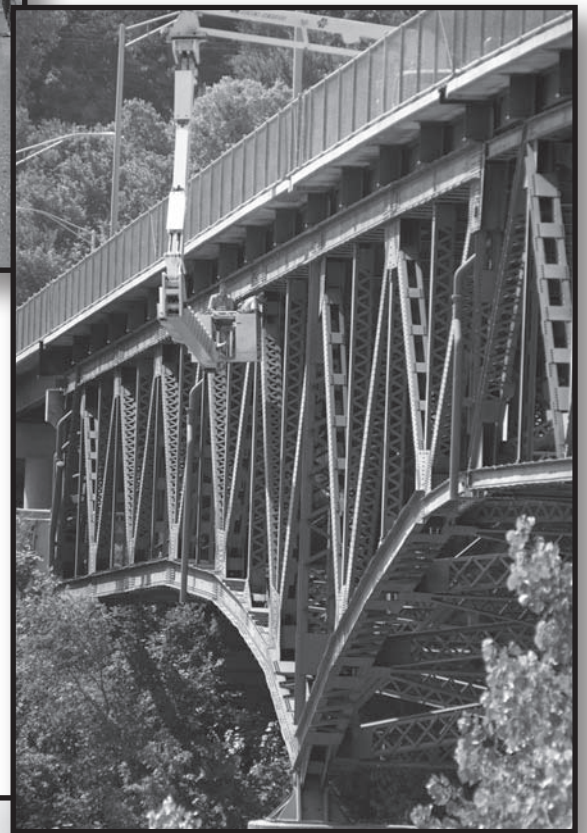


# Project Selection Criteria



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## PROJECT SELECTION CRITERIA

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Projects in the STIP are generated from various levels of government (city, county, and state). Consequently, they are also generated from many different processes and criteria. The criteria described below were those used by KDOT when the projects currently programmed in FFY 2011-2014 and listed in this document were selected. Currently, KDOT is in an interim period between approved transportation programs. The CTP program was completed in 2009 and a new program, T-WORKS (“Transportation Works for Kansas”), was just passed by the Kansas legislature in state fiscal year 2010 to be effective beginning state fiscal year 2011. However, project selection for the new program was not completed at the time this STIP was compiled. As a result, projects with federal funding programmed for FFY 2011 or early 2012 and selected after the STIP is prepared will be added to the STIP via amendment.

During the interim period while KDOT prepares to implement the next transportation program, the focus will be on preserving the existing system. Although the approval of T-WORKS is of great benefit, the federal transportation program remains a question. As a result, the magnitude of the next program will be greatly affected by the

potential lack of federal funding. Thus, the uncertainty in funding makes planning difficult, and the agency’s ability to take on important new projects is greatly limited until a new federal transportation program is passed. In this period of uncertainty KDOT continues to develop plan production projects. Thus, when funding does become available projects will be ready, or nearly ready, for the construction phases.

In 2008 Kansas adopted a Long Range Transportation Plan (LRTP) which had the three guiding principles of preserving the transportation system, making travel safer, and supporting economic growth. These guiding principles provide the framework for KDOT’s day-to-day decision-making process. These principles were developed with the input from hundreds of transportation stakeholders during an 18-month process and are embodied by the projects in this STIP.

### — PROJECT SELECTION PILOT — (An Expanded Process)

KDOT categorizes highway projects into four broad programs— **Pre-servation** for projects that take care of

what is already in place (pavement rehabilitation and reconstruction and bridge repairs and replacements); **Modernization** for projects that improve safety by improving the existing roadway (shoulder improvements, flattening hills, straightening curves, and improving interchanges); **Expansion** projects that add to the existing system (new lanes and interchanges); and **Local Construction** for projects on county and city roads. Within each of these major programs are funding and/or project-type groups that separate the projects into more specific groups or subcategories.

For the past 20 years, KDOT has primarily relied upon priority formulas or other data-driven processes to select projects for inclusion in the transportation programs. While this system worked well to select preservation-type projects, it was not as successful for selecting projects like expansion projects. In addition, only engineering factors were considered in the priority formulas, and other considerations that stakeholders and Kansans felt were important did not factor into the selection process.

Several important planning and policy efforts, including development of the statewide Kansas Long Range Transportation Plan (LRTP) in 2007/8 and the subsequent creation of the T-LINK Task Force (“Transportation-Leveraging Investments in Kansas”) in mid-2008, have helped KDOT set a policy direction for choosing transportation projects that is built on the lessons learned from the Comprehensive Transportation Program

(CTP) era. KDOT has developed an expanded process for selecting highway projects that is responsive to the direction set in the LRTP and by the T-LINK Task Force. In addition, this process fulfills the requirements specified by the T-WORKS legislation.

