

Section 13: Recommended Strategies

What regional transportation strategies are recommended?

The recommended strategies shown in this section of the report were evaluated using criteria based on the 9 Desired Outcomes developed by the Stakeholder Advisory Panel in Phase 1 of the study. The analysis made use of the 5-County Study Travel Demand Model, GIS information, cost/benefit data and local land use plans.

The strategies were based on one of four broad categories:

- **Operation and Maintenance:** Operation and maintenance of existing roadways and transit services is a critical “base line” strategy for all corridors.
- **Transportation Systems Management:** These strategies seek to enhance traffic flow and reduce congestion through better management and operation of the existing transportation facilities.
- **Transportation Demand Management:** These strategies address transportation needs by reducing the number of vehicles during the peak travel periods.
- **Capacity:** These strategies increase the capability of roadways to carry higher traffic volumes through added general purpose lanes and through managed lanes.

EVALUATION PROCESS

The process for evaluating the strategies followed these steps:

1. Phase 1 of the 5-County Study recommended the use of a “triple bottom line” approach to sustainable decision-making. This approach requires the consideration of economic, environmental and societal factors when making transportation investment decisions.

2. The 9 Desired Outcomes were organized into three groupings: Engineering, Economic Impact, and Community Impact.
3. Through a series of meetings with the Core Team, the Corridor Strategies Working Group and the Stakeholder Advisory Panel, a matrix (available in the Appendix) was created that identified one or more criteria for the 9 Desired Outcomes. These criteria best define the regional philosophy for each outcome.
4. The Stakeholder Advisory Panel (SAP) and public officials from all five counties allocated 100 points between the 9 Desired Outcomes. These weights are shown in Table 13-1. The average weights were used in scoring the corridor strategies.
5. Scoring for each strategy was determined by rating each of the Outcomes’ criteria from 1 (low) to 10 (high), averaging those values for each Outcome, multiplying the outcome score by the weight and summing the scores for the 9 Desired Outcomes.
6. Strategies were then placed in order from highest score to lowest for further analysis.

The criteria used for each Outcome are as follows:

Engineering

These outcomes focus on the safety and mobility of highway users and are traditional factors that have been used in making decisions for transportation projects. These two outcomes and their criteria are:

Table 13-1: Weighting of 9 Desired Outcomes

	Mobility	Safety	Regional Prosperity	Efficient Use of Resources	Choice	Environment	Public Health	Social Equity	Livability
Miami	20.35	16.55	14.75	14.8	12	5.5	4.4	4.05	6.1
Douglas	7.5	8.75	10	21.25	7.5	10.75	3.75	20	10.5
Johnson	16.79	14.42	12.32	20.74	9.53	8.05	4.95	4.53	8.68
Leavenworth	23.5	15.5	13.57	9.36	11.93	4.79	5.36	5.64	7
Wyandotte	17	20.63	11.88	13.38	6.75	9.38	9.38	6.5	5.13
Average Public Officials (Nov/Dec 2011)	17.03	15.17	12.50	15.91	9.54	7.69	5.57	8.14	7.48
Stakeholder Advisory Panel (May 2011)	13.73	16.73	12.73	13.55	7.18	10.09	8.27	7.27	10.45
Average of Both Groups	15.38	15.95	12.62	14.73	8.36	8.89	6.92	7.71	8.97

- **Mobility:** Degree in which a strategy supports the movement of people and goods.

- Year 2040 volume to capacity ratio (v/c). This criterion looks at the future level of congestion on the corridor without any improvements. This data came directly from the travel demand model for the region.

- Change in the number of miles of roadway congestion in the year 2040 if a strategy were to be implemented (number of miles at Level of Service E or worse) from a “no-build” scenario. This data came directly from the travel demand model for the region. This data came directly from the travel demand model for the region.
- Change in the year 2040 vehicle-hours traveled (vht) with the strategy versus a “no-build” scenario. This data came directly from the travel demand model for the region.

- **Safety:** Degree in which a strategy would lead to reduced crash rates.
 - A process similar to that used in the development of the T-WORKS transportation program was employed to evaluate the safety value of each strategy. This criteria reviewed the existing crash rate for a corridor, the change in the number of conflict points, the potential for crash severity reduction, and potential change in the number of crashes

Economic Impact

These outcomes focus on the impact that a strategy has on the economic prosperity of the region as well as how funding is best utilized. KDOT has always been concerned about project costs and with T-WORKS has begun to consider the economic impacts of projects.

- **Regional Prosperity:** Improved economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by the public as well as expanded business access to markets.
 - KDOT provided analysis of the economic impacts of the strategies using the software package called TREDIS (Transportation Economic Development Impact System). TREDIS was used in analyzing potential projects for the T-WORKS transportation program.
- **Efficient Use of Financial Resources:** Evaluation of the affordability of transportation investments by considering the initial investment to construct the life-cycle costs to maintain and operate; and the economic benefits to the community.
 - A benefit to cost ratio was determined for each strategy. The benefit focused on the expected reduction in the number of crashes and the reduction in travel costs, measured by reductions in vehicle-hours of travel and vehicle-miles of travel. Cost included that to construct or implement the strategy as well as that to operate and maintain the strategy for 10 years.

Community Impact

The Stakeholder Advisory Panel determined that five community impact desired outcomes were important to the region and should be considered along with the engineering and economic impact desired outcomes.

- **Choice:** Degree in which strategy provides for choice of auto and non-auto modes of transportation or provides information on choice of travel route or time of travel.
 - The travel time by automobile was compared to that by transit.
 - The transit ridership was determined using the travel demand model.
 - The degree to which a strategy connected various transportation modes.
 - The degree to which transit and bicycle facilities are provided.
- **Environment:** Transportation system investments that enhance environmental sustainability, improve air and water quality, reduce climate impacts and the region's carbon footprint, and protect high priority natural resources.
 - How well the strategy protects high quality and sensitive natural resources. This is measured through habitat, prime farmland and parkland impacts and the impacts on threatened and endangered species.
 - How well the strategy reduces air, water and carbon pollution. The change in vehicle-hours traveled from the travel demand model provides data.
 - How well the strategy reduces overall consumption of energy, fuels and non-renewable resources. The change in vehicle-miles traveled from the travel demand model provides data on fuel usage.
 - How well the strategy “uses land in a sustainable manner,” shows the value that the groups place on local planning efforts that encourage infill development and discourage sprawl through transportation investments.

