 2017 presentation to the Transportation Commission, City Engineer David Cronin said that the City expects 30% of the nearly 13,000 daily trips related to the full rollout of the business park to be on 19th Street. It will initiate at the 19th & O'Connell connection and a significant portion of it will likely continue west.

The 19th Street Coalition believes that 23rd Street should remain the main entrance/exit to the business park. It is a major arterial just four blocks south of 19th and serves east/west traffic flow in Lawrence. It was designed to carry significant amounts of traffic and currently has excess capacity. Recent KDOT data shows that traffic is significantly down on 23rd Street (over 8,000 fewer cars daily in some areas) now that the SLT is fully operational.

City staff have indicated that the connection at 19th & O'Connell is critical for fire and medical access to Venture Park. The Coalition supports that need and believes alternative solutions should be considered. One that we have suggested is gated access similar to the gate by the Watson Library on the KU Campus. Public transit and emergency vehicles could have transponders that would raise the gates when needed and there could be paved paths on either side of the gate for pedestrians and bicyclists. I am sure there are other options that could meet the fire, medical, and transit needs of the City, while protecting our children and neighborhoods at the same time.

Please take the letter submitted by Michael Almon on behalf of the 19th Street Coalition seriously. Lawrence citizens are counting on you to do so.

Thanks for your time.

Alee Phillips
1728 Mississippi

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Appendix C

Transit Asset Management (TAM)

Appendix C. Transit Asset Management (TAM)

A. Introduction

As part of the performance based planning, three transit asset classes (revenue vehicles, non-revenue vehicles, and facilities) are being tracked and are reported as part of the State of Kansas group Transit Asset Management Plan (TAM). Although the transit providers in Douglas County are participating in the group TAM plan, the three federal transit performance measures need to be included in T2040. Therefore, a fleet inventory was gathered and utilized in calculating the performance measures.

Fixed Route Vehicle Inventory

City ID	Descrip.	Mfg.	Yr.	Mileage	Type	Model	Fuel	VIN	Acquisition	Cost	Funding	Fed %	Useful Life	Deprec.	Location	Use & Condition	Vested Title
800	Fixed route	El Dorado	2010	273,316	Cutaways	Aerotech 240 E450	Gas	1FDFE4FS9BDA02574	11/15/10	$70,930.00	KS-03-0044	83%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
801	Fixed route	El Dorado	2010	254,850	Cutaways	Aerotech 240 E450	Gas	1FDFE4FS0BDA02575	11/15/10	$70,930.00	KS-03-0044	83%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
802	Fixed route	El Dorado	2010	260,172	Cutaways	Aerotech 240 E450	Gas	1FDFE4FS2BDA02576	10/28/10	$70,930.00	KS-03-0044	83%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
803	Fixed route	El Dorado	2010	297,946	Cutaways	Aerotech 240 E450	Gas	1FDFE4FS4BDA02577	10/28/10	$70,930.00	KS-03-0044	83%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
804	Fixed route	El Dorado	2010	283,361	Cutaways	Aerotech 240 E450	Gas	1FDFE4FS6BDA02578	11/15/10	$70,930.00	KS-03-0044	83%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
805	Fixed route	El Dorado	2010	288,159	Cutaways	Aerotech 240 E450	Gas	1FDFE4FS8BDA02579	10/28/10	$70,930.00	KS-03-0044	83%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
806	Fixed route	El Dorado	2014	178,224	Cutaways	ElDorado Advantage	Gas	1FDFE4FS2EDB17358	11/3/14	$68,086.00	CTP11 & 12	0%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
807	Fixed route	El Dorado	2014	201,656	Cutaways	ElDorado Advantage	Gas	1FDFEF4S0EDB17357	11/3/14	$68,086.00	CTP11 & 12	0%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
808	Fixed route	El Dorado	2014	137,145	Cutaways	ElDorado Advantage	Gas	1FDFE4FS9EDB17356	11/3/14	$68,086.00	CTP11 & 12	0%	5 yrs or 100,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
900	Fixed route	Gillig	2011	231,722		Hybrid Low-floor 40	Hybrid	15GGD3014B1178402	7/29/11	$562,397.00	KS-96-0003	100%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Very Good	City of Lawrence
901	Fixed route	Gillig	2011	217,368		Hybrid Low-floor 40	Hybrid	15GGD3016B1178403	7/29/11	$562,397.00	KS-96-0003	100%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Very Good	City of Lawrence
902	Fixed route	Gillig	2011	181,804		Hybrid Low-floor 40	Hybrid	15GGD3018B1178404	8/4/11	$562,397.00	KS-96-0003	100%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Very Good	City of Lawrence
903	Fixed route	El Dorado	2011	257,630		EZ Rider 31	Diesel	1N9MNACG1CC084017	9/28/11	$313,512.00	KS-90-X019	83%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
904	Fixed route	El Dorado	2011	265,305		EZ Rider 31	Diesel	1N9MNAC63CC084018	9/28/11	$313,512.00	"KS-15-X002 & KS-90-X019"	87%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
905	Fixed route	El Dorado	2011	203,057		EZ Rider 31	Diesel	1N9MNAC65CC084019	9/30/11	$313,512.00	KS-15-X002	100%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Fair	City of Lawrence
906	Fixed route	Gillig	2015	178,814		Low-floor 29'	Diesel	15GGE2716F1092947	5/21/15	$368,140.00	KS-03-0044	83%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Excellent	City of Lawrence
907	Fixed route	Gillig	2015	156,428		Low-floor 29'	Diesel	15GGE2718F1092948	5/21/15	$368,140.00	"KS-03-0044 & KS-04-0010"	83%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Excellent	City of Lawrence
908	Fixed route	Gillig	2015	123,109		Low-Floor Hybrid Elec	Diesel	15GGE301XF1092949	5/21/15	$575,736.00	"KS-04-0010; KS-04-0044; KS-90-X019; KS-90-X139"	66%	12 yrs and 500,000 miles	Miles	MVT-Timberedge	Excellent	City of Lawrence
950	Fixed route	Gillig	1998	142,419		Phantom 30'	Diesel	15GCA1814W1089225	7/1/16	$11,900.00	CTP - PT-0701-15	0%	Purchased used-indefinite	Miles	MVT-Timberedge	Fair	City of Lawrence

Source: Lawrence Transit 2016 Vehicle Inventory

Fixed Route Vehicle Inventory Cont'd

City ID	Descrip.	Mfg.	Yr.	Mileage	Type	Model	Fuel	VIN	Acquisition	Cost	Funding	Fed %	Useful Life	Deprec.	Location	Use & Condition	Vested Title
951	Fixed route	Gillig	1998	181,140		Phantom 30'	Diesel	15GCA1818W1089227	7/1/16	$11,900.00	CTP - PT-0701-15	0%	Purchased used-indefinite	Miles	MVT-Timberedge	Fair	City of Lawrence
952	Fixed route	Gillig	1998	195,474		Phantom 30'	Diesel	15GCA181XW1089228	7/1/16	$11,900.00	CTP - PT-0701-15	0%	Purchased used-indefinite	Miles	MVT-Timberedge	Fair	City of Lawrence
953	Fixed route	Gillig	1998	98,590		Phantom 30'	Diesel	15GCA1811W1089229	7/1/16	$11,900.00	CTP - PT-0701-15	0%	Purchased used-indefinite	Miles	MVT-Timberedge	Fair	City of Lawrence
954	Fixed route	Gillig	1998	141,182		Phantom 30'	Diesel	15GCA1818W1089230	7/1/16	$11,900.00	CTP - PT-0701-15	0%	Purchased used-indefinite	Miles	MVT-Timberedge	Fair	City of Lawrence
301	Fixed route	Optima	2006	56,450		Opus 34	Diesel	1Z9B7DTS96W216150	5/11/06	$269,601.00	KS-03-0034	74%	12 yrs & 500,000 miles	Straightline	MVT-Timberedge	Fair	City of Lawrence
302	Fixed route	Optima	2006	2,409		Opus 34	Diesel	1Z9B7DTS06W215151	5/11/06	$269,601.00	KS-03-0034	74%	12 yrs & 500,000 miles	Straightline	MVT-Timberedge	Fair	City of Lawrence
303	Fixed route	Optima	2006	61,967		Opus 34	Diesel	1Z9B7DTS26W216152	5/11/06	$269,601.00	KS-03-0034	74%	12 yrs & 500,000 miles	Straightline	MVT-Timberedge	Fair	City of Lawrence
304	Fixed route	Optima	2006	14,216		Opus 34	Diesel	1Z9B7DTS46W216153	5/11/06	$269,601.00	KS-03-0034	74%	12 yrs & 500,000 miles	Straightline	MVT-Timberedge	Fair	City of Lawrence
305	Fixed route	Optima	2006	1,029		Opus 34	Diesel	1Z9B7DTS66W216154	5/11/06	$269,601.00	KS-03-0034	74%	12 yrs & 500,000 miles	Straightline	MVT-Timberedge	Fair	City of Lawrence
352	Fixed route	Gillig	2012	113,081		Low-floor 40	Diesel	15GGD2712C1180036	1/20/12	$385,061.00	"KS-96-X003 & KS-96-X005"	100%	12 yrs & 500,000 miles	Miles	MVT-Timberedge	Very good	City of Lawrence
353	Fixed route	Gillig	2012	104,364		Low-floor 40	Diesel	15GGD2714C1180037	1/19/12	$385,061.00	KS-96-X005	100%	12 yrs & 500,000 miles	Miles	MVT-Timberedge	Very good	City of Lawrence
354	Fixed route	Gillig	2012	102,958		Low-floor 40	Diesel	15GGD2716C1180038	1/20/12	$385,061.00	KS-96-X005	100%	12 yrs & 500,000 miles	Miles	MVT-Timberedge	Very good	City of Lawrence
355	Fixed route	Gillig	2012	95,244		Low-floor 40	Diesel	15GGD2718C1180039	1/23/12	$385,061.00	"KS-96-X005 & KS-04-0044"	83%	12 yrs & 500,000 miles	Miles	MVT-Timberedge	Very good	City of Lawrence
356	Fixed route	Gillig	2012	92,043		Low-floor 40	Diesel	15GGD2714C1180040	1/23/12	$385,061.00	KS-04-0044	83%	12 yrs & 500,000 miles	Miles	MVT-Timberedge	Very good	City of Lawrence
357	Fixed route	Gillig	2012	105,531		Low-floor 40	Diesel	15GGD2716C1180041	1/23/12	$385,061.00	KS-04-0044	83%	12 yrs & 500,000 miles	Miles	MVT-Timberedge	Very good	City of Lawrence

Source: Lawrence Transit 2016 Vehicle Inventory
Red text are pending disposition and are title to the City but operated by KU
Blue text are titled to City but operated by KU

ADA Demand Response Paratransit Vehicles

City ID	Descrip.	Vendor	Mfg.	Yr.	Mileage	Model #	Fuel Type	VIN	Acquisition	Cost	Grant #	Fed %	Location	Use & Condition	Lifetime	Deprec.	Vested Title	Method
743	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2007	319,001	Aerotech E450	Gas	1FDXE45S27DA54268	5/1/2007	$51,571.00	CTP05 & 06	0	MVT	Poor	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
744	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2007	274,639	Aerotech E450	Gas	1FDXE45S97DA54269	5/1/2007	$51,571.00	CTP05 & 06	0	MVT	Poor	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
745	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2007	285,357	Aerotech E450	Gas	1FDXE45S07DA54270	5/1/2007	$51,571.00	CTP05 & 06	0	MVT	Poor	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB

Source: Lawrence Transit 2016 Vehicle Inventory
Red text are in poor condition and are awaiting replacement

ADA Demand Response Paratransit Vehicles Cont'd

City ID	Descrip.	Vendor	Mfg.	Yr.	Mileage	Model #	Fuel Type	VIN	Acquisition	Cost	Grant #	Fed %	Location	Use & Condition	Lifetime	Deprec.	Vested Title	Method
746	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2007	231,133	Aerotech E450	Gas	1FDXE45S27DA54271	5/9/2007	$51,571.00	CTP05 & 06	0	MVT	Poor	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
747	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2007	199,637	Aerotech E450	Gas	1FDXE45S47DA54272	5/9/2007	$51,571.00	CTP05 & 06	0	MVT	Poor	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
748	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2007	161,356	Aerotech E450	Gas	1FDXE45S67DA54273	5/9/2007	$51,571.00	CTP05 & 06	0	MVT	Poor	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
749	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2008	221,924	Aerotech 220 E450	Gas	1FD4E45S78DA92034	4/25/2008	$55,505.00	CTP07 & 08	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
750	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2008	221,593	Aerotech 220 E450	Gas	1FD4E45S98DA92035	4/25/2008	$55,505.00	CTP07 & 08	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
751	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2008	219,675	Aerotech 220 E450	Gas	1FD4E45S08DA92036	4/25/2008	$55,505.00	CTP07 & 08	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
752	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2010	181,778	Aerotech 220 E450	Gas	1FDFE4FS2ADA97400	9/28/2010	$52,225.00	CTP08 & 09	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
753	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2010	177,943	Aerotech 220 E450	Gas	1FDFE4FS4ADA97401	9/28/2010	$52,225.00	CTP08 & 09	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
754	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2010	200,294	Aerotech 220 E450	Gas	1FDFE4FS6ADA97402	9/28/2010	$52,225.00	CTP08 & 09	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
755	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2010	175,369	Aerotech 220 E450	Gas	1FDFE4FS8ADA97403	9/28/2010	$52,225.00	CTP08 & 09	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
756	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2010	173,123	Aerotech 220 E450	Gas	1FDFE4FSXADA97404	9/28/2010	$52,225.00	CTP08 & 09	0	MVT	Fair	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
757	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2012	158,883	Aerotech 220 E450	Gas	1FDFE4FS7CDA62788	5/23/2012	$55,855.00	PT-0701-10	0	MVT	Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
758	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2012	156,531	Aerotech 220 E450	Gas	1FDFE4FS9CDA62789	5/23/2012	$55,855.00	PT-0701-10	0	MVT	Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
759	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2012	134,232	Aerotech 220 E450	Gas	1FDFE4FS5CDA62790	5/25/2012	$55,855.00	PT-0701-10	0	MVT	Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
760	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2014	90,353	Aerotech 220 E450	Gas	1FDFE4FS1EDB17352	11/3/2014	$57,499.66	CTP12, 13, 14	0	MVT	Very Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
761	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2014	103,209	Aerotech 220 E450	Gas	1FDFE4FS3EDB17353	11/3/2014	$57,499.66	CTP12, 13, 14	0	MVT	Very Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
762	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2014	76,741	Aerotech 220 E450	Gas	1FDFE4FS5EDB17354	11/3/2014	$57,499.66	CTP12, 13, 14	0	MVT	Very Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
763	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2014	72,234	Aerotech 220 E450	Gas	1FDFE4FS8EDB17350	11/3/2014	$57,499.66	CTP12, 13, 14	0	MVT	Very Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
764	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2014	82,485	Aerotech 220 E450	Gas	1FDFE4FSXEDB17351	11/3/2014	$57,499.66	CTP12, 13, 14	0	MVT	Very Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB
765	Paratransit	Kansas Truck Equip. Co.	Ford/El Dorado	2014	95,184	Aerotech 220 E450	Gas	1FDFE4FS7EDB17355	11/3/2014	$57,499.66	CTP12, 13, 14	0	MVT	Very Good	5 yrs or 100,000 miles	Miles	City of Lawrence	KDOT IFB