Under the new process crafted by T-LINK – which is still evolving – instead of relying solely on engineering factors, regional priorities and potential economic impact are incorporated into project selection. This new selection process is being piloted by KDOT in selecting major highway construction projects for T-WORKS. Proposed projects are scored based on how well a project addresses relevant criteria, such as engineering needs, regional priorities identified at local consult sessions across the state, and support for economic development.

Pilot Project Selection Criteria				
	Engineering Factors	Regional Priorities	Economic Impact	Other
Preservation	100%	-	-	
Modernization	80%	20%	-	
Expansion	50 %	25%	25%	
Local Construction				100 %

The chart above illustrates the initial recommendation from the task force on how the three criteria are to be weighted among the program categories. To aid in assessing potential economic impact, the agency is also piloting a computer modeling package that estimates the increase in jobs, income, and

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economic output for a region due to a transportation improvement.

The information from the modeling package will be used in conjunction with information gathered by KDOT's area engineers from local officials to determine economic impacts. The state long range plan, MPO plans, and local entity plans, along with local consult meetings will be used to determine regional priorities. By employing these selection criteria, KDOT will ensure that the projects chosen meet our LRTP guiding principles, fulfills the goals of T-LINK and meets the requirements of the T-WORKS legislation.

In addition to the state projects, there are local projects on county and city roads that have their own selection process. This process is coordinated at KDOT by the Bureau of Local Projects (BLP) and is discussed in greater detail in the Local Construction Program section.

### **— PRESERVATION —** **(Taking care of what we have)**

The first major program category is the Preservation program. The objective of this program is to protect the public's investment in its highway system by preserving the "as built" condition as long as possible. Without proper maintenance, the cost for major repairs and/or replacement at a later date may be several times greater than the cost of timely maintenance. Projects within this category address the first principle of the

LRTP of preservation. The project selection criteria for projects in this program rely on engineering factors.

Projects within the Preservation program are divided into subcategories, and projects with the same subcategory share similar work types. The Preservation program includes the subcategories: Non-Interstate Resurfacing (1RR), Interstate Resurfacing (ISR), Contract Maintenance (CMN), Bridge and Culvert Repair (BSR & BCR), Bridge Painting (BSP), Signing (SOS), Pavement Marking (PMR), Interstate Basic Improvement (IRP), Non-Interstate Basic Improvement (RIP) Emergency Repair (EMR), Bridge Replacement or Rehabilitation (PBR), Bridge Re-deck (PDR) and Culvert Bridge (PCR). Each of these subcategories is described in greater detail on the following pages.

#### **Non-Interstate Resurfacing (1RR)**

Approximately 1,200 to 1,400 miles of two-lane non-Interstate pavement are re-surfaced or repaired annually through this set aside funded program. The program's intent is to maintain non-Interstate pavements in adequate condition and keep ride ability at an acceptable level. These projects are selected by using the Pavement Management System (PMS). PMS is an integrated set of procedures that were developed by KDOT and Woodward-Clyde Consultants. It recommends pavement maintenance and rehabilitation strategies on both a network and a project level. PMS is com-



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posed of three interconnected subsystems:

### **Bridge and Culvert Repair (BSR & BCR)**

The Bridge Repair and Culvert Repair subcategories are for bridge and culvert repairs of lesser magnitude than the Bridge Replacement/Rehabilitation and Culvert/Bridge Rehabilitation subcategories. These subcategories aim to restore the structural integrity of bridges and culverts. Bridge /culvert repair work includes: overlaying concrete decks; replacing or resetting expansion joints; resetting bearing devices; repairing abutments, piers, or girders; and repairing damage from external sources. At this time, all projects within these two subcategories are state funded.

To select bridge projects, each KDOT District, using the Bridge Management Engineer's recommended repair list, submits prioritized lists of candidate bridge and culvert projects to the Bureau of Construction and Maintenance and the Bureau of Design. Each candidate project is reviewed for the structure's condition history and latest inspection to confirm necessary repairs or replacement. Statewide lists are prioritized using such factors as maintenance effort, safety, traffic, and engineering judgment. The lists are submitted to the Bureau of Program and Project Management for review to confirm that the candidate structures are not programmed for future work under any other KDOT program. The prioritized lists are merged to create

the yearly statewide repair list.

### **Bridge Painting (BSP)**

Work performed in this subcategory is funded with state funds. There are approximately 800 bridge structures on the Kansas State Highway System that require periodic painting to slow corrosion of the structural steel. These structures contain nearly 242,000 tons of structural steel. They are categorized into two groups:

**Group A:** Structures that have 10 tons or more of structural steel.

The Bridge Management Engineer prioritizes these structures (approximately 760 bridges) according to the Bridge Inspection Manual's "Paint Condition Rating." The statewide prioritized list is reviewed by the Bureau of Program and Project Management to confirm that each candidate structure is not programmed for future work under any other KDOT program. Projects are then scheduled in order of priority until available funds are exhausted

**Group B:** Structures having less than 10 tons of structural steel.

Each District is responsible for the painting of these structures (approximately 40 bridges statewide).