- **Public Health:** Public health is considered by improving traffic safety, improving air quality, promoting physical activity and fitness, improving access to medical services, and increasing transportation affordability.
 - Through discussions with the Advisory Panel and Working Groups, it was agreed that criteria associated with “public health” were redundant with criteria in “environment” (reduces air, water, noise and carbon pollution), “safety” (improves roadway safety) and “choice” (increases modal options to access daily needs and activities). Even though these criteria are measured through the other outcomes, the groups determined it was important to maintain the “public health” outcome and document these three criteria to get a fuller picture of how the strategy affects public health.
- **Social Equity:** Consider the investment benefits and impacts on all population groups within communities.
 - How well the strategy provides equitable access for all groups, including those that do not drive due to age or disability and those that are economically disadvantaged.
 - How many homes or businesses are displaced by the strategy.
 - How well the strategy distributes benefits to all subgroups and follows the measurements associated with Environmental Justice.
- **Livability:** Integration of the transportation system with the community desires including social equity. Improvements that fit the scenic, aesthetic, historic, community and environmental setting.
 - How well the strategy increases modal options.
 - How well the strategy encourages active transportation: bicycling and walking.
 - How well the strategy supports the development/ redevelopment of activity centers.
 - How well the strategy improves connectivity and cohesion within the community.

RECOMMENDED STRATEGIES

The recommended strategies were selected primarily based upon their total score for the 9 Desired Outcomes. Strategies that were not selected likely had a very high cost, were alternatives to another more desirable strategy, or had a low score.

The recommended strategies for individual corridors were presented to the Stakeholder Advisory Panel and Corridor Strategies Working Group as well as to officials in each of the five counties. Those groups provided feedback on how well the strategies address regional transportation needs.

The recommended strategies assume a \$1.2 billion funding level similar to the current T-WORKS program. Considering inflation, the funding for the period 2020-2030 was assumed to be \$1.32 billion and for 2030-2040, \$1.48 billion.

Table 13-2 shows the estimated costs by strategy type and decade of implementation.

Table 13-2: Funding Requirements for Recommended Strategies

Strategy Type	Decade		Total
	2020-2030	2030-2040	
Operation & Maintenance	Varies*	Varies*	Varies*
Transportation System Management	\$ 93,056,000	\$ 6,775,000	\$ 99,831,000
Transportation Demand Management	\$ 114,224,500	-	\$ 114,224,500
Capacity – General Purpose Lanes	\$ 1,113,134,655	\$ 1,169,832,700	\$ 2,282,967,355
Capacity – Managed Lanes	-	\$ 305,714,200	\$ 305,714,200
All Strategies	\$ 1,320,415,155	\$ 1,482,321,900	\$ 2,802,737,055

*Funding for the operation and maintenance of existing transportation infrastructure and services typically comes from a separate source than that for the implementation of new strategies. KDOT’s average annual maintenance cost for pavements and bridges in the 5-County region was approximately \$13.5 million for the years 2001 through 2011. Maintenance costs can vary considerably from year to year.

The recommended strategies for the 5-County region are displayed on three maps with corresponding tables on the following pages in this section. The strategies are mapped by category: Transportation Systems Management, Transportation Demand Management and Capacity.

Strategies that are recommended during the years 2020 to 2040 are shaded in blue; strategies that were not recommended during this time period are not shaded. Each strategy was assigned an identifier code of a letter and number that are shown on maps. An “S” indicates a system management strategy, a “D” indicates a demand management strategy, and a “C” indicates an added capacity strategy.

The tables show the total score for each strategy based upon the 9 Desired Outcomes, the total cost given in year 2020 dollars which includes the construction/implementation cost plus 10 years of maintenance/operation cost, and the decade in which the strategy is recommended for implementation.

FUTURE OUTLOOK FOR ROADWAYS

A future view of the 5-County region’s roadways shows the demand for travel on many of the major highways and some arterial streets to be near, at, or over their traffic-carrying capacity during peak periods. Figure 13-2 shows the evening peak period level of congestion in the year 2040 assuming the existing roadway network plus those projects that are included in the T-WORKS transportation program (2010-2020). Figure 13-3 shows the level of congestion for the same time period, but includes the recommended strategies for the region in addition to the T-WORKS projects.

Table 13-3 provides a comparison of the travel demand models for the base year 2010, 2040 E+C (existing roads with committed project – Figure 13-2), and 2040 with the recommended strategies (Figure 13-3). The peak hour vehicle-hours traveled (VHT), vehicle-miles traveled (VMT), and the number of congested roadway lane miles all increase significantly from 2010 to 2040.

Table 13-3: Travel Demand Model Comparison

	2010 Base Year	2040 E+C	2040 Strategies
Peak Hr VHT <i>Change from E+C</i>	137,980	236,659	233,810 -2,595
Peak Hr VMT <i>Change from E+C</i>	6,170,068	9,136,945	9,099,310 -38,296
Congestion LOS>E Lane-Miles <i>Change from E+C</i>	1,033	2,499	2,315 -184

The roadway lane-miles that are congested more than doubles during this time frame. Assuming a level of funding similar to that of T-WORKS, the recommended strategies will address less than a tenth of the congestion in 2040.

LEGEND

Not Congested

Speeds are at or near the speed limit. Ability to maneuver within the traffic stream varies from unimpeded to somewhat restricted.

Moderately Congested

Speeds begin to decline. Freedom to maneuver within the traffic stream is seriously limited.

