

# K-10 Corridor



Corridor Profile

K-10

Length: 38 miles

**Key Developments:**

- Bauer Farms
- Berry Plastics
- East Hill Business Park
- Farmland Industries Redevelopment Site
- Haskell Indian Nations University
- Kansas Bioscience Park
- Sunflower Army Ammunition Plant Redevelopment
- University of Kansas

**Transit Service:**

- Lawrence Transit
- K-10 Connector

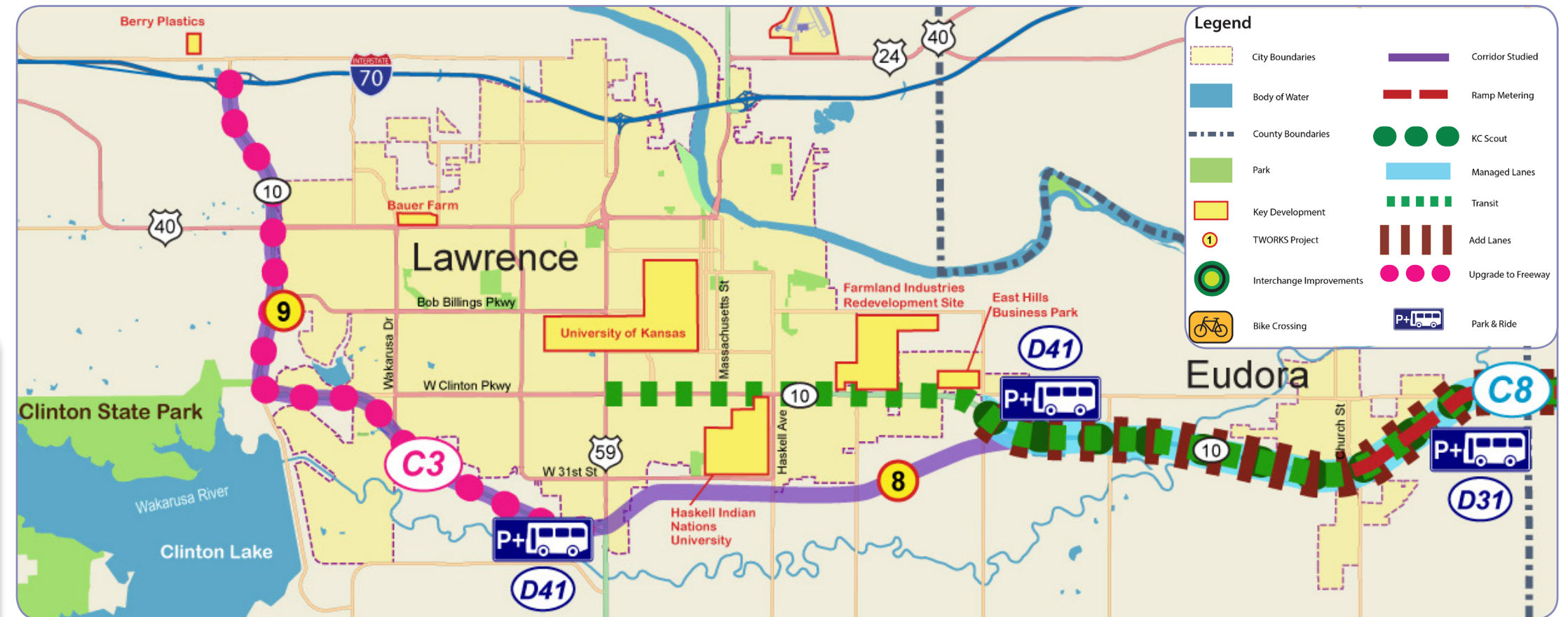


Figure 14-11: Traffic Volumes along K-10

Segment	2010 Traffic Volumes	2040 Forecasted Traffic on Existing plus Committed Network	2040 Forecasted Traffic with Recommended Strategies
I-70	11,800	29,300	34,200
US-40	9,200	34,900	39,700
Clinton Pkwy.	7,000	37,800	50,800
US-59	N/A	36,400	41,900
E. 1900 Rd.	26,800	71,200	76,200
Church St.	27,600	78,200	82,700
Kill Creek Rd.	36,000	86,100	90,900
K-7	47,300	76,200	89,000
Ridgeview Rd.	55,600	97,600	114,400
I-435			

