

Street and highway element

Transportation Outlook 2030 Update

4.0



4.1 Introduction

The street and highway system constitutes the foundation of Kansas City's overall transportation infrastructure. While it primarily serves the movement of automobiles, the region's public transportation and goods movement systems are also heavily dependent on an efficient street and highway system. As such, the street and highway system plays a significant role in supporting the region's transportation goals.

Goal: Support a healthy, strong, regional economy

Metropolitan Kansas City has a highly developed street and highway system. Streets and highways provide the primary means for workers to access job opportunities, consumers to access goods, and for a significant amount of freight to move within and through the region — all major components of the daily economic activity in the region.

Goal: Maximize access to opportunity for all area residents

Most residents rely on the street and highway network to access all that the region offers. The street and highway system provides unmatched mobility for those individuals with the means to own and operate automobiles. Current public transit services in the region rely on the street and highway network to move vehicles and passengers across the region. Streets also provide a basic network of facilities to support bicycle travel.

Goal: Support a quality built and natural environment

Streets and highways have a significant impact on the built and natural environment. The facilities are large, permanent structures contributing to the visible built environment. Their size, design, placement and orientation to other community features determine the positive and negative impacts of such facilities on the community. They are also non-permeable structures contributing to stormwater runoff and impacting water quality. Motor vehicles operating on the streets and highways are a significant source of noise pollution, and are the largest contributor of pollutant emissions leading to ozone formation in the region. Rigorous decision making regarding the development of streets and highways can ensure that negative environmental impacts are avoided, minimized or mitigated.

Goal: Promote the safety and well-being of the traveling public

Most transportation accidents involve vehicles operating on streets and highways. Through education on the safe use of streets and highways, enforcement of traffic laws, and engineering to ensure safe design, accidents and their severity can be reduced.

Kansas City has one of the most highly developed highway systems of any metropolitan area in the United States. The Kansas City region has more freeway miles per capita than any other large metropolitan area in the country, and five times as many as Los Angeles.

Expansion of highway capacity has made it possible for residents of the metropolitan area to live long distances from where they work while maintaining reasonably short commute times. This, in turn, has influenced the pattern of development in the region and has contributed to an increased dependence on the automobile and to declining transit usage as a percent of total travel.

STREET AND HIGHWAY ELEMENT ACTION TABLE

Transportation Outlook 2030 included an action plan at the closing of each chapter. This Update evaluates the progress made in each action item since the 2002 publication of *Transportation Outlook 2030*. The following table details the status of the Street and Highway Action Plan.

Transportation Outlook 2030 Actions	Status		Comments
	Planning	Implementing	
The LRTP includes construction of new capacity projects subject to completion of major investment studies as appropriate, and subject to prioritization through the Transportation Improvement Program (TIP) process.	●	◐	The region has implemented many of the projects identified in the LRTP. The LRTP continues to serve as a tool for use in prioritizing new capacity projects.
Preservation of rights-of-way for transportation projects identified in the LRTP should be encouraged, and should be considered for funding through the process if such right-of-way preservation is necessary to avoid more costly acquisition in the future.	◐	○	Preservation of rights-of-way for transportation has not been funded in the TIP since the last LRTP update. However, this technique will continue to be considered in a number of corridor planning efforts including the South Metro Connector, K-10 and K-7 studies.
The region should place a high priority on adequately maintaining its highways and bridges, and on performing necessary deferred maintenance. The region's expenditures for ongoing maintenance should exceed current levels by a minimum of 20 percent.	◐	◐	MARC has initiated research into regional system preservation needs. MoDOT has recently adopted policies to increase the level of funding for system preservation for the Missouri state highway system. However, overall funding for this work has not yet increased 20 percent over the levels in the original LRTP.
MARC, in cooperation with state and local governments, should refine the cost estimates for street and highway projects as part of future updates of the LRTP.	●	●	The cost estimates for LRTP projects have been revised for the current plan update.