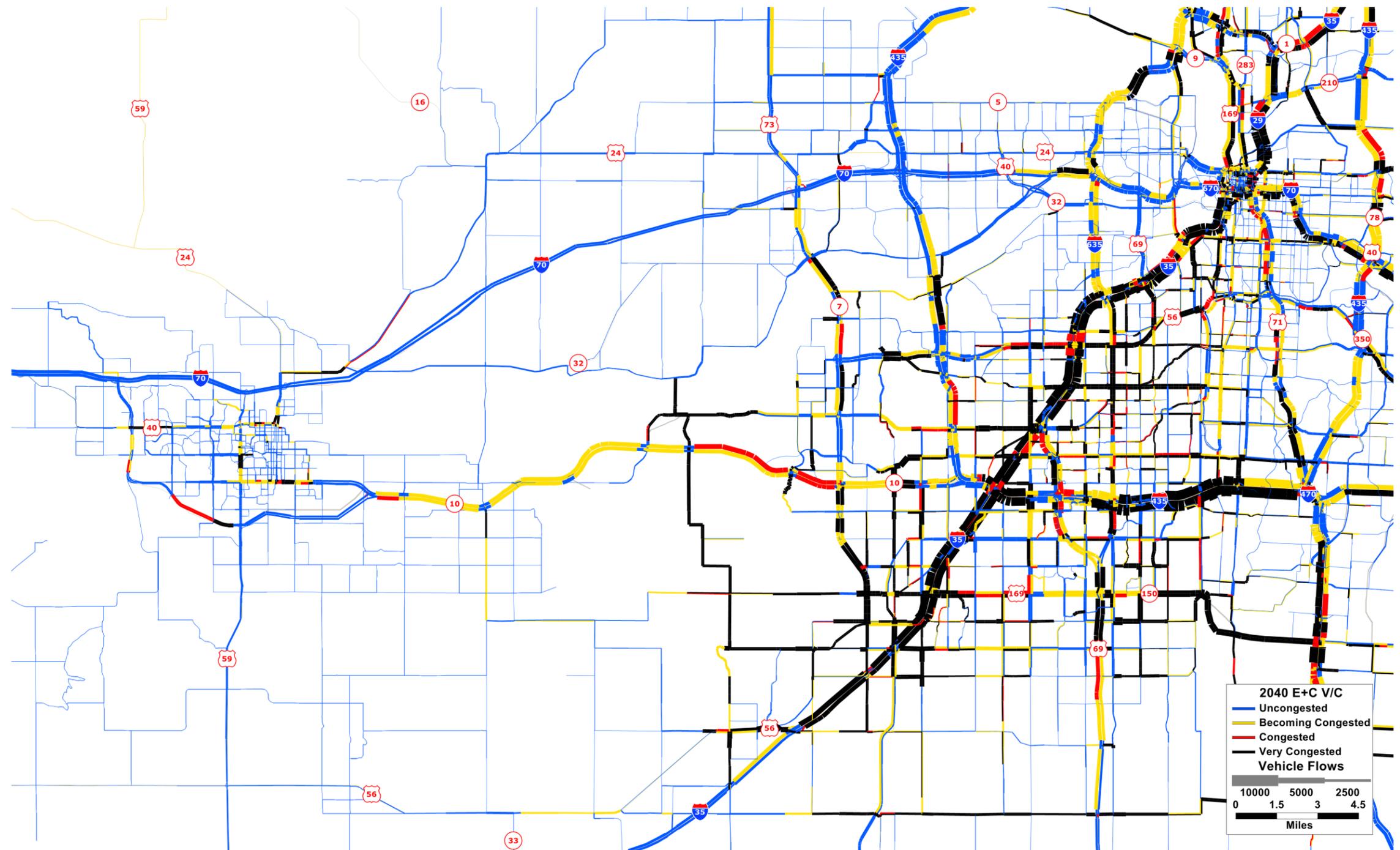
Congested

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

Travel demand exceeds the roadway's traffic carrying capacity. Traffic flow breaks down. Very unstable flow.

Figure 13-2: 2040 PM Peak Hour Volume to Capacity Ratio for Existing Conditions plus T-WORKS Projects



LEGEND

Not Congested

Speeds are at or near the speed limit. Ability to maneuver within the traffic stream varies from unimpeded to somewhat restricted.

Moderately Congested

Speeds begin to decline. Freedom to maneuver within the traffic stream is seriously limited.

