

A photograph showing a person walking across a bridge. The railing of the bridge has the text "SITY OF KANSAS" written on it in large, white, serif capital letters. The person is silhouetted against the sky. Below the bridge, a yellow sign indicates a clearance of "14FT 7IN".

SITY OF KANSAS

14FT 7IN



Appendix E

System Performance Report

Appendix E

System Performance Report

Measure	Type of Measure	Frequency of Data Update	Data Source	Page	
Safety					
9	Number of Fatalities (All Public Roads)	Federal	1-year	KDOT	E.2
10	Rate of Fatalities Per 100 Million VMT (All Public Roads)	Federal	1-year	KDOT	E.3
11	Number of Serious Injuries (All Public Roads)	Federal	1-year	KDOT	E.4
12	Rate of Serious Injuries Per 100 Million VMT (All Public Roads)	Federal	1-year	KDOT	E.5
13	Number of Non-Motorized Fatalities and Serious Injuries (All Public Roads)	Federal	1-year	KDOT	E.6
Pavement & Bridge					
14	% of NHS Bridges by Deck Area Classified as in Good & Poor Condition	Federal	5-years	KDOT	E.7
15	% of Non-NHS Bridges by Deck Area Classified as in Good & Poor Condition	Local	5-years	KDOT	E.9
18	% of Pavements of the Interstate System in Good & Poor Condition	Federal	5-years	KDOT	E.11
19	% of Pavements of the Non-Interstate NHS in Good & Poor Condition	Federal	5-years	KDOT	E.13
20	% of Pavement of Non-NHS Major Roads (Collector and Above) in Good & Poor Condition	Local	2-years	Lawrence, DGCO, Eudora	E.15
System Performance					
6	Percent of the Person-Miles Traveled on the Interstate & Non-Interstate NHS that are Reliable	Federal	5-years	NPMRDS - https://nprmrs.ritis.org	E.17
7	Average Travel Time to Work (Minutes)	Local	1-year	ACS 5-Year Estimates (S0801)	E.19
8	Truck Travel Time Reliability (TTTR) Index on the Interstate system	Federal	5-years	NPMRDS - https://nprmrs.ritis.org	E.20
23	Daily Vehicles Miles Traveled (VMT) per Capita	Local	1-year	KDOT & US Census	E.21
Transit					
4	Unlinked Passenger Trips per Vehicle Revenue Hour for Demand Response & Fixed Route Service	Local	1-year	Lawrence Transit & KU on Wheels	E.22
5	% of Population With Access Within a ¼ Mile To a Bus Stop for Fixed Route Transit	Local	1-year	Population Estimate & Lawrence Transit Stops	E.23
16	% of Non-Revenue and Revenue Vehicles Met or Exceeded Their Useful Life Benchmark (ULB)	Federal	4-years	Lawrence Transit, KU on Wheels, & Others	E.24
17	% of Assets with a Condition Rating Below 3 on the FTA Transit Economic Requirements Model (Term) Scale	Federal	When necessary	N/A	E.25
27	Transit Safety Performance	Federal	1-year	Lawrence Transit	E.26
Bicycle & Pedestrian					
1	% of people who have access within a ¼ mile to the Level of Comfort 3 or below bikeway network	Local	1-year	Population Estimate & Bikeway Network	E.27
2	% of Public Streets with Sidewalks on at Least One Side	Local	1-year	Lawrence, Eudora, Baldwin City, Lecompton	E.28
3	% of Public Streets with Bikeway Network	Local	1-year	L-DC GIS (Road Centerline & Bikeway Network)	E.29
Miscellaneous					
21	Density of Urban Area	Local	1-year	L-DC GIS	E.30
22	Average Cost of Transportation per Household	Local	2-years	https://htaindex.cnt.org/total-driving-costs	E.31
24	% of Sensitive Lands Allocated Within Public Rights-of-Way	Local	1-year	L-DC GIS	E.32
25	% of Single Occupancy Vehicles	Local	1-year	ACS 5-Year Estimates (S0801)	E.33
26	Percentage of Mode Choice	Local	1-year	ACS 5-Year Estimates (S0801)	E.34

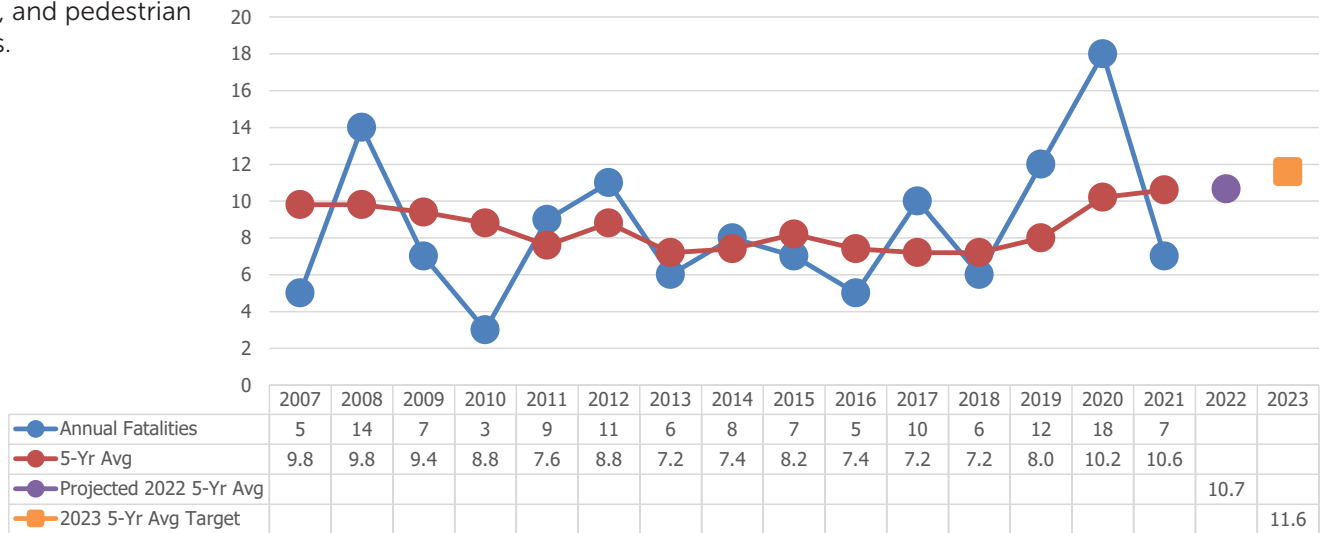
Safety

Performance Measure 9: Number of Fatalities (all public roads)

This measure includes the total number of persons suffering fatal injuries in crashes during a calendar year using five-year rolling averages. Law enforcement provides crash information to the Kansas Department of Transportation (KDOT) for compiling and KDOT dispenses the data to the MPO. The MPO desires improved safety beyond the target; however, the target reflects rolling averages with projections based on historical trends. Rolling average information is shown for the entity which maintains the road the crash occurred on. View the road maintenance map on page 7. The total Douglas County rolling average for the five year period is the official measure and MPO target.

Rolling Averages	Total Douglas County	Crash on Road Maintained by	2012-2016	2013-2017	2014-2018	2015-2019	2016-2020	2017-2021
2007-2011	7.6	City of Lawrence	1.6	1.8	1.2	1.4	2.2	2.4
2008-2012	8.8	Douglas County	2.4	2.0	2.2	2.0	2.4	2.2
2009-2013	7.2	Kansas Department of Transportation	1.2	1.2	1.4	2.0	3.8	4.4
2010-2014	7.4	Kansas Turnpike Authority	0.8	0.6	0.8	0.8	0.6	0.6
2011-2015	8.2	Private (Unincorporated)	0.2	0.0	0.0	0.0	0.0	0.0
2012-2016	7.4	Townships	1.0	1.4	1.4	1.6	1.0	0.8
2013-2017	7.2	Total Mapped*	7.2	7.0	7.0	7.8	10.0	10.4
2014-2018	7.2	KDOT Douglas County Traffic Fatalities	7.4	7.2	7.2	8.0	10.2	11.5
2015-2019	8.0	<small>*Some crashes don't have mappable data</small>						
2016-2020	10.2							
2017-2021	11.5							

Note: Includes vehicle, bicycle, and pedestrian crashes.



Source: Kansas Department of Transportation

Anticipated Update: Yearly

Target Set by MPO Policy Board: [November 17, 2022](#)

2023 Target
11.6

Safety

Performance Measure 10:

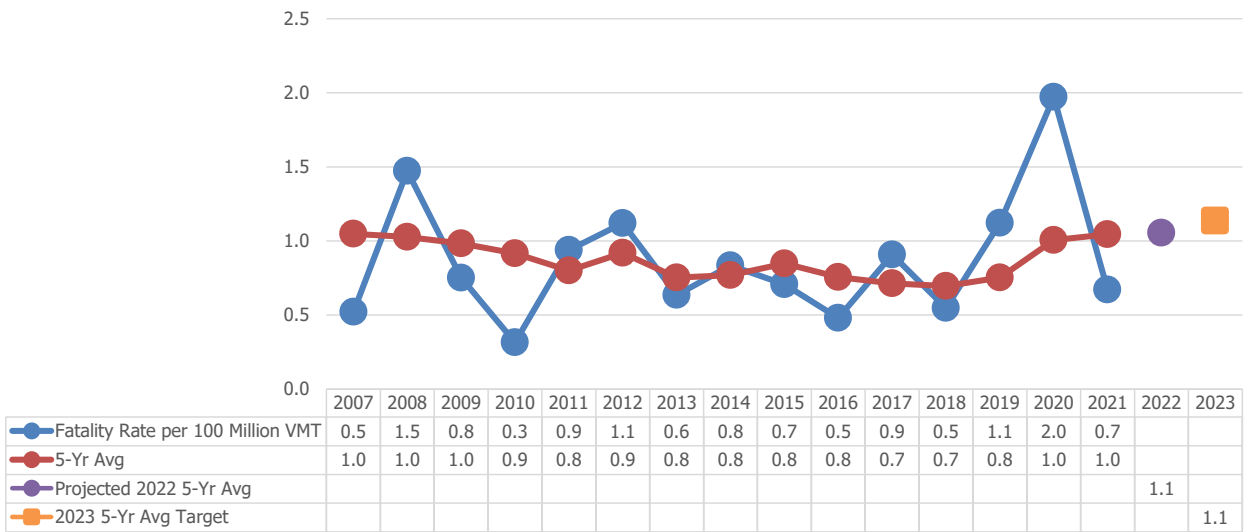
Rate of Fatalities per 100 million VMT (all public roads)

This measure includes the ratio of total number of fatalities to the number of vehicle miles traveled (VMT, in 100 Million VMT) in a calendar year using five-year rolling averages. Law enforcement provides crash information to the Kansas Department of Transportation (KDOT) for compiling and KDOT dispenses the data to the MPO. The MPO desires improved safety beyond the target; however, the target reflects rolling averages with projections based on historical trends. The total Douglas County rolling average for the five year period is the official measure and MPO target.

Rolling Averages	Total Douglas County
2007-2011	0.8
2008-2012	0.9
2009-2013	0.8
2010-2014	0.8
2011-2015	0.8
2012-2016	0.8
2013-2017	0.7
2014-2018	0.7
2015-2019	0.8
2016-2020	1.0
2017-2021	1.1

Fatality crashes are shown by the entity who owns and maintains the road the crash occurred on in Performance Measure 9 (the prior page). However, the Vehicle Miles Traveled (VMT) information provided by KDOT is not split into the specific entities crashes occurred on (e.g. township roads). Thus, only the total Douglas County rate is shown here. To see the per entity crashes go to Performance Measure 9.

Note: Includes vehicle, bicycle, and pedestrian crashes.



Source: Kansas Department of Transportation

Anticipated Update: Yearly

Target Set by MPO Policy Board: [November 17, 2022](#)

2023 Target
1.1

Safety

Performance Measure 11:

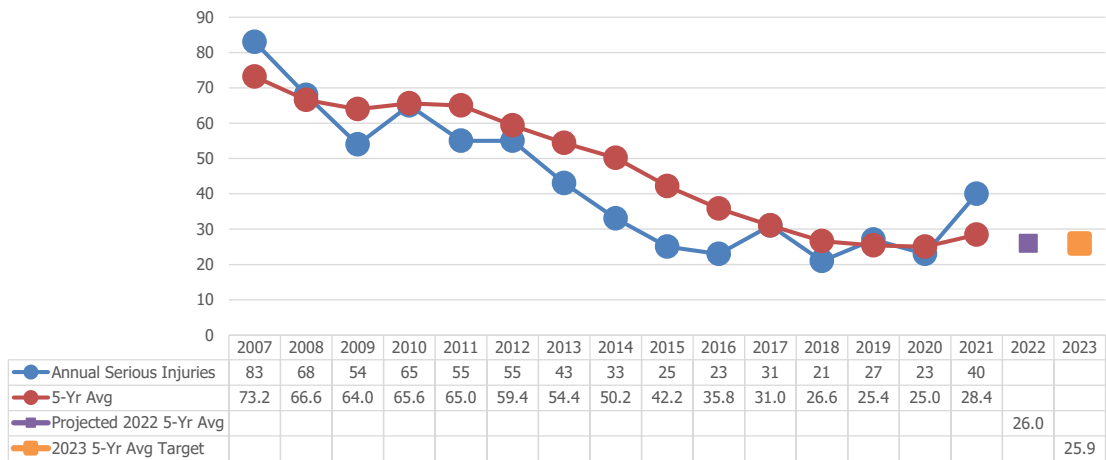
Number of Serious Injuries (all public roads)

This measure includes the total number of persons suffering at least one serious injury in a crash during a calendar year using five-year rolling averages. Law enforcement provides crash information to the Kansas Department of Transportation (KDOT) for compiling and KDOT dispenses the data to the MPO. KDOT changed to the national definition of serious injuries on January 1, 2019 (see the last page for the definitions). The MPO desires improved safety beyond the target; however, the target reflects rolling averages with projections based on historical trends. Rolling average information is shown for the entity which maintains the road the crash occurred on. View the road maintenance map on page 7. The total Douglas County rolling average for the five year period is the official measure and MPO target.