Source: Lawrence Transit 2016 Vehicle Inventory

Red text are in poor condition and are awaiting replacement

2. KU on Wheels

RVI ID	Vehicle Type	Total Vehicles	Active Vehicles	Dedicated Fleet	Manufact.	Model	Year Manufact.	Fuel Type	Vehicle Length	Seating Capacity	Standing Capacity	Ownership Type	Funding Type	ADA Access. Vehicles	Miles This Year	Avg Lifetime Miles per Active Vehicle	Status
346436	Bus (BU)	5	5	Yes	CHA - Chance Manufact. Company	LFB35	2006	Hybrid Diesel	35	31	25	OOPA	OF	5	556	121,865	Active
346437	Bus (BU)	8	8	Yes	GIL - Gillig Corporation	Phantom40	1990	Hybrid Diesel	40	43	31	OOPA	NFPA	8	25,118	630,278	Active
346438	Bus (BU)	8	8	Yes	GIL - Gillig Corporation	Phantom40	1994	Hybrid Diesel	40	43	31	OOPA	NFPA	8	27,071	667,947	Active
346439	Bus (BU)	5	5	Yes	GIL - Gillig Corporation	LFB40	2008	Hybrid Diesel	40	34	14	OOPA	NFPA	5	47,749	128,879	Active
346440	Bus (BU)	4	4	Yes	GIL - Gillig Corporation	LFB35	2009	Hybrid Diesel	35	30	30	OOPA	NFPA	4	40,234	153,079	Active
346441	Bus (BU)	4	4	Yes	GIL - Gillig Corporation	Phantom40	1996	Hybrid Diesel	40	43	31	OOPA	NFPA	4	12,920	311,237	Active
346442	Bus (BU)	6	6	Yes	GIL - Gillig Corporation	LFB40	2011	Hybrid Diesel	40	34	14	OOPA	OF	6	45,258	76,979	Active
346443	Bus (BU)	3	3	Yes	GIL - Gillig Corporation	LFB40	2013	Hybrid Diesel	40	34	14	OOPA	NFPA	3	27,917	52,029	Active
346444	Bus (BU)	3	3	Yes	GIL - Gillig Corporation	LFB40	2014	Hybrid Diesel	40	34	14	OOPA	NFPA	3	32,437	38,464	Active
346445	Bus (BU)	3	3	Yes	GIL - Gillig Corporation	LFB40	2015	Hybrid Diesel	40	34	14	OOPA	NFPA	3	16,915	11,214	Active

Source: KU on Wheels Revenue Vehicle Inventory (A-30) - MB PT (2016)
Red text are in poor condition and are awaiting replacement

*Funding Type (OF) are CIty-owned, federally funding vehicles operated by KU and also listed in Lawrence Transit Inventory

3. Other Human Service Providers

Vehicle #	Year	Current Mileage	Type	# of passengers	Accessible Ramp (R) or Lift Equipped (L)	Condition Excellent (E), Good (G), Fair (F), Poor (P)	"Acquired thru KDOT? Y/N"	Average Monthly Mileage	# of Hours in Use Monthly	Being Replaced Y/N	Notes	Agency
	2004	111,850	Van	12		P	Y	800		Y	No longer a KDOT vehicle	Bert Nash
	2014		Van	12		G	N	200		N		Bert Nash
	2016	3,300	Minibus	14	L	E	Y	200		N		Bert Nash
	2017		Van	12		E	N			N	*In process of purchasing Ford Transit	Bert Nash
76	2004	130,293	5 Passenger car	5		P	N	776	420	N		Cottonwood Inc.
79	2002	100,496	12 Pass/ w/Lift	12	L	P	N	523	420	Y		Cottonwood Inc.
90	2007	118,218	Minivan w/ramp	4	R	F	Y	896	420	N	Was KDOT	Cottonwood Inc.
92	2008	99,322	5 Passenger car	5		F	N	828	420	N		Cottonwood Inc.
93	2008	124,332	7 Pass Minivan	7		P	N	1,036	420	Y		Cottonwood Inc.
95	2007	100,849	12 Passenger	12		F	N	764	420	N		Cottonwood Inc.
96	2007	90,863	12 Passenger	12		F	N	688	420	N		Cottonwood Inc.
98	2008	103,716	Minivan w/ramp	4	R	F	N	864	420	N		Cottonwood Inc.
99	2008	87,901	Minivan w/ramp	4	R	F	N	733	420	N		Cottonwood Inc.
100	2009	143,535	8 Pass Minivan	8		P	N	1,329	420	N		Cottonwood Inc.
2	2009	143,476	12 Passenger	12		P	N	1,328	420	Y		Cottonwood Inc.
5	2010	94,587	12 Passenger	12		F	N	985	420	N		Cottonwood Inc.
6	2010	84,807	12 Passenger	12		F	N	883	420	N		Cottonwood Inc.
7	2010	65,441	12 Passenger	12		F	N	682	420	N		Cottonwood Inc.
8	2010	100,021	12 Passenger	12		F	N	1,042	420	N		Cottonwood Inc.
9	2011	71,038	12 Passenger	12		F	N	846	420	N		Cottonwood Inc.
10	2012	55,352	7 Pass Minivan	7		G	N	769	420	N		Cottonwood Inc.
11	2012	62,222	7 Pass Minivan	7		G	N	864	420	N		Cottonwood Inc.
12	2011	68,370	5 Passenger car	5		F	N	814	420	N		Cottonwood Inc.
13	2013	34,027	Minivan w/ramp (KDOT)	4	R	G	Y	567	420	N	Is KDOT	Cottonwood Inc.

Source: Regional Transit Advisory Committee (RTAC) 2017 Fleet Inventory

Red text are in poor condition and are awaiting replacement

Other Human Service Providers Cont'd

Vehicle #	Year	Current Mileage	Type	# of passengers	Accessible Ramp (R) or Lift Equipped (L)	Condition Excellent (E), Good (G), Fair (F), Poor (P)	"Acquired thru KDOT? Y/N"	Average Monthly Mileage	# of Hours in Use Monthly	Being Replaced Y/N	Notes	Agency
14	2006	68,463	7 Pass Minivan	7		F	N	475	420	N		Cottonwood Inc.
15	2006	63,331	7 Pass Minivan	7		F	N	440	420	N		Cottonwood Inc.
17	2015	49,240	8 Pass Minivan	8		G	N	1,368	420	N		Cottonwood Inc.
18	2015	35,294	7 Pass Minivan	7		G	N	980	420	N		Cottonwood Inc.
20	2014	52,768	Minivan w/ramp	4	R	G	N	1,099	420	N		Cottonwood Inc.
21	2015	51,286	Minivan w/ramp	4	R	G	N	1,425	420	N		Cottonwood Inc.
22	2016	13,123	5 Passenger car	5		G	N	547	420	N		Cottonwood Inc.
23	2016	5,148	14 Pass.w/Lift (KDOT)	14	L	G	Y	286	420	N	Is KDOT	Cottonwood Inc.
24	2015	41,839	Minivan w/ramp	4	R	G	N	1,162	420	N		Cottonwood Inc.
27	2017	1,634	Minivan w/ramp (KDOT)	4	R	E	Y	272	420	N	Is KDOT	Cottonwood Inc.
1	1999		Bus		Yes		Y				Sold	Senior Resource Center for Douglas County
2	2000	189,249	Sedan	3		F	N	1,250			Agency Owned - Sold	Senior Resource Center for Douglas County
3	2001	123,641	Bus				Y			Y	Sold 2015	Senior Resource Center for Douglas County
4	2006	135,803	Van	3		F	N	1,000			Agency Owned	Senior Resource Center for Douglas County
5	2007	88,901	Van	15		G	N	261			Agency Owned - Sold	Senior Resource Center for Douglas County
6	2008		Van	3	R						Sold	Senior Resource Center for Douglas County
7	2010		Van	3	R	P	Y	1,713		Y	Out of Service	Senior Resource Center for Douglas County
8	2010	131,645	Van	3	R	P	Y	1,339		Y		Senior Resource Center for Douglas County
9	2013	67,630	Van	3	R	G	Y	1,606				Senior Resource Center for Douglas County
	2016	19,608	Van	3 to 5		E	N	1,004				Senior Resource Center for Douglas County
	2017	7,247	Van	3	R	E	Y	1,570				Senior Resource Center for Douglas County

Source: Regional Transit Advisory Committee (RTAC) 2017 Fleet Inventory
Red text are in poor condition and are awaiting replacement

Other Human Service Providers Cont'd

Vehicle #	Year	Current Mileage	Type	# of passengers	Accessible Ramp (R) or Lift Equipped (L)	Condition Excellent (E), Good (G), Fair (F), Poor (P)	"Acquired thru KDOT? Y/N"	Average Monthly Mileage	# of Hours in Use Monthly	Being Replaced Y/N	Notes	Agency
I 6	2011	201,297	Minivan	5	L	G	Y	2,400	164 average	N		Independence, Inc.
I 8	2013	113,402	Minivan	5	L	E	Y	1,300	82	N		Independence, Inc.
I 2	2015	58,003	Minivan	5	L	E	Y	2,100	145 average	N		Independence, Inc.
I 3	2017	3,703	Minibus	9	R	E	Y	too new	too new	N		Independence, Inc.
	2016	14,500	Small bus	12	L	E	N	920	180	N	*only available for use by Residents of the LDCHA	Lawrence-Douglas County Housing Authority
	1998	78,834	Bus	14/2	L	F	N	78,834				Lawrence Presbyterian Manor
	2005	84,255	Bus	12/2	L	P	N	84,255				Lawrence Presbyterian Manor
	2004	129,816	Van		N/A	F	N	129,816				Lawrence Presbyterian Manor
	2015	41,688	Van		N/A	G	N	41,688				Lawrence Presbyterian Manor

Source: Regional Transit Advisory Committee (RTAC) 2017 Fleet Inventory
Red text are in poor condition and are awaiting replacement

4. Non-Revenue Vehicles Inventory

Vehicle #	General Vehicle Type	Year	Current Mileage	Agency
I-7	Minivan	2011	183,686	Indepence Inc.
	Automobile	2012	83,823	Senior Resource Center for Douglas County
82	SUV	2005	122,276	Cottonwood Inc.
91	Automobile	2008	58,610	Cottonwood Inc.
97	Automobile	2009	126,820	Cottonwood Inc.
3	SUV	2009	56,050	Cottonwood Inc,
843	Automobile	2000		Lawrence Transit

Source: Regional Transit Advisory Committee (RTAC) 2017 Fleet Inventory & Lawrence Transit 2016 Vehicle Inventory

C. Performance Measures

Performance measure 16 and 17 track the measures required in the TAM plan. The MPO will report on these measures as part of our annual system performance measure report (Appendix F).

16 Percentage of non-revenue and revenue vehicles met or exceeded their Useful Life Benchmark (ULB)

Category	Class	ULB	Ku on Wheels (15-YR ULB)	Lawrence Transit	Other Human Service Providers	% of Vehicles at or Exceeding ULB	L-DC MPO Target
Revenue Vehicles	Full-sized bus	14	53%	0%	-	34%	25%
	Cutaway bus	10	-	30%	33%	32%	25%
	Van	8	-	-	29%	27%	25%
	Minivan	8	-	-	36%	33%	25%
Non-Revenue Vehicles	Minivan	8	-	-	0%	0%	75%
	SUV	8	-	-	100%	100%	75%
	Automobile	8		100%	67%	75%	75%

Note: Target is to meet or exceeded FTA Useful Life Benchmark (ULB)
Source: Lawrence Transit, KU on Wheels, Other Human Service Providers (2017)

17 Percentage of assets with a condition rating below 3 on the FTA Transit Economic Requirements Model (TERM) scale

There are no federally funded facilities.

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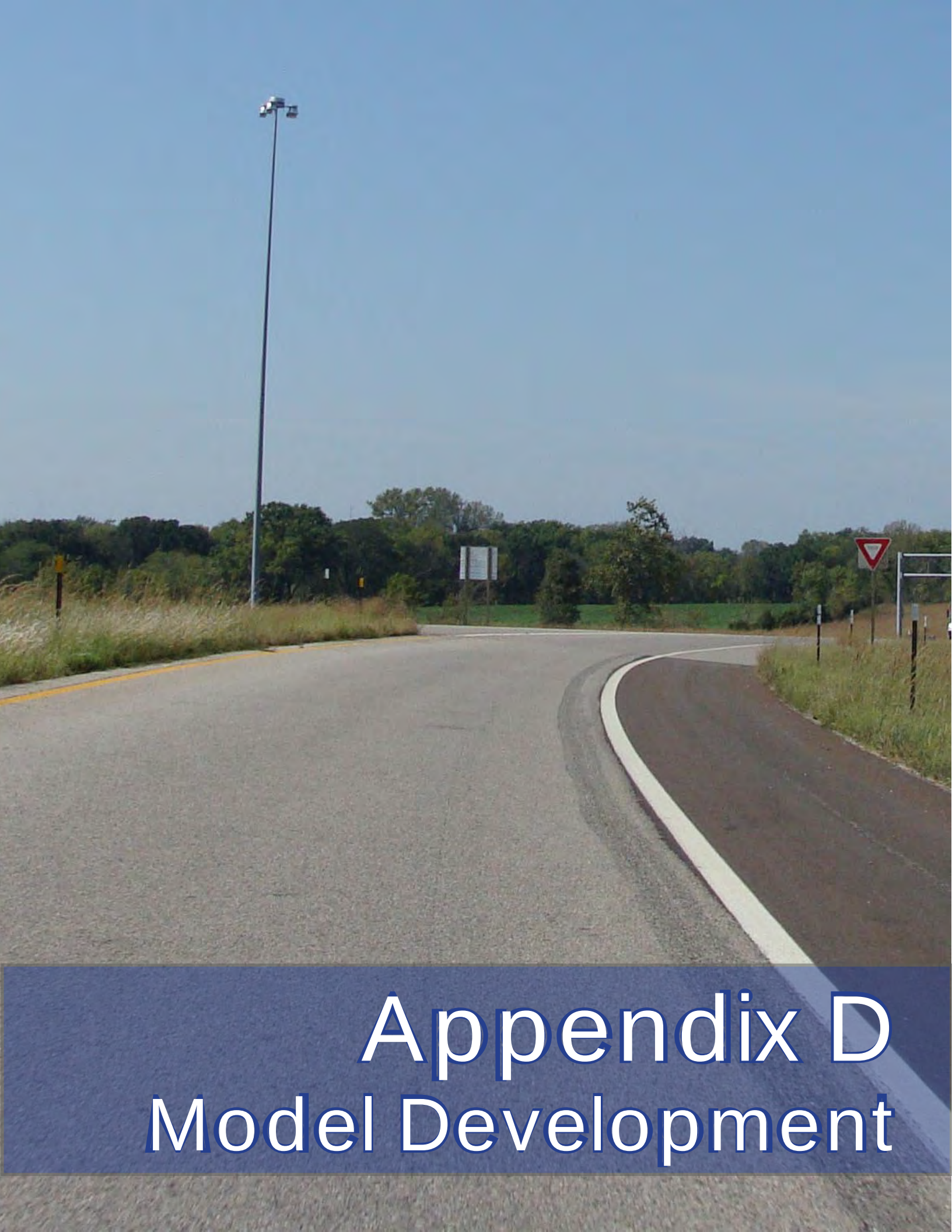


Appendix D
Model Development

Appendix D. Model Development

A. Introduction

Travel demand analysis is a tool that is created to assist decision makers in making informed findings about transportation planning and possible effects. Travel demand forecasting is the ability to ask critical "what if" questions about travel demand and proposed improvements within a specific future time frame, based on a number of real-world assumptions.

How it Works

The T2040 Travel Demand Model has three basic steps:

- **Trip Generation** estimates the number of trips produced within specific geographic areas - called traffic analysis zones (TAZs) - based on the population and employment characteristics of that zone. Trips are generated for a number of different factors based on trip type. For example the more housing or employment a zone has, the more trips it generates/attracts.
- **Trip Distribution** determines where the trips produced in Trip Generation where drive to as their destinations. This establishes an origin and destination for each trip by looking at the ease of getting to every possible destination and the draw of the area for that trip purpose.
- **Trip Assignment** determines which road within the network each trip will take to reach its destination that minimize travel time.