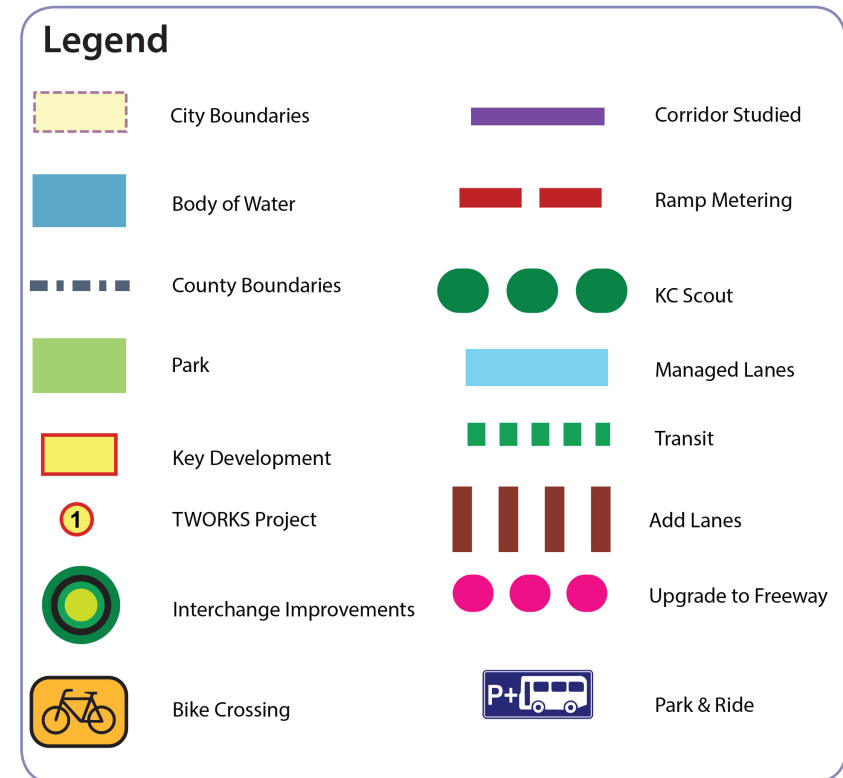
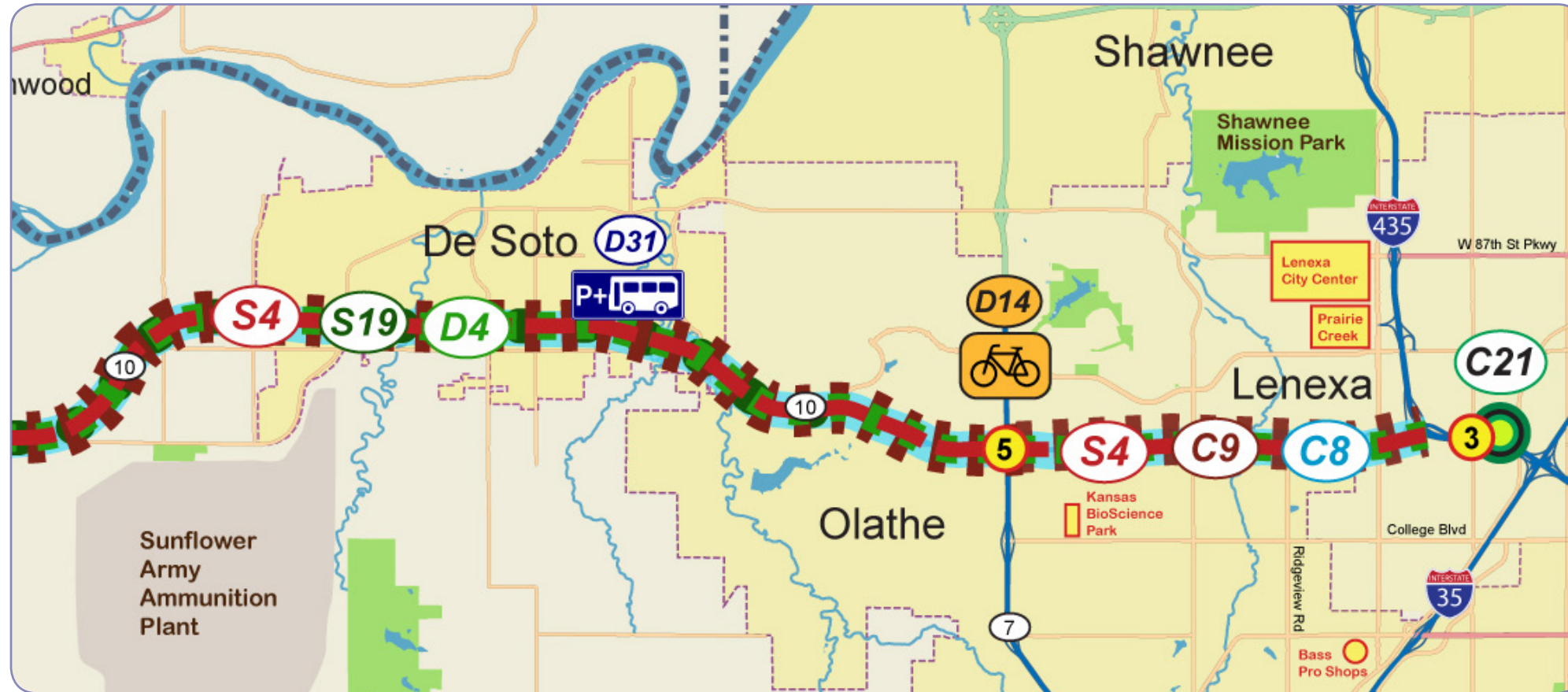
  