Rolling Averages	Total Douglas County	Crash on Road Maintained by	2012-2016	2013-2017	2014-2018	2015-2019	2016-2020	2017-2021
2007-2011	65.0	Army Corps of Engineers	0.2	0.0	0.0	0.0	0.0	0.0
2008-2012	59.4	City of Baldwin City	0.2	0.0	0.0	0.0	0.0	0.4
2009-2013	54.4	City of Eudora	0.2	0.0	0.0	0.0	0.0	0.0
2010-2014	50.2	City of Lawrence	18.2	16.4	14.0	12.2	12.0	10.8
2011-2015	42.2	Douglas County	4.2	3.6	3.4	3.8	3.2	4.4
2012-2016	35.8	Kansas Department of Transportation	5.0	3.6	2.8	3.6	4.4	6.4
2013-2017	31.0	KS Dept of Wildlife, Parks, & Tourism	0.0	0.0	0.0	0.2	0.2	0.2
2014-2018	26.6	Kansas Turnpike Authority	4.6	4.4	3.6	3.2	2.6	2.8
2015-2019	25.4	Private (Lawrence)	0.4	0.2	0.2	0.2	0.2	0.2
2016-2020	25.0	University of Kansas	1.0	0.6	0.4	0.4	0.4	0.4
2017-2021	25.5	Total Mapped*	34.0	28.8	24.4	23.6	23.0	25.8

Note: Includes vehicle, bicycle, and pedestrian crashes.

KDOT Douglas County Traffic-Related Serious Injuries
 *Some crashes don't have mappable data



Source: Kansas Department of Transportation

Anticipated Update: Yearly

Target Set by MPO Policy Board: [November 17, 2022](#)

2023 Target
25.9

Safety

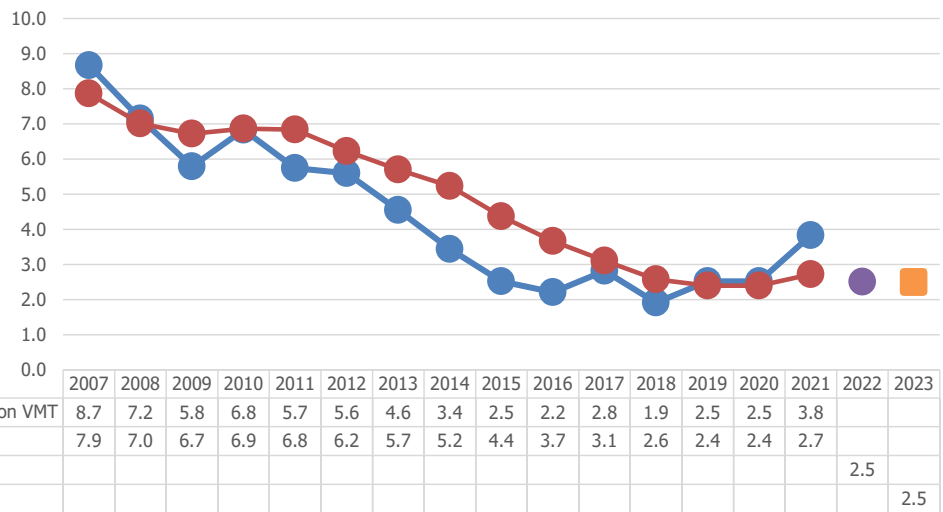
Performance Measure 12: Rate of Serious Injuries per 100 million VMT (all public roads)

This measure includes the ratio of total number of serious injuries to the number of vehicle miles traveled (VMT, in 100 Million VMT) in a calendar year using five-year rolling averages. Law enforcement provides crash information to the Kansas Department of Transportation (KDOT) for compiling and KDOT dispenses the data to the MPO. KDOT changed to the national definition of serious injuries on January 1, 2019 (see the last page for the definitions). The MPO desires improved safety beyond the target; however, the target reflects rolling averages with projections based on historical trends. Data is shown by jurisdiction, but the total Douglas County number is our official measure and MPO target.

Rolling Averages	Total Douglas County
2007-2011	6.8
2008-2012	6.2
2009-2013	5.7
2010-2014	5.2
2011-2015	4.4
2012-2016	3.6
2013-2017	3.1
2014-2018	2.6
2015-2019	2.4
2016-2020	2.4
2017-2021	2.5

Serious injury crashes are shown by the entity who owns and maintains the road the crash occurred on in Performance Measure 11 (the prior page). However, the Vehicle Miles Traveled (VMT) information provided by KDOT is not split into the specific entities crashes occurred on (e.g. township roads). Thus, only the total Douglas County rate is shown here. To see the per entity crashes go to Performance Measure 11.

Note: Includes vehicle, bicycle, and pedestrian crashes.



Source: Kansas Department of Transportation

Anticipated Update: Yearly

Target Set by MPO Policy Board: [November 17, 2022](#)

2023 Target
2.5

Safety

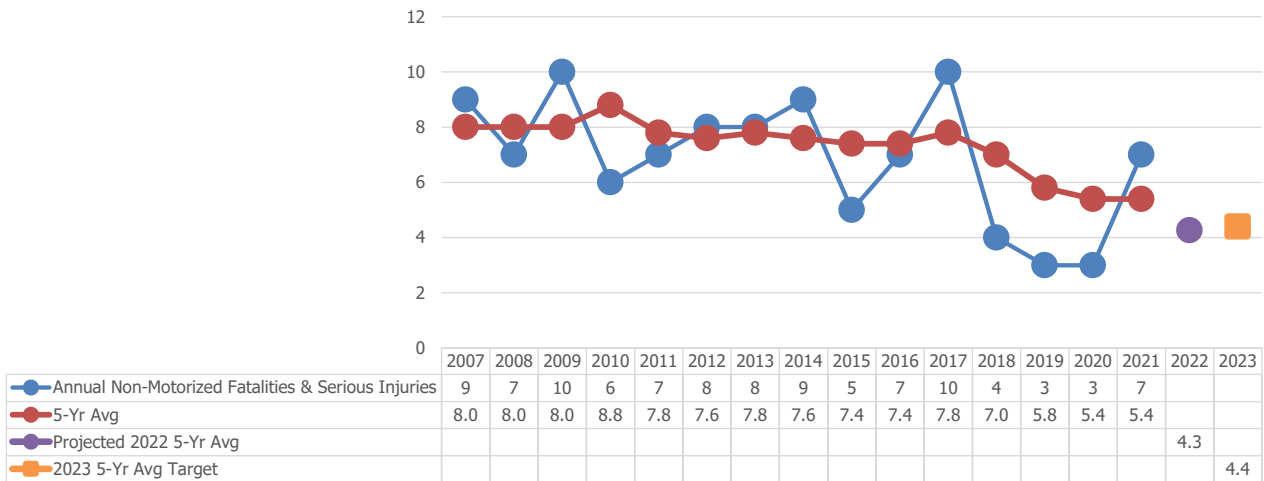
Performance Measure 13:

Number of Non-Motorized Fatalities & Serious Injuries (all public roads)

This measure includes the combined total number of non-motorized fatalities and non-motorized serious injuries involving a motor vehicle during a calendar year using five-year rolling averages. KDOT changed to the national definition of serious injuries on January 1, 2019. The MPO desires improved safety beyond the target; however, the target reflects rolling averages with projections based on historical trends. Rolling average information is shown for the entity which maintains the road the crash occurred on. View the road maintenance map on page 7. The total Douglas County rolling average for the five year period is the official measure and MPO target.

Rolling Averages	Total Douglas County	Crash on Road Maintained by	2012-2016	2013-2017	2014-2018	2015-2019	2016-2020	2017-2021
2007-2011	7.8	City of Baldwin City	0.0	0.0	0.0	0.0	0.0	0.0
2008-2012	7.6	City of Lawrence	5.6	5.4	5.0	4.0	3.8	3.4
2009-2013	7.8	Douglas County	0.4	0.4	0.4	0.2	0.2	0.2
2010-2014	7.6	Kansas Department of Transportation	0.0	0.2	0.2	0.2	0.2	0.2
2011-2015	7.4	Kansas Turnpike Authority	0.2	0.2	0.2	0.2	0.0	0.0
2012-2016	7.4	Private (Lawrence)	0.2	0.2	0.2	0.2	0.2	0.0
2013-2017	7.8	University of Kansas	0.8	0.6	0.4	0.4	0.4	0.2
2014-2018	7.0	Wakarusa Township	0.2	0.2	0.0	0.0	0.0	0.0
2015-2019	5.8	Total Mapped*	7.4	7.2	6.4	5.2	4.8	4.0
2016-2020	5.4	KDOT Douglas County Non-Motorized Fatal and Serious Injuries	7.4	7.8	7.0	5.8	5.4	4.6
2017-2021	4.6							

*Some crashes don't have mappable data



Source: Kansas Department of Transportation

Anticipated Update: Yearly

Target Set by MPO Policy Board: [November 17, 2022](#)

2023 Target
4.4

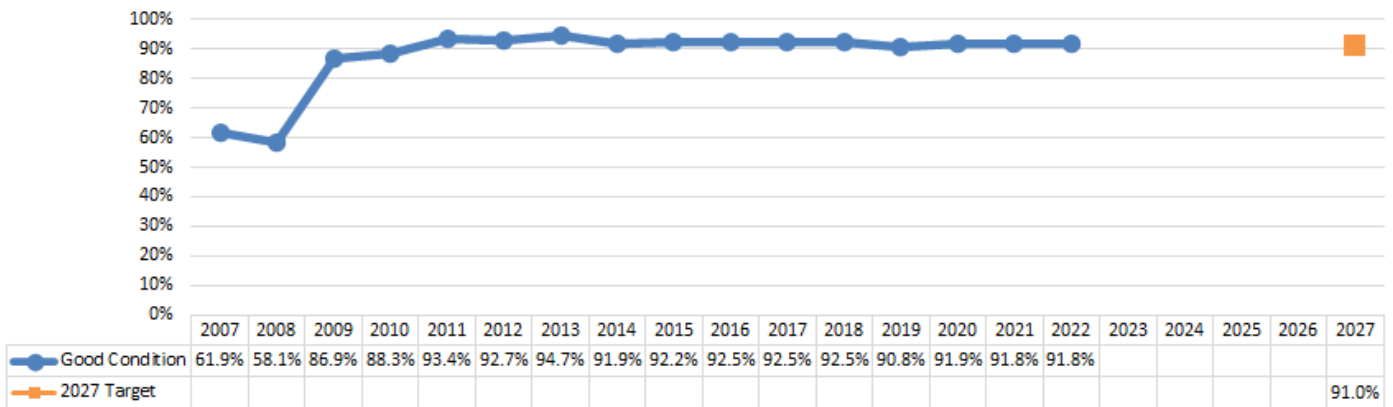
Pavement & Bridge

Performance Measure 14:

Percentage of NHS Bridges by Deck Area Classified as Good Condition

This measure is based on deck area. Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert. The MPO set our own countywide targets. Data is shown by jurisdiction, but the total Douglas County number is our official measure and target.

	KDOT	KTA	Total
2018	85%	99%	92%
2019	81%	99%	91%
2020	86%	99%	92%
2021	85%	99%	92%
2022	85%	99%	92%



Source: Kansas Department of Transportation
 Anticipated Update: 2028
 Target Set by MPO Policy Board: [March, 2023](#)

2027 Target
91.0%

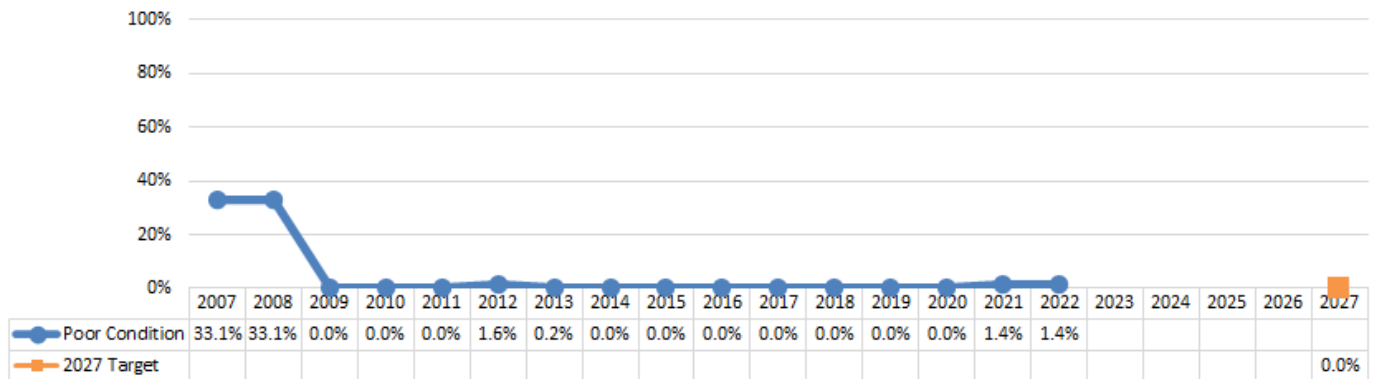
Pavement & Bridge

Performance Measure 14:

Percentage of NHS Bridges by Deck Area Classified as Poor Condition

This measure is based on deck area. Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert. The MPO set our own countywide targets. Data is shown by jurisdiction, but the total Douglas County number is our official measure and target.