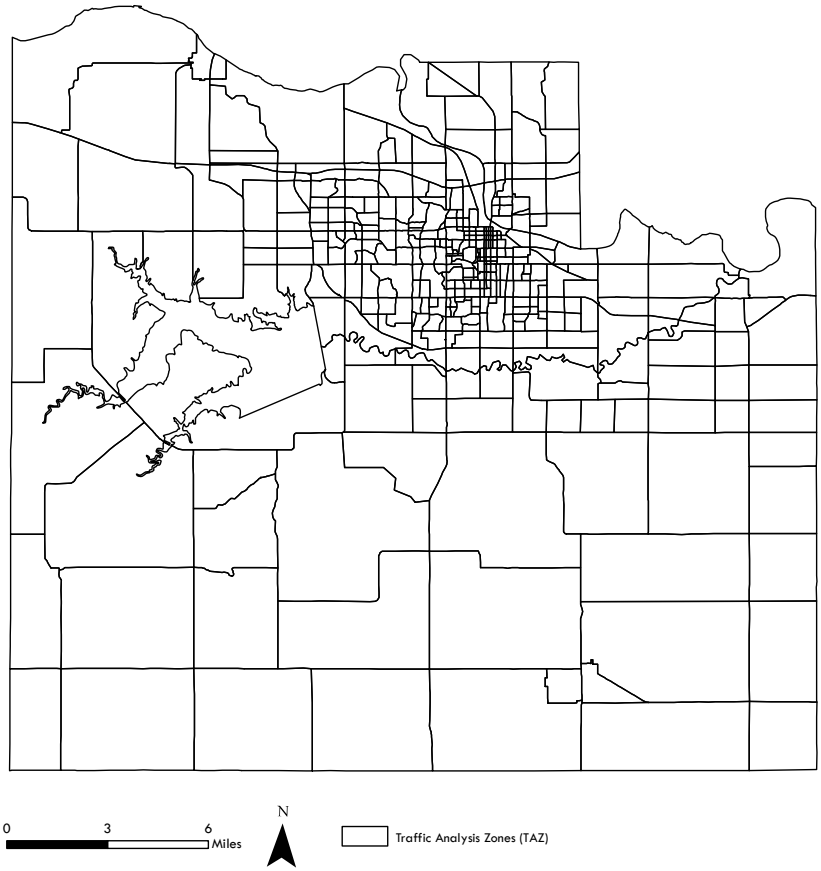
The final output results in traffic volumes thataccurately portray the regional network current capacity and congestion.

B. Model Components

To see how the planning decisions affect the region, the model replicates current daily travel patterns and future daily travel on the roadway network. This is done by incorporating the following components into the model:

- **Traffic Analysis Zones (TAZ)** – The region is subdivided into geographical areas with similar socio-economic characteristics and land use patterns to create trip generation rates. The Lawrence-Douglas County region has 401 TAZs, each with its own travel characteristics, pictured in Figure D.1.

Figure D.1: Traffic Analysis Zones (TAZs)



Source: Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Desination Employment Statistics (LODES) Data (2015)*
Produced: Lawrence-Douglas County MPO (2017)

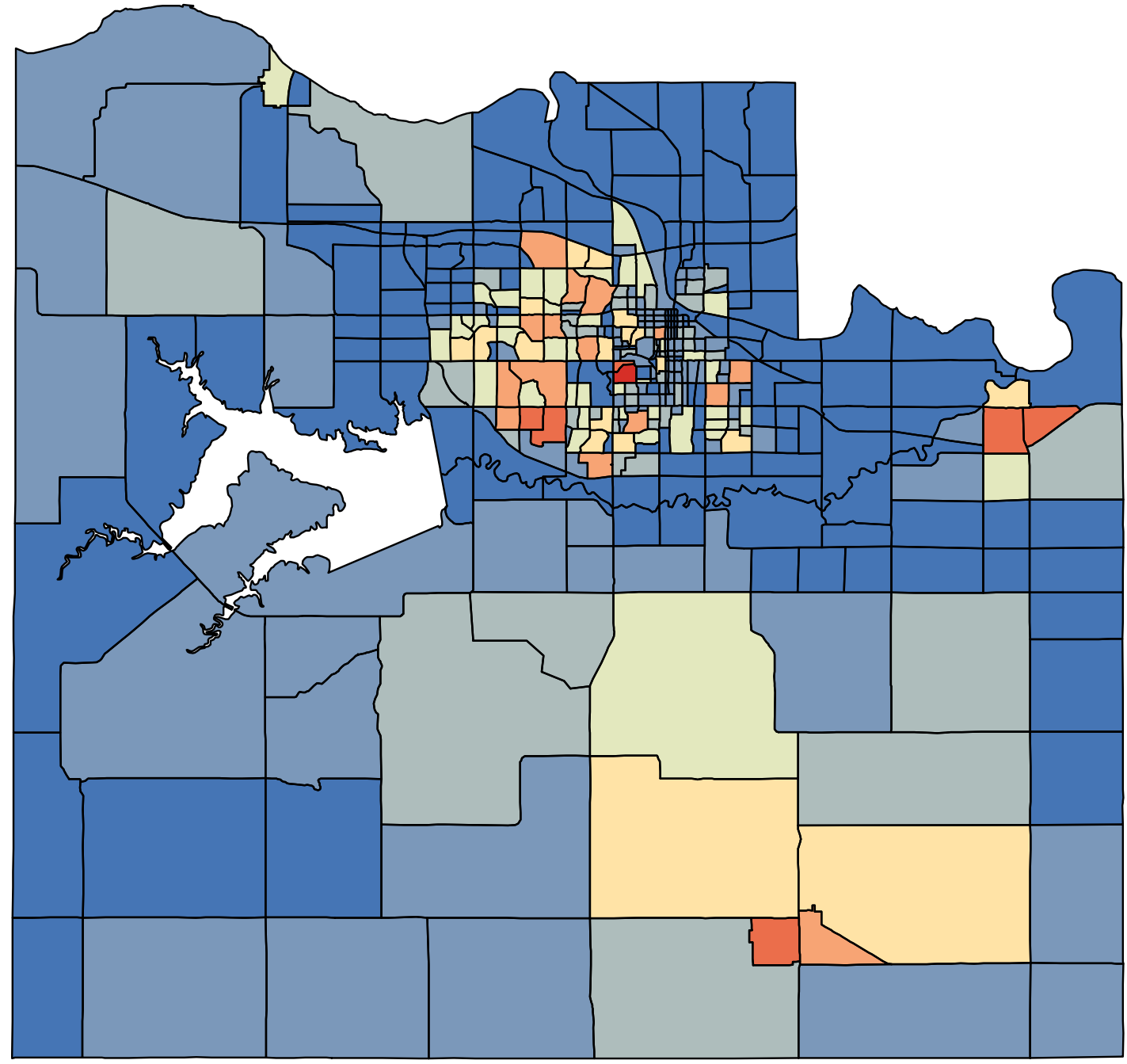
- **Socio-Economic (SE) Data** – Trip generation is driven by a number of existing or projected characteristics within the TAZs. SE data like the number and size of households, automobile ownership, types of activities (residential, commercial, industrial, etc.), and density of development all drive how much travel flows from or to a specific area within the region. Figures D.2 and D.3 show the 2016 Population by TAZ and the 2040 Estimated Population by TAZ. The 2040 Population map depicts growth projected to the west of Lawrence, in Baldwin City, and in Eudora based on the population model from Lawrence-Douglas County Plan 2040.
- **Employment Data** – Employment data comes from a partnership between the Census Bureau and U.S. states to provide labor market information. This data is called Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Destination Employment Statistics (LODES) and was found to have inconsistencies in assigning Lawrence public school district and University of Kansas employment. This dataset was reviewed by MPO staff and adjusted to reflect the true assignment of school district and university employment to each respective TAZs. Employment by zone is categorized as retail and non-retail and each type impacts trip generation rates. A summary of the employment data and population is shown in Table D.1 and Figure D.4 and D.5 show the employment data by TAZ for base year 2016 and the 2040 estimate.

Table D.1: Population and Employement Summary

		Employment		
Year	Population	Retail	Non-Retail	Total
2016	119,891	54,131	6,691	60,823
2040	161,935	69,553	8,598	78,151

- **Network** – The roadway network used by the MPO contains all major roadways classified as collector and higher, along with roadways identified as regionally significant to create an accurate network. Planning-level regional models typically do not include minor roadways that carry little traffic and are not expected to experience much congestion. Local or lower level roads are represented in the model as centroid connectors, connecting TAZ centroids to the larger network.
- **Special Generators** – University Trips - The City of Lawrence is home to the University of Kansas and Haskell Indian Nations University, which are both treated as special generators within the model. The model includes a specific trip generation based on the university enrollment, which was calculated on each institution's historical enrollment trend.
- **External Stations** – External stations are points along the road network at the border of the modeling area. Observed traffic counts at the external stations were calibrated with 2016 Kansas Department of Transportation (KDOT) counts. The 2040 forecasts were created based on trends at each external station. In cases where historical counts and trends did not exist or seem reasonable, growth trends from equivalent stations on similar functional class were used. The counts and locations used are pictured in Figure D.6.

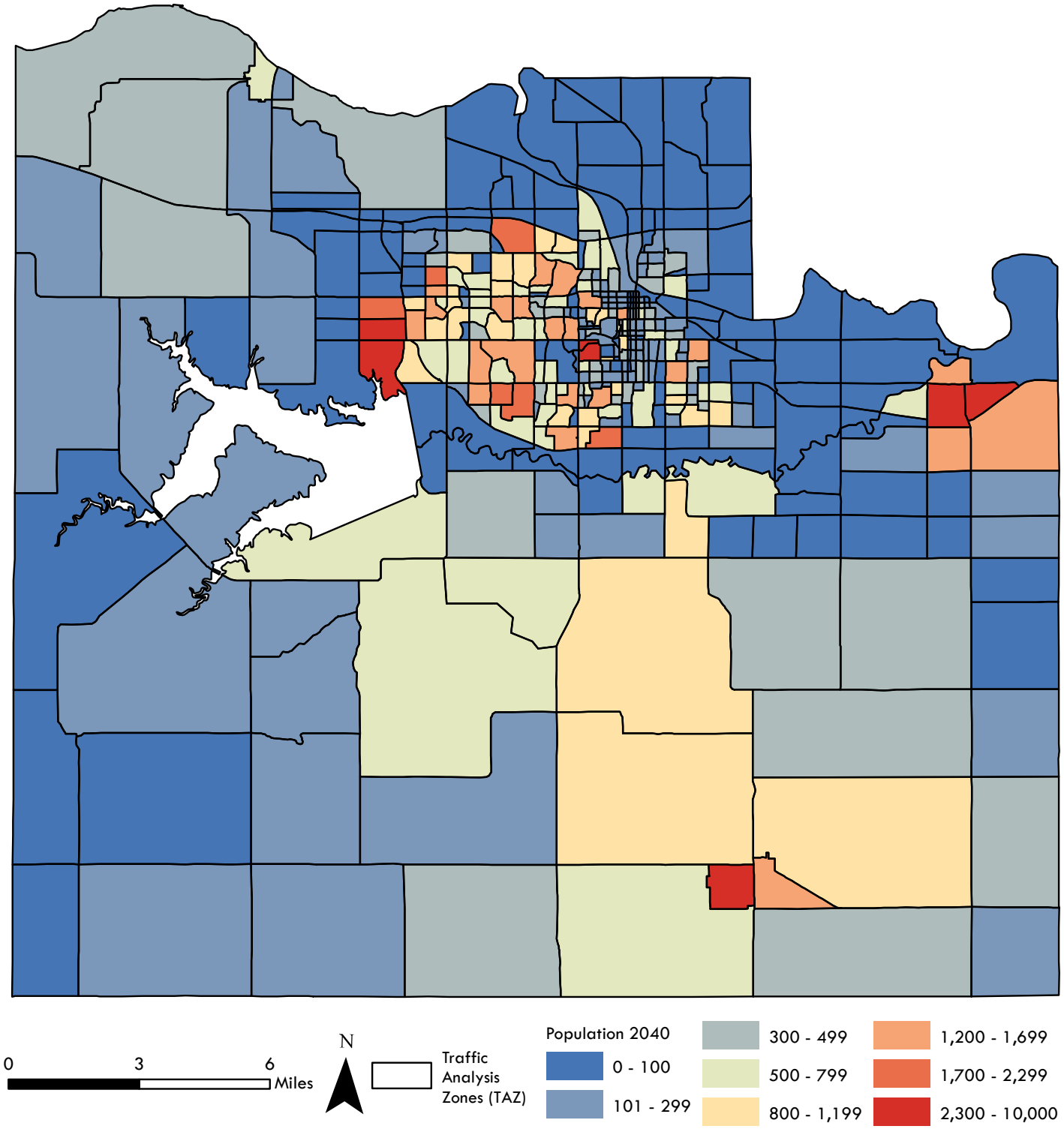
Figure D.2: 2016 Population by TAZ



Source: Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Desination Employment Statistics (LODES) Data (2015)*
Produced: Lawrence-Douglas County MPO (2017)

*Corrected by MPO Staff for identified dataset locational attribution errors

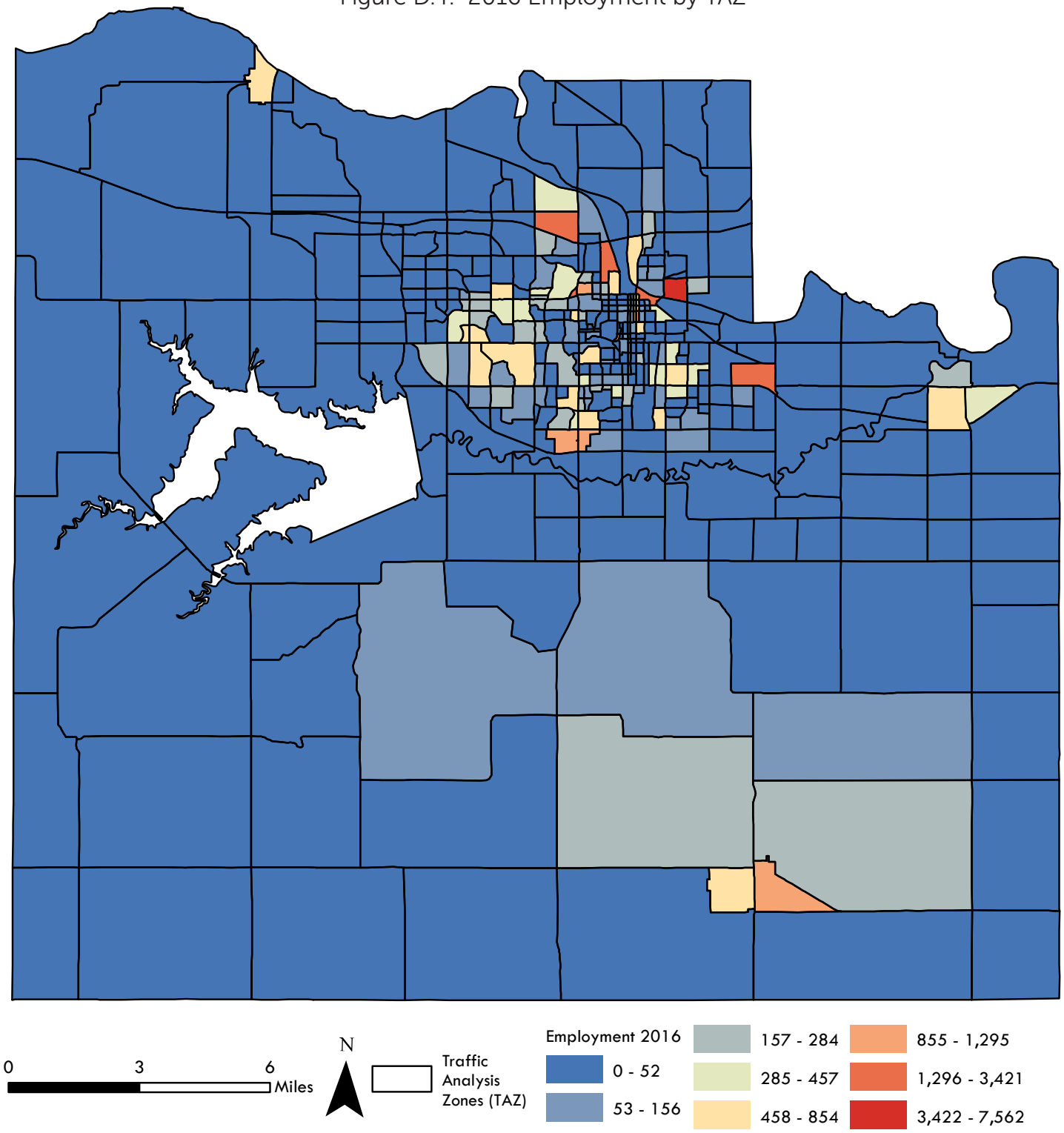
Figure D.3: 2040 Population by TAZ



Source: Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Desination Employment Statistics (LODES) Data (2015)*
Produced: Lawrence-Douglas County MPO (2017)