Segment	2010 % Trucks	2040 Forecasted % Trucks
I-70	6%	6%
US-40	5%	5%
Clinton Pkwy.	5%	5%
US-59	N/A	N/A
E. 1900 Rd.	4%	4%
Church St.	4%	4%
Kill Creek Rd.	5%	5%
K-7	6%	6%
Ridgeview Rd.	6%	6%
I-435		

**LEGEND**

- Not Congested** (Blue): Speeds are at or near the speed limit. Ability to maneuver within the traffic stream varies from unimpeded to somewhat restricted.
- Moderately Congested** (Yellow): Speeds begin to decline. Freedom to maneuver within the traffic stream is seriously limited.
- Congested** (Red): Traffic operates at the capacity of the roadway. Speeds are slow (<30 mph). Virtually no useable gaps within the traffic stream, leaving little room to maneuver. Any disruption can produce a serious breakdown in traffic flow with substantial backups of traffic.
- Severely Congested** (Black): Travel demand exceeds the roadway's traffic carrying capacity. Traffic flow breaks down. Very unstable flow.



**DESCRIPTION OF THE CORRIDOR**

K-10 from the I-70 interchange west of Lawrence to I-435 in Lenexa provides a major route for east-west travel through the 5-County region. The route connects Lenexa, Olathe, De Soto, Eudora and Lawrence.

K-10 is a two-lane highway, built on a four-lane right-of-way, from I-70 to Iowa Street (designated as US-59), near the southern edge of Lawrence. K-10 is currently designated on Iowa Street and on 23rd Street moving eastward through Lawrence. KDOT studied the corridor in the K-10 Transportation Study, completed in 2005 (<http://www.ksdot.org/projects.asp>).

Construction is scheduled to begin in Fall 2013 on the South Lawrence Trafficway (SLT), a six-mile, four-lane freeway connecting the existing west leg of the K-10 corridor to K-10 at a point east of Lawrence, via a route around the southern edge of the city. The construction of the SLT will eliminate the K-10 designation on Iowa and 23rd Streets in Lawrence. K-10 is a four-lane freeway between Lawrence and I-435.

**EXPANSION & MODERNIZATION T-WORKS PROJECTS CURRENTLY FUNDED FOR CONSTRUCTION**

In May 2010, the Kansas Legislature passed Transportation Works for Kansas (T-WORKS), an \$8 billion 10-year transportation program. T-WORKS is designed to create jobs, preserve highway infrastructure, and provide multimodal economic development opportunities across the state. Table 14-17 shows the expansion and modernization projects that are funded through T-WORKS along the K-10 corridor:

Table 14-17: T-WORKS Expansion and Modernization Projects Currently Funded for Construction

Project Number	Location	Description	Construction Cost	Planned Year
3	I-435/I-35/K-10 Interchange (Johnson Co. Gateway)	Construct C-D roads and ramps	\$250 M	2014
5	Near K-7	KC Scout Expansion	\$475 K	2010
8	South junction of US-59 to K-10 near E. 1750 Road (South Lawrence Trafficway)	Construct 4-lane freeway	\$150 M	2013
9	15th St/Bob Billings Pkwy	Construct Interchange	\$18 M	2014

**KEY DEVELOPMENTS**

The K-10 corridor supports existing and future redevelopment in Lawrence and cities in the Kansas City metropolitan area. Major educational institutions, industrial areas, new high technology businesses, office locations, and commercial sites are located along this corridor. This corridor supports more adjacent economic activity potential than any other corridor in the 5-County region.