● = Achieved and Ongoing ◐ = In Progress ○ = Not Yet Planned/Implemented

Actions	P	I	Comments
MARC, in cooperation with state and local governments, should refine the financial capacity analysis for street and highway improvements, including development of improved estimates of maintenance expenditures and needs.	●	●	MARC updates the financial capacity analysis with each update of the LRTP.
Major investment studies should be initiated for the Major Study Corridors, as well as Regionally Significant Capacity Projects which are determined to require such studies as part of the metropolitan transportation planning process. Major investment studies should consider transit and transportation management strategies as well as accommodation of non-motorized transportation modes as appropriate. MARC should review the results of major investment studies for possible amendments to the LRTP.	●	●	Major investment studies have been completed for I-35 and U.S. 69 in Kansas and I-29, I-70, I-435, M-45, M-150 and the Missouri River Corridor in Missouri. The current LRTP updates the list of corridors recommended for this type of analysis.
MARC should integrate the federally mandated congestion, pavement, bridge, safety and other management systems into its project selection process for the LRTP and TIP.	●	●	MARC has implemented a regional congestion management system and works with both state DOTs to integrate other management system data into MARC's planning and programming activities.
MARC should support full implementation of a new multiyear highway program in Kansas once the current program expires, and new measures targeted at increasing transportation funds in Missouri.	●	●	MARC supports completion of the current Kansas Comprehensive Transportation Program and will work to support replacement legislation when the current program expires. New transportation funding is an ongoing component of MARC's legislative agenda for Missouri.
MARC should continue to monitor expenditure of federal and state highway funds within the Kansas City metropolitan area to ensure that the region continues to receive adequate funds to meet critical transportation needs.	●	●	MARC monitors the expenditure of state and federal funding through annual reviews of the statewide improvement programs in Kansas and Missouri.
The region should utilize appropriate mechanisms to ensure that new development pays its fair share of the cost of constructing new or improved streets and highways from which such development benefits.	●	○	Some local governments have adopted policies concerning developer financing of transportation improvements; however, no similar regional policies have been developed or adopted.
MARC should support regional efforts to upgrade highway corridors of national significance connecting Kansas City, including, but not limited to, I-35 (north and south), I-29 (north), U.S. 71 (south), I-70 (east and west), and U.S. 36 (east).	●	●	MARC continues to support these efforts through cooperation with Kansas City SmartPort, NASCO, the I-49 Corridor Coalition and others.
<p>● = Achieved and Ongoing ● = In Progress ○ = Not Yet Planned/Implemented</p>			

4.2 Key Issues

4.2.1 Highway Congestion

Because of extensive investment in capacity improvements in the past, Kansas City has among the lowest levels of congestion of any major metropolitan area. A 2005 study by the Texas Transportation Institute¹, using 2003 data, rated large metropolitan areas in terms of a “travel time index (TTI).” The analysis indicated that Kansas City ranked 60th

¹ “The 2005 Urban Mobility Report,” Texas Transportation Institute, 2005, David Schrank and Tim Lomax



out of the 85 metropolitan areas studied and is the sixth least congested metropolitan area with a population greater than 1 million, behind Milwaukee, Wis.; Providence, R.I.; and New Orleans, La. The same analysis indicated, however, that Kansas City had the 13th fastest growing travel time index 1982 and 2003. The increase in congestion is attributable to population growth and an increase in vehicle miles of travel, coupled with a slowdown in the construction of new freeway lane miles.

Traffic forecasting done by MARC during the development of the LRTP indicates that congestion will increase on several key highway segments by the year 2030, as traffic on those roadways begins to exceed current capacity. Projects, or major investment studies, to address these deficiencies were identified and evaluated for inclusion in the plan.

The LRTP supports development of broad strategies to address capacity deficiencies where necessary to ensure that the highway system continues to operate efficiently. These strategies must balance the cost of capacity additions against the cost of maintaining the highway infrastructure, and against lower-cost alternatives to adding capacity. The LRTP places increased emphasis on transportation management strategies, including Intelligent Transportation Systems and incident management, to make more effective use of existing highway facilities. These strategies are discussed more fully in Chapter 9 of the LRTP.

4.2.2 Deferred Maintenance

In 1993, the Greater Kansas City Chamber of Commerce (GKCCC) produced a *Deferred Maintenance Report*, which concluded that the Kansas City area's infrastructure was "deteriorating at a rate greatly in excess of maintenance funding, and that deferred maintenance is costing the region unacceptable losses in productivity, investments and jobs." The report estimated the backlog of deferred maintenance needs for highways and bridges at approximately \$435 million, or \$520 million in current dollars, not counting deficiencies on the Missouri and Kansas state highway systems. The report advocated that maintenance spending be given priority by area governments in order to address these needs.