*Corrected by MPO Staff for identified dataset locational attribution errors

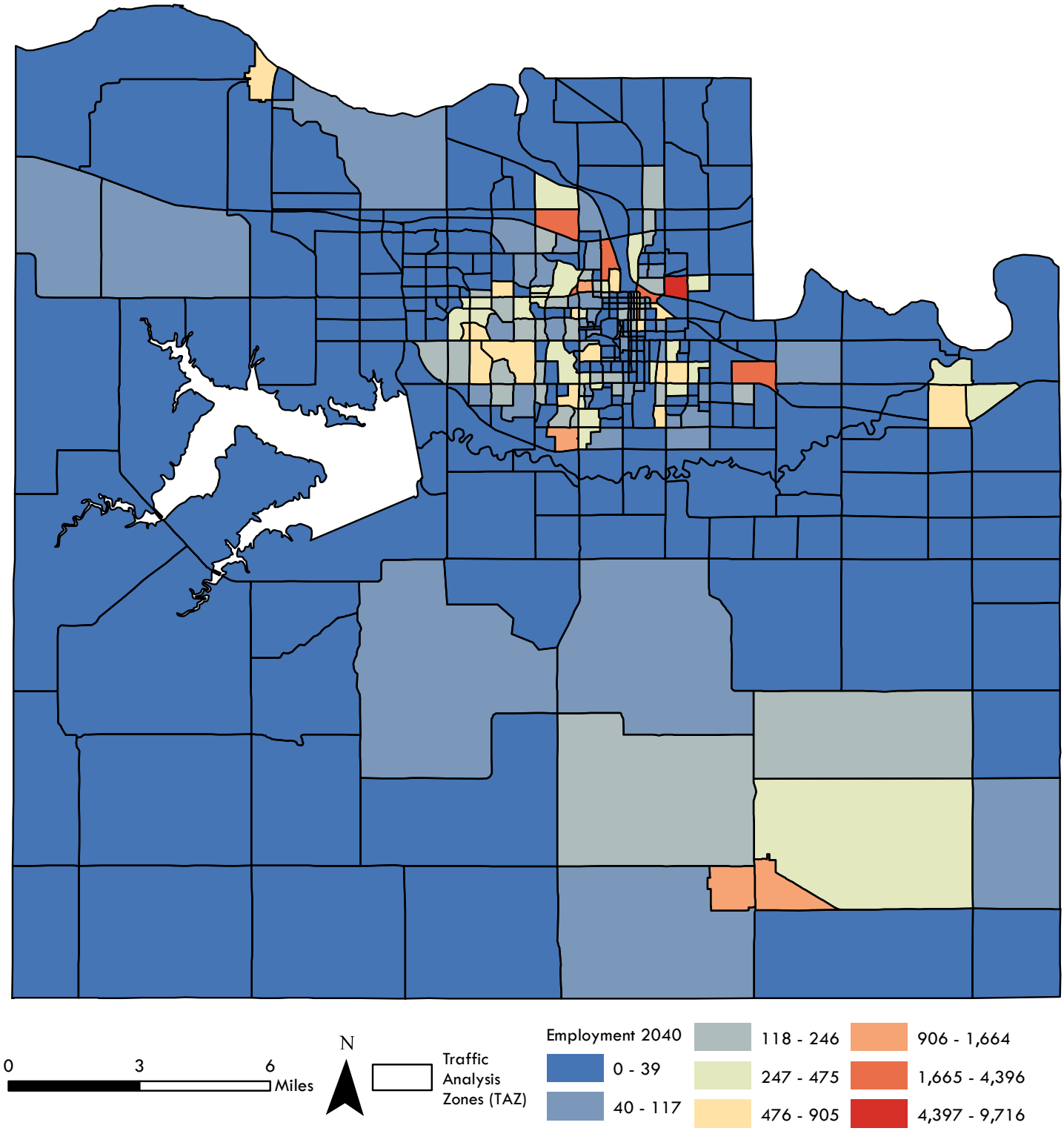
Figure D.4: 2016 Employment by TAZ



Source: Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Desination Employment Statistics (LODES) Data (2015)*
Produced: Lawrence-Douglas County MPO (2017)

*Corrected by MPO Staff for identified dataset locational attribution errors

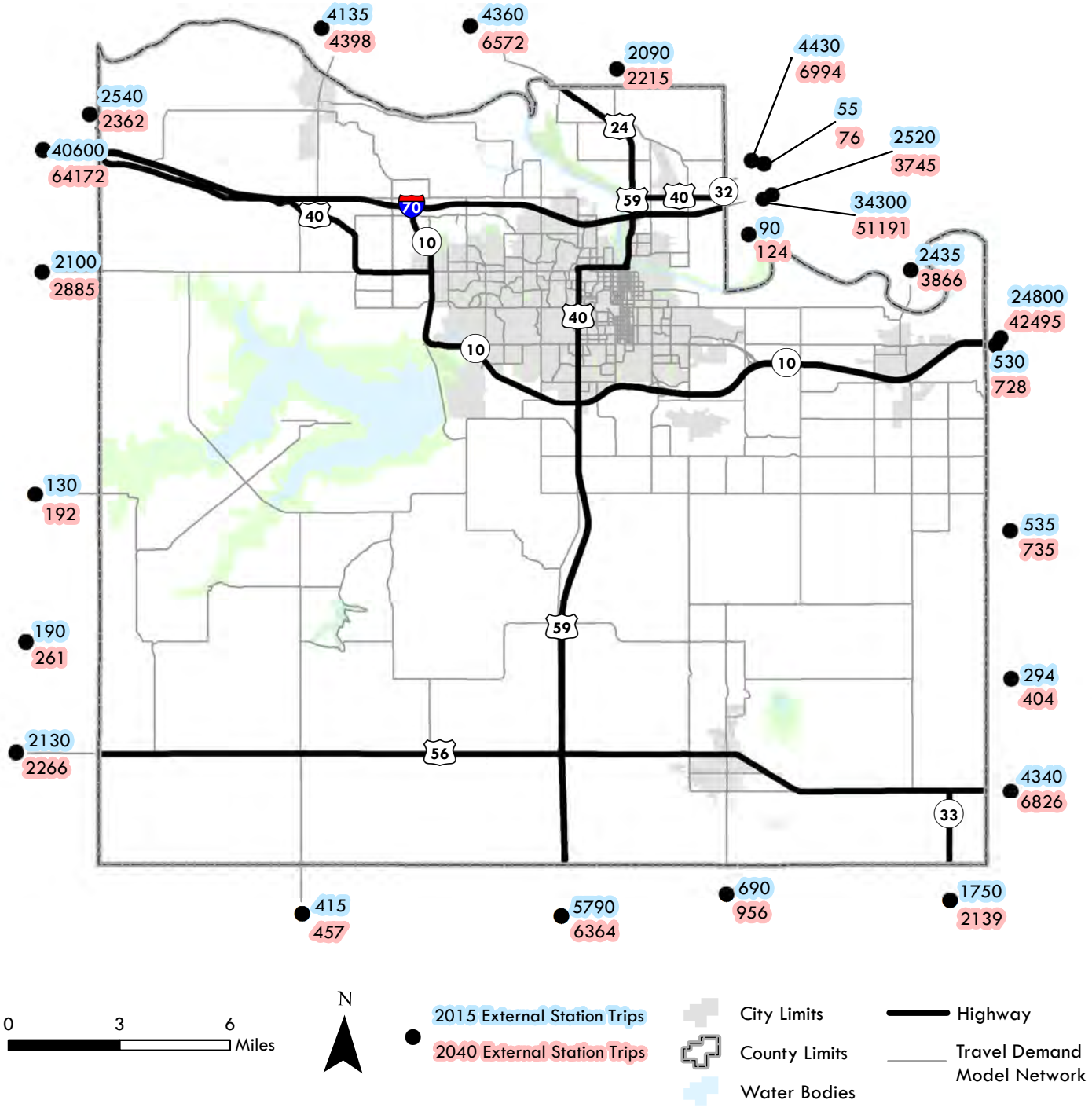
Figure D.5: 2040 Employment by TAZ



Source: Longitudinal Employer-Household Dynamics (LEHD)/LEHD Origin-Desination Employment Statistics (LODES) Data (2015)*
Produced: Lawrence-Douglas County MPO (2017)

*Corrected by MPO Staff for identified dataset locational attribution errors

Figure D.6: External Station - Trips



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

C. Running the Model

The model is subject to calibration and validation ensuring an accurate representation of the 2016 base year. Each component of the travel demand model is adjusted until the model sufficiently represent base year's real world conditions. Once the model traffic volume output results are validated, it is used to forecast reasonable future-volumes for transportation planning scenarios, shown in Table D.2. The model output displays a ratio of volume of traffic over roadway capacity. Model output displays three different Level of Services (LOS) shown in the sidebar on the next page.

$$\frac{\text{Traffic Volume}}{\text{Roadway Capacity}} = \text{Level of Service (LOS)}$$

Table D.2: Model Scenarios & Descriptions

Scenarios	Description
Base Year	Existing 2016 Roadway with 2016 Population
No Build	Existing 2016 Roadway network with projected 2040 Population
A	Existing 2016 Roadway network with 2040 Population and these roadway improvements: • K-10 West Leg 4 Lane, with system to system interchange at K-10/ I-70, a new interchange at Wakarusa Dr. and closure of the Kasold Dr. intersection. • Widen I-70 through Douglas County to 6 Lanes • I-70 Interchange at Lecompton • Construct E 850 Rd. from Future N 1650 Rd. to Future N 1457 Rd. to Lawrence Collector standards • Construct N 1457 Rd. from E 900 Rd. to E 850 Rd. to Lawrence Arterial standards • Extend Hunters Hill Dr. from Hill Song Cir. to N 1750 Rd. • Extend Franklin Rd. from 25th St. to 31st St. • Extend 28th St. from O'Connell Rd. to E 1700 Rd. • Extend 19th St. to O'Connell Rd. • Extend 31st St. from O'Connell Rd. to 1900 Rd.
B	Existing 2016 Roadway network with 2040 Population and these roadway improvements: • K-10 West Leg 4 Lane, a new interchange at Wakarusa Dr. and closure of the Kasold Dr. intersection. • I-70 through Douglas County – 6 Lane • Construct E 850 Rd. from Future N 1650 Rd. to Future N 1457 Rd. to Lawrence Collector standards • Construct N 1457 Rd. from E 900 Rd. to E 850 Rd. to Lawrence Arterial standards • Extend Hunters Hill Dr. from Hill Song Cir. to N 1750 Rd. • Extend Franklin Rd. from 25th St. to 31st St. • Extend 28th St. from O'Connell Rd. to E 1700 Rd. • Extend 19th St. to O'Connell Rd. • Extend 31st St. from O'Connell Rd. to 1900 Rd.
C	Existing 2016 Roadway network with 2040 Population and these roadway improvements: • K-10 West Leg 4 Lane, with system to system interchange at K-10/ I-70, a new interchange at Wakarusa and closure of the Kasold intersection. • I-70 Interchange at Lecompton • Construct E 850 Rd. from Future N 1650 Rd. to Future N 1457 Rd. to Lawrence Collector standards • Construct N 1457 Rd. from E 900 Rd. to E 850 Rd. to Lawrence Arterial standards • Extend Hunters Hill Dr. from Hill Song Cir. to N 1750 Rd. • Extend Franklin Rd. from 25th St. to 31st St. • Extend 28th St. from O'Connell Rd. to E 1700 Rd. • Extend 31st St. from O'Connell Rd. to 1900 Rd.

D. Base Year Model

The base year model is developed providing a picture of existing travel patterns. This is an integral part of the model calibration and validation process. Developing a base year model is critical allowing for a comparison to observed traffic counts, and providing assurance that future scenarios are modeled on the same assumptions as the base year model. The 2016 Base year model is pictured for Douglas County in Figure D.7 and zoomed to Lawrence in Figure D.8.

Level of Service (LOS) Categories

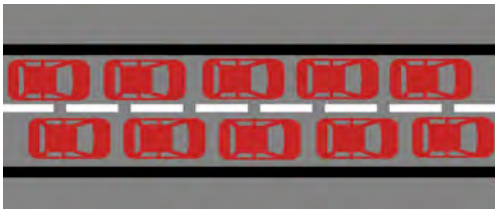
Uncongested (A-C)

Level of Service A-C are uncongested roadways ranging from free-flow traffic with unrestricted ability to select speed and maneuvering to restricted flow that remains stable. The maps display LOS A-C as green lines.

Congesting (D)

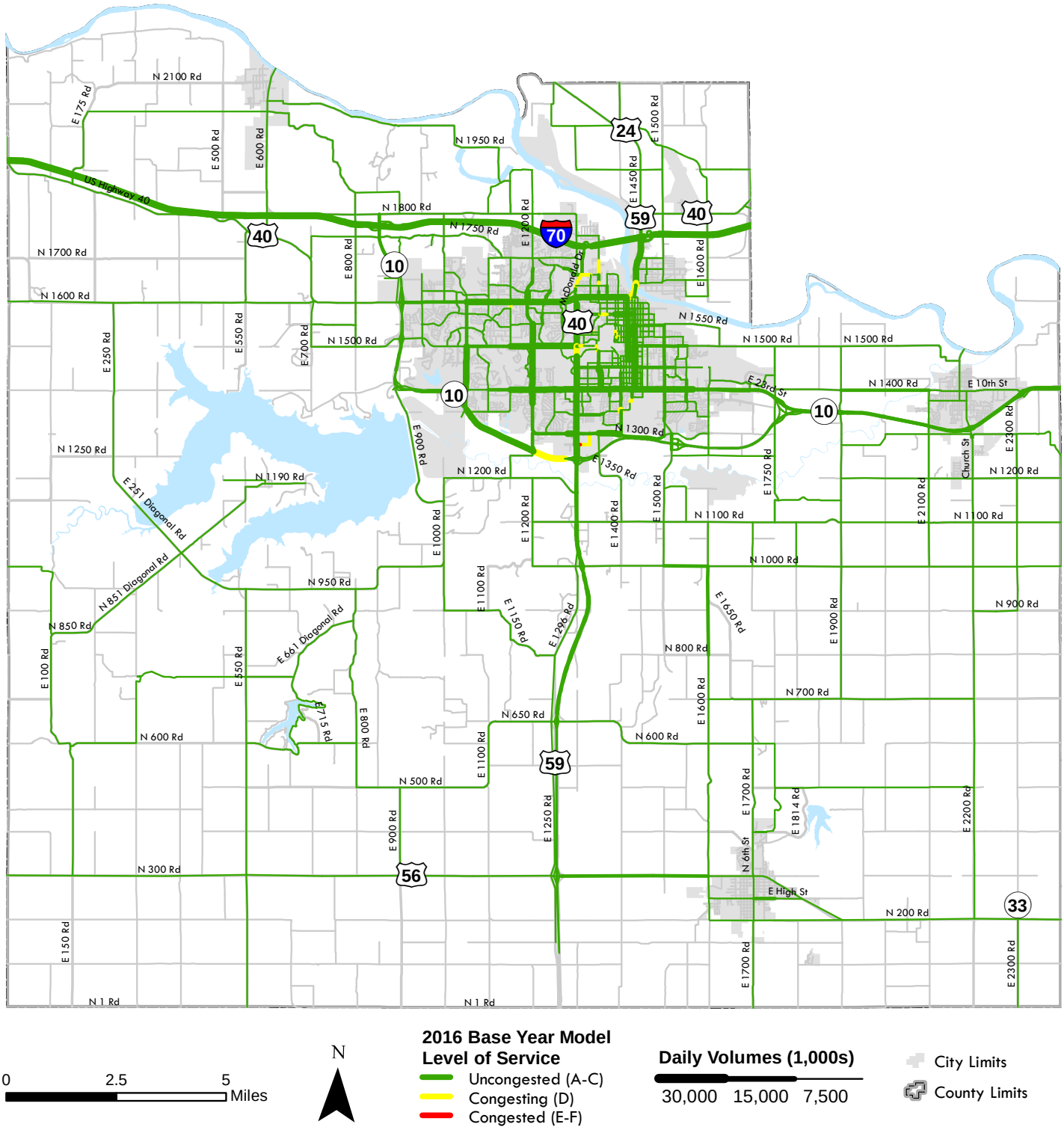
Level of Service D consists of congesting roadways, which consists of restricted speed and the freedom to maneuver, although flow remains stable. The maps display LOS D as yellow lines.