	KDOT	KTA	Total
2018	0%	0%	0%
2019	0%	0%	0%
2020	0%	0%	0%
2021	3%	0%	1%
2022	3%	0%	1%



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

2027 Target

0.0%

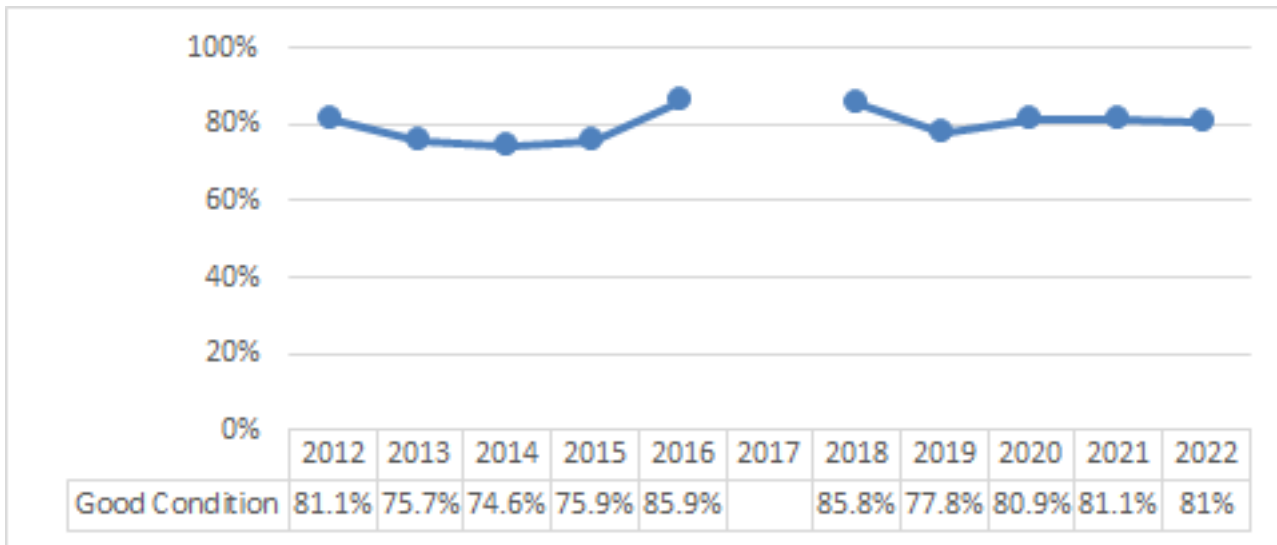
Pavement & Bridge

Performance Measure 15:

Percentage of Non-NHS Bridges by Deck Area Classified as Good Condition

This measure is based on deck area. Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert.

	State Highway System	Lawrence /Eudora	County	KTA	Total	
2018	96%	66%	80%	100%	86%	
2019	94%	69%	66%	100%	78%	
2020	93%	69%	72%	100%	81%	
2021	93%	72%	73%	100%	81%	
2022	93%	72%	72%	100%	81%	



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: N/A



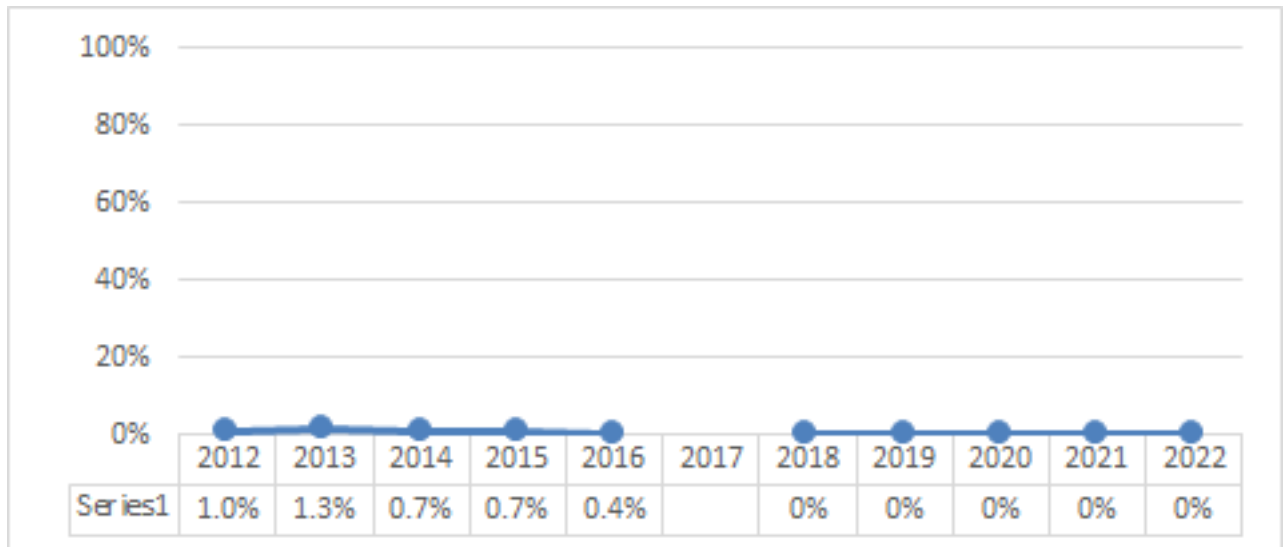
Pavement & Bridge

Performance Measure 15:

Percentage of Non-NHS Bridges by Deck Area Classified as Poor Condition

This measure is based on deck area. Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert.

	State Highway System	Lawrence /Eudora	County	KTA	Total
2018	0%	0%	0%	0%	0%
2019	0%	0%	0%	0%	0%
2020	0%	0%	0%	0%	0%
2021	0%	0%	0%	0%	0%
2022	0%	0%	0%	0%	0%



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: N/A

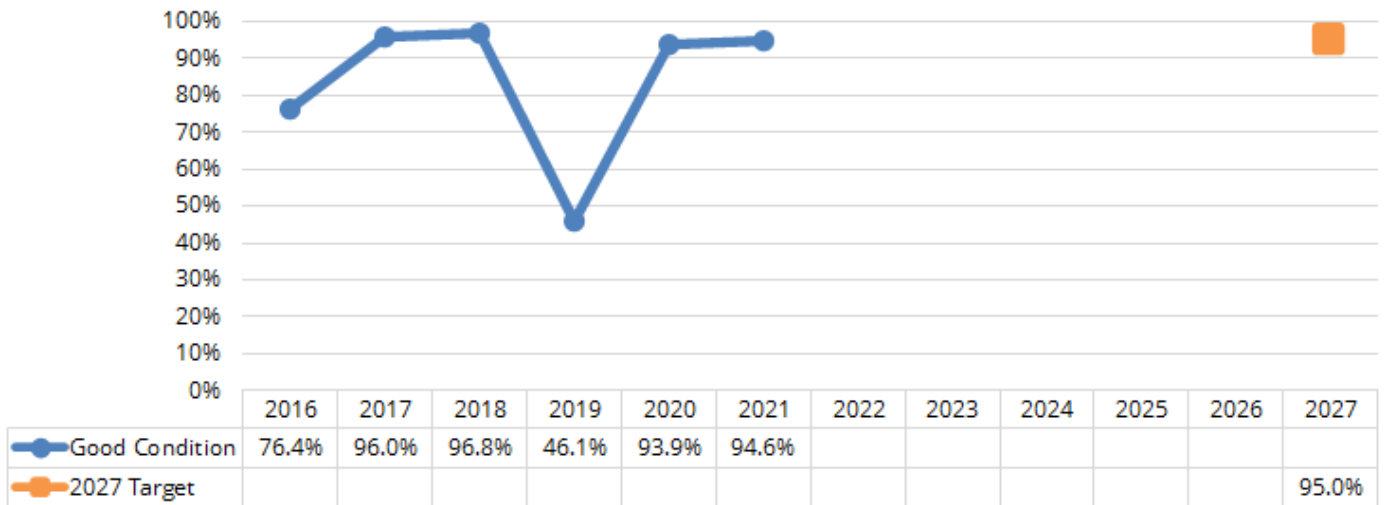


Pavement & Bridge

Performance Measure 18:

Percentage of Pavements of the Interstate System in Good Condition

This measure categorizes pavement as Good and Poor. Good condition suggests no major investment is needed, while poor condition suggests major reconstruction investment is needed. Pavement condition is evaluated by measuring International Roughness Index (IRI), Present Serviceability Index (PSR), Cracking Percent, Rutting, and Faulting (uneven slabs of concrete).



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

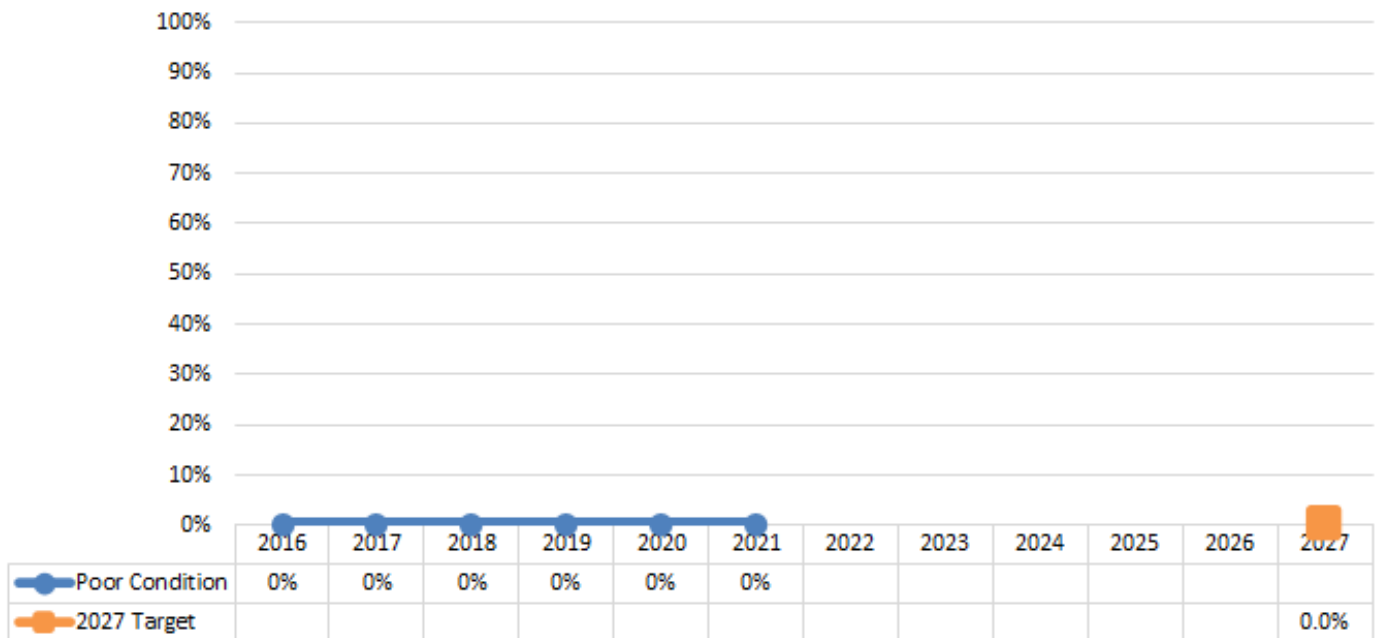
2027 Target
95%

Pavement & Bridge

Performance Measure 18:

Percentage of Pavements of the Interstate System in Poor Condition

This measure categorizes pavement as Good and Poor. Poor condition suggests major reconstruction investment is needed, while good condition suggests no major investment is needed. Pavement condition is evaluated by measuring International Roughness Index (IRI), Present Serviceability Index (PSR), Cracking Percent, Rutting, and Faulting (uneven slabs of concrete).



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

2027 Target
0.0%

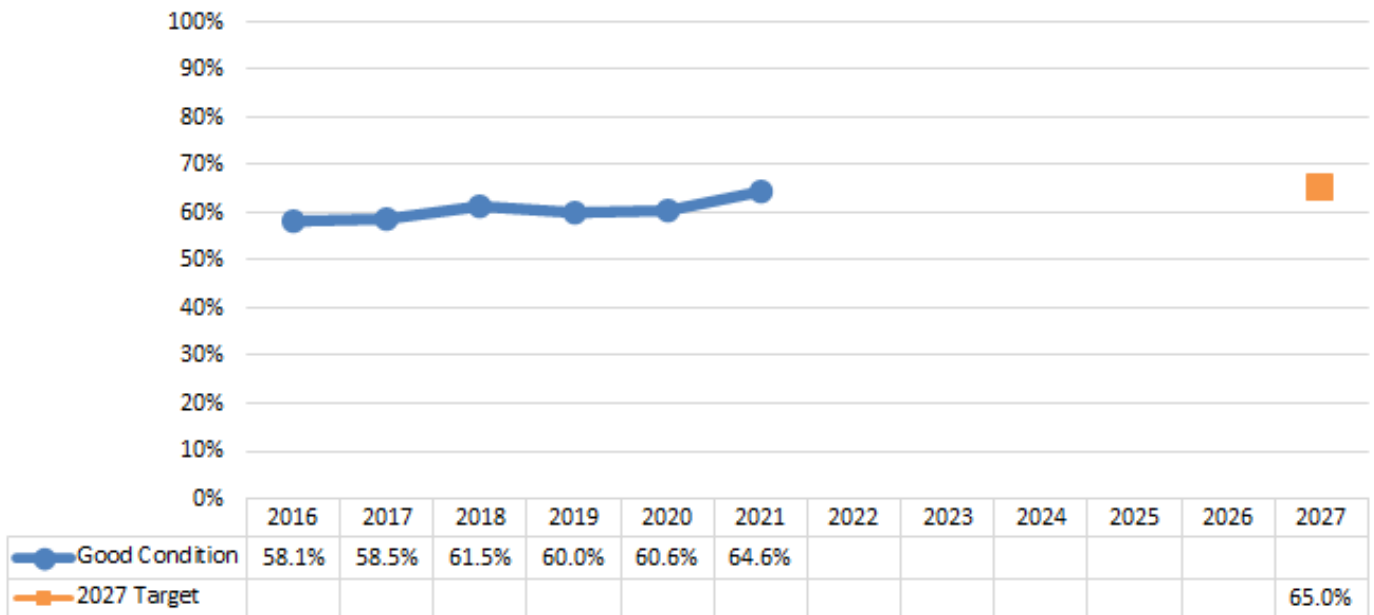
Pavement & Bridge

Performance Measure 19:

Percentage of Pavements of the Non-Interstate NHS in Good Condition

Pavement condition is evaluated by measuring International Roughness Index (IRI), Present Serviceability Index (PSR), Cracking Percent, Rutting, and Faulting (uneven slabs of concrete). Good condition suggests no major investment is needed, while poor condition suggests major reconstruction investment is needed.

The Non-Interstate NHS consists of Other Freeways & Expressways, and Other Principal Arterials. In our region this consists of K-10, US-59/Iowa St, US-40 (6th St) east of Iowa St, US 24/40/59, and US-56 east of US-59. View a map of Federal Roadway Functional Classification at - <http://lawrenceks.maps.arcgis.com/apps/webappviewer/index.html?id=26d48d3df30f425f911e6cb41027c67e>.