The GKCCC report is the most detailed information currently available on deferred maintenance needs in the Kansas City metropolitan area. Other available data supports the report's conclusions. For example, Federal Highway Administration data indicate that a sizable percentage of the freeway, expressway and arterial roadway mileage in Missouri and Kansas urban areas is rated "poor" or "mediocre" in terms of pavement condition. Other data indicate that 38 percent of all bridges in Missouri and 26 percent of all bridges in Kansas are rated as "structurally deficient" or "functionally obsolete."²

The LRTP places increased priority on addressing these deferred maintenance needs, although the plan does not identify specific projects. Aside from the backlog of deferred maintenance needs, the highway infrastructure requires regular preventative maintenance to maximize pavement life. If such preventative maintenance is not performed in a timely manner, the cost of corrective action rises rapidly. Complete reconstruction may ultimately be necessary, at far greater expense than periodic routine maintenance. Clearly, it is in the interests of the region to ensure that the highway system is being adequately maintained on a routine basis. A preliminary analysis performed by MARC staff indicates, however,

² "2000 National Bridge Inventory," National Bridge Inventory Study Foundation, 2000, Nick Tremble (Executive Director)

that the current level of maintenance is far below the optimum level. Accordingly, the LRTP calls for additional study of maintenance needs to set future highway maintenance expenditures over current levels.

4.2.3 Major Investment Studies

The purpose of a major investment study (MIS) is to explore alternatives to proposed projects to meet identified needs in a particular corridor, and to refine the scope of projects to be included in the LRTP and TIP. The process involves extensive interagency coordination and public involvement.

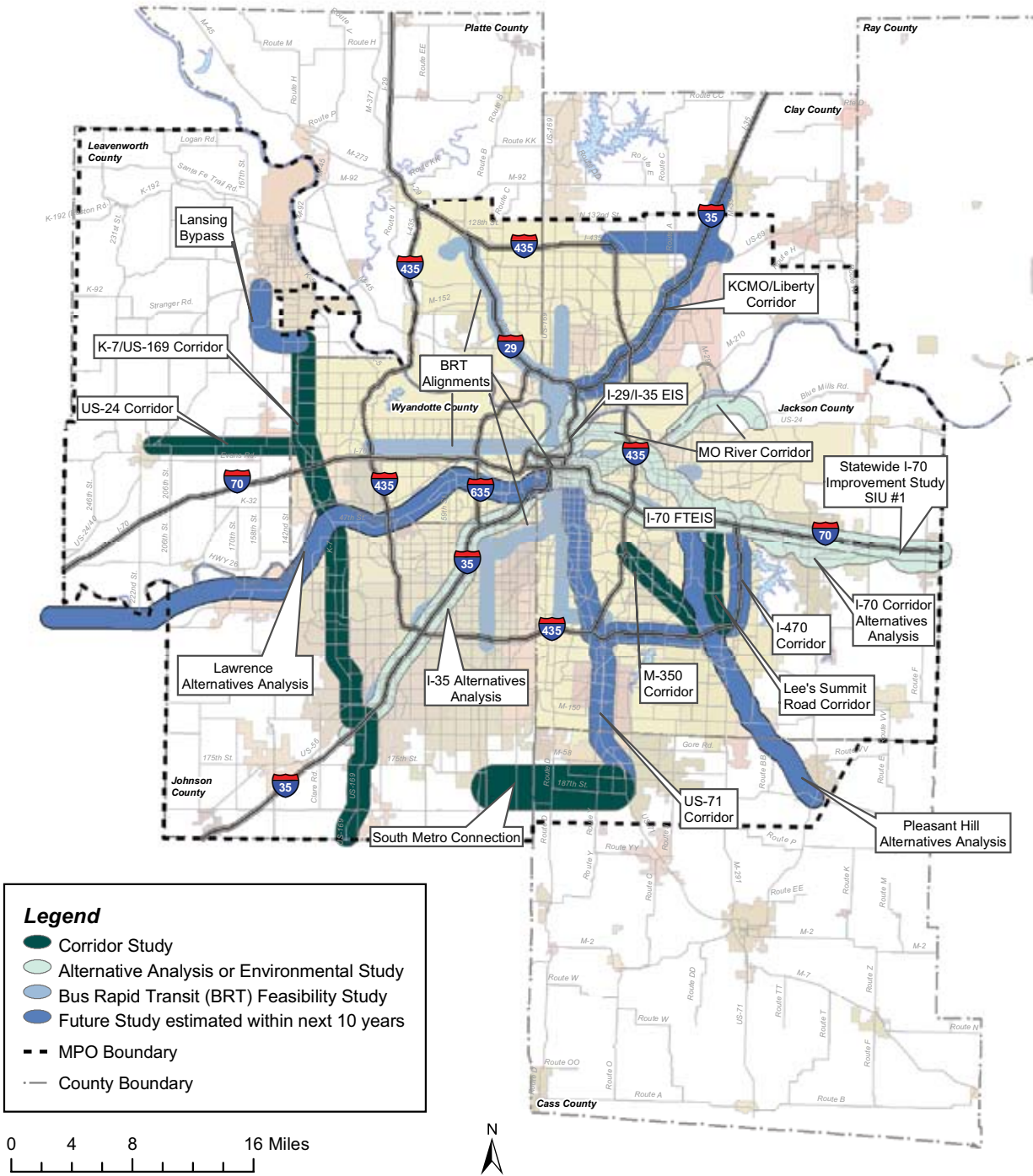
Although TEA-21 does away with the requirement for “stand-alone” MISs, it directs that, for federally funded highway and transit projects, such analyses under the planning provisions of TEA-21 and the National Environmental Policy Act (NEPA) should be integrated. In addition, it supports the concept that corridor studies are an important component of the metropolitan transportation planning process.