Congested (E-F)



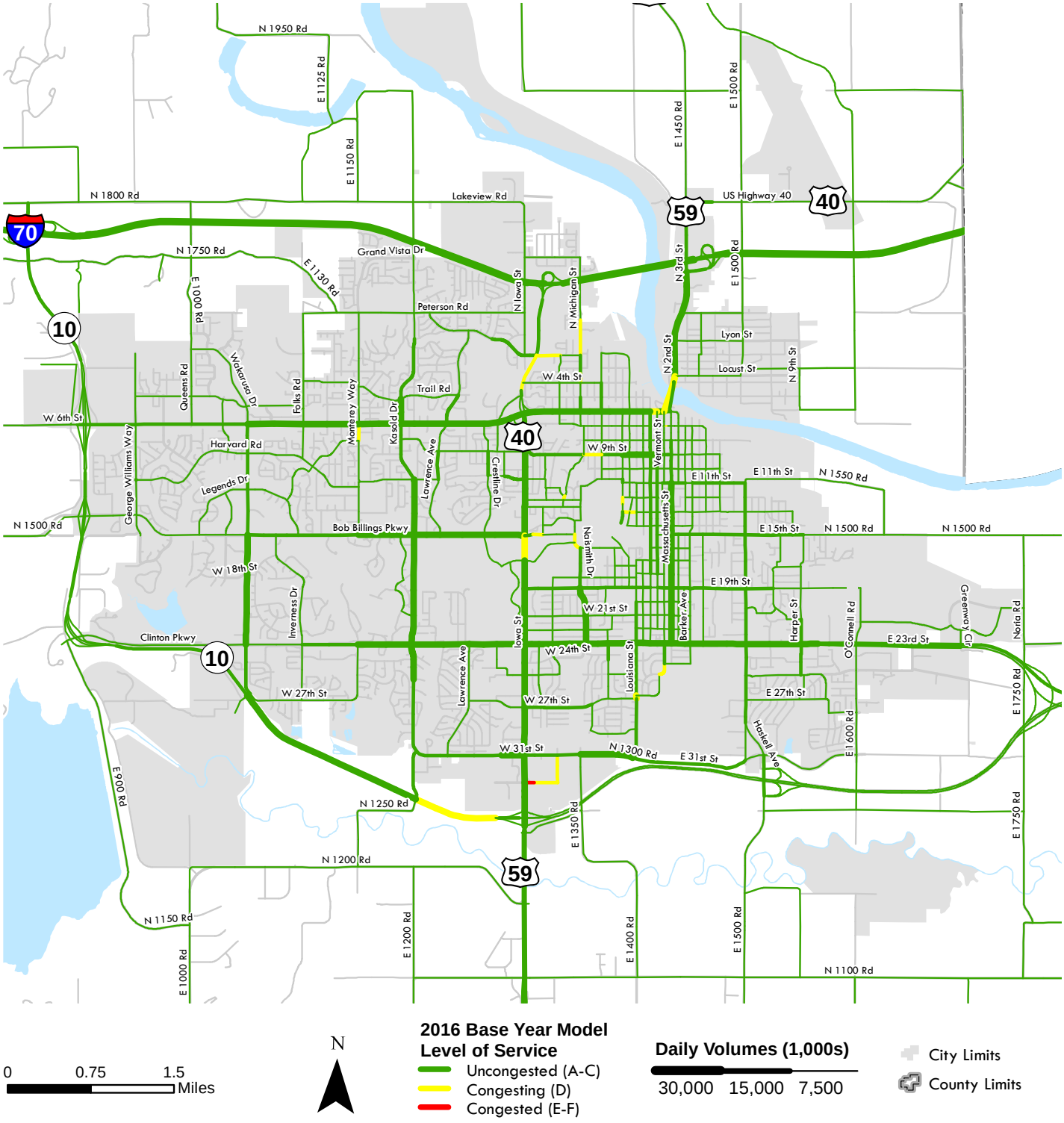
Level of Service E-F are congested roadways, meaning traffic is bumper to bumper, characterized by stop-and-go waves, and poor travel times. The maps display LOS E-F as red lines.

Figure D.7: 2016 Base Year Model (County)
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure D.8: 2016 Base Year Model (Lawrence)
Click below to view an interactive map

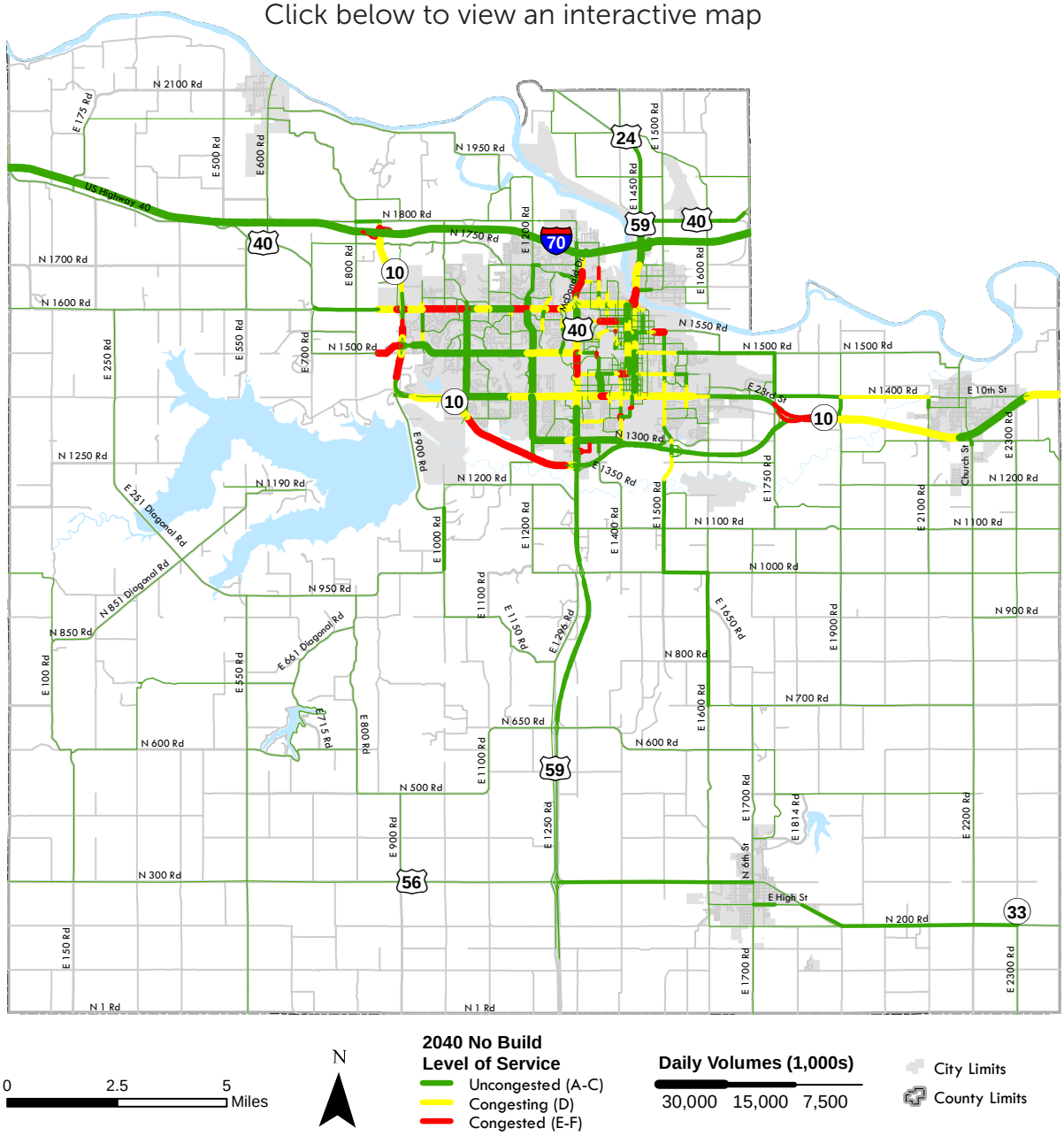


Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

E. No Build

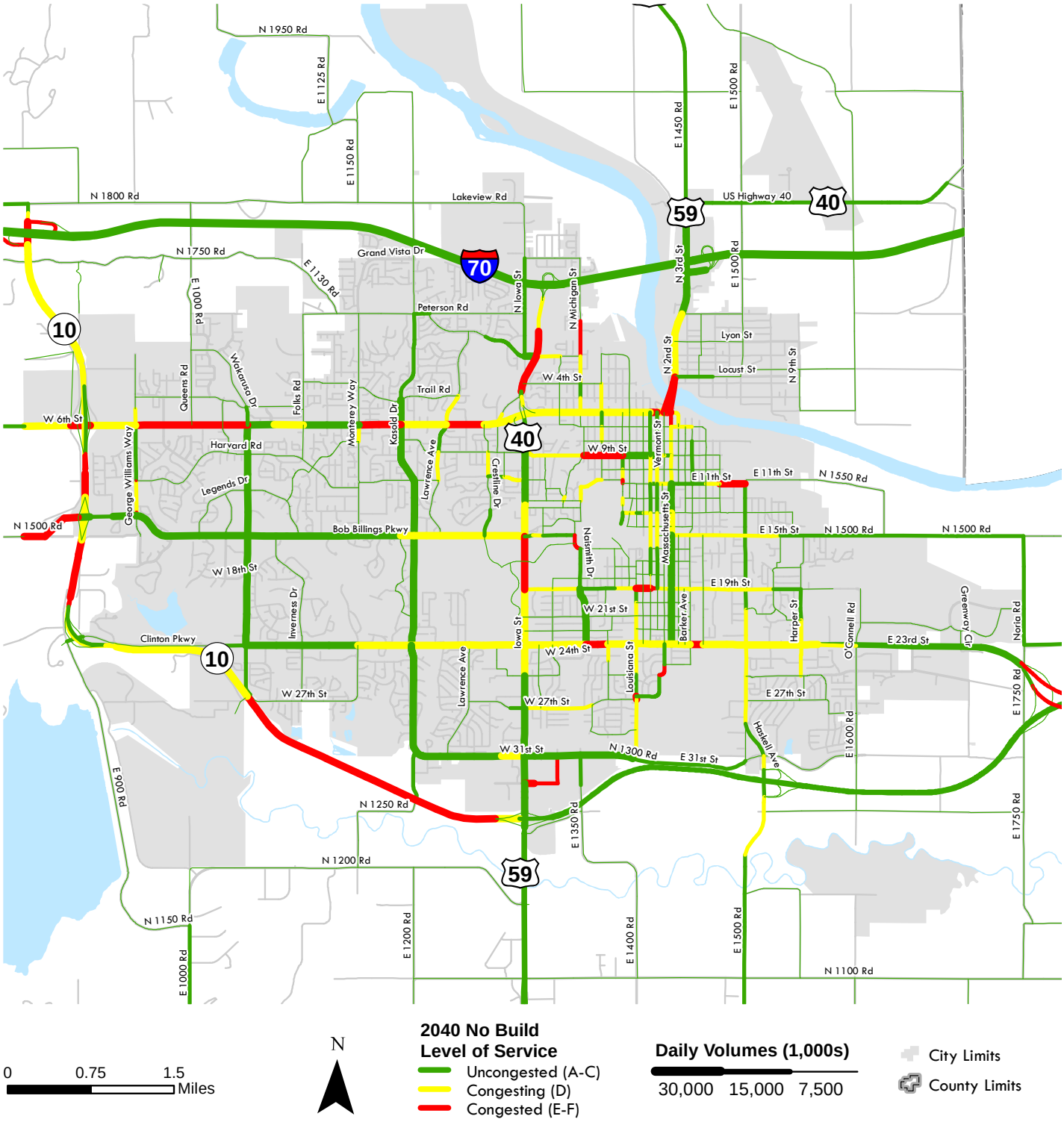
The 2040 No Build model was developed to show the level of service and congestion expected in 2040 if no projects were constructed. As shown in Figure D.9 and D.10, there are many congested and congesting segments.

Figure D.9: 2040 No Build Scenario (County)
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure D.10: 2040 No Build Scenario (Lawrence)
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

F. Build Scenarios

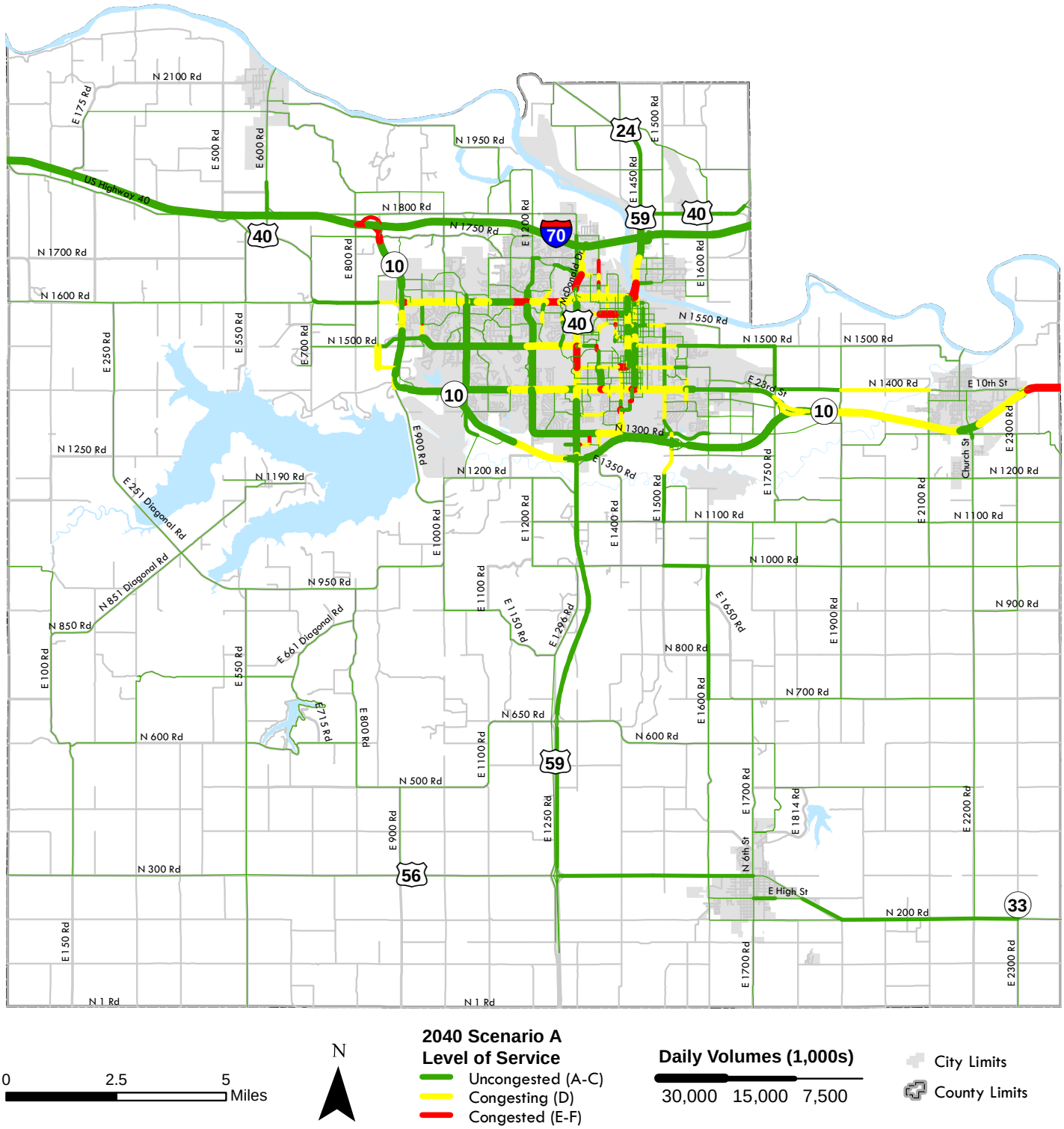
Three scenarios were developed measuring impacts of different potential improvements within the region. The proposed improvements address failings in the existing conditions/No Build models, are market driven connections to the network, or are necessary improvements to address roadway conditions and capacity. Projects included in the scenarios are limited to proposed projects that change roadway characteristics by increasing lanes, changing alignments, separating grades, or constructing roadways that currently does not exist. There are additional projects proposed as part of T2040 that might impact capacity of the roadway; however, they do not change network attributes used within the model. An example of this might be access management or intersection geometric improvements.