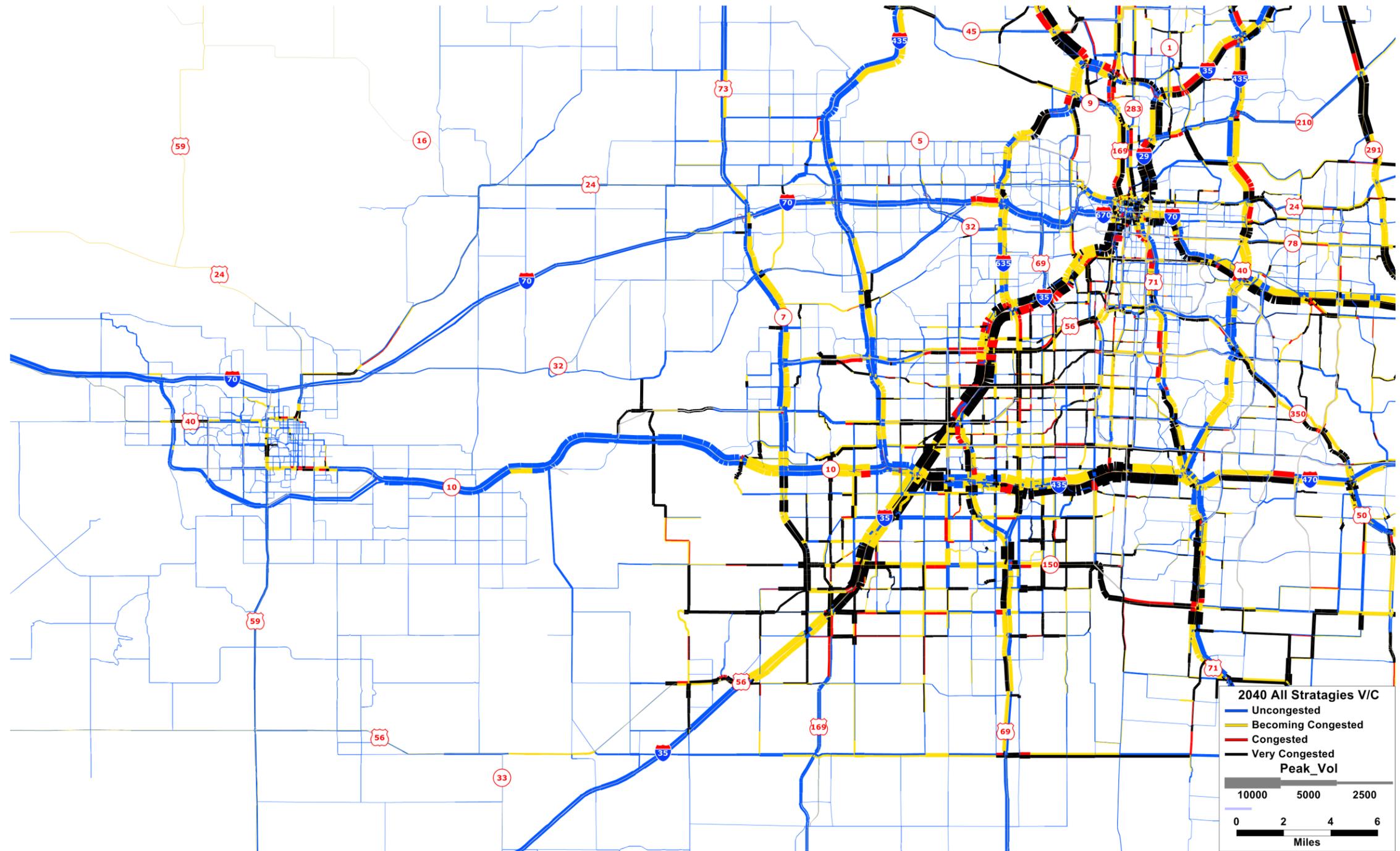
Congested

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

Travel demand exceeds the roadway's traffic carrying capacity. Traffic flow breaks down. Very unstable flow.

Figure 13-3: 2040 PM Peak Hour Volume to Capacity Ratio with All Recommended Strategies