The LRTP identifies several corridors for which major investment studies may be required, as seen in Figure 4-1. Final decisions will be made through a consultation process involving FHWA, FTA, MoDOT, KDOT, local government agencies, transit operators and MARC.

In many cases, the Street and Highway Element includes highway capacity projects involving new facilities or widening of existing facilities, and the cost of the improvement is identified. In these cases, the improvement is viewed as a project to be examined by the MIS, but the MIS will still consider other options. Several major corridors are shown in the plan with no specific project scope or cost identified. In these cases, the LRTP proposes to identify the “preferred” alternatives through the major investment study process and consider inclusion of specific projects in future amendments to the LRTP. Corridors in this category include major freeway corridors where significant transit, HOV or other options are likely, and corridors where the feasibility or scope of the necessary improvements is in question.

There are a number of Major Investment Studies and Corridor Studies currently ongoing. Many of the alternatives recommended by these studies have been incorporated into *Transportation Outlook 2030*. Following are descriptions of currently ongoing studies.

**FIGURE 4-1
MAJOR STUDY CORRIDORS**



Corridor	Status	Projects Pending Study or Recommended from Study	Study Origin
Corridor Studies			
K-7	Access Management Plans are being prepared for 3 segments of K-7 from the Miami-Johnson County line north to Lansing. The plans are anticipated to be complete by June 2006 2005.	#204: Upgrade Interchange at 83rd Street #214: Upgrade Interchange at 95th Street #362: Upgrade Interchange at College #361: Upgrade Interchange at 119th Street	KDOT
M-350 Corridor	M-350/Blue Parkway Corridor Redevelopment Plan studying land use and transportation alignment.		Raytown, MoDOT, KCMO, and MARC
South Metro Connection	This study will examine opportunities for an improved east-west connection between southern Johnson County and northern Cass County.		Johnson County
U.S. 24-40	The corridor extends from K-7 west to the intersection of County Road 1 and U.S. 24-40, south of Tonganoxie. The intent is to preserve mobility, promote safety, and provide reasonable access to support future development. The study will focus on integrating current and future land use and transportation demands.		KDOT, MARC, Leavenworth County, Basehor, and Tonganoxie
Lee's Summit Road	This study will include transportation modeling, hydrology and hydraulic analysis, structural analysis, preliminary design analysis, geotechnical review, and environmental impact evaluation.		Kansas City, Mo., Jackson County, Lee's Summit
Alternative Analyses or Environmental Impact Statements			
I-35 Fixed Guideway Corridor Alternatives Analysis Study	The I-35 Commuter Rail MIS completed in 1998 selected commuter rail as the proposed improvement. Due in part to the cost of track capacity improvements, the current alternatives analysis will evaluate a range of transit options.	#480: Passenger Rail Service #319: Passenger Stop at 119th Street	I-35 Commuter Rail MIS
I-70 Corridor Alternatives Analysis	Three transit routes are under consideration between Rock Creek Junction and downtown Kansas City, including: <ul style="list-style-type: none"> • KCS Pittsburg Subdivision and KCT to Kansas City Union Station • KCS Pittsburg Subdivision to a Riverfront Station in the vicinity of Grand Avenue and Second Street • KCT Main Tracks to Kansas City Union Station 		I-70 MIS