Figure D.11 and D.12 show Scenario A, which there is still some congestion shown even with all of the projects listed in Table D.2. However, the congestion levels are lower when compared to the No Build scenario. The hours of delay for Scenario A are the lowest of the three 2040 build scenarios. This scenario includes a K-10/I-70 system-to-system interchange, an I-70 Interchange at Lecompton, and has the 19th St. to O'Connell Rd. extension completed.

Scenario	Network Year	Total Population	Total Employment	Total Lane Miles	Vehicle Miles Traveled*	Vehicle Hours Traveled*	Delay (Hours)
2040 Build - Scenario A	Scenario A	161,935	81,985	1,380	4,226,464	156,580	12,788

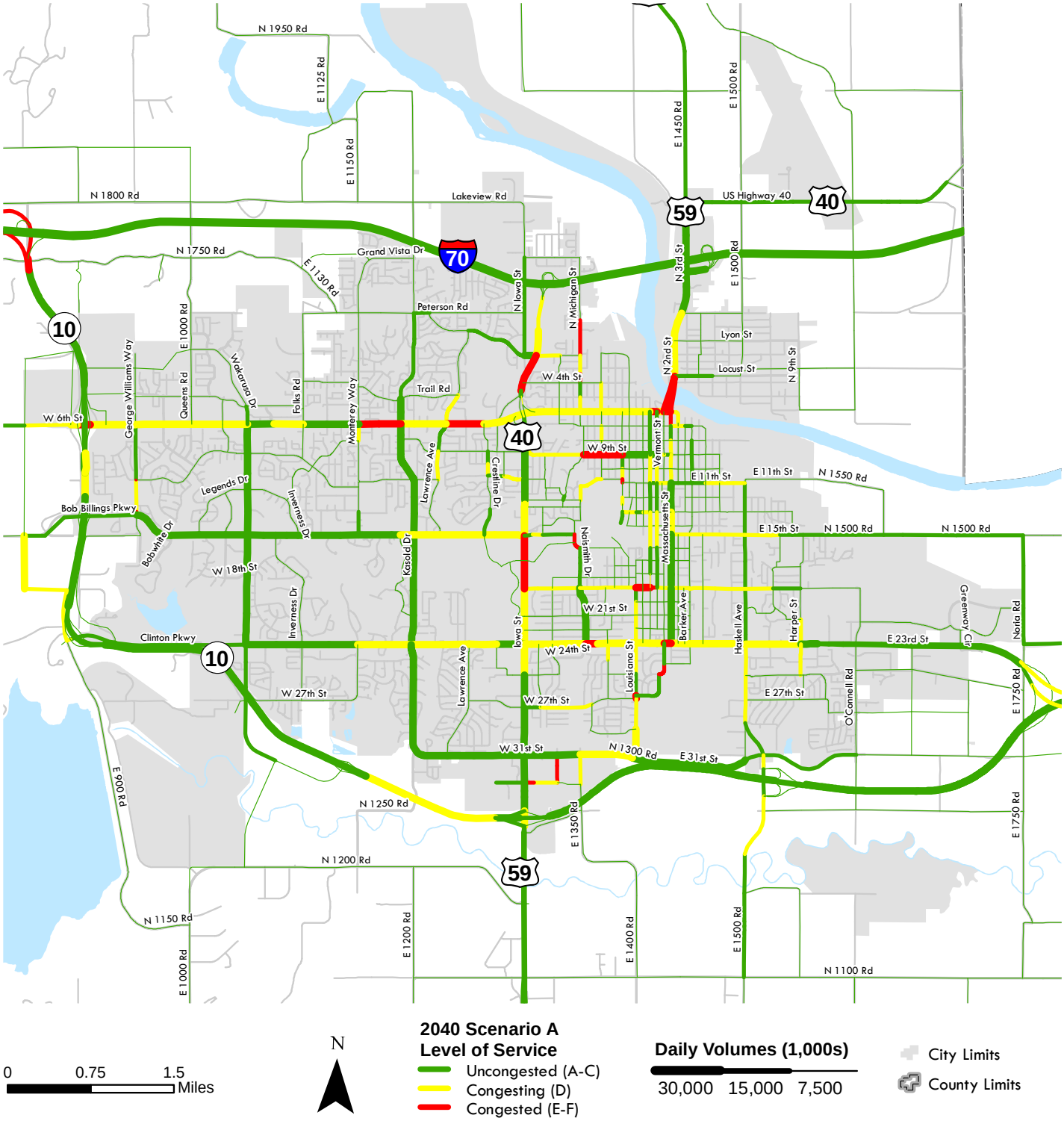
Note: *Without Centroids

Figure D.11: Scenario A (County)



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure D.12: Scenario A (Lawrence)



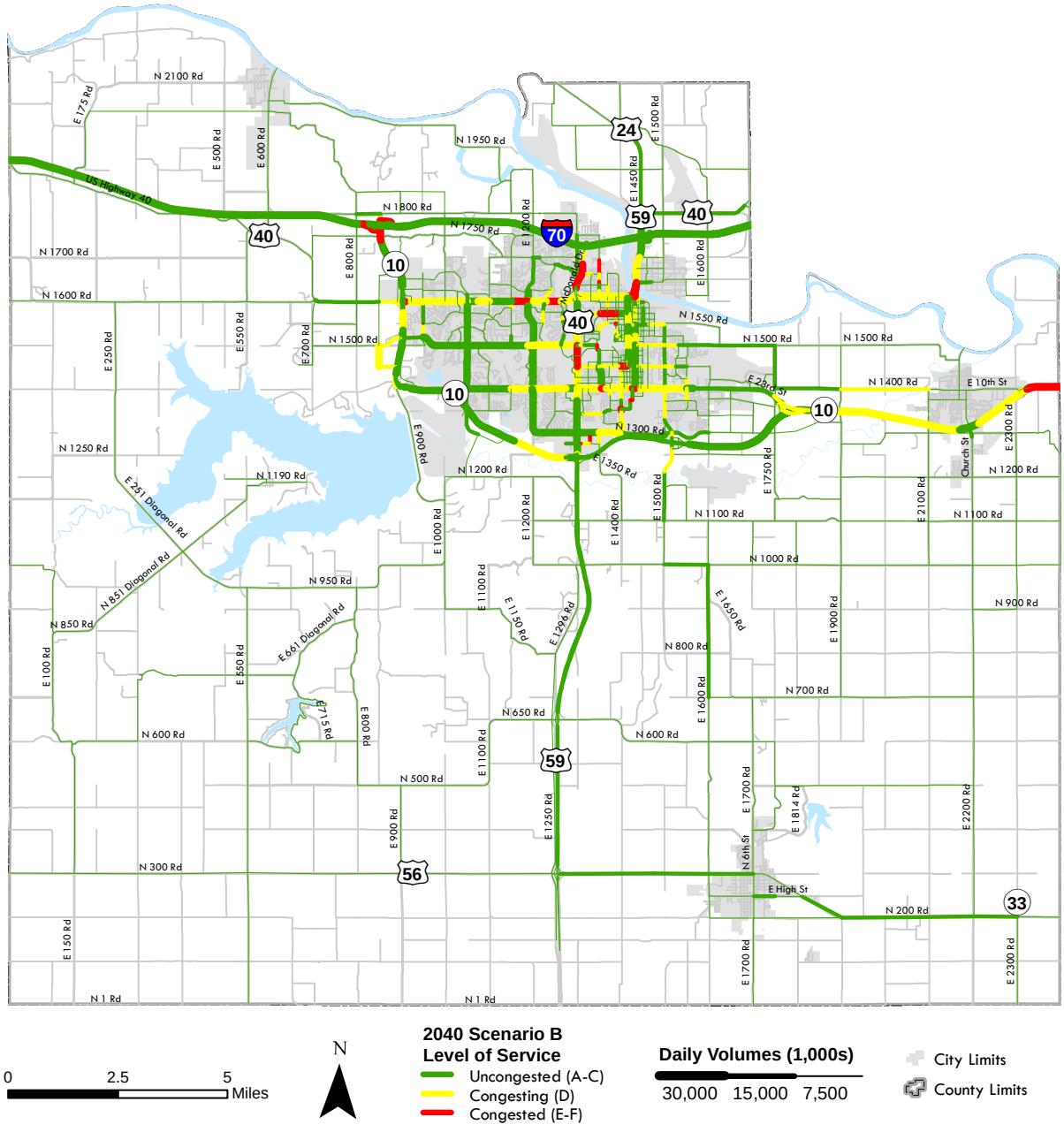
Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Scenario B, shown in Figure D.13 and D.14, maintains current K-10/I-70 access at Farmer's Turnpike and includes the 19th St. to O'Connell Rd. extension. This scenario has the highest levels of delay of the tested scenarios.

Scenario	Network Year	Total Population	Total Employment	Total Lane Miles	Vehicle Miles Traveled*	Vehicle Hours Traveled*	Delay (Hours)
2040 Build - Scenario B	Scenario B	161,935	81,985	1,379	4,246,040	158,047	13,315

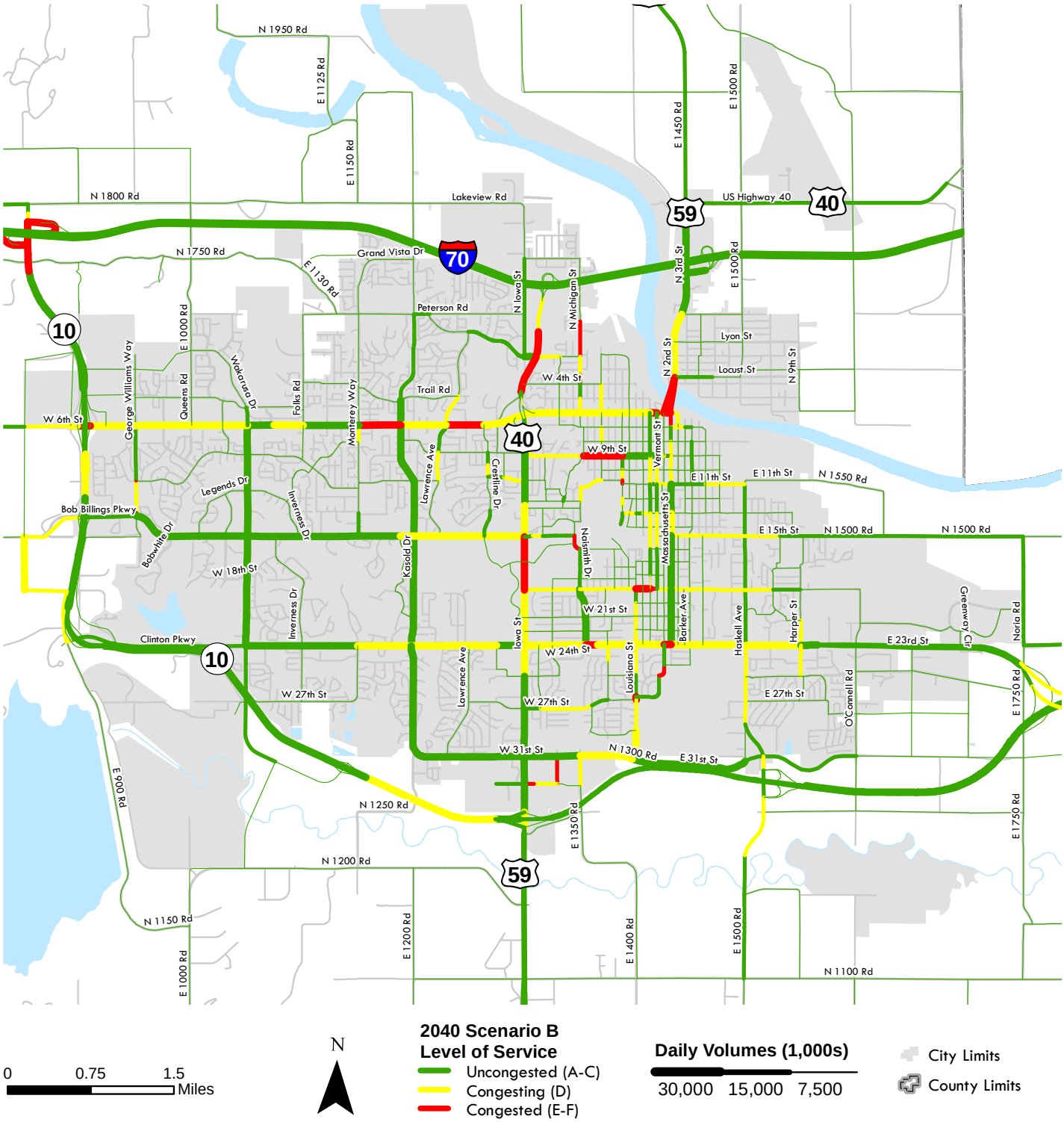
Note: *Without Centroids

Figure D.13: Scenario B (County)



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure D.14: Scenario B (Lawrence)



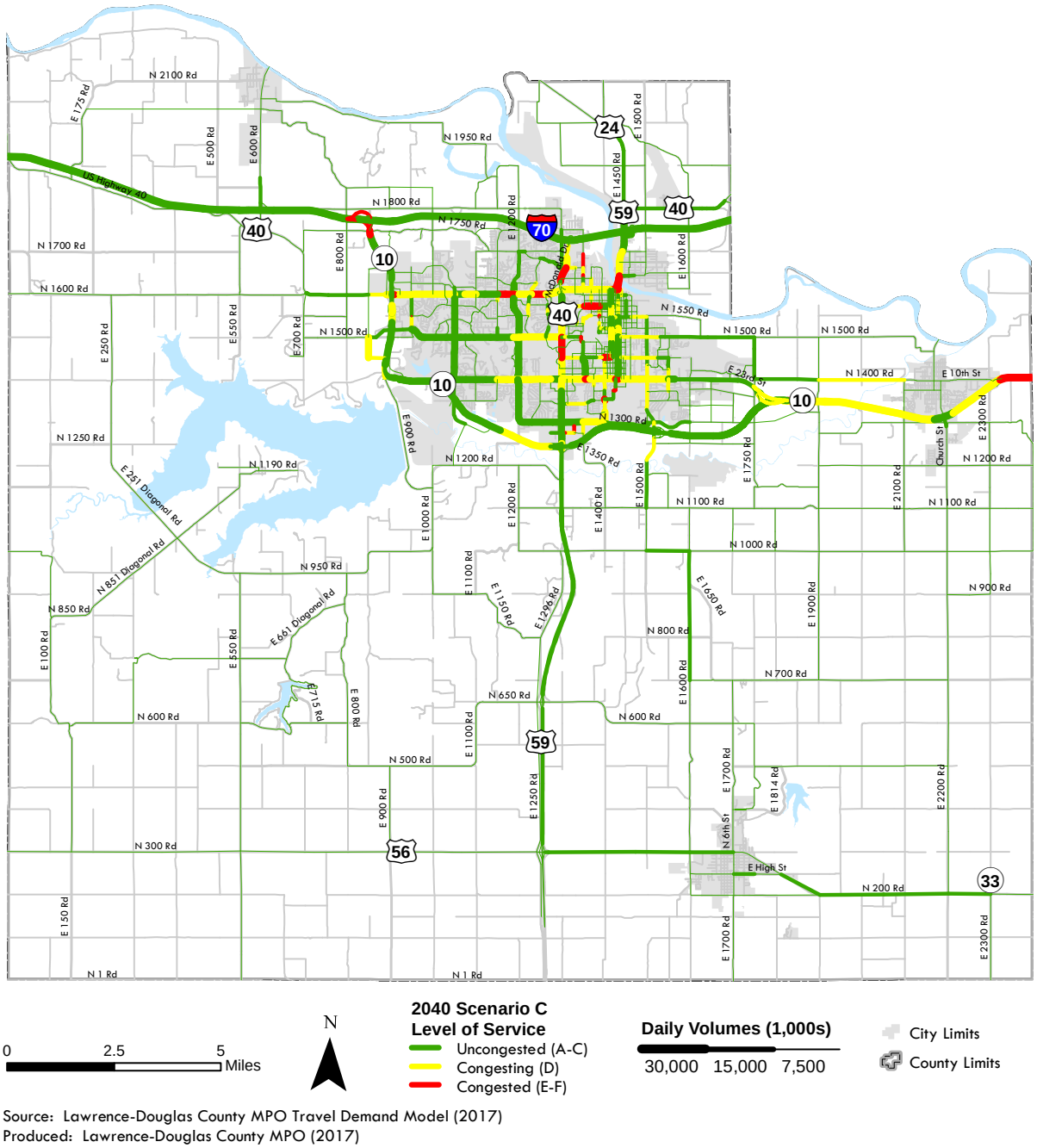
Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Scenario C, shown in Figure D.15 and D.16, includes a system-to-system interchange at K-10/I-70. There is marginally less congestion shown in this scenario than in Scenario B.