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

2027 Target
65%

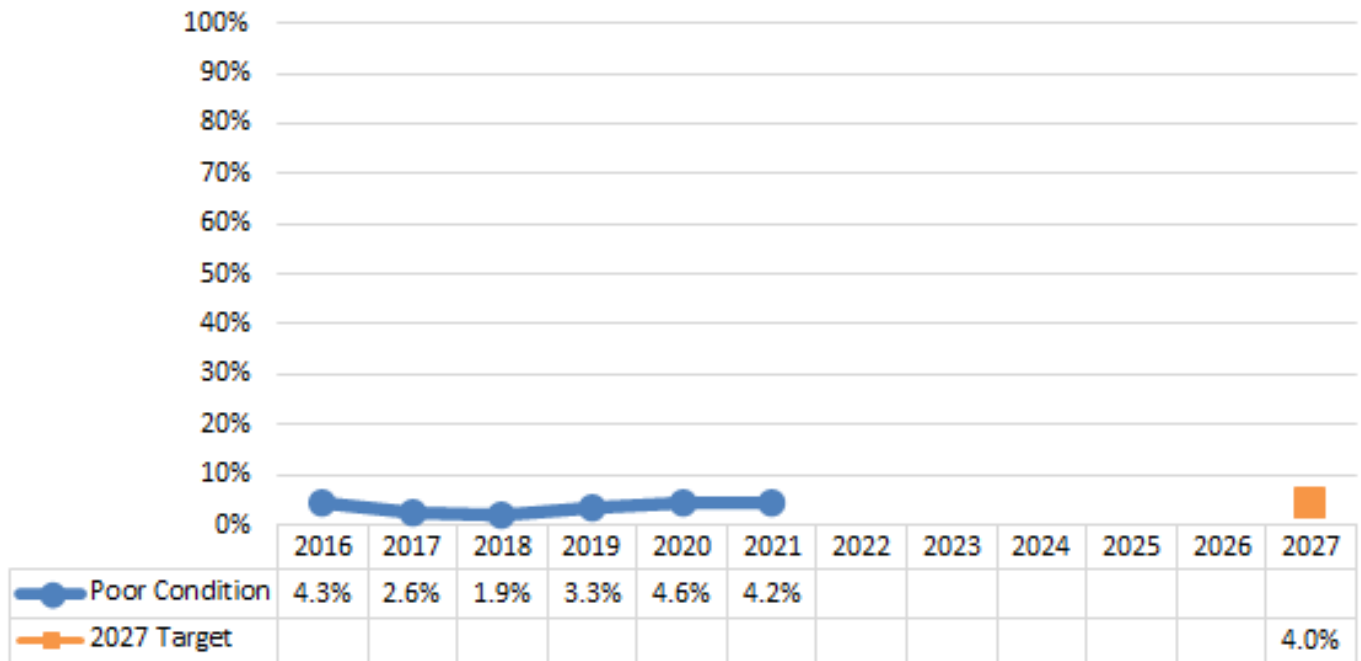
Pavement & Bridge

Performance Measure 19:

Percentage of Pavements of the Non-Interstate NHS in Poor Condition

Pavement condition is evaluated by measuring International Roughness Index (IRI), Present Serviceability Index (PSR), Cracking Percent, Rutting, and Faulting (uneven slabs of concrete). Good condition suggests no major investment is needed, while poor condition suggests major reconstruction investment is needed.

The Non-Interstate NHS consists of Other Freeways & Expressways, and Other Principal Arterials. In our region this consists of K-10, US-59/Iowa St, US-40 (6th St) east of Iowa St, US 24/40/59, and US-56 east of US-59. View a map of Federal Roadway Functional Classification at - <http://lawrenceks.maps.arcgis.com/apps/webappviewer/index.html?id=26d48d3df30f425f911e6cb41027c67e>.



Source: Kansas Department of Transportation

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

2027 Target
4%

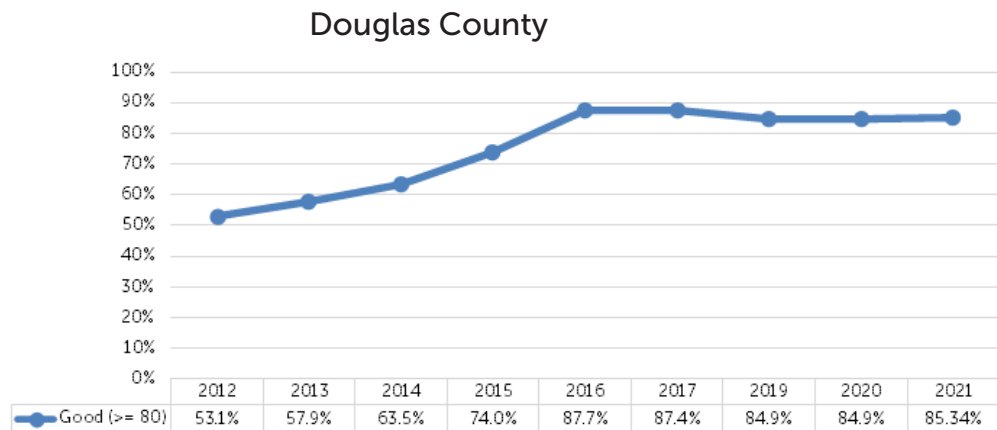
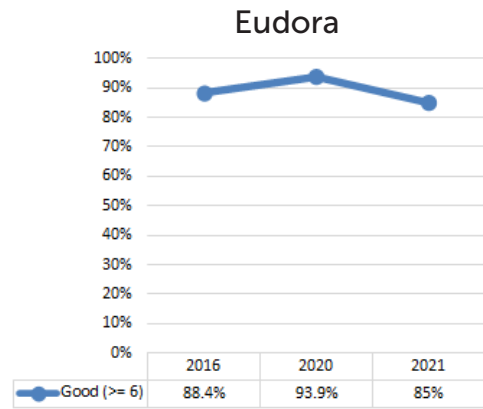
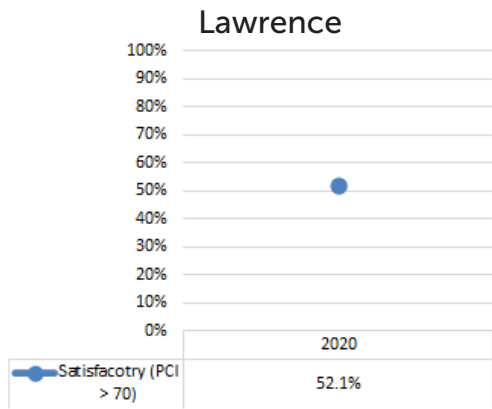
Pavement & Bridge

Performance Measure 20:

% of Pavement of Non-NHS Major Roads (Collector and Above) in Good Condition

Good condition suggests no major investment is needed, while poor condition suggests major reconstruction investment is needed. The National Highway System (NHS) consists of roadways important to the Nation’s economy, defense, and mobility. The NHS includes Interstates, Other Freeway & Expressways, and Other Principal Arterials.

The City of Lawrence plans to collect PCI data every 3-4 years and 2020 is the most recent data. Data prior to 2020 is not shown because Lawrence instituted a new way of collecting and evaluating pavement condition in 2020, making earlier data not comparable.



Source: City of Lawrence, Eudora, & Douglas County

Anticipated Update: 2024

Target Set by MPO Policy Board: N/A



Pavement & Bridge

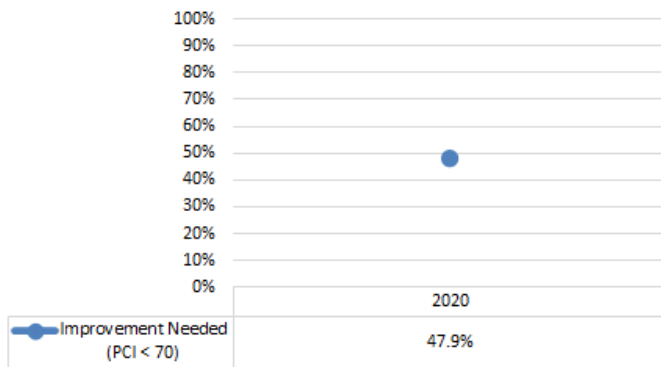
Performance Measure 20:

% of Pavement of Non-NHS Major Roads (Collector and Above) in Poor Condition

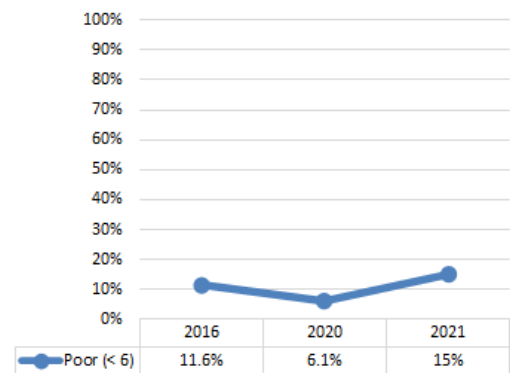
Good condition suggests no major investment is needed, while poor condition suggests major reconstruction investment is needed. The National Highway System (NHS) consists of roadways important to the Nation's economy, defense, and mobility. The NHS includes Interstates, Other Freeway & Expressways, and Other Principal Arterials.

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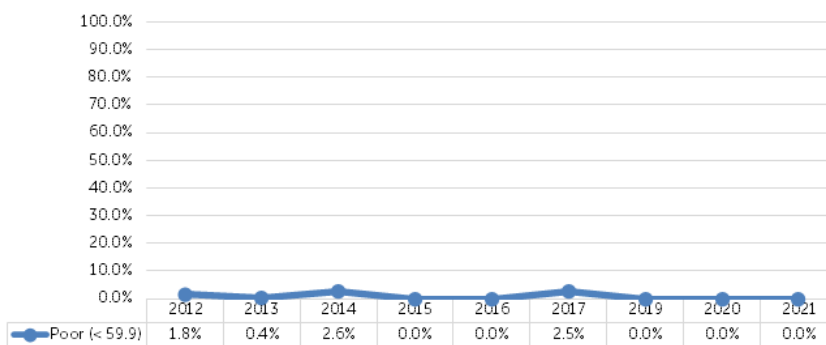
Lawrence



Eudora



Douglas County



Source: City of Lawrence, Eudora, & Douglas County

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A



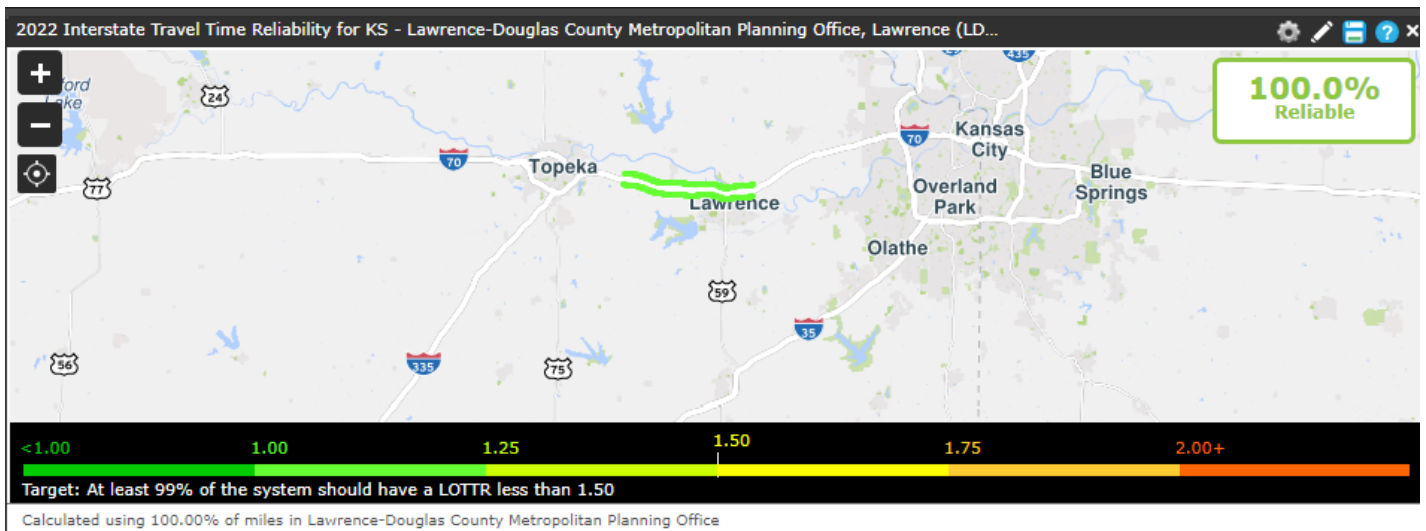
System Performance

Performance Measure 6:

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

The National Highway System (NHS) consists of roadways important to the Nation's economy, defense, and mobility. In our region the interstate NHS consists of I-70.

While the current Level of Travel Time Reliability on the Interstate NHS is 100% the MPO did not feel it would be appropriate to project the Interstate NHS would continue at a 100% rate of reliability.