Corridor	Status	Projects Pending Study or Recommended from Study	Study Origin
Missouri River Corridor EIS	<p>The Draft Environmental Impact Statement (DEIS) has been approved. The corridor has been segmented for the final environmental documents since some portions operate independently of the whole corridor.</p> <ul style="list-style-type: none"> • The Chouteau Trafficway section is under study as an Environmental Assessment. This study is anticipated to be complete in 2006. • The Front Street section (between I-29/I-35 and I-435) is under study as an Environmental Assessment. • The environmental documentation for the section between Sterling Avenue and U.S. 24 is currently on hold. 	<p>#461: Construction of a four-lane expressway between I-435 and Sterling #462: Construction of a Four-Lane Expressway between Sterling & M-291 #463: Construction of a Four-Lane Expressway between M-291 and U.S. 24 #38: Little Blue Expressway between 39th to U.S. 24</p>	South Riverfront Expressway Draft Environmental Impact Statement
I-29/I-35 EIS	The EIS is developing a proposed project to reconstruct the section of I-29/35 between M-210 and the CBD. This study is anticipated to be completed in June 2006.		Northland / Downtown MIS
I-70 FTEIS	The study corridor extends from the state line to east of I-470 Interchange. The MIS is complete and the NEPA study is underway. Coordination with the statewide I-70 Improvement Study as well as the Regional Commuter Rail Study is planned.	<p>#264: Improvements to Downtown Loop #267: Improvements to I-70 from Loop to Lafayette County line #277: Add two lanes and upgrade interchange at I-70 and I-435</p>	I-70 MIS
Future Studies			
I-470 Corridor	Future MIS Corridor. Currently a more locally-focused effort is underway for the Strother Road Interchange. Additionally the Lee's Summit Road corridor will be studied by Jackson County, Kansas City, and Lee's Summit.	#177: Construction of interchange at Strother Road	
U.S. 169 Alternatives Study	Future study for highway capacity improvements	<p>#310: Build new interchange #311: Build new interchange</p>	MoDOT
U.S. 71	Future corridor study of traffic flow		South Midtown Roadway Restudy, Preliminary Engineering Design Report

Corridor	Status	Projects Pending Study or Recommended from Study	Study Origin
KCMO/ Liberty Corridor	Future study of mobility along existing interchanges of I-35 in from I-29 to the MPO boundary (M-92)	#233: Upgrade Interchange at Pleasant Valley Road #234: Upgrade Interchange at M-152 #236: Upgrade Interchange at U.S. 69/M-33 #20: Upgrade Interchange at I-435/U.S. 69 #442: New four lanes/ Interchange	Preliminary Transportation Needs Asssment
Lansing Bypass	Future study corridor for highway capacity improvements	#444: New four-lane facility	K-7 Study
Lawrence Alternatives Analysis	Future alternatives analysis to evaluate transit options		Kansas City Region Commuter Rail Study
Odessa Alternatives Analysis	Future alternatives analysis to evaluate transit options		Kansas City Region Commuter Rail Study
Pleasant Hill Alternatives Analysis	Future alternatives analysis to evaluate transit options		Kansas City Region Commuter Rail Study

4.2.4 Corridor Preservation

The LRTP supports preservation of rights-of-way for long-range transportation projects identified in the plan. Project sponsors are encouraged to develop policies and detailed plans from which right-of-way needs can be identified and preserved.

4.2.5 Funding Issues

The Street and Highway Element is based on projections of roadway funding provided by state and local governments. The projections assume federal funding consistent with anticipated levels under TEA-21 authorizations. State funding projections assume continuation of existing funding programs in Missouri and Kansas. Additional detail on assumptions made as to available transportation resources can be found in the Financial Capacity Analysis in Appendix B.

4.3 Project Evaluation/Selection Process

4.3.1 Financial Capacity Analysis

The first step in the project selection process was an evaluation of financial capacity for highway improvements, based on the information presented in Appendix B of the LRTP. Estimates were then developed of the amounts needed for ongoing and deferred maintenance, transportation enhancements, transportation management programs and projects, and planning activities using the levels set in the current LRTP as a guide. These amounts were then deducted from the totals to arrive at an amount available for new capacity projects.

4.3.2 Submittal of Candidate Projects

In late summer of 2001 MARC staff requested all local governments, as well as KDOT and MoDOT, to submit candidate highway projects for possible inclusion in the Street and Highway Element. All street and highway projects identified in MARC's *1999 Transportation 2020 LRTP* were automatically considered as candidate projects in the LRTP update, as were the projects identified in recently completed Major Investment Studies. In 2005, project sponsors were encouraged to submit updated estimates for existing LRTP projects. These updated estimates are included in Appendix H.