Transportation System Management (TSM) Strategies

Figure 13-4: Map of Transportation System Management Strategies

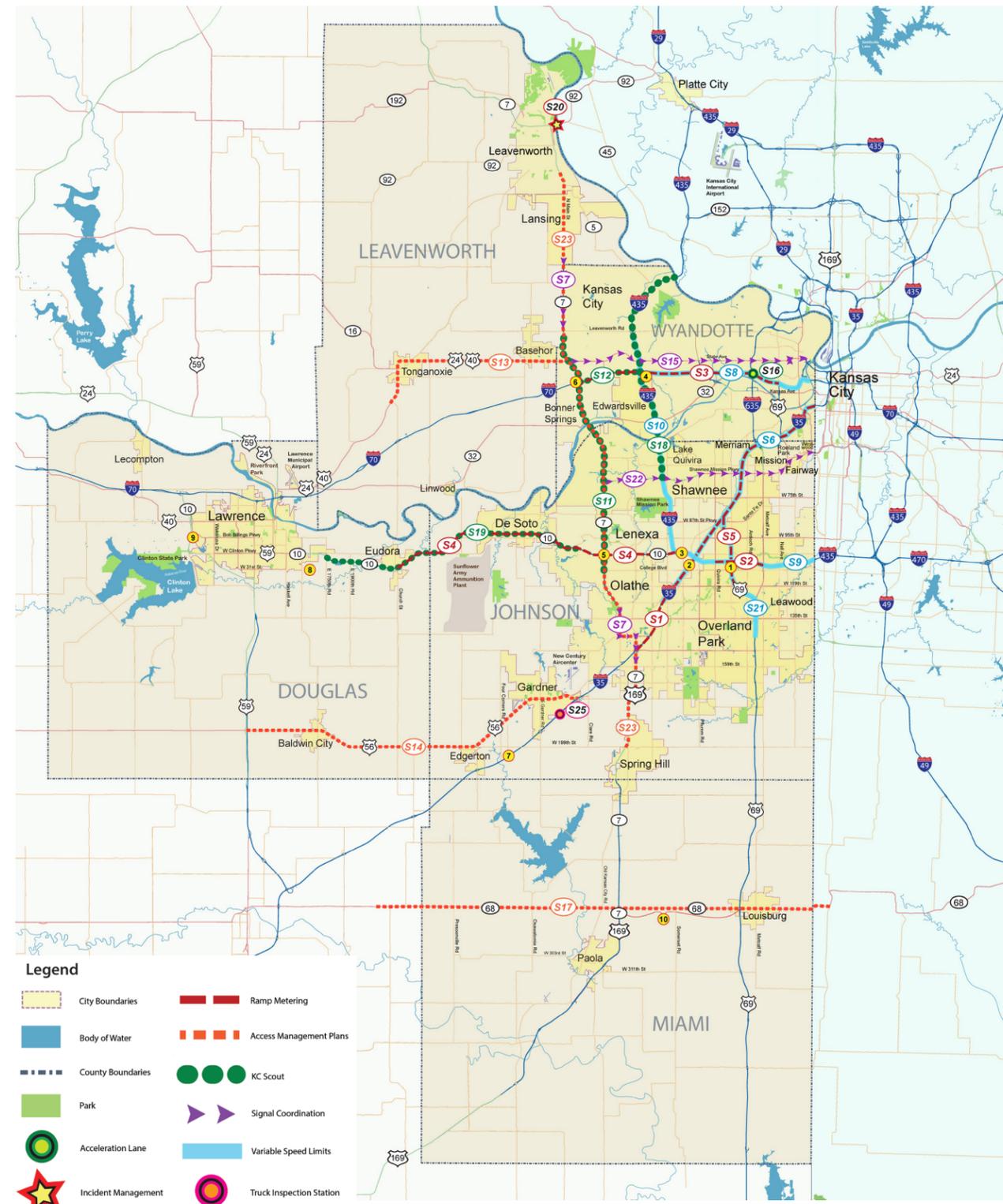


Table 13-3: Transportation System Management Strategies

ID	Corridor	Strategy	Total Cost*	2020-2030	2030-2040	Total Score
S1	I-35	Ramp metering north of K-7	\$2,900,000	\$2,900,000		569
S2	I-435 E-W	Ramp metering between Quivira Road and Metcalf Avenue	\$700,000	\$700,000		551
S3	I-70	Ramp metering between K-7 and 18th Street	\$700,000		\$700,000	543
S4	K-10	Ramp metering between Church Street and Ridgeview Road	\$1,500,000	\$1,500,000		540
S5	I-635, I-35, US-69	Ramp metering from 119th Street to I-35	\$600,000	\$600,000		520
S6	I-35	Variable speed limits from 127th Street to the KS/MO state line	\$2,100,000	\$2,100,000		501
S7	K-7	Signal coordination from 4H Road to Parallel Parkway and from W. Harold Street to 159th Street	\$1,000,000	\$1,000,000		493
S8	I-70	Variable speed limits from I-435 to the KS/MO state line	\$1,400,000		\$1,400,000	491
S9	I-435 E-W	Variable speed limits K-10 to KS/MO line	\$1,100,000		\$1,100,000	487
S10	I-435 N-S	Variable speed limits Parallel Pkwy to K-10	\$1,500,000		\$1,500,000	482
S11	K-7	Expand KC Scout between Parallel Parkway and College Blvd	\$2,200,000	\$2,200,000		479
S12	I-70	Expand KC Scout ITS: K-7 to I-435	\$500,000	\$500,000		469
S13	US-24/40	Access management: Follow the US 24/40 Corridor Management Plan	\$10,000,000	\$10,000,000		450
S14	US-56	Access management: Follow the US-56 Corridor Management Plan	\$10,000,000	\$10,000,000		447
S15	State Avenue	Traffic signal optimization from 130th Street to 38th Street	\$1,000,000	\$1,000,000		444
S16	I-635, I-35, US-69	Lengthen acceleration lanes at I-635 and I-70 interchange	\$10,600,000	\$10,600,000		441
S17	K-68	Access management: Follow K-68 Corridor Management Plan	\$10,000,000	\$10,000,000		434
S18	I-435 N-S	Expand KC Scout ITS System from KS/MO state line to Midland Drive	\$2,200,000	\$2,200,000		430
S19	K-10	Intelligent Transportation Systems (ITS) from E. 1750 Road to Cedar Creek Road	\$2,500,000	\$2,500,000		427
S20	K-92/M-92	Incident management on bridge	\$2,000,000	\$1,000,000	\$1,000,000	424
S21	I-635, I-35, US-69	Variable speed limits on US-69 from 143rd Street to I-35	\$1,000,000		\$1,000,000	422
S22	Shawnee Mission Parkway	Traffic signal optimization from Hilltop Drive to Rainbow Boulevard	\$1,000,000	\$1,000,000		418
S23	K-7	Access management: Follow K-7 Corridor Plan	\$10,000,000	\$10,000,000		416
S24	K-10	Variable speed limits on K-10 from K-7 to I-435	\$600,000			412
S25	I-35	Construct new truck inspection stations	\$23,100,000	\$23,100,000		409
S26	175th, 199th and 223rd Streets	Access management	\$10,000,000			404
S27	K-10	Incident management	\$2,000,000			398
TOTAL			\$112,200,000	\$92,900,000	\$6,700,000	

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.