Scenario	Network Year	Total Population	Total Employment	Total Lane Miles	Vehicle Miles Traveled*	Vehicle Hours Traveled*	Delay (Hours)
2040 Build - Scenario C	Scenario C	161,935	81,985	1,361	4,227,969	156,659	12,837

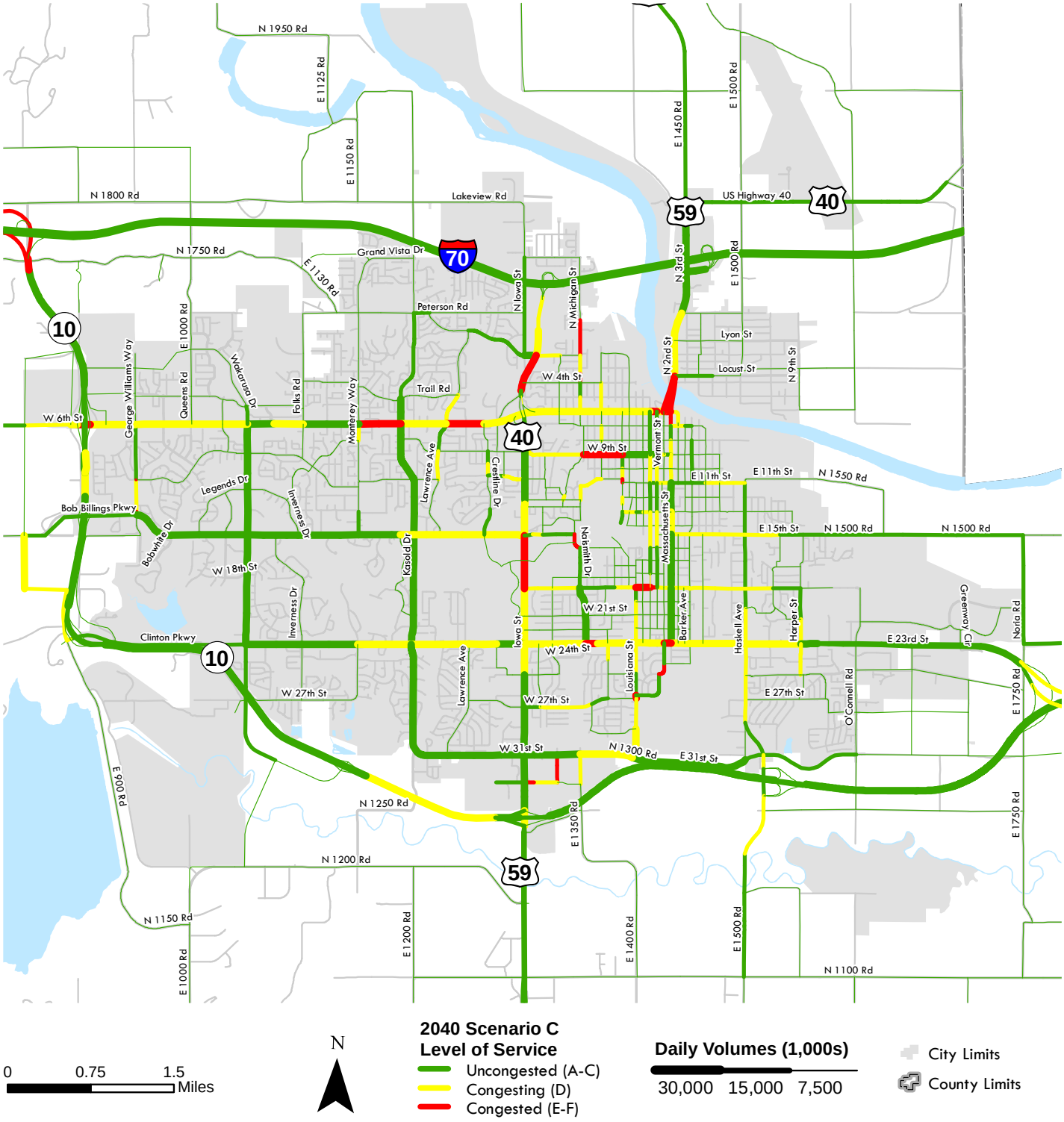
Note: *Without Centroids

Figure D.15: Scenario C (County)



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

Figure D.16: Scenario C (Lawrence)



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

G. Preferred Scenario

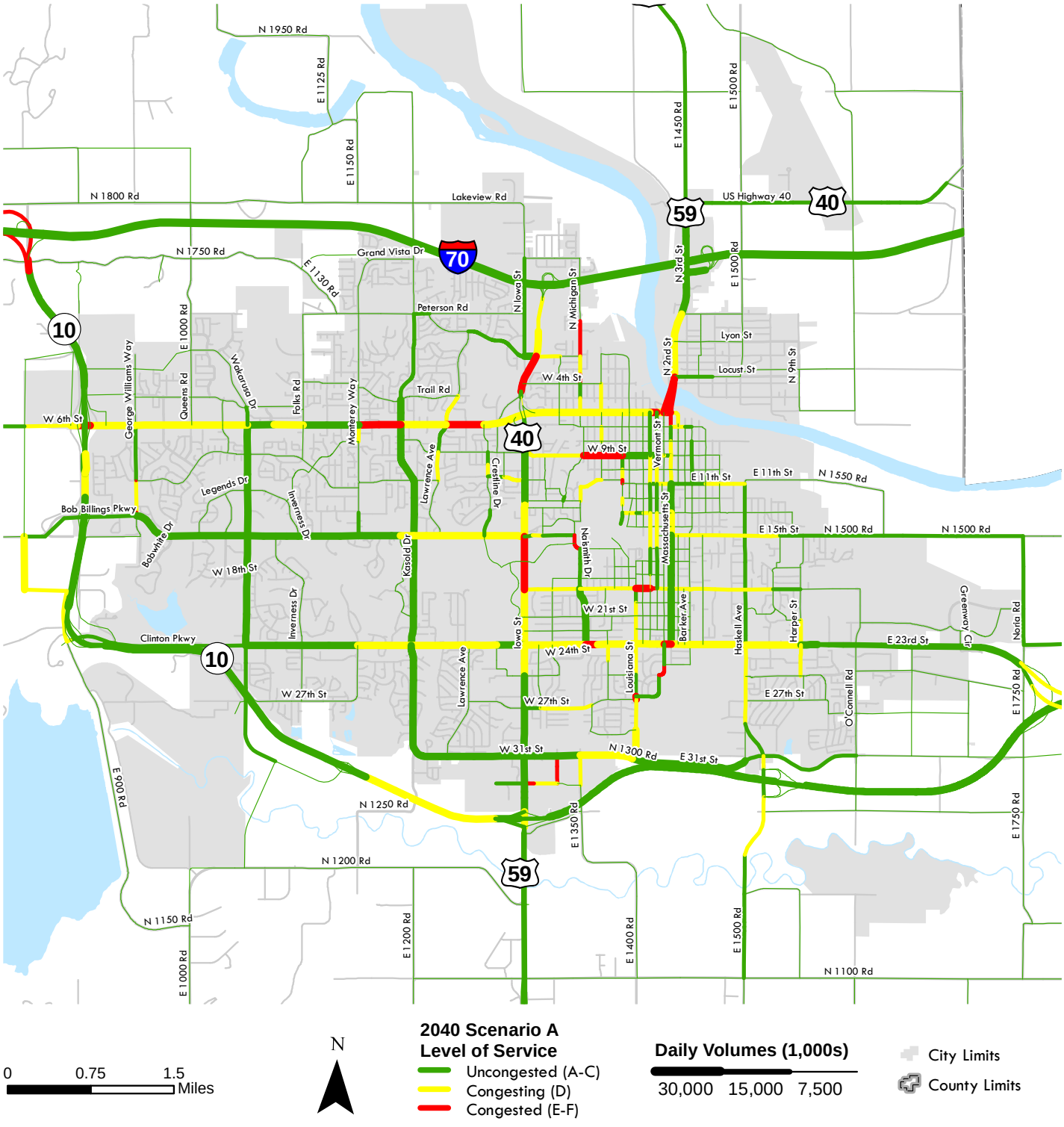
Of the three scenarios, Scenario A is the preferred option (Figure D.17). While there are still some levels of congestion shown specifically around the K-10/I-70 system-to-system interchange, this scenario has the lowest amount of delay hours. The modeled system-to-system alignment is not the final project, rather an example of an alignment. KDOT has not yet released the alignment, number of lanes, and other design factors since the project is currently under review. Table D.3 displays the variations between the base year model, 2040 No Build, and the three scenarios.

Table D.3: Model Output Summary

Scenario	Network Year	Total Population	Total Employment	Total Lane Miles	Vehicle Miles Traveled*	Vehicle Hours Traveled*	Delay (Hours)
2016 Base	2016	119,891	62,045	1,305	2,813,150	104,634	2,467
2040 No Build	2016	161,935	81,985	1,305	4,175,164	158,135	16,244
2040 Build - Scenario A	Scenario A	161,935	81,985	1,380	4,226,464	156,580	12,788
2040 Build - Scenario B	Scenario B	161,935	81,985	1,379	4,246,040	158,047	13,315
2040 Build - Scenario C	Scenario C	161,935	81,985	1,361	4,227,969	156,659	12,837

Note: *Without Centroids

Figure D.17: Preferred Scenario
Click below to view an interactive map



Source: Lawrence-Douglas County MPO Travel Demand Model (2017)
Produced: Lawrence-Douglas County MPO (2017)

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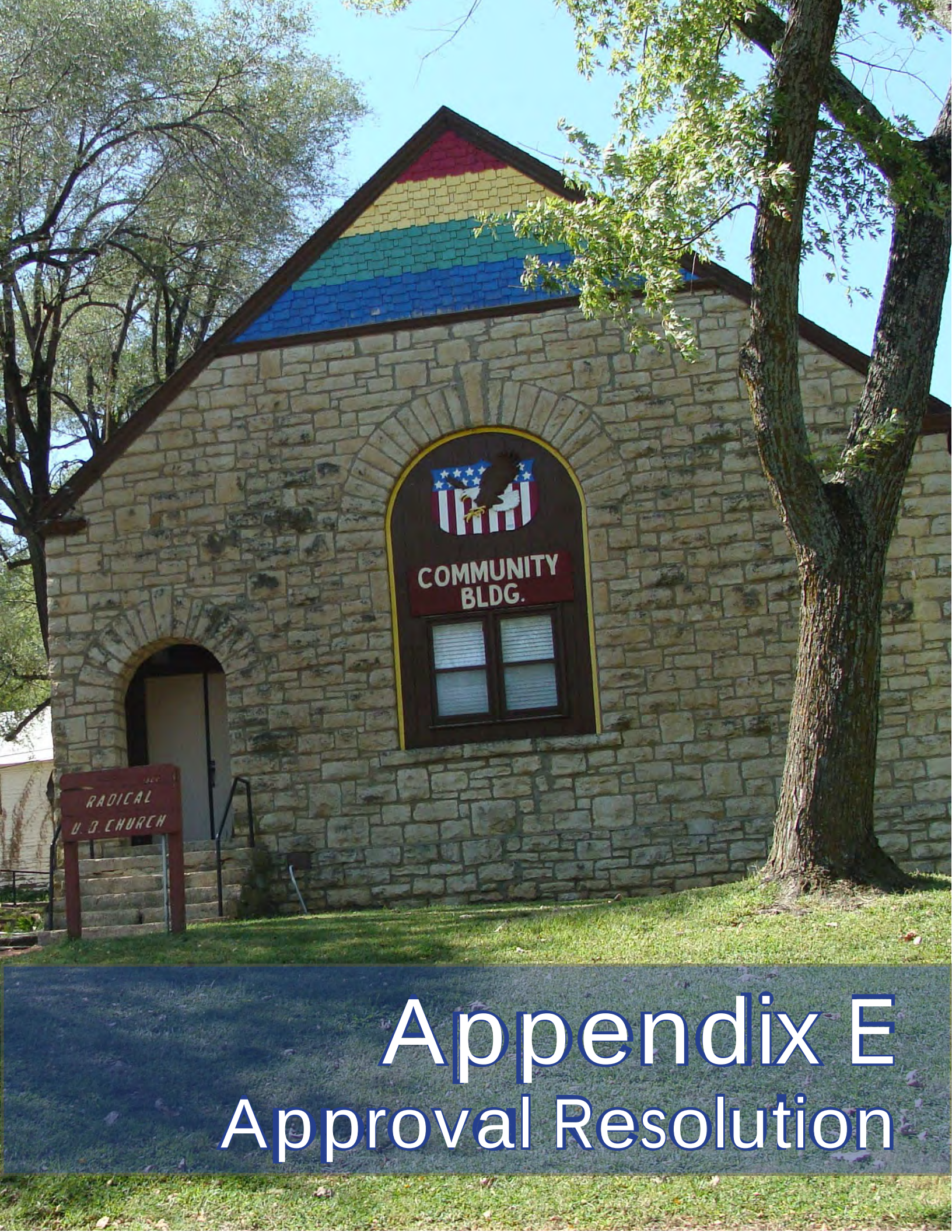


Appendix E
Approval Resolution

Appendix E. Approval Resolution

A. Lawrence-Douglas County MPO Policy Board

LAWRENCE - DOUGLAS COUNTY MPO
METROPOLITAN PLANNING ORGANIZATION

RESOLUTION 2018-01

WHEREAS, the Lawrence-Douglas County Metropolitan Planning Organization (L-DC MPO) is designated as the Metropolitan Planning Organization (MPO) to carry out the Continuing, Cooperative and Comprehensive (3C) planning program, including transportation planning for the Lawrence-Douglas County Metropolitan Planning Area (MPA); and,

WHEREAS, the Metropolitan Transportation Plan (MTP) is one of the required MPO documents that must be updated for our region every five years and is a document that can also be amended as needed; and,

WHEREAS, the MTP is a long range plan for the multimodal transportation system in the Metropolitan Planning Area and is the MPO policy document that sets the vision for the future improvements to that multimodal system; and,

WHEARAS, the MTP reflects national transportation planning goals and addresses federal planning regulations related to MPO documents and their approval process; and,

WHEREAS, the MPO has conducted a public participation program over the past year for gaining public input and comments about this new MTP update.

NOW, THEREFORE BE IT RESOLVED that the Lawrence-Douglas County Metropolitan Planning Organization hereby approves this 2018 Metropolitan Transportation Plan update called the Transportation 2040 Plan as presented for approval at the MPO Meeting held on this 15th day of March 2018.

Cory Davis, L-DC MPO Chairperson

Scott McCullough, L-DC MPO Secretary

Appendix F
System Performance Report

ACCESS AND CHOICES

Goal:
Enhance Transportation options and choices for improved system performance.

Objective:
Improve regional connectivity (urban/rural) of all modes of the transportation networks including access to desired destinations.

1

Desired Trend

Percentage of people who have access within a ¼ mile to the bikeway network

	2015 Population Estimate	Bike Route	Bike Boulevard	Bike Lane	Protected Bike Lane	Shared Use Path	Total Bikeway Network Access
Lawrence	95,096	62%	0%	35%	0%	38%	87%
EJ Zone	50,627	76%	0%	37%	0%	33%	87%
Eudora	5,685	0%	0%	0%	0%	39%	39%
Baldwin City	4,677	0%	0%	0%	0%	17%	17%
Lecompton	611	0%	0%	0%	0%	0%	0%
Unincorporated Douglas County	13,822	0%	0%	0%	0%	0%	0%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: 2015 Population Estimate and Bikeway Network (2017)

2

Desired Trend

Percentage of public streets with sidewalks on at least one side

	Miles	%
Lawrence	294.5	72%
EJ Zone	130.1	48%
Eudora	14.8	34%
Baldwin City	15.5	44%
Lecompton	1.4	14%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: Lawrence-Douglas County MPO: Lawrence (2017), Eudora (2014), Baldwin City (2014), Lecompton (2015)

3

Desired Trend

Percentage of public streets with bikeway network

	Bike Route	Bike Boulevard	Bike Lane	Protected Bike Lane	Shared Use Path	Total Bikeway Network Access
Lawrence	11%	0%	4%	0%	7%	22%
EJ Zone	12%	0%	4%	0%	5%	20%
Eudora	0%	0%	0%	0%	2%	2%
Baldwin City	0%	0%	0%	0%	3%	3%
Lecompton	0%	0%	0%	0%	0%	0%
Unincorporated Douglas County	1%	0%	0%	0%	0%	1%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: Lawrence-Douglas County MPO (2017)

Goal:
Enhance Transportation options and choices for improved system performance.