4.3.3 Travel Demand Forecasting

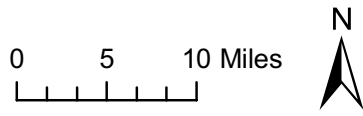
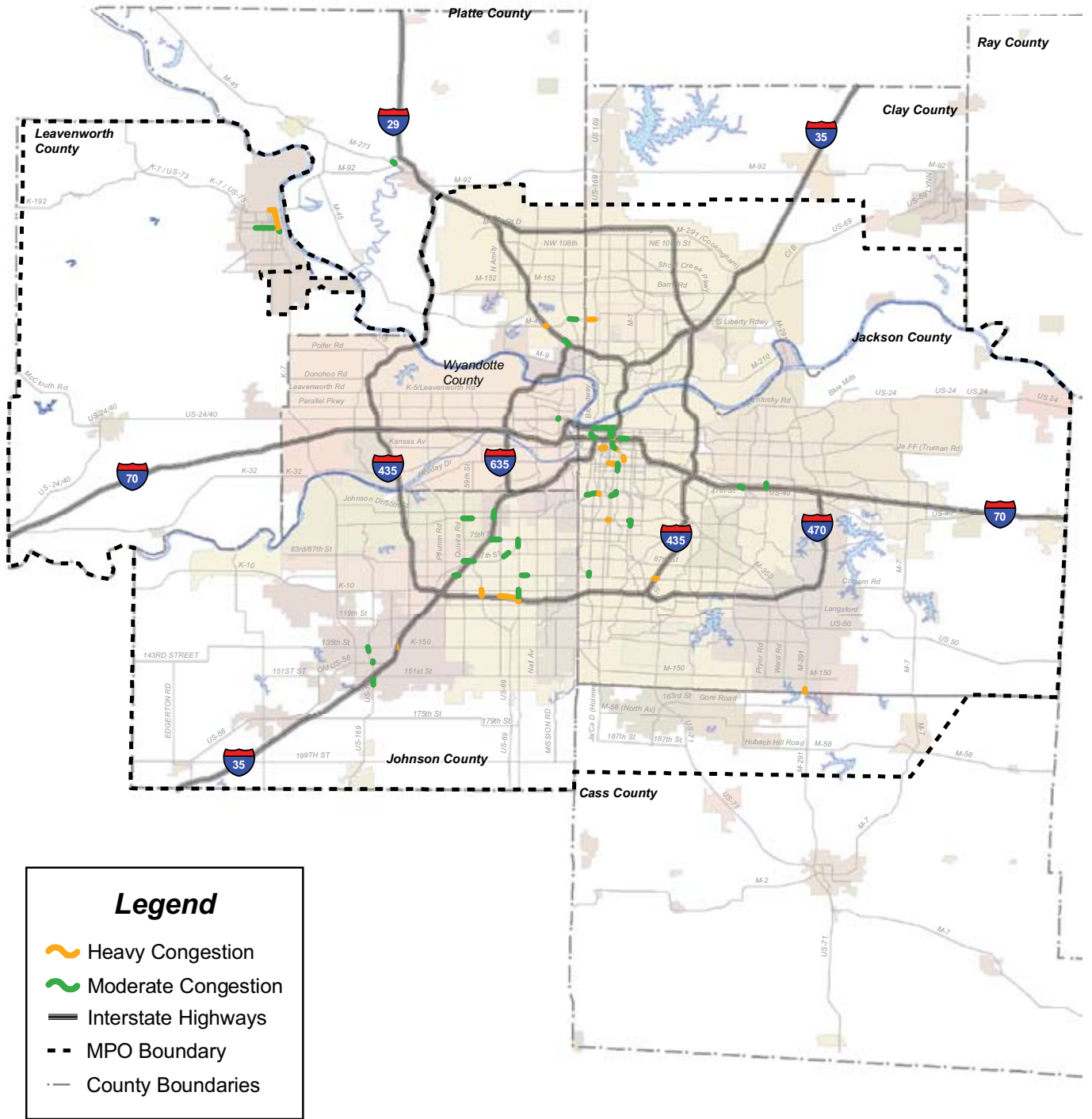
MARC utilized its emme/2 travel-forecasting model to identify major capacity deficiencies on the existing roadway network. The analysis was based on the 2010, 2020 and 2030 population and employment forecast developed by MARC.

Figure 4-2 shows the segments of the highway network projected to have insufficient capacity by the year 2030. Based on this analysis, several highway projects were identified and added to the list of candidate projects or MIS corridors.

4.3.4 Project Prioritization

In 2001, candidate projects were reviewed by the Highway Priorities Committees, using information submitted by project sponsors, the results of MARC's travel demand analysis, and a project evaluation matrix developed by staff in conjunction with committee review. The evaluation matrix, Figure 4-3, was used to tie evaluation of candidate capacity projects to the goals and objectives of the LRTP as described in Chapter 3. Additional details of the project evaluation process can be found in Appendix G. Finally, the project list was compared against the projected financial capacity, for the portion of the region within each state, assuming the policy limitations imposed on funds for roadway capacity projects established as policy by TTPC.