Transportation Demand Management (TDM) Strategies

Figure 13-5: Map of Transportation Demand Management Strategies

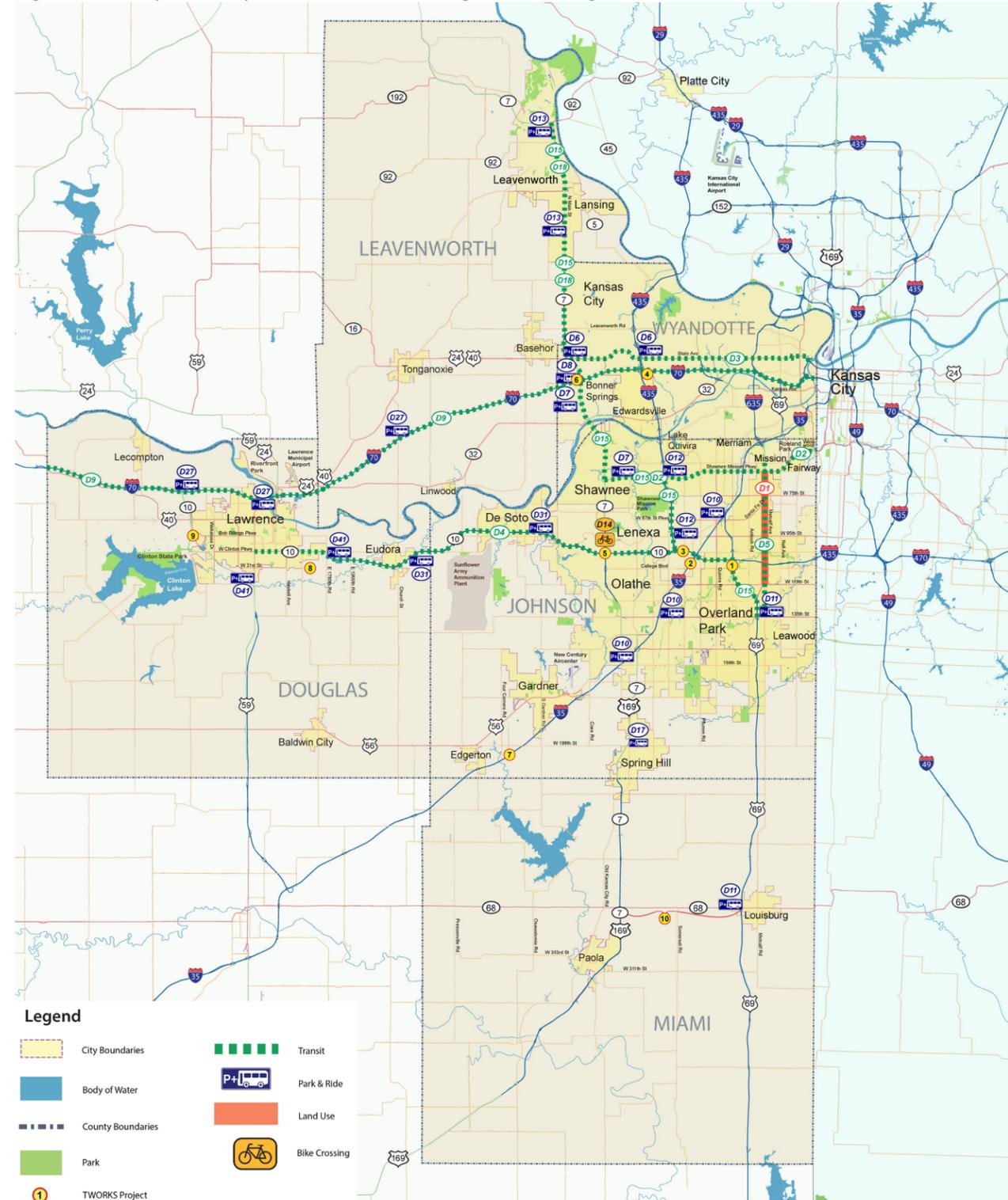


Table 13-4: Transportation Demand Management Strategies

ID	Corridor	Strategy	Total Cost*	2020-2030	2030-2040	Total Score
D1	Metcalf Avenue	Redevelopment per Vision Metcalf Plan	\$1,000,000	\$1,000,000		556
D2	Shawnee Mission Parkway	Expand transit service	\$9,500,000	\$9,500,000		545
D3	State Avenue	Expand transit service	\$14,400,000	\$14,400,000		520
D4	K-10	Expand operating hours/service for transit K-10 Connector Service	\$10,100,000	\$10,100,000		514
D5	Metcalf Avenue	Expand transit to Bus Rapid Transit service	\$9,500,000	\$9,500,000		510
D6	State Avenue	Construct Park & Ride facilities near K-7 and I-435	\$1,000,000	\$1,000,000		485
D7	K-7	Construct Park & Ride facilities near Shawnee Mission Pkwy and in Bonner Springs	\$735,000	\$735,000		481
D8	I-70	Construct Park & Ride facility at K-7	\$735,000	\$735,000		474
D9	I-70	Transit service connecting Topeka, Lawrence, Kansas City (KS) and Kansas City (MO)	\$22,300,000	\$22,300,000		470
D10	I-35	Construct Park & Ride facilities near US-69, K-7 and Santa Fe	\$1,500,000	\$1,500,000		465
D11	I-635, I-35, US-69	Construct Park & Ride facilities near 135th and K-68	\$1,100,000	\$1,100,000		455
D12	I-435 N-S	Construct Park & Ride facilities near Shawnee Mission Parkway, and near 95th Street	\$1,500,000	\$1,500,000		448
D13	K-7	Construct Park & Ride facilities near 4H Road and near northern junction of K-7 and K-92	\$1,500,000	\$1,500,000		442
D14	K-10	Construct bicycle path across K-7 on Prairie Star Pkwy to connect existing paths	\$1,100,000	\$1,100,000		441
D15	K-7	Commuter transit service connecting Leavenworth / State Avenue / I-70 / Shawnee Mission Parkway / College Blvd	\$11,100,000	\$11,100,000		440
D16	US-24/40	Construct paved shoulder with rumble strips for bicycle use from US-59 to Tonganoxie	\$45,400,000			435
D17	K-7	Construct Park & Ride facilities near Spring Hill	\$700,000	\$700,000		435
D18	K-7	Peak and off-peak transit service connecting Leavenworth/Lansing and State Ave/I-70	\$11,200,000	\$11,200,000		434
D19	I-35	Commuter transit service from BNSF Intermodal Facility, additional service Bus on Shoulder to downtown KCMO.	\$11,000,000			433
D20	I-435 E-W	Bicycle / pedestrian facilities: Consider on all new or reconstructed bridges over I-435 (strategy not shown on TDM map)	\$1,600,000	\$1,600,000		431
D21	I-70	Bicycle / pedestrian facilities: Consider on all new or reconstructed bridges over I-70 (strategy not shown on TDM map)	\$1,600,000	\$1,600,000		428
D22	I-35	Bicycle / pedestrian facilities: Consider on all new or renovated bridges over I-35 (strategy not shown on TDM map)	\$1,600,000	\$1,600,000		420
D23	K-7	Transit commuter service connecting Paola to I-35	\$4,000,000			419
D24	K-10	Expand Park & Ride facilities at KTA Lecompton Toll Plaza	\$500,000			418
D25	State Avenue	Bicycle and pedestrian facilities	\$12,000,000			417

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.