Objective:
Enhance transit service, amenities and facilities.

ACCESS AND CHOICES

Unlinked Passenger Trips per Vehicle Revenue Hour for demand response & fixed route service

4

Desired Trend

T Lift

	Total Unlinked Passenger Trips	Total Vehicle Revenue Hours	Average Passenger per Revenue Hour
2013	60,418	29,391	2.06
2014	61,444	26,933	2.28
2015	79,364	37,419	2.12
2016	84,369	40,943	2.06

Source: Lawrence Transit (2017)

Fixed Route

	Total Unlinked Passenger Trips	Total Vehicle Revenue Hours	Average Passenger per Revenue Hour
2013	2,916,833	89,049	32.76
2014	3,025,738	90,514	33.43
2015	2,913,606	95,827	30.40
2016	3,282,422	105,996	30.97

Source: Lawrence Transit and KU on Wheels (2017)

Percentage of population with access within a ¼ mile to a bus stop for fixed route transit

5

Desired Trend

	2015 Population Estimate	Within a 1/4 mile of a Bus Stop	
Lawrence	95,096	66,820	70%
EJ Zone	50,627	44,359	88%

Note: EJ zone percentage includes only the EJ zone, not all of Lawrence
Source: 2015 Population Estimate and Lawrence Transit Stops 2016-17

MOBILITY AND PROSPERITY

Goal:
Efficient movement of people, goods, and freight.

Objective:
Implement strategies that address system performance & Improve reliability, capacity and competitiveness for regional freight.

6

Percent of the Person-Miles Traveled on the Interstate & Non-Interstate NHS That Are Reliable

Desired Trend

	Interstate	Non-Interstate NHS*
2017*	100%	99%

Note: * Inaccurate NHS designations utilizes best available data.
Source: NPMRDS - 2017 Year-to-Date - Accessed 1-31-18

7

Average Travel Time to Work (Minutes)

Desired Trend

Entity	2013	2014	2015
Lawrence	18.4	18.9	19.2
Baldwin City	28.2	26.4	24.3
Eudora	26.5	27.4	26.6
Lecompton	26.6	26.0	25.5
Douglas County	20.1	20.3	20.4

Source: ACS 5-year estimates (S0801)

8

Truck Travel Time Reliability (TTTR) Index on the Interstate system

Desired Trend

2017
1.07

Source: NPMRDS - 2017 Year-to-Date - Accessed 1-31-18

Goal:
Prioritize preservation, safety, and security of the transportation network.

Objective:
Support projects and policies that improve safety and security.

PRESERVATION, SAFETY, AND SECURITY

Number of fatalities (All public roads) 9

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorporated Douglas County	Douglas County
2007-2011	0.0	0.0	3.2	0.0	4.4	7.6
2008-2012	0.0	0.0	3.6	0.0	5.2	8.8
2009-2013	0.0	0.0	3.0	0.0	4.2	7.2
2010-2014	0.0	0.0	2.2	0.0	5.2	7.4
2011-2015	0.0	0.0	1.8	0.0	6.4	8.2
2012-2016	0.0	0.0	1.6	0.0	5.6	7.4

5-Yr Rolling Avg Targets for Douglas County	
2018	6.2
2019	5.8
2020	5.6

Note: Includes vehicles, bicycle, and pedestrian crashes.
Source: KDOT (2017)

Rate of fatalities per 100 million VMT (All public roads) 10

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorporated Douglas County	Douglas County
2007-2011	0.0	0.0	0.8	0.0	0.9	0.8
2008-2012	0.0	0.0	0.9	0.0	1.0	0.9
2009-2013	0.0	0.0	0.7	0.0	0.8	0.8
2010-2014	0.0	0.0	0.5	0.0	1.0	0.8
2011-2015	0.0	0.0	0.4	0.0	1.2	0.8
2012-2016	0.0	0.0	0.4	0.0	1.1	0.8

5-Yr Rolling Avg Targets for Douglas County	
2018	0.8
2019	0.8
2020	0.8

Note: Includes vehicles, bicycle, and pedestrian crashes.
Source: KDOT (2017)

Number of serious injuries (All public roads) 11

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorporated Douglas County	Douglas County
2007-2011	0.6	2.2	35.2	0.0	27.0	65.0
2008-2012	0.6	2.6	31.6	0.0	24.6	59.4
2009-2013	0.6	2.6	27.8	0.0	23.4	54.4
2010-2014	0.6	1.8	26.0	0.0	21.8	50.2
2011-2015	0.6	0.8	22.0	0.0	18.8	42.2
2012-2016	0.0	0.4	20.0	0.0	15.4	35.8

5-Yr Rolling Avg Targets for Douglas County	
2018	26.2
2019	25.0
2020	25.7

Note: Includes vehicle, bicycle, and pedestrian crashes.
Source: KDOT (2017)

PRESERVATION, SAFETY, AND SECURITY

Goal:
Prioritize preservation, safety, and security of the transportation network.

Objective:
Support projects and policies that improve safety and security.

12 Rate of serious injuries per 100 million VMT (All public roads)

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Unincorporated Douglas County	Douglas County
2007-2011	6.8	14.4	8.6	0.0	5.2	6.8
2008-2012	6.7	17.0	7.7	0.0	4.8	6.2
2009-2013	6.8	17.2	6.7	0.0	4.5	5.7
2010-2014	7.0	12.1	6.3	0.0	4.2	5.2
2011-2015	7.2	4.6	5.2	0.0	3.6	4.4
2012-2016	0.0	1.9	4.7	0.0	2.9	3.6

5-Yr Rolling Avg Targets for Douglas County	
2018	2.6
2019	2.4
2020	2.4

Note: Includes vehicle, bicycle, and pedestrian crashes.
Source: KDOT (2017)

13 Number of non-motorized fatalities and serious injuries (All public roads)

Rolling Averages	Baldwin City	Eudora	Lawrence	Lecompton	Douglas County Unincorporated	Douglas County
2007-2011	0.4	0.0	6.2	0.0	1.2	7.8
2008-2012	0.4	0.0	6.4	0.0	0.8	7.6
2009-2013	0.4	0.0	6.8	0.0	0.6	7.8
2010-2014	0.4	0.0	6.2	0.0	1.0	7.6
2011-2015	0.4	0.0	6.0	0.0	1.0	7.4
2012-2016	0.0	0.0	6.6	0.0	0.8	7.4

5-Yr Rolling Avg Targets for Douglas County	
2018	7.2
2019	7.1
2020	7.8

Source: KDOT (2017)

Goal:
Prioritize preservation, safety, and security of the transportation network.

Objective:
Preserve and enhance transportation infrastructure and assets.

PRESERVATION, SAFETY, AND SECURITY

The federal government is moving towards evaluating bridges, utilizing a new metric that includes the deck, superstructure, and substructure. The rating is then weighted based on the deck area.

Percentage of NHS bridges by deck area classified as in Good condition

14

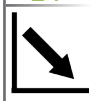
Desired Trend

	2012	2013	2014	2015	2016
KDOT	85.8%	88.9%	83.4%	83.6%	85.0%
Lawrence/Eudora	-	69.1%	69.1%	-	-
KTA	98.0%	99.3%	98.6%	98.6%	99.3%
Total	92.7%	94.7%	91.9%	92.2%	92.5%

Source: KDOT (2017)

Percentage of NHS bridges by deck area classified as in Poor condition

14



Desired Trend

	2012	2013	2014	2015	2016
KDOT	3.8%	0.5%	0.0%	0.0%	0.0%
Lawrence/Eudora	-	0.0%	0.0%	-	-
KTA	0.0%	0.0%	0.0%	0.0%	0.0%
Total	1.6%	0.2%	0.0%	0.0%	0.0%

Source: KDOT (2017)

Percentage of Non-NHS bridges by deck area classified as in Good condition

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Desired Trend

	2012	2013	2014	2015	2016
State Highway System	78.0%	79.4%	83.7%	88.4%	95.8%
Lawrence/Eudora	60.1%	62.8%	64.4%	65.6%	60.7%
County	79.1%	71.0%	68.6%	68.8%	79.9%
KTA	96.3%	96.3%	96.3%	96.3%	96.3%
Total	81.1%	75.7%	74.6%	75.9%	85.9%

Source: KDOT (2017)

Percentage of Non-NHS bridges by deck area classified as in Poor condition

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Desired Trend

	2012	2013	2014	2015	2016
State Highway System	6.8%	5.2%	0.0%	0.0%	0.0%
Lawrence/Eudora	0.0%	0.0%	0.0%	0.0%	0.0%
County	0.1%	0.1%	0.2%	0.2%	0.0%
KTA	0.0%	3.7%	3.7%	3.7%	3.7%
Total	1.0%	1.3%	0.7%	0.7%	0.4%

Source: KDOT (2017)

PRESERVATION, SAFETY, AND SECURITY

Goal:
Prioritize preservation, safety, and security of the transportation network.

Objective:
Preserve and enhance transportation infrastructure and assets.

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Desired Trend

Percentage of non-revenue and revenue vehicles met or exceeded their Useful Life Benchmark (ULB)

Category	Class	ULB	Ku on Wheels (15-YR ULB)	Lawrence Transit	Other Human Service Providers	% of Vehicles at or Exceeding ULB	L-DC MPO Target
Revenue Vehicles	Full-sized bus	14	53%	0%	-	34%	25%
	Cutaway bus	10	-	30%	33%	32%	25%
	Van	8	-	-	29%	27%	25%
	Minivan	8	-	-	36%	33%	25%
Non-Revenue Vehicles	Minivan	8	-	-	0%	0%	75%
	SUV	8	-	-	100%	100%	75%
	Automobile	8		100%	67%	75%	75%

Note: Target is to meet or exceeded FTA Useful Life Benchmark (ULB)
Source: Lawrence Transit, KU on Wheels, Other Human Service Providers (2017)

Percentage of assets with a condition rating below 3 on the FTA Transit Economic Requirements Model (TERM) scale

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There are no federally funded facilities.

Goal:
Prioritize preservation, safety, and security of the transportation network.

Objective:
Preserve and enhance transportation infrastructure and assets.

PRESERVATION, SAFETY, AND SECURITY

Percentage of pavements of the Interstate System in Good and Poor condition

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Good	Poor
? %	? %

Source: KDOT (2017)

Percentage of pavements of the non-Interstate NHS in Good and Poor condition

19

Good	Poor
? %	? %

Source: KDOT (2017)

Percentage of pavement of non-NHS major roads (collector and above) in Good & Poor condition

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Desired Trend for Good

Desired Trend for Poor

Lawrence						
	PCI Rating	2012	2013	2014	2015	2016
Arterial	Good (>= 65)	70.50%	66.51%	68.06%	71.64%	66.75%
	Poor (< 65)	29.50%	33.49%	31.94%	28.36%	33.25%
Collector	Good (>= 60)	76.43%	75.84%	78.22%	80.92%	79.40%
	Poor (< 60)	23.57%	24.16%	21.78%	19.08%	20.60%

Source: Lawrence (2017)

Douglas County					
PCI Rating	2012	2013	2014	2015	2016
Good (>= 80)	53.08%	57.91%	63.46%	74.02%	87.72%
Fair (60 - 79.9)	45.14%	41.73%	33.98%	25.98%	12.28%
Poor (< 59.9)	1.78%	0.36%	2.56%	0.00%	0.00%

Source: Douglas County (2017)

Eudora	
PCI Rating	2016
Good (>= 6)	78.30%
Poor (< 6)	21.70%

Source: Eudora (2017)

SUSTAIN AND ENHANCE

Goal:
Minimize adverse social, economic, and environmental impacts created by transportation.

Objectives:
Promote density to reduce transportation costs & Reduce enviornmental impacts of transportation.

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Desired Trend

Percentage Change in Density of Urban Area

	2014	2015	2016
Eudora	NA	3.37	3.32
Lawrence	4.16	4.22	4.28

Source: Lawrence-Douglas County GIS (2017)

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Desired Trend

Average cost of transportation per household

Annual Household Income: $50,939
15% of Income for Transportation = Affordable: $7,641

	Total Annual Transportation Costs	Annual Tranportation Costs % Over Affordable
Lawrence	$11,728	153%
Eudora	$13,649	179%
Baldwin City	$13,806	181%
Lecompton	$15,344	201%
Douglas County	$12,475	163%

Transportation costs are considered affordable if they are 15% or less of household income; This calculation used gas priced at $2.50 and Regional Typical Household Characteristics.

Source: https://htaindex.cnt.org/total-driving-costs

Low-density land use increases vehicle use and reduces the viability of other modes of travel. Therefore, transportation costs are reduced by promoting density.

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Desired Trend

Daily Vehicles Miles Traveled (VMT) per Capita

	Baldwin City	Eudora	Lawrence	Lecompton	Unincorporated Douglas County	Douglas County
2010	5.70	6.58	12.84	7.47	118.46	23.52
2011	5.51	6.55	12.73	7.93	118.73	23.34
2012	5.26	6.85	12.86	8.23	122.06	23.74
2013	4.67	6.58	12.35	3.33	115.75	22.58
2014	4.72	6.21	12.28	11.22	116.45	22.56
2015	4.76	11.98	12.69	2.92	115.26	23.03
2016	5.36	13.57	12.94	3.50	121.53	23.89

Source: KDOT (2017) and US Census (2017)

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Percentage of sensitive lands (e.g., parkland, habitat, wetlands) allocated within public rights-of-way

	2017
Douglas County right-of-way Sensitive Lands	4%

Source: Lawrence GIS (August 2017)

Goal:
Minimize adverse social, economic, and environmental impacts created by transportation.

Objective:
Reduce single occupancy vehicle trips.

SUSTAIN AND ENHANCE

Percentage of single occupancy vehicles

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Desired Trend

Entity	2013	2014	2015
Lawrence	74.6%	74.3%	75.4%
Baldwin City	72.1%	75.4%	74.8%
Eudora	86.5%	89.0%	89.3%
Lecompton	81.2%	93.4%	92.1%
Douglas County	75.9%	76.4%	76.8%

Source: ACS 5-year estimates (S0801)

Gas costs are only a fraction of total driving costs. Car maintenance and use combine for the true cost of car ownership.

Percentage of mode choice

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Desired Trend for Drove Alone

2013	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	74.6%	10.7%	2.3%	6.0%	1.6%	0.8%
Baldwin City	72.1%	16.5%	0.0%	4.9%	0.2%	2.2%
Eudora	86.5%	8.0%	0.0%	2.6%	0.0%	2.7%
Lecompton	81.2%	10.6%	0.0%	1.0%	0.0%	0.0%
Douglas County	75.9%	10.7%	1.9%	5.2%	1.4%	0.9%

2014	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	74.3%	10.9%	2.4%	6.1%	1.3%	0.8%
Baldwin City	75.4%	12.3%	0.0%	4.5%	0.1%	2.4%
Eudora	89.0%	6.0%	0.0%	3.0%	0.0%	0.6%
Lecompton	93.4%	4.9%	0.0%	0.0%	0.0%	1.0%
Douglas County	76.4%	10.5%	2.0%	5.3%	1.0%	0.8%

2015	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	75.4%	10.7%	2.4%	5.7%	1.0%	0.8%
Baldwin City	74.8%	12.0%	0.0%	5.4%	0.1%	2.1%
Eudora	89.3%	5.5%	0.0%	3.3%	0.0%	0.5%
Lecompton	92.1%	5.9%	0.0%	0.0%	0.0%	0.7%
Douglas County	76.8%	10.2%	2.0%	5.1%	0.9%	0.8%

Source: ACS 5-year estimates (S0801)