	2016	2017	2018	2019	2020	2021	2022	2027
● Reliable Interstate	100.0%	100.0%	100.0%	100.0%	100.00%	100.00%	100.00%	
■ 2027 Target								99.00%

Source: National Performance Management Research Data Set (NPMRDS) <https://npmrds.ritis.org>

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

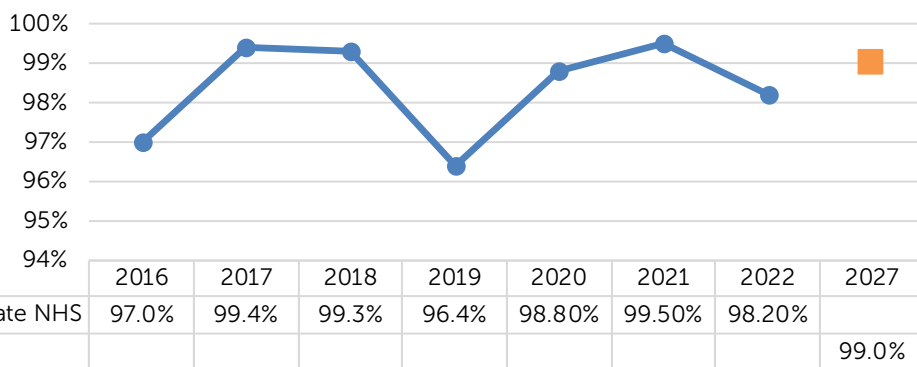
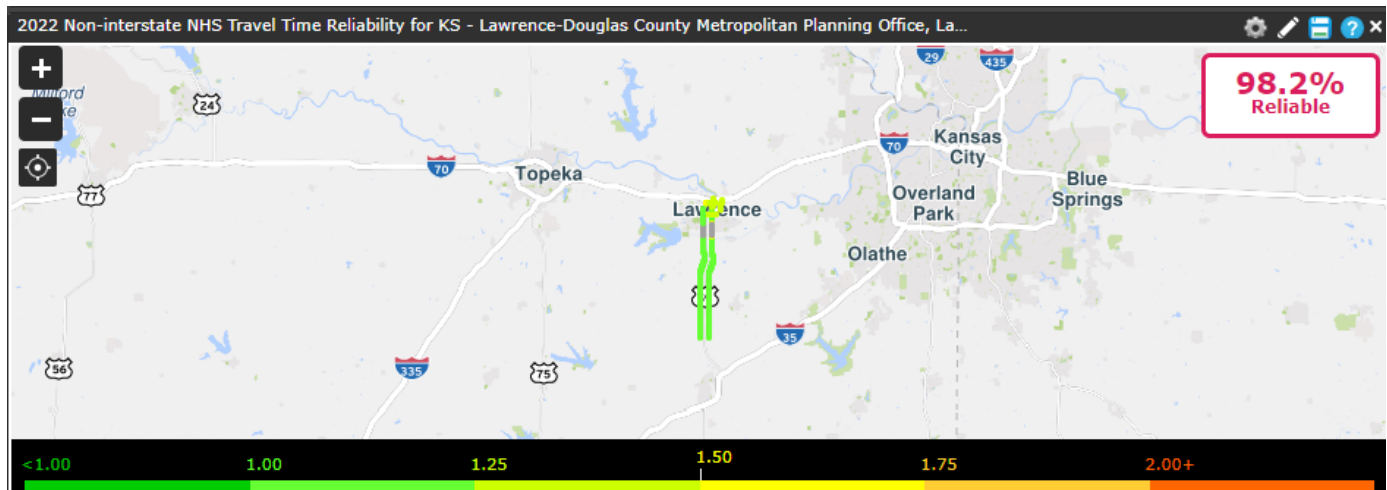
2027 Target
99%

System Performance

Performance Measure 6:

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

The Non-Interstate NHS consists of Other Freeways & Expressways, and Other Principal Arterials. In our region this consists of K-10, US-59/Iowa St, US-40 (6th St) east of Iowa St, US 24/40/59, and US-56 east of US-59. The NPMRDS data has inaccurate NHS designations, thus the best available data is used.



Source: National Performance Management Research Data Set (NPMRDS) <https://npmrds.ritis.org>

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

2027 Target
99%

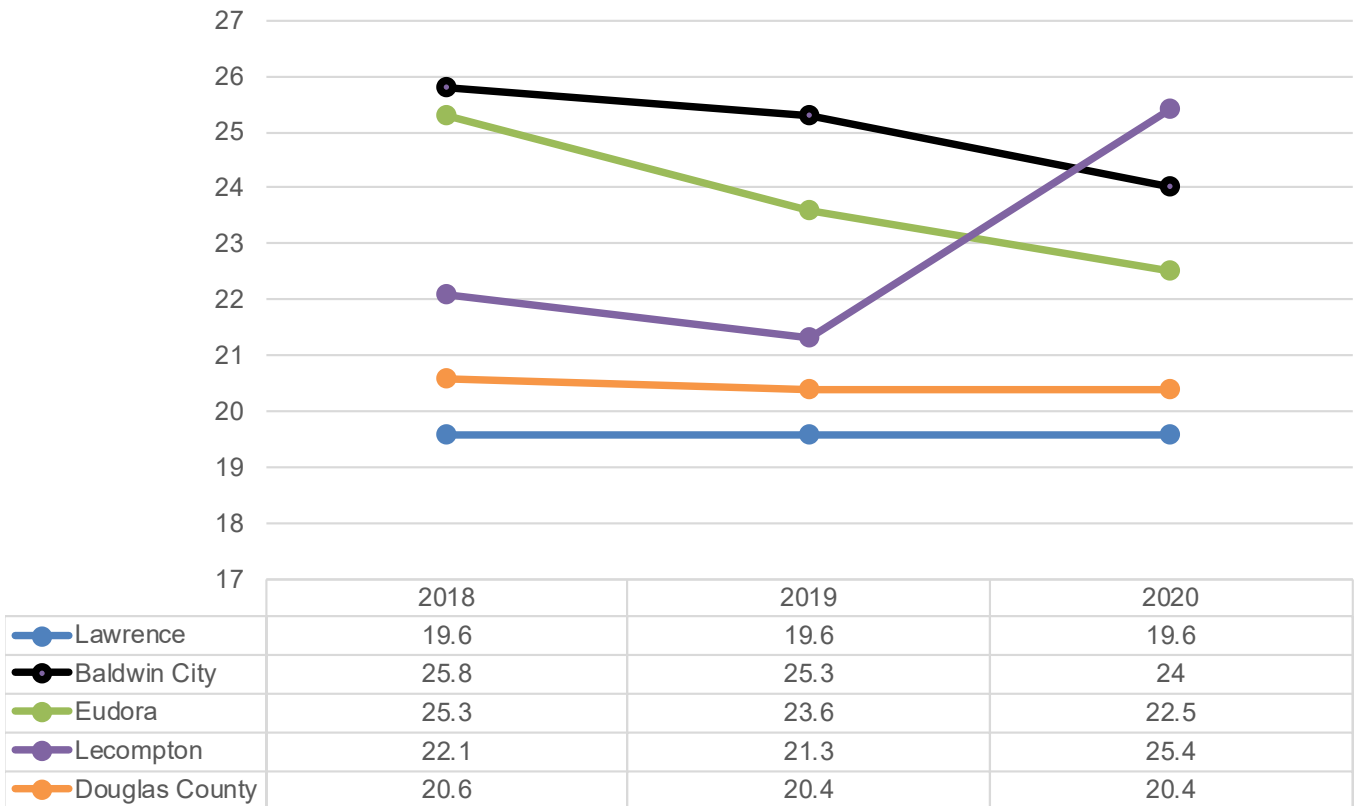
System Performance

Performance Measure 7: Average Travel Time to Work (Minutes)

Travel time to work refers to the total number of minutes it usually took a person to get from home to work each day during the survey week. The elapsed time includes time spent waiting for public transportation, picking up passengers in carpools, and time spent in other activities related to getting to work. This data include workers 16 years old and over.

American Community Survey (ACS) data is compiled yearly by sampling over 3.5 million housing unit addresses over a 12 month period. Since this data is based on a survey there is a margin of error associated with the data.

The average travel time to work for the cities of Baldwin City, Eudora, and Lecompton are higher than Lawrence and the overall County. This is due to people driving out of their communities to work, possibly in Lawrence or outside of the County.



Source: US Census Bureau American Community Survey (ACS) 5-year estimates (S0801)

Anticipated Update: 2028

Target Set by MPO Policy Board: N/A



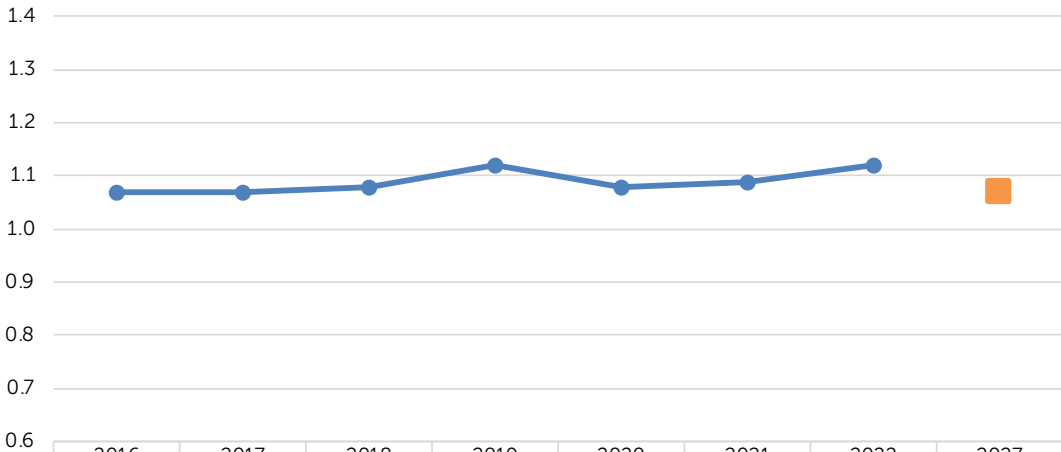
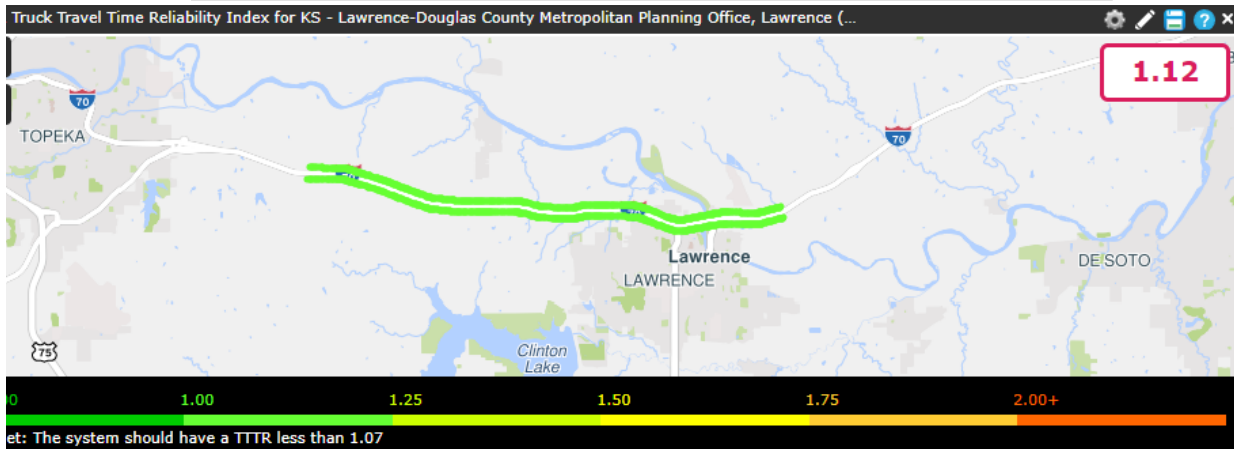
System Performance

Performance Measure 8:

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

Reporting is divided into five periods: morning peak (6 - 10 a.m.), midday (10 a.m. - 4 p.m.) and afternoon peak (4 - 8 p.m.) Mondays through Fridays; weekends (6 a.m. - 8 p.m.); and overnights for all days (8 p.m. - 6 a.m.). The TTTR ratio is generated by dividing the 95th percentile time by the normal time (50th percentile) for each segment. The TTTR Index is generated by multiplying each segment's largest ratio of the five periods by its length, then dividing the sum of all length-weighted segments by the total length of the interstate.

Truck Travel Time Reliability Index (TTTR) is used to assess freight movement. The lower the numbers the better.



	2016	2017	2018	2019	2020	2021	2022	2027
TTTR	1.07	1.07	1.08	1.12	1.08	1.09	1.12	
2027 Target								1.07

Source: National Performance Management Research Data Set (NPMRDS) <https://npmrds.ritis.org>

Anticipated Update: 2028

Target Set by MPO Policy Board: [March, 2023](#)

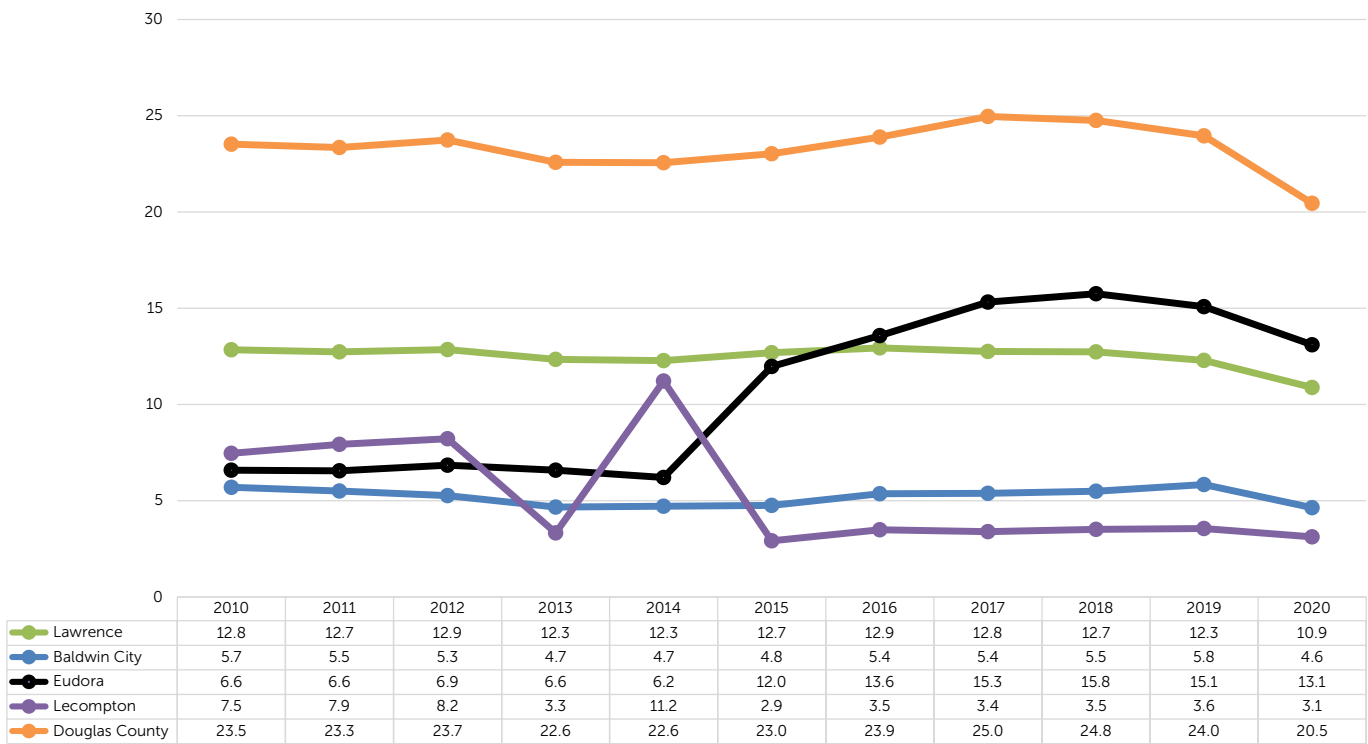
2027 Target
1.07

System Performance

Performance Measure 23: Daily Vehicles Miles Traveled (VMT) per Capita

Vehicle miles traveled (VMT) per capita is calculated as the total 1-year miles of vehicle travel divided by the total population. Decreasing 1-year VMT per capita can directly improve air quality and the overall health of a population. VMT levels are lower in communities that are more walkable and compact and in communities that have strong public transportation systems.