Capacity Strategies

Figure 13-7: Map of Capacity Strategies

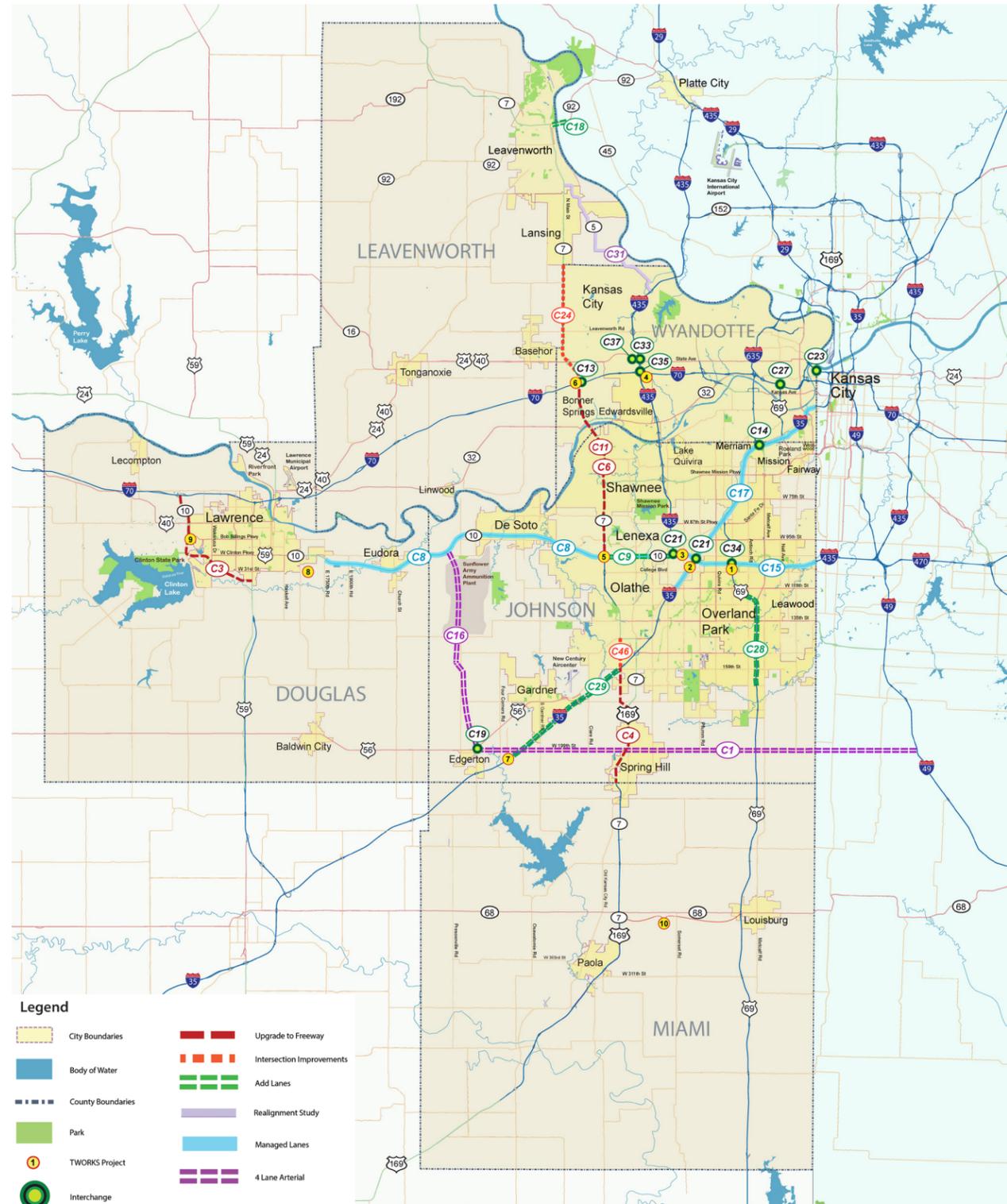


Table 13-5: Capacity Strategies

ID	Corridor	Strategy	Total Cost*	2020-2030	2030-2040	Total Score
C1	175th, 199th and 223rd Streets	Widen 199th Street from a 2-lane to a 4-lane arterial street from US-56 to I-49/US-71	\$196,350,000	\$98,175,000	\$98,175,000	614
C2	175th, 199th and 223rd Streets	Widen 175th Street from a 2-lane to a 4-lane arterial street from I-35 to I-49/US-71	\$156,400,000			586
C3	K-10	Upgrade K-10 to a 4 lane freeway from I-70 to US-59	\$98,500,000	\$98,500,000		549
C4	K-7	Upgrade K-7 to a 4-lane freeway from 215th St to north of 175th St, arterial street improvements on Lone Elm Road to I-35	\$60,500,000	\$60,500,000		542
C5	I-35	Construct HOV/HOT lanes from 127th to KS/MO state line	\$1,500,000,000			538
C6	K-7	Upgrade K-7 to a 6-lane freeway from Kansas Avenue to K-10, bike/ped crossing over Kansas River	\$215,000,000		\$78,500,000	529
C7	K-10	Widen K-10 to 6 lane freeway from E. 1750 Road to I-435	\$195,800,000			528
C8	K-10	Widen K-10 to 6-lane freeway from E. 1750 Road to I-435 with high occupancy toll lanes (HOT)	\$205,600,000		\$164,600,000	527
C9	K-10	Widen K-10 to 8-lane freeway from K-7 to I-435, K-10 remains 4-lane west of K-7	\$82,200,000	\$41,100,000	\$41,100,000	514
C10	K-7	Upgrade K-7 to a 6-lane freeway from K-10 to I-35	\$714,000,000			497
C11	K-7	Upgrade K-7 to a 4-lane freeway from 43rd Street to K-10	\$46,200,000	\$46,200,000		488
C12	175th, 199th and 223rd Streets	Widen 223rd Street to a 4-lane arterial from K-7/US-169 to I-49/US-71	\$146,400,000			474
C13	I-70, K-7	Construct phases 4, 5, 6, 7 and 10 of the reconfigured I-70/K-7 interchange	\$245,200,000	\$141,400,000	\$103,800,000	469
C14	I-35	I-35 and I-635 interchange improvements	\$210,000,000	\$105,000,000	\$105,000,000	466
C15	I-435 E-W	Active lane use control including "hard shoulder running" and potential HOT or HOV lane during peak hours from K-10 to KS/MO state line	\$47,000,000		\$47,000,000	466
C16	Western JO Co. N-S Arterial	Construct 4-lane arterial along Sunflower Rd/Edgerton Rd/ Evening Star Rd from US-56 to K-10	\$136,500,000	\$68,250,000	\$68,250,000	460
C17	I-35	Active lane use control including "hard shoulder running" and potential HOT or HOV lane during peak hours from 127th to KS/MO state line	\$94,000,000		\$94,000,000	453
C18	K-92/M-92	Widen Centennial Bridge over the Missouri River 4 lanes w/ toll	\$53,300,000	\$53,300,000		446
C19	US-56	New interchange at US-56 and 199th Street	\$26,300,000	\$26,300,000		438
C20	I-70	Reconfigure I-70 and I-635 interchange	\$210,000,000			438
C21	I-435 E-W, K-10, I-35	Construct remaining phases of I-435 / I-35 / K-10 Gateway project	\$310,800,000	\$77,700,000	\$233,100,000	437
C22	K-92/M-92	Widen Centennial Bridge over the Missouri River Bridge to 4 lanes	\$51,700,000			436
C23	I-70	Reconfigure I-70 and Lewis & Clark Viaduct Interchange	\$200,000,000	\$50,000,000	\$150,000,000	435

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.