The K-10 corridor is also key to the future development of Eudora, De Soto, western Shawnee, western Lenexa and western Olathe as well as the former Sunflower Army Ammunition Plant. The potential Sunflower development site is located just south of K-10 on Lexington Avenue near De Soto. This development has the potential to be a major traffic generator. It should be noted, however, that site preparation for the Sunflower development has been estimated to cost much more than originally expected. This additional cost could slow redevelopment at this site.

A new business park is proposed at the Farmland site in Lawrence. It is located near and projected to be a business/industrial park similar to East Hills business park.

High growth in population and employment is projected in western Lenexa and western Olathe adjacent to K-10. High population growth is also anticipated in Eudora, with some employment growth also expected to the east of Lawrence.

## TRAFFIC

Traffic forecasts for the year 2040 were determined assuming completion of the projects in T-WORKS. These projections show congestion on the west leg of the K-10 South Lawrence Trafficway (SLT), on 23rd Street, and along K-10 between Lawrence and I-435.

There is a relatively high volume of traffic that currently travels through the City of Lawrence to make the connection between I-70 and K-10. The construction of the east leg of the SLT (new alignment for K-10) is scheduled to be completed by fall of 2016. Completing the east leg will divert much of the “pass-through” traffic, but with only two lanes on the west leg of the SLT, some traffic will continue to travel through the city. Interchange improvements at I-70 and K-10 are not recommended as part of the study because of the high cost to construct a system-to-system interchange and traffic must slow for the toll booths, therefore little benefit is gained by constructing a free-flowing interchange.

Overall traffic on the corridor is projected to grow from current levels of 28,000 vehicles per day (vpd) to approximately 78,000 vpd on the eastern segments of the corridor. As a result, 15 miles of the 40 mile corridor is likely to experience peak period congestion in the year 2040. That congestion will mainly occur on the two-lane section between I-70 and US-59 and on the section between Lawrence and I-435. Regional growth will generate sufficient traffic volumes that K-10 will need to be widened to six lanes between Lawrence and K-7. Between K-7 and I-435, K-10 will eventually need eight lanes to ensure travel at a reasonable level of service.

## OTHER MODES

Express bus service currently connects the University of Kansas and Haskell Indian Nations University in Lawrence with Johnson County Community College and the KU Edwards Campus in Overland Park. This service,

called the K-10 Connector, is operated by Johnson County Transit and has been very successful. Opportunities exist to expand this service to provide additional buses and connections.

## CORRIDOR CONNECTIONS

At the west end of the corridor a key connection with I-70 serves traffic to and from the west. On the south side of Lawrence, the interchange with US-59 provides a connection with a new freeway that runs south to the City of Ottawa and a junction with I-35. The section where K-10 connects with I-435 and I-35 is called the Johnson County Gateway. This area has been studied as part of a separate project (<http://www.jocogateway.com/>). The Gateway serves a complex set of travel patterns which currently result in high levels of traffic conflict and delay.

## IMPACTS TO OTHER CORRIDORS

K-10 and I-70 (the Kansas Turnpike) are the two major east-west corridors serving the 5-County region. Traffic volumes are growing more quickly on K-10 than I-70.

There is a considerable volume of traffic that desires to travel between I-70 west of Lawrence and southern Johnson County. Currently, much of this traffic uses I-70 and either K-7 or I-435 for these trips. Completion of the South Lawrence Trafficway (K-10) will provide a more direct route and reduce travel times; therefore, significant traffic will likely shift from I-70 to K-10. This will place an additional burden on the Johnson County Gateway area. This shift in traffic will extend the service life of I-70, the four-lane Kansas Turnpike, delaying the need to widen this highway to six lanes.

## RECOMMENDED STRATEGIES

The continued maintenance and operation of existing roadways and transit services must occur before other strategies are implemented on the K-10 corridor.

A variety of strategies were considered to improve current and future traffic operations on K-10 through the year 2040. These strategies are shown in Table 14-18. Strategies that are recommended as part of a corridor package are shaded in blue; strategies that were not recommended during the 2020 to 2040 timeframe are not shaded. Each strategy was assigned an identifier code of a letter and number that are shown on the K-10 corridor

maps. An “S” indicates a system management strategy, a “D” indicates a demand management strategy, and a “C” indicates an added capacity strategy.