**FIGURE 4-2
2030 ROADWAY CAPACITY DEFICIENCIES**



**FIGURE 4-3
CAPACITY PROJECT EVALUATION MATRIX**

TRANSPORTATION OUTLOOK 2030 ROADWAY SCORING CRITERIA		
MAJOR CRITERIA		PERCENTAGE
1	SYSTEM EFFICIENCY	40 points
1.1	Average Daily Traffic	20%
1.2	Forecasted Daily Traffic (without improvement)	15%
1.3	Forecasted Daily Traffic (without improvement)	15%
1.5	Current Level of Service	20%
1.6	Forecasted Level of Service (without improvement)	15%
1.7	Forecasted Level of Service (without improvement)	15%
2	SYSTEM PRESERVATION	15 points
2.1	TSM/TDM	35%
2.2	Access control	15%
2.3	Element of Reconstruction	50%
3	ACCESS TO OPPORTUNITY	15 points
3.1	Transit Accessibility	50%
3.2	Accessibility to park-and-ride lots and/or commuter lots	15%
3.3	Provides access to regional activity center	35%
4	REGIONAL ECONOMY	15 points
4.1	Impacts on goods movement	25%
4.2	Intermodal connectors	25%
4.3	Congestion Management	25%
4.4	Provides access to regional activity center	25%
5	QUALITY BUILT & NATURAL ENVIRONMENT	15 points
5.1	Future population & employment served	25%
5.2	Encourage more efficient land use	25%
5.3	Bike/Ped plan or project element	25%
5.4	Air quality impacts	10%
5.5	Transportation Enhancements	15%
6	SAFETY	10 points
6.1	Accident Data	100%
TOTAL MAX POINTS		## points

Because the TIP and LRTP are required to be consistent, it was agreed that the capacity projects included in 2002–2006 TIP would constitute a committed list of street and highway improvements through the year 2006. As a consequence of this decision, the project selection process for the Street and Highway Element excluded most TIP projects and reflects the period from 2007 to 2030 only.

Figure 4-4 shows the regionally significant capacity projects included in the LRTP for 2005–2008 (the current TIP), 2009–2010, 2011–2020, and 2021–2030. These time periods were utilized because of Clean Air Act requirements regarding air quality conformity, which requires analyses of emissions for specific horizon years, at not more than 10-year intervals.

4.4 Action Plan

4.4.1 Capital Projects

1. The LRTP includes construction of new capacity projects as depicted in Figure 4-4, subject to completion of major investment studies as appropriate, and subject to prioritization through the Transportation Improvement Program (TIP) process. Specific regionally significant capacity projects are listed in Appendix H.
2. Preservation of rights-of-way for transportation projects identified in the LRTP should be encouraged, and should be considered for funding through the process if such right-of-way preservation is necessary to avoid more costly acquisition in the future.
3. The region should place a high priority on adequately maintaining its highways and bridges, and on performing necessary deferred maintenance. The region’s expenditures for ongoing maintenance should exceed current levels by a minimum of 20 percent.