(Source: <https://www.transportation.gov/mission/health/vmt-capita>)



Source: Kansas Department of Transportation & US Census

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A



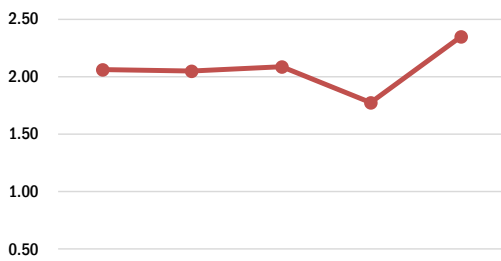
Transit

Performance Measure 4:

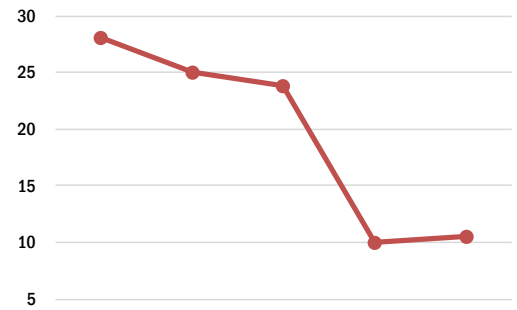
Unlinked Passenger Trips per Vehicle Revenue Hour (Demand Response & Fixed Route Service)

Unlinked passenger trips are the number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination. The passengers per revenue hours are calculated by dividing the total number of unlinked passenger trips by the total vehicle revenue hours. This number equates to the number of people using the transit system per hour.

Demand Response (T Lift & Night Line)				Fixed Route			
	Total Unlinked Passenger Trips	Total Vehicle Revenue Hours	Average Passenger per Revenue Hour		Total Unlinked Passenger Trips	Total Vehicle Revenue Hours	Average Passenger per Revenue Hour
2013	60,418	29,391	2.06	2013	2,916,833	89,049	32.76
2014	75,906	35,974	2.11	2014	3,025,738	90,514	33.43
2015	79,364	37,419	2.12	2015	2,913,606	95,827	30.40
2016	84,369	40,844	2.07	2016	3,282,422	105,996	30.97
2017	82,341	39,989	2.06	2017	3,202,570	113,905	28.12
2018	84,183	41,128	2.05	2018	2,884,370	115,021	25.08
2019	82,233	39,394	2.09	2019	2,799,555	117,507	23.82
2020	43,977	24,805	1.77	2020	1,049,204	105,402	9.95
2021	57,960	24,693	2.35	2021	1,247,745	118,583	10.52



	2017	2018	2019	2020	2021
— Demand Response - Avg. Psgr/Rev Hr	2.06	2.05	2.09	1.77	2.35



	2017	2018	2019	2020	2021
— Fixed Route - Avg. Psgr/Rev Hr	28.12	25.08	23.82	9.95	10.52

Source: Lawrence Transit & KU on Wheels

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A



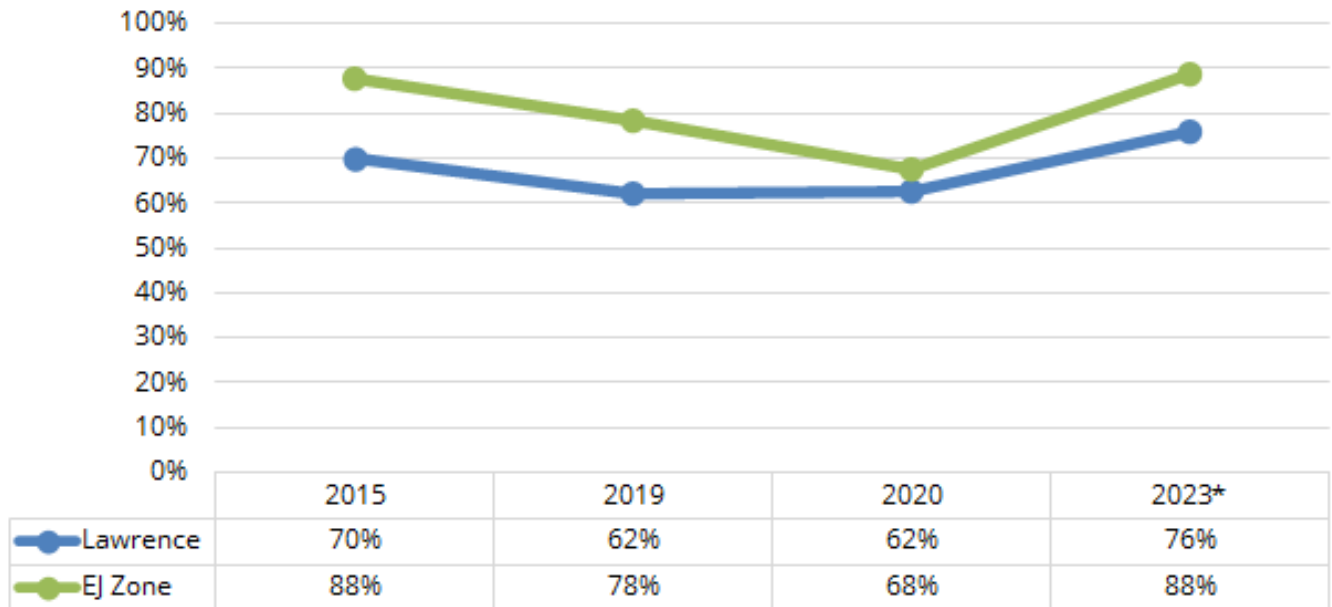
Transit

Performance Measure 5:

Percentage of population with access within a 1/4 mile to a bus stop for fixed route transit

A quarter mile is the distance a pedestrian can cover in five minutes at a normal walking pace.

The 2019 data utilized a model and will be consistent moving forward. The 2015 data was calculated using a GIS tool, which summed population data into one centroid point, which made it so fractional coverage of population by bus stop buffers or city limits were not included.



*Calculated in 2022 based on planned 2023-2024 Transit Routes

Source: 2022 Population Estimate & 2023-24 Transit Stops

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A

Environmental Justice (EJ) zones are low-income or minority areas. Visit lawrenceks.org/mpo/Environmental-Justice to view the most current EJ Zone map and historic EJ zone maps.

🌐 Transportation Options



Transit

Performance Measure 16:

Percentage of Non-Revenue & Revenue Vehicles Met or Exceeded Their Useful Life Benchmark (ULB)

The Useful Life Benchmark (ULB) is the expected service years for a vehicle class. For example, a minivan is expected to last for at least 8 years. The MPO supports the [State's targets](#). Targets set in the State TAM Plan are used for federal reporting. The L-DC MPO Target are for local planning purposes only.

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	11%	0%	-	11%	25%
	Cutaway bus	10	-	0%	100%	100%	25%
	Van	8	-	-	23%	23%	25%
	Minivan	8	-	-	-	-	25%

Note: Target is to meet or exceeded FTA Useful Life Benchmark (ULB). Targets set in the State TAM Plan are used for federal reporting. The L-DC MPO Target are for local planning purposes only.

KDOT Group TAM Plan Targets set as of 12.05.22

(Includes MPOs in Flint Hills, Topeka, Lawrence, and St. Joe)

Category	Class	ULB	KDOT Replacement Threshold	KDOT Target % of fleet that is older than the ULB (State of Good Repair - SGR)
Revenue Vehicles	Full-sized bus	14	12 years / 500K Miles	25%
	Cutaway bus	10	5 years / 100K Miles	25%
	Van	8	5 years / 100K Miles	25%
	Minivan	8	5 years / 100K Miles	25%
Non-Revenue Vehicles	Minivan	8	5 years / 100K Miles	75%
	SUV	8	5 years / 100K Miles	75%
	Automobile	8	5 years / 100K Miles	75%

Source: Transit Asset Management (TAM) Plan State-sponsored Group Plan, December 5, 2022

Source: Lawrence Transit, KU on Wheels, Other Human Service Providers

Anticipated Update: 2027

Target Set by MPO Policy Board: N/A - Supported the State's Targets with approval of Transportation 2050 in [March 2023](#)



Transit

Performance Measure 17:

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

Federally funded transit facilities are evaluated using the Transit Economic Requirements Model (TERM). It is a condition assessment using a scale of 1-5. Under the TERM scale, an asset in need of immediate repair or replacement is scored as one (1), whereas a new asset with no visible defects is scored as five (5).

There are no federally funded transit facilities within the MPO.

Source: N/A

Anticipated Update: No update until necessary

Target Set by MPO Policy Board: No federally funded facilities

N/A

Transit

Performance Measure 27: Transit Safety Performance

Safety events are comprised of collisions, fires, hazardous material spills, act of nature (Act of God), evacuation, or [other safety occurrence not otherwise classified] occurring on transit right-of-way, in a transit revenue facility, in a transit revenue facility, or in a transit revenue vehicle and meeting established NTD thresholds. Safety performance is an organization’s safety effectiveness and efficiency, as defined by safety performance indicators and targets, measured against the organization’s safety objectives.

Mode of Transit Service	2021							
	Fatalities (total)	Fatalities (per 100 thousand vehicle revenue miles)	Injuries (total)	Injuries (per 100 thousand vehicle revenue miles)	Safety Events (total)	Safety Events (per 100 thousand vehicle revenue miles)	System Reliability (vehicle revenue miles/failures)*	
Fixed Route Bus Service	0	0	1	0.000001	0	0	5,338	
Demand Response Bus Service	0	0	0	0	1	0.000003	27,425	

2023 Targets

Mode of Transit Service	2023 Targets							
	Fatalities (total)	Fatalities (per 100 thousand vehicle revenue miles)	Injuries (total)	Injuries (per 100 thousand vehicle revenue miles)	Safety Events (total)	Safety Events (per 100 thousand vehicle revenue miles)	System Reliability (vehicle revenue miles/failures)*	
Fixed Route Bus Service	0	0	2	0.2	2	0.2	40,000	
Demand Response Bus Service	0	0	2	0.2	2	0.2	40,000	

Source: 2022-State Sponsored Agency Safety Plan Lawrence Transit and Lawrence Transit.

Frequency of Data Update: Yearly

Anticipated Update: 2024

Target Set by MPO Policy Board: [March 2023](#)

Vehicle Revenue Miles

The miles driven when a vehicle is operating and is available for the general public to ride and there is the expectation for carrying passengers. Revenue miles excludes miles that transit vehicles travel for deadhead services (leaving or returning to the maintenance facility), vehicle maintenance testing, etc.

Bicycle & Pedestrian

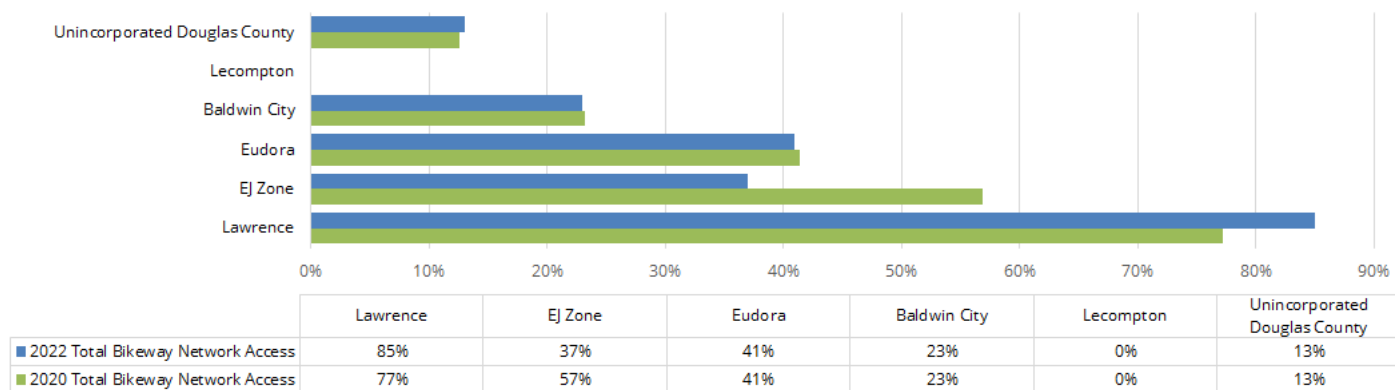
Performance Measure 1:

Percentage of people who have access within a ¼ mile to the Level of Comfort 3 or below bikeway network

The original Transportation 2040 measure included the entire bikeway network; however, the Lawrence Bikes Plan specified bikeways with a level of comfort of 3 or below because a primary goal of the Bike Plan is to increase the comfort of bikeways. Comfort is based on street’s posted speed and Average Annual Daily Traffic counts to determine level of comfort a person who bicycles would experience on the provided bikeway.

	Marked Shared Lane	Bike Boulevard	Bike Lane	Buffered Bike Lane	Protected Bike Lane	Shared Use Path	Total Bikeway Network Access
Lawrence	21%	4%	34%	4%	0%	56%	85%
EJ Zone	11%	2%	9%	0%	0%	27%	37%
Eudora	0%	0%	0%	0%	0%	41%	41%
Baldwin City	0%	0%	0%	0%	0%	23%	23%
Lecompton	0%	0%	0%	0%	0%	0%	0%
Unincorporated Douglas County	0%	0%	3%	0%	0%	11%	13%

Source: Lawrence-Douglas County MPO (2022)



Note: The EJ Zone changes as newer socio-economic data is available; therefore, the EJ Zone changed between 2020 and 2021

Source: 2022 Population Estimate & 2022 Bikeway Network

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A

Environmental Justice (EJ) zones are low-income or minority areas. Visit lawrenceks.org/mpo/Environmental-Justice to view the most current EJ Zone map and historic EJ zone maps.