The table shows how each strategy scored for the criteria used to evaluate each of the 9 Desired Outcomes. Stakeholders determined that the 9 Desired Outcomes should be used in making transportation investment decisions. The total score for each strategy was determined by multiplying the individual outcome score by a weighting factor that was established by stakeholders for that desired outcome. The total cost is given in year 2020 dollars and includes the construction/ implementation cost and 10 years of maintenance/operation cost. The Benefit Ratio was determined by dividing the Total Score by the Total Cost in \$millions.

### System Management Strategies

These strategies seek to enhance traffic flow and reduce congestion through better management and operation of the existing transportation facilities.

**S4: Implement ramp metering from the Church Street interchange in Eudora to the Ridgeview Road interchange in Lenexa.** Ramp metering uses traffic signals on the entrance ramps to control the rate at which vehicles enter K-10. Ramp metering will improve safety and traffic flow on K-10.

**S19: Implement intelligent transportation system (ITS) devices from E. 1750 Road to Cedar Creek Road similar to the KC Scout devices that are in place in the Kansas City metro area.** These devices would include dynamic message signs to warn drivers of upcoming travel conditions and a camera system to monitor the real-time flow of traffic.

### Demand Management Strategies

These strategies address transportation needs by reducing the number of vehicles during the peak travel periods.

**D4: Expand the operating hours/service of the K-10 Connector transit service.** Additional transit trips would be added to the existing service, with this service providing stops along K-10 at Eudora, DeSoto and possibly one stop in Lenexa, before proceeding to the Edwards Campus and then continuing on to the College Boulevard/Corporate Woods area.

**D14: Construct a bicycle path parallel to K-10, along Prairie Star Parkway across the bridge over highway K-7.** This freeway crossing would connect two significant lengths of existing bicycle paths, the first from west of Cedar Creek Parkway to the west side of K-7 and the second from the east side of K-7 east along Prairie Star Parkway.

**D31 and D41: construct Park & Ride facilities near US-59, near E. 1750 Road, near Eudora, and near DeSoto.** Park & Ride facilities promote carpooling and transit use while offering the flexibility for travelers to use personal vehicles for errands either before or after their workday commute.

**D32: Anytime a new bridge is constructed over K-10 or a bridge is reconstructed, consideration will be given to including a shared use path on the bridge.**

### Increased Capacity Strategies

These strategies increase the traffic-carrying capacity of a roadway through adding lanes, modifying interchanges, and constructing new roadways.

**C3: This strategy adds two new lanes parallel to the existing lanes from I-70 to US-59 and improves at-grade intersections to grade separated interchanges to create a four-lane freeway.**

**C8: Widen K-10 to six lanes from approximately E. 1750 Road (eastern end of the South Lawrence Trafficway) to I-435.** The two new lanes would be constructed as high occupancy toll lanes where transit and carpool vehicles travel for free but single-occupant vehicles pay a toll. HOT lanes provide the KDOT with a great deal of flexibility in managing future traffic operations along the highway.

**C9: This strategy would widen the section between K-7 and I-435 to eight lanes.** The high occupancy toll lanes from strategy C8 would be maintained through this area.

**C21: Construct the phases of the Gateway Interchange improvements that remain following the T-WORKS project.** The Gateway Interchange extends along K-10/I-435 from Ridgeview Road to US-69 and includes the interchanges with I-35 and the north-south segment of I-435.