4.4.2 Planning Activities

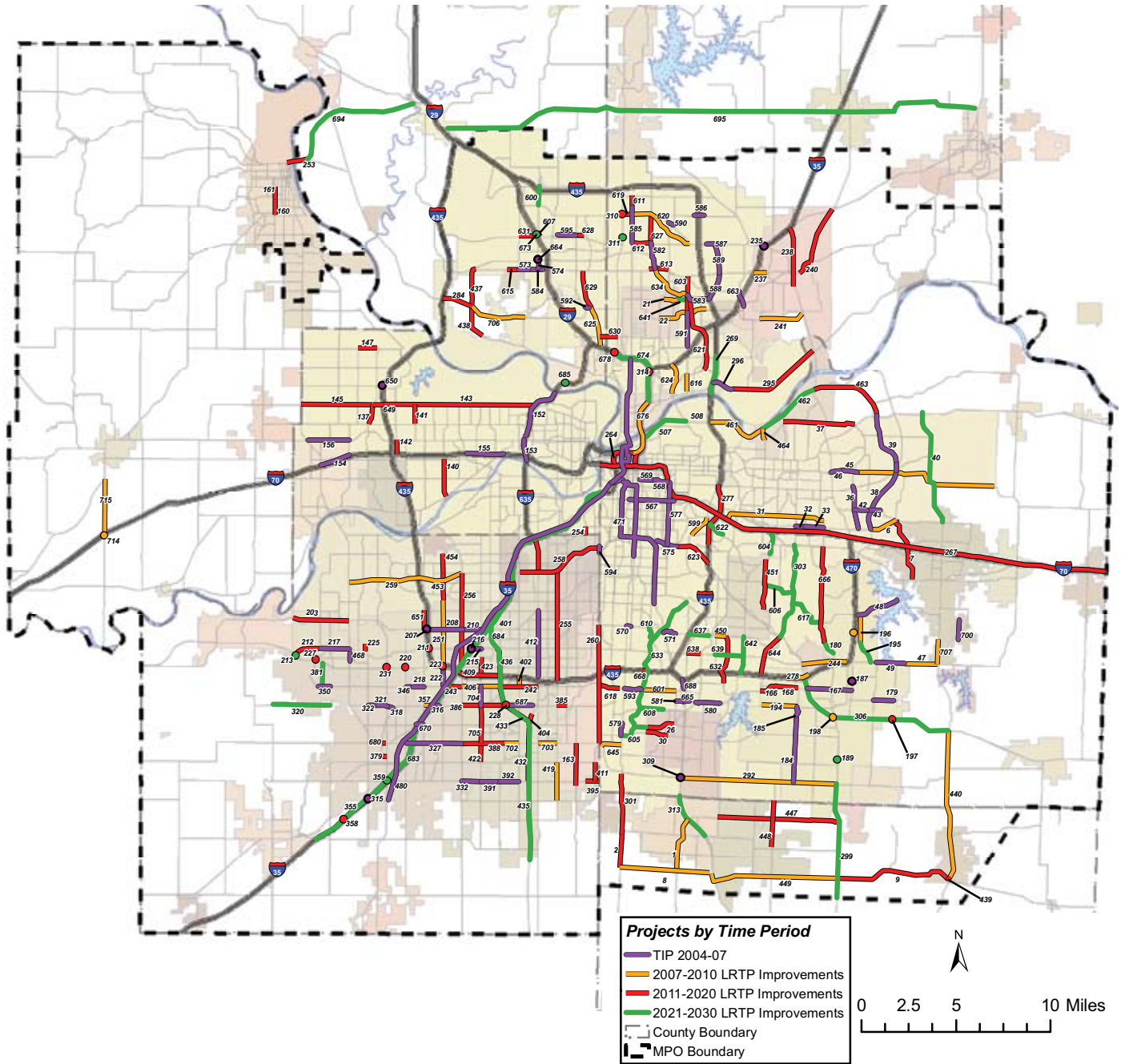
1. MARC, in cooperation with state and local governments, should refine the cost estimates for LRTP street and highway projects as part of future updates of the plan.
2. MARC, in cooperation with state and local governments, should refine the financial capacity analysis for street and highway improvements, including development of improved estimates of maintenance expenditures and needs.
3. MARC should review and revise the current Major Investment Study Policy to address changes in federal legislation and regulations concerning the relationship between the transportation planning process under SAFETEA-LU and environmental planning under the National Environmental Policy Act and ensure coordination between corridor-level transportation planning and metropolitan planning.
4. Major investment studies should be initiated for the corridors depicted in Figure 4-1, as well as for those projects shown on Figure 4-4 which are determined to require such studies as part of the metropolitan transportation planning process. Major investment studies should consider transit and transportation management



strategies as well as accommodation of non-motorized transportation modes as appropriate. MARC should review the results of Major Investment Studies for possible amendments to the LRTP.

5. MARC should integrate the federally mandated congestion, pavement, bridge, safety and other management systems into its project selection process for the LRTP and TIP.

**FIGURE 4-4
REGIONALLY SIGNIFICANT CAPACITY PROJECTS BY TIME PERIOD**



4.4.3 Funding

1. MARC should support full implementation of a new multiyear highway program in Kansas once the current program expires, and new measures targeted at increasing transportation funds in Missouri.
2. MARC should continue to monitor expenditure of federal and state highway funds within the Kansas City metropolitan area to ensure that the region continues to receive adequate funds to meet critical transportation needs.
3. The region should utilize appropriate mechanisms to ensure that new development pays its fair share of the cost of constructing new or improved streets and highways from which such development benefits.

4.4.4 Other Actions

1. MARC should support regional efforts to upgrade highway corridors of national significance connecting Kansas City, including, but not limited to, I-35 (north and south), I-29 (north), U.S. 71 (south), I-70 (east and west), and U.S. 36 (east).