Bicycle & Pedestrian

Performance Measure 2:

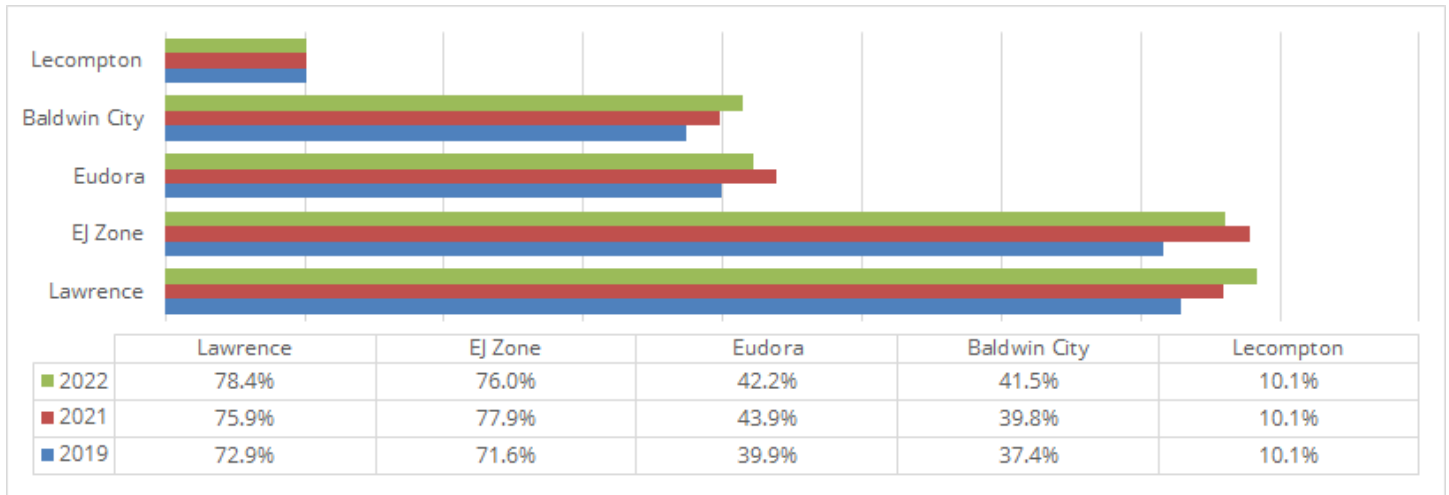
Percentage of Public Streets with Sidewalks on at Least One Side

Filling sidewalk gaps with at least sidewalk on at least one side is important to promote walkability.

	Miles	%
Lawrence	306.3	78.4%
EJ Zone	120.9	76.0%
Eudora	18.1	42.2%
Baldwin City	12.9	41.5%
Lecompton	0.6	10.1%

Note: EJ zone percentage is separate from the total Lawrence data

Source: Lawrence-Douglas County MPO (2022)



Note: The EJ Zone changes as newer socio-economic data is available; therefore, the EJ Zone changed between 2019, 2021, and 2022

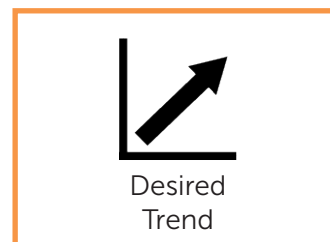
Source: Lawrence (2022), Eudora (2022), Baldwin City (2022), Lecompton (2022)

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A

Environmental Justice (EJ) zones are low-income or minority areas. Visit lawrenceks.org/mpo/Environmental-Justice to view the most current EJ Zone map and historic EJ zone maps.

Transportation Options



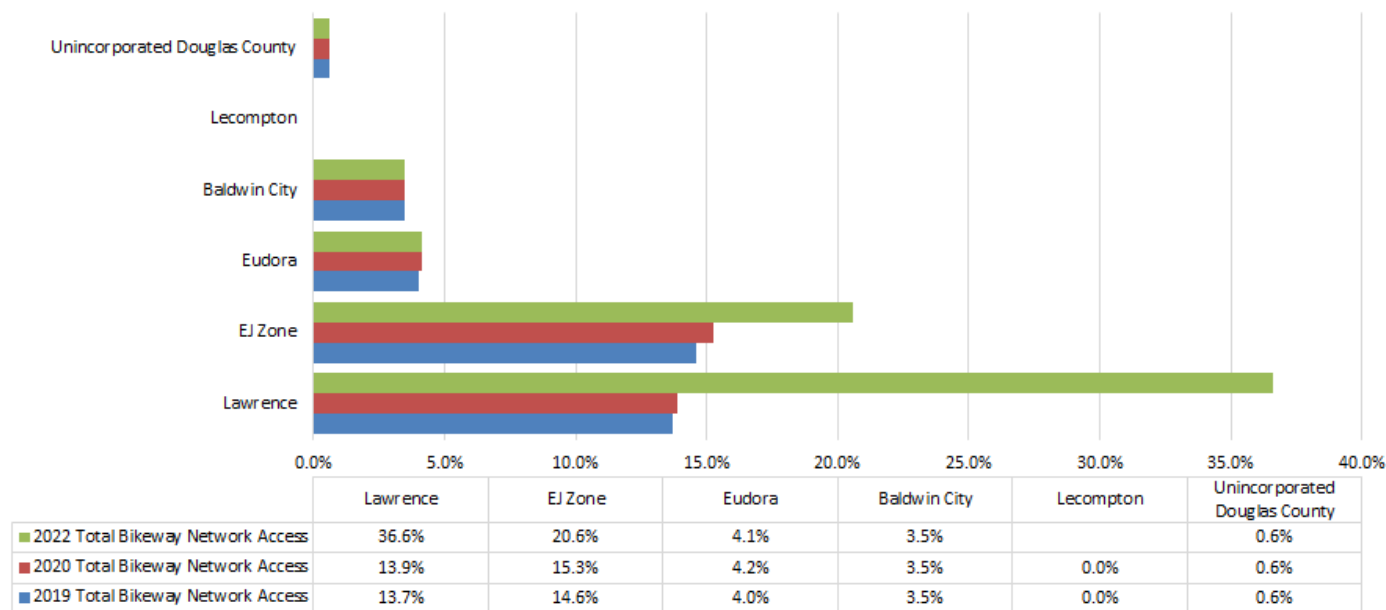
Bicycle & Pedestrian

Performance Measure 3: Percentage of Public Streets with Bikeway Network

Having a contiguous bikeway network is important to promoting biking. Measuring contiguous bikeway is difficult thus we are measuring public streets with bikeway network as a proxy.

	Marked Shared Lane	Bike Boulevard	Bike Lane	Buffered Bike Lane	Protected Bike Lane	Shared Use Path	2022 Total Bikeway Network Access
Lawrence	2.9%	-	7.7%	4.8%	-	7.1%	36.6%
EJ Zone	5.5%	-	6.7%	1.2%	-	6.2%	20.6%
Eudora	-	-	-	-	-	4.1%	4.1%
Baldwin City	-	-	-	-	-	3.5%	3.5%
Lecompton	-	-	-	-	-	-	-
Unincorporated Douglas County	-	-	-	-	-	0.6%	0.6%

Note: EJ zone percentage is separate from the total Lawrence data



Source: L-DC GIS (Road Centerline & Bikeway Network)

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A

Environmental Justice (EJ) zones are low-income or minority areas. Visit lawrenceks.org/mpo/Environmental-Justice to view the most current EJ Zone map and historic EJ zone maps.

🌍 Transportation Options

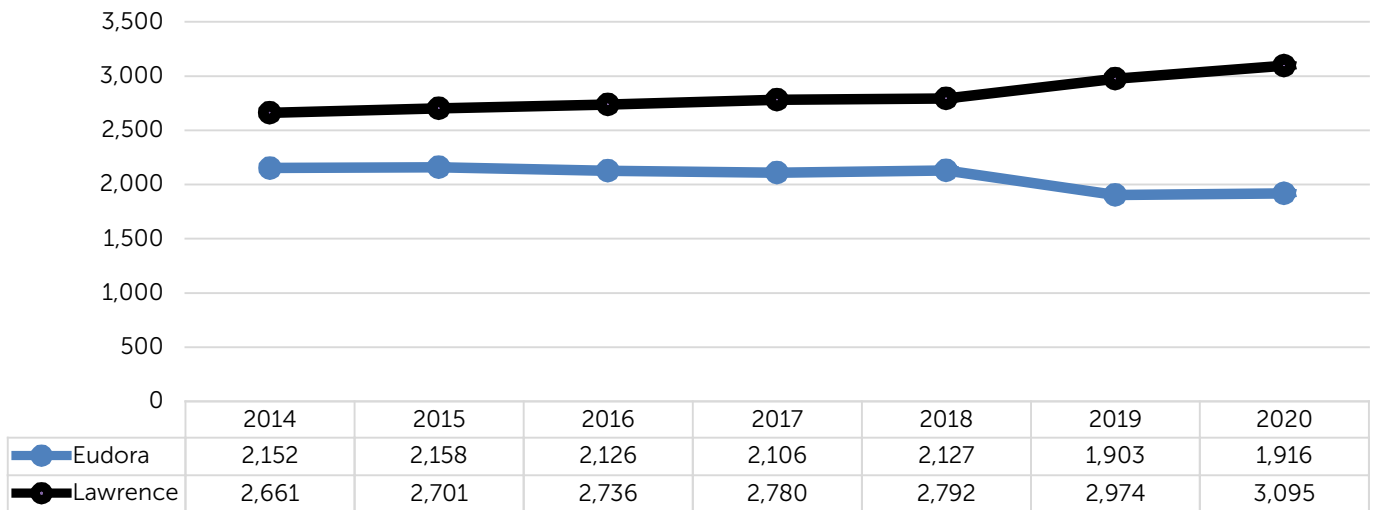


Miscellaneous

Performance Measure 21: Density of Urban Area (people/sq. mi)

This measure references the number of people divided by the number of square miles within a city.

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



Source: Lawrence-Douglas County GIS & US Census Bureau

Anticipated Update: Yearly

Target Set by MPO Policy Board: N/A



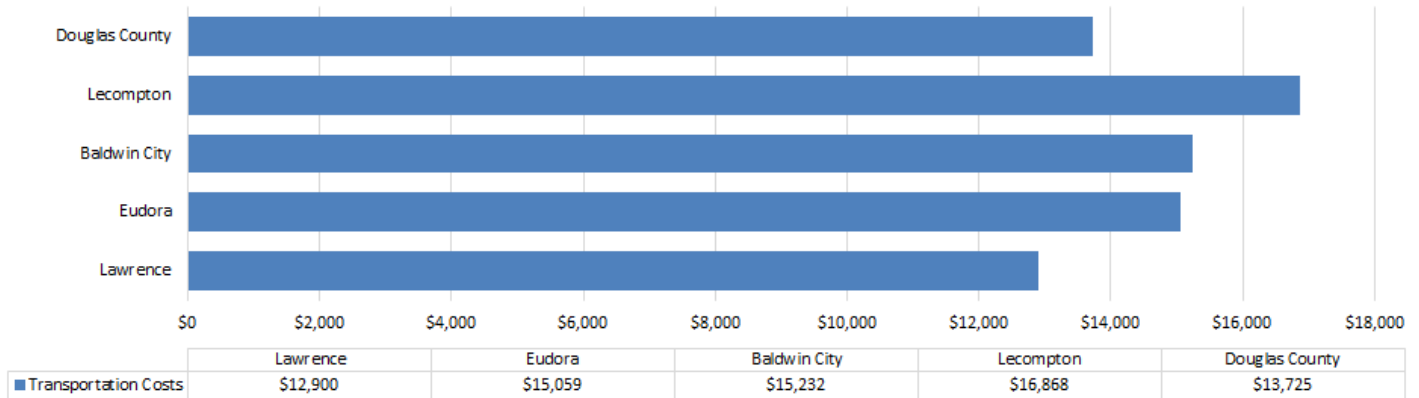
Miscellaneous

Performance Measure 22: Average Cost of Transportation per Household

Transportation costs are considered affordable if they are 15% or less of household income. 15% of the Regional Typical Household is \$61,020. Thus affordable transportation costs should only account for \$9,153 of a household's income. (This calculation used gas priced at \$3.80.)

	2022 Total 1-year Transportation Costs	1-year Transportation Costs % Over Affordable
Lawrence	\$12,900	141%
Eudora	\$15,059	165%
Baldwin City	\$15,232	166%
Lecompton	\$16,868	184%
Douglas County	\$13,725	150%

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



Source: Center for Neighborhood Technology's Total Driving Costs Tool - <https://htaindex.cnt.org/total-driving-costs>

Anticipated Update: 2024 (Assuming data is available)

Target Set by MPO Policy Board: N/A

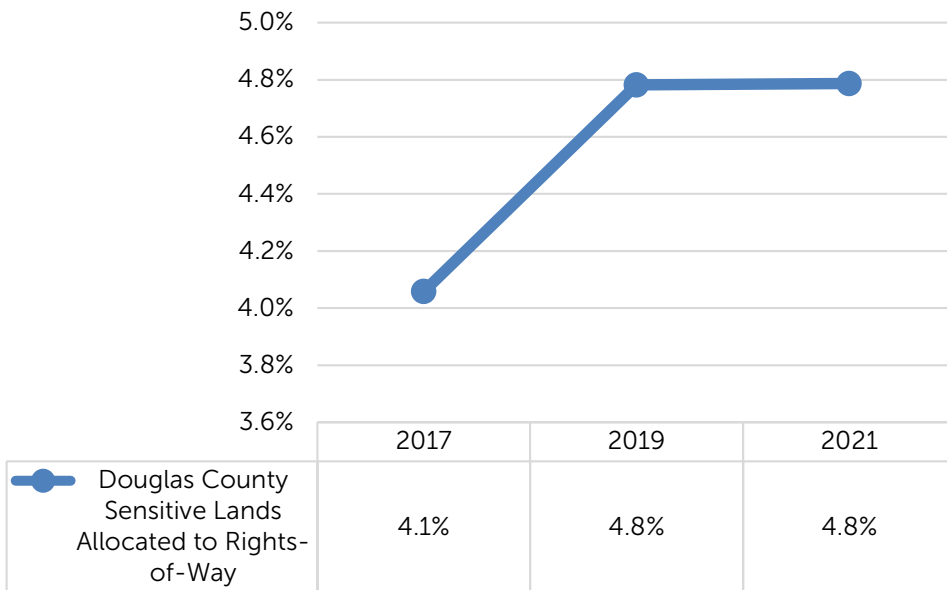


Miscellaneous

Performance Measure 24:

Percentage of Sensitive Lands Allocated Within Public Rights-of-Way

Sensitive lands are places which have unique environmental attributes worthy of retention or special care. They are critical to the maintenance of ecosystem services and healthy plant and wildlife populations. Protection of sensitive lands reduces vulnerability to Natural hazards and enhances quality of life. Public rights-of-way are an area dedicated to public use for pedestrian and vehicular movement, which may also accommodate public utilities.