Capacity Strategies, continued

ID	Corridor	Strategy	Total Cost*	2020-2030	2030-2040	Total Score
C24	K-7	Expressway intersection enhancements from Lansing to State Ave.	\$21,000,000	\$21,000,000		434
C25	US-24/40	Widen US-24/40 to 4 lanes from US-59 to K-16	\$85,700,000			431
C26	I-70	Active lane control including "hard shoulder running" (using the shoulder as a driving lane) and potential HOT or HOV lane during peak hours from K-7 to KS/MO state line	\$88,200,000			429
C27	I-70	Reconfigure I-70 and 18th Street interchange as partial cloverleaf	\$10,500,000	\$10,500,000		429
C28	I-635, I-35, US-69	Widen US-69 to 6 lanes from 119th street to 167th street, includes interchange at 159th St (See C65)	\$68,300,000	\$5,000,000	\$63,300,000	428
C29	I-35	Widen I-35 to 6 lanes from Homestead Lane to Lone Elm Road	\$64,700,000		\$64,700,000	426
C30	I-435 E-W	Convert general purpose lanes to HOV / HOT lanes from K-10 to KS/MO state line	\$9,000,000			424
C31	K-5	Realign K-5 from K-7 to I-435 (conduct study)	\$84,000,000	\$400,000		421
C32	I-435 N-S	Active lane use control including "hard shoulder running" and potential HOT or HOV lane during peak hours from K-10 to I-70	\$58,800,000			421
C33	I-435 N-S	Reconfigure the I-435 and State Avenue interchange	\$10,500,000	\$10,500,000		416
C34	I-635, I-35, US-69	Construct remaining phases of US-69 and I-435 interchange (Brown project, Blue project, and Yellow project)	\$203,700,000	\$63,000,000	\$140,700,000	415
C35	I-435 N-S	Add fly over ramp northbound to westbound on I-70 and I-435 interchange	\$52,500,000		\$52,500,000	412
C36	US-56	Intersection improvement at US-56 and 199th street	\$5,300,000			409
C37	State Avenue	New interchange at State Avenue and Village West Parkway	\$21,000,000	\$21,000,000		407
C38	I-70	Reconfigure I-70 & I-435 interchange	\$210,000,000			407
C39	K-92/M-92	Widen Missouri 92 or Missouri 45 to 4 lanes, includes 4-lane bridge	\$131,700,000			404
C40	I-70	Reconfigure I-70 and Turner Diagonal interchange	\$157,500,000			404
C41	US-24/40	Widen US-24/40 to 4 lanes from US-59 to K-32 and from County Road 1 to K-16	\$32,100,000			404
C42	I-435 N-S	Reconfigure I-435 and Parallel Parkway interchange	\$15,800,000			398
C43	Potential Outer Loop	Widen County Road 1 to 4 lanes from I-70 to Tonganoxie	\$32,100,000			398
C44	K-7	Leavenworth/Lansing bypass: 2-lane west of Leavenworth connecting K-5 to US-73/K-7	\$123,500,000			396
C45	K-7	Upgrade K-7 to 4-lane freeway from Lansing to State Avenue	\$98,300,000			396
C46	K-7	Arterial street enhancements to existing K-7 in Olathe	\$47,300,000	\$47,300,000		395
C47	K-10	Reconstruct the K-10 and I-70 interchange	\$157,500,000			391
C48	K-68	Expand K-68 to a 4-lane highway from Old Kansas City Road to Metcalf Ave (in Louisburg)	\$71,400,000			390

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.

ID	Corridor	Strategy	Total Cost*	2020-2030	2030-2040	Total Score
C49	Metcalf Avenue	Intersection capacity improvements	\$21,000,000			385
C50	US-56	Realign US-56 along 199th Street from Edgerton to I-35	\$62,800,000			384
C51	State Avenue	Intersection capacity improvements	\$21,000,000			372
C52	Shawnee Mission Parkway	Intersection capacity improvements	\$21,000,000			370
C53	K-10	Construct interchange at K-10 and Prairie Star Pkwy	\$18,900,000			364
C54	Potential Outer Loop	Construct new freeway from I-70 north to K-7/US-73 northwest of Leavenworth	\$317,100,000			363
C55	K-92/M-92	Intersection capacity improvements	\$2,100,000			362
C56	I-70 K-7	Construct phases 8 and 9 of reconfigured I-70/K-7 interchange	\$60,000,000			358
C57	K-68	Intersection Capacity Improvements	\$16,800,000			351
C58	K-10	Construct interchange at K-10 and Clare Road	\$18,900,000			351
C59	I-70	Widen to 6-lane freeway (KTA) from Lawrence to K-7	\$171,700,000			343
C60	K-68	Construct Louisburg Bypass: 2-lane with interchange at US-69, 4-lane from Old KC Road to US-69	\$95,700,000			342
C61	175th, 199th and 223rd Streets	Widen 223rd Street to a 4-lane arterial from K-7/US-169 to US-69	\$60,700,000			340
C62	US-56	Widen US-56 to 6 lanes from Moonlight Road to I-35	\$14,300,000			338
C63	K-10	Construct interchange and collector-distributor road at K-10 and Lone Elm Road	\$28,400,000			330
C64	Potential Outer Loop	Construct new freeway connecting US-69 to I-49/US-71 in Missouri	\$520,600,000			325
C65	I-635, I-35, US-69	Construct new interchange at US-69 and 159th Street (See C28)	\$18,900,000			323
C66	Potential Outer Loop	Construct new freeway connecting I-70 to K-10	\$338,700,000			298
C67	Potential Outer Loop	Construct new freeway connecting K-10 to I-35	\$674,100,000			264
C68	Potential Outer Loop	Construct new toll road connecting I-70 to K-10	\$359,700,000			255
C69	Potential Outer Loop	Construct new freeway connecting I-35 to US-69	\$846,900,000			248
C70	Potential Outer Loop	Construct new toll road connecting K-10 to I-35	\$705,600,000			233
C71	Potential Outer Loop	Construct new toll road connecting US-69 to I-49/US-71 in Missouri	\$541,600,000			230
C72	Potential Outer Loop	Construct new toll road connecting I-35 and US-69	\$867,900,000			205
TOTAL			\$12,866,550,000	\$913,225,000	\$1,463,625,000	

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