Table 14-18: K-10 Corridor Strategy Package

Recommended Corridor Strategies and Evaluation Scores															
Strategies		Desired Outcomes (weighting factor***)									Total Score	Total Cost (\$millions)*	Benefit Ratio**	Decade	
		Engineering		Economic Impact		Community Impact								2020-2030	2030-2040
		Mobility (15.5)	Safety (16.0)	Regional Prosperity (12.5)	Financial Resources (15.0)	Choice (8.5)	Environment (9.0)	Public Health (7.0)	Social Equity (7.5)	Livability (9.0)					
	Operate and maintain existing roads and bridges												X	X	
C3	Widen K-10 as a 4 lane freeway from I-70 to US-59	6.7	7.3	5.0	5.9	3.3	5.5	5.7	3.8	3.6	549	98.5	5.6	X	
S4	Ramp metering between Church Street and Ridgeview Road	6.0	6.5	3.3	10.0	3.3	4.1	4.2	3.8	3.3	540	1.5	367.1	X	
C7	Widen K-10 to 6 lane freeway from E. 1750 Road to I-435	7.9	3.7	5.0	6.1	5.0	5.0	5.2	4.4	4.1	528	195.8	2.7		
C8	Widen K-10 to 6-lane freeway from E. 1750 Road to I-435 with high occupancy toll lanes (HOT)	7.9	3.7	5.0	6.0	5.0	5.0	5.2	4.4	4.1	527	205.6	2.5	X	
D4	Expand operating hours/service for transit K-10 Connector Service	5.5	3.7	3.3	8.5	5.0	5.5	4.5	4.4	5.0	514	10.1	50.9	X	
C9	Widen K-10 to 8-lane freeway from K-7 to I-435, K-10 remains 4-lane west of K-7	8.0	3.3	5.6	8.3	3.3	4.5	4.4	2.8	2.6	514	82.2	6.3	X X	
D14	Construct bicycle path on K-10 across K-7 on Prairie Star Pkwy to connect existing paths	3.9	4.4	3.3	4.7	5.5	4.1	4.3	4.5	5.6	441	1.1	400.2	X	
C21	Construct remaining phases of I-435/I-35/K-10 Gateway project	6.2	5.0	5.0	3.4	3.3	3.6	4.4	4.4	2.6	437	310.8	1.4	X X	
S19	Intelligent Transportation Systems (ITS) from E. 1750 Road to Cedar Creek Road	4.5	6.5	3.3	4.3	3.3	3.6	4.2	3.8	3.3	427	2.5	170.8	X	
D24	Expand Park & Ride facilities at KTA Lecompton Toll Plaza	3.9	3.3	3.3	6.7	4.1	4.1	3.5	4.1	4.3	418	0.5	796.4		
S24	Variable speed limits on K-10 from K-7 to I-435	4.6	4.4	3.3	5.5	3.3	4.1	3.6	3.8	3.3	412	0.6	654.5		
D31	Construct Park & Ride facilities near Eudora and DeSoto	4.5	3.3	3.3	4.3	4.5	4.1	3.6	4.2	5.4	407	1.5	277.1	X	
D32	Bicycle / pedestrian facilities: consider on all new or reconstructed bridges over K-10	3.9	3.7	3.3	3.7	5.0	4.1	3.9	4.4	5.5	405	1.6	257.2	X	
S27	Incident management	4.5	5.0	3.3	4.2	3.3	3.6	3.8	3.8	3.3	398	2	199.1		
D41	Construct Park & Ride facilities near US-59 and near E.1750 Road	4.2	3.3	3.3	4.3	4.5	4.1	3.6	4.2	4.4	394	1.5	268.2	X	
C47	Reconstruct the K-10 and I-70 interchange	4.3	4.4	3.7	3.4	3.3	4.5	4.2	3.8	3.3	391	157.5	2.5		
D43	Construct bicycle path adjacent to K-10 from Lawrence to Eudora	3.3	3.3	3.3	3.7	5.5	4.1	3.9	4.5	5.1	389	3.4	115.8		
D45	Construct bicycle path adjacent to US-59 to 31st Street	3.3	3.3	3.3	3.5	5.5	4.1	3.9	4.5	5.1	386	6.4	60.3		
D46	Construct bicycle path between DeSoto and Prairie Star Pkwy at Cedar Creek Pkwy to connect with existing path	3.3	3.3	3.3	3.4	5.5	4.1	3.9	4.5	5.1	386	7.2	53.2		
D47	Construct bicycle path adjacent to K-10 from Eudora to DeSoto	3.3	3.3	3.3	3.4	5.5	4.1	3.9	4.5	5.1	385	7.9	48.9		
C53	Construct interchange at K-10 and Prairie Star Pkwy	5.1	2.0	3.7	4.5	3.3	4.1	3.3	3.3	2.9	364	18.9	19.2		
C58	Construct interchange at K-10 and Clare Road	5.2	1.1	3.7	5.4	3.3	3.6	2.6	3.3	2.6	351	18.9	18.6		
C63	Construct interchange and collector-distributor road at K-10 and Lone Elm Road	4.9	1.1	3.7	4.3	3.3	3.6	2.6	3.3	2.6	330	28.4	11.6		

**Recommended Strategy**

\*Total Cost is in 2020 dollars and includes costs for constructing/implementing the strategy and 10 years of operation and maintenance costs.  
 \*\*Benefit Ratio is determined by dividing the Total Score of the strategy by the Total Cost in \$millions. It provides a way to compare strategies.  
 \*\*\*The numbers in parenthesis below each Desired Outcome indicate the weight assigned as determined through stakeholder input.