Note: Sensitive lands include parkland, habitat, & wetlands.

Source: Lawrence-Douglas County GIS

Anticipated Update: 2023

Target Set by MPO Policy Board: N/A

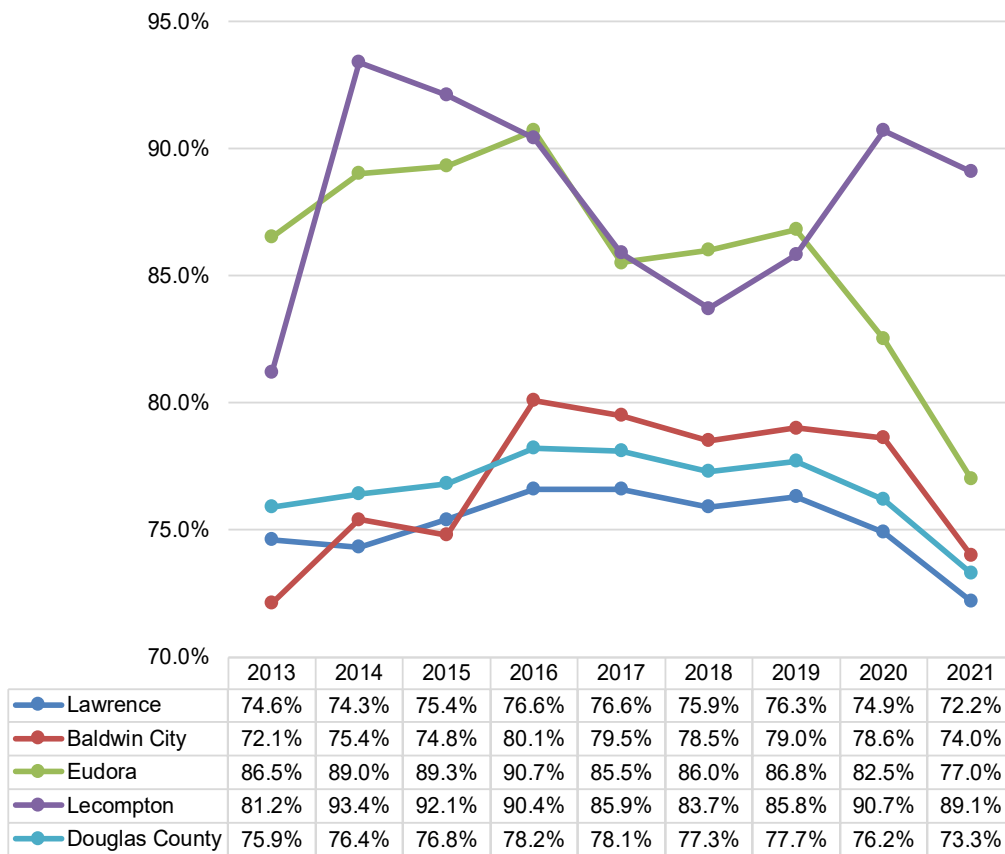


Miscellaneous

Performance Measure 25: Percentage of Single Occupancy Vehicles

Single occupancy vehicles commuting trips are where an individual drove alone to work in a car, truck, or van. Single occupancy vehicles contribute more greenhouse gas emissions per person compared to vehicles with more than one person. This data include workers 16 years old and over.

American Community Survey (ACS) data is compiled yearly by sampling over 3.5 million housing unit addresses over a 12 month period. Since this data is based on a survey there is a margin of error associated with the data.



Source: US Census Bureau American Community Survey (ACS) 5-year estimates (S0801)

Anticipated Update: 2024

Target Set by MPO Policy Board: N/A



Miscellaneous

Performance Measure 26: Percentage of Mode Choice

This data includes workers 16 years old and over.

2018						
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	75.9%	8.9%	2.9%	6.3%	1.0%	1.1%
Baldwin City	78.5%	9.5%	0.0%	7.4%	0.3%	1.2%
Eudora	86.0%	9.9%	0.0%	0.0%	0.0%	0.0%
Lecompton	83.7%	12.7%	0.0%	0.7%	0.0%	1.1%
Douglas County	77.3%	9.0%	2.3%	5.5%	0.8%	1.0%

2019						
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	76.3%	8.8%	2.5%	5.9%	1.1%	1.0%
Baldwin City	79.0%	7.9%	0.0%	11.6%	0.2%	0.0%
Eudora	86.8%	10.5%	0.0%	0.0%	0.0%	0.0%
Lecompton	85.8%	12.0%	0.0%	0.6%	0.0%	0.0%
Douglas County	77.7%	8.7%	2.1%	5.3%	0.9%	0.9%

2020						
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	74.9%	7.7%	2.4%	5.5%	1.3%	0.9%
Baldwin City	78.6%	6.0%	0.0%	14.4%	0.3%	0.0%
Eudora	82.5%	10.0%	0.0%	0.0%	0.0%	0.0%
Lecompton	90.7%	8.7%	0.0%	0.2%	0.0%	0.0%
Douglas County	76.2%	7.9%	2.0%	5.1%	1.1%	0.9%

American Community Survey (ACS) data is compiled yearly by sampling over 3.5 million housing unit addresses over a 12 month period. Since this data is based on a survey there is a margin of error associated with the data.

Source: US Census Bureau American Community Survey (ACS) 5-year estimates (S0801)

Anticipated Update: 2024

Target Set by MPO Policy Board: N/A



Miscellaneous

Performance Measure 26: Percentage of Mode Choice

These data include workers 16 years old and over.

	2021					
	Drove Alone	Carpooled	Bus	Walked	Biked	Taxicab, Motorcycle or Other
Lawrence	72.2%	8.2%	2.4%	5.1%	1.4%	1.4%
Baldwin City	74.0%	8.0%	0.0%	14.9%	0.4%	0.0%
Eudora	77.0%	10.2%	0.0%	0.0%	0.0%	0.0%
Lecompton	89.1%	5.7%	0.0%	0.4%	0.0%	0.0%
Douglas County	73.3%	8.3%	2.0%	4.7%	1.1%	1.1%

American Community Survey (ACS) data is compiled yearly by sampling over 3.5 million housing unit addresses over a 12 month period. Since this data is based on a survey there is a margin of error associated with the data.

Source: US Census Bureau American Community Survey (ACS) 5-year estimates (S0801)

Anticipated Update: 2024

Target Set by MPO Policy Board: N/A



Appendix E

System Performance Report

This report is Appendix E System Performance Report for [Transportation 2050](#), also known as T2050. T2050 is the blueprint for our future transportation system. It is a vision for a healthy, safe, and efficient transportation system, which adequately serves Lawrence, Eudora, Baldwin City, Lecompton, and unincorporated areas of Douglas County.

T2050 is a data-driven, performance based plan meeting the Federal Fixing America's Surface Transportation (FAST) Act requirements. It utilizes infrastructure condition and inventories, assessing performance trends, and setting performance measures. The plan includes 27 performance measures: 13 federally mandated and 14 community established.

Federal measures have targets set to meet requirements. Local measures have desired trend-lines identified. Data for these measures are provided by the Kansas Department of Transportation, the City of Lawrence, the City of Eudora, the City of Baldwin City, the City of Lecompton, Douglas County, the U.S. Census Bureau, the Federal Highway Administration, Lawrence Transit, KU on Wheels, Other Human Service Transportation Providers, and the Center for Neighborhood Technology. Data availability dictates data update schedules.

The [T2050 Performance Measure web page](#) contains the most up-to-date data. The performance measures are divided into theme areas. A pdf containing the measures for the theme are linked to the theme image.

[T2040](#) is a data-driven, performance based plan meeting the Federal Fixing America's Surface Transportation (FAST) Act requirements. It utilizes infrastructure condition and inventories, assessing performance trends, and setting performance measures. The plan includes 27 performance measures: 13 federally mandated and 14 community established. The measures are grouped by type in the pdfs below and can be found in Appendix F: System Performance Report of T2040.



[Click here](#) for a pdf with all 27 measures.



Safety

Serious Injuries Definition:

The Kansas Department of Transportation (KDOT) changed the definition of “Serious Injuries” used in crash reporting to the national definition of serious injuries on January 1, 2019. The new definition is defined in the Model Minimum Uniform Crash Criteria Guideline, or MMUCC (MMUCC) 4th Edition “Suspected Serious Injury (A)” attribute found in the “injury status” data element.¹

A suspected serious injury is defined in the MMUCC 4th Edition as any injury other than fatal that results in one or more of the following:

- Severe laceration resulting in exposure of underlying tissues/muscle/organs or resulting in significant loss of blood
- Broken or distorted extremity (arm or leg)
- Crush injuries
- Suspected skull, chest, or abdominal injury other than bruises or minor lacerations
- Significant burns (second and third degree burns over 10% or more of the body)
- Unconsciousness when taken from the crash scene
- Paralysis (loss of the ability to move or feel in part or most of the body)

The definition KDOT utilized prior to January 1, 2019 was:

A Disabling (incapacitating) injury is any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities he/she was capable of performing before the injury occurred. This includes:

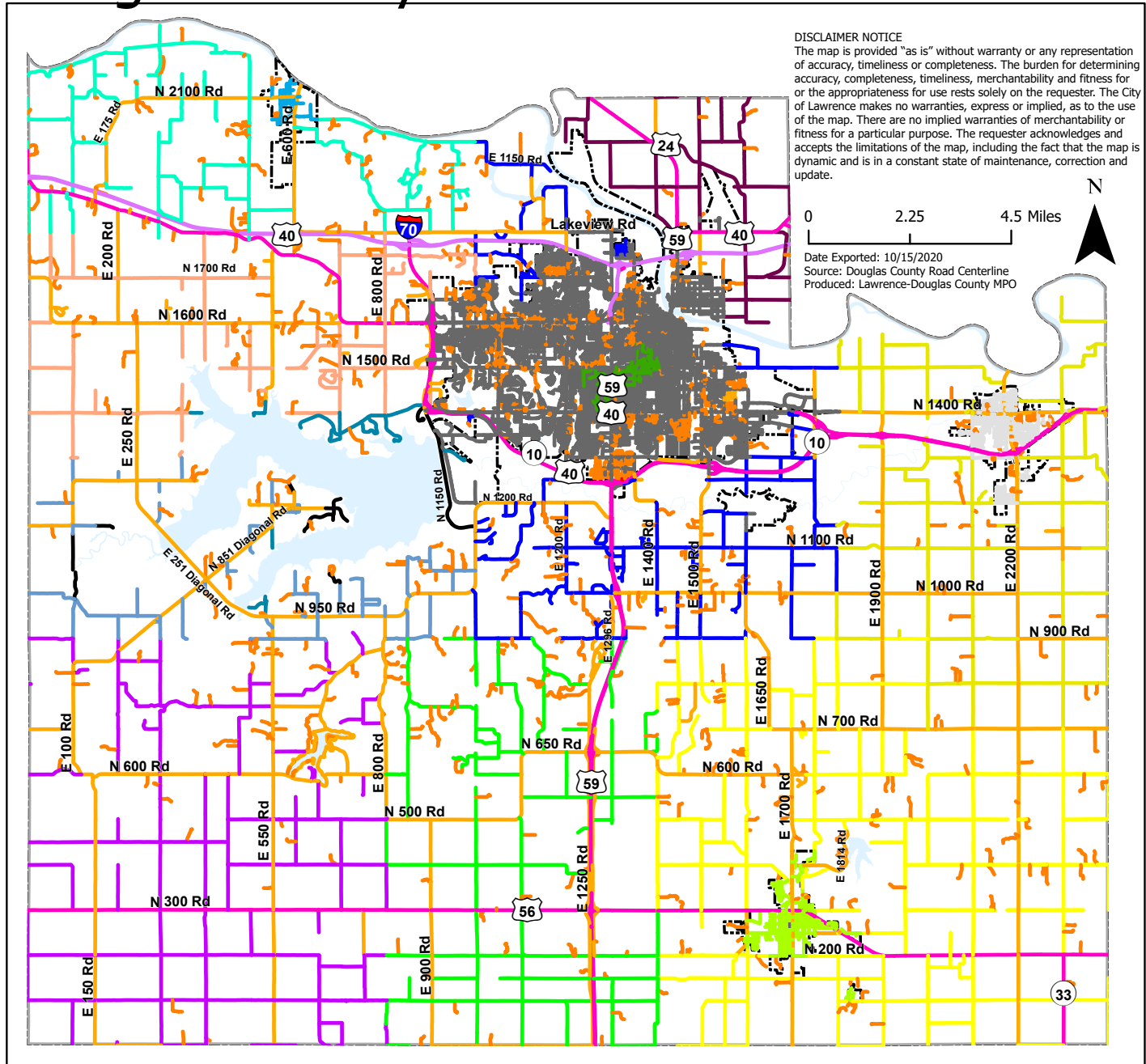
- Severe lacerations
- Broken or distorted limbs
- Skull or chest injuries
- Abdominal injuries
- Unconsciousness at or when taken from the accident scene
- Inability to leave the accident scene without assistance.

¹ <https://safety.fhwa.dot.gov/hsip/spm/docs/factsheet-mmucc-4edition.pdf>

Douglas County Road Maintenance Entities

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0 2.25 4.5 Miles
 Date Exported: 10/15/2020
 Source: Douglas County Road Centerline
 Produced: Lawrence-Douglas County MPO



- Road Maintained By:
- Army Corps of Engineers
 - City of Baldwin
 - Clinton Township
 - Douglas County
 - Eudora Township
 - City of Eudora
 - Grant Township
 - Kansas Department of Transportation
 - Kansas Department of Wildlife, Parks, and Tourism
 - Kanwaka Township
 - Kansas Turnpike Authority
 - University of Kansas
 - City of Lawrence
 - City of Lecompton
 - Lecompton Township
 - Marion Township
 - Other
 - Private
 - Palmyra Township
 - Willow Springs Township
 - Wakarusa Township
 - University
 - Water
 - City Limits
 - County Limits