### **Bridge Replacement/ Rehabilitation (PBR)**

The Bridge Replacement and Re-

habilitation subcategory is designed to replace or rehabilitate substandard bridges. Sub-standard bridges are those in a deteriorated condition or with deficiencies in load-carrying capacity, width, or traffic service. Projects within this subcategory are funded with a combination of federal and state funds.

Bridge projects are selected using the Bridge Priority Formula. The formula was developed by KDOT and Woodward-Clyde Consultants in 1981 and has been modified since then to incorporate updated technology, policy direction, and available data. A schematic of the formula follows.

<b>Bridge Priority Formula</b>		
<b>(Attributes / Adjustment Factors)</b>		
		<b>Adjustment Factors</b>
<b>Attribute (Need Value)</b>	<b>Rel. Weight</b>	<b>AADT<sup>1</sup> (see p )</b>
Bridge Width (Driver Exposure Attribute)	0.222	0 to 1
Deck Condition	0.169	0 to 1
Structural Condition	0.359	0 to 1
Operating Rating	0.250	0 to 1
<b>Sum of All Weights</b>	<b>1.00</b>	
<b>1 Average Annual Daily Traffic-</b> The number of vehicles per day on a roadway segment averaged over one.		

### **Bridge Deck Replacement and Culvert-Bridge (PDR & PCR)**

The Bridge Deck Replacement

subcategory addresses bridges where the bridge superstructure and substructure are in satisfactory condition, but the bridge deck has deteriorated to the point where a Bridge Repair project would not be adequate. The Culvert Bridge subcategory addresses culverts that are beyond the scope of a Culvert Repair project, but do not yet qualify as a Bridge Replacement /Rehabilitation project. Projects in these subcategories are usually funded using state funds.

Each District, using the Bridge Management Engineer’s recommended repair list, submits prioritized lists of candidate projects to the Bureau of Design. Each candidate project is reviewed for the structure’s condition history and latest inspection to confirm necessary repairs or replacement. Statewide lists are prioritized using such factors as maintenance effort, safety, traffic, and engineering judgment. The lists are submitted to the Bureau of Program and Project Management for review to confirm that each candidate structure is not programmed for future work under any other KDOT program. The prioritized lists are then merged to create the yearly statewide repair list.

### **Contract Maintenance (CMN)**

Maintenance activities are undertaken to offset the effects of weather, deterioration, traffic wear, damage, and vandalism. Eligible projects are those that KDOT is not adequately staffed or equipped to perform. Due to the diverse

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types of actions and/or geographic location, contracting for the service is the most cost-effective approach for the agency. These projects are funded using state funds.

Selection is based on priority as seen from a statewide perspective. Basic criteria for contract maintenance projects are: 1) inability to perform necessary actions with existing maintenance forces; 2) not eligible for other maintenance programs; 3) not anticipated (generally the result of weather or traffic conditions). Projects are selected on the basis of statewide need for corrective action, not on a balanced distribution between districts.

### **Emergency Repair (EMR)**

State funds are set aside annually for emergency repairs that occur as the result of accidents or disasters. Allocation of these funds is authorized by the State Transportation Engineer when accidents/weather-related causes occur.

### **Interstate Basic Improvement And Non-Interstate Basic Improvement (RIP & IRP)**

Interstate and Non-Interstate Basic Improvement projects are projects that involve pavement rehabilitation or replacement but do not include wider shoulders, added passing or through lanes, or intersection or interchange improvements. Projects within these sub-categories are funded with a combination

of federal and state funds.

These projects are selected using the pavement condition-related attributes of the Non-Interstate and Interstate Priority Formulas. See additional discussion of the formulas in the Modernization section.

### **Interstate Resurfacing (ISR)**

Approximately 20 center-line miles of divided Interstate roadway (40 miles of two-lane pavement) are resurfaced or repaired annually through the Interstate Resurfacing set aside program. Input from the Pavement Management System is used to decide which sections of interstate are to be resurfaced.

### **Pavement Marking (PMR)**

This subcategory was established in FY 1996 to address pavement marking necessary due to pending new federal requirements for minimum retroreflectivity of pavement markings. Improvements in this category utilize high-performance, long-life pavement marking materials. Efforts are also made to identify those marking materials with wet-weather retroreflectivity. This program is limited to projects that do not have high-performance markings included under any other KDOT program.

Projects are selected by Bureau of Transportation Safety and Technology based upon a roadway's traffic volumes, past performance of marking material,

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geometry, surface condition, surface type, crash history, and, in the case of new marking materials, the research benefit. Projects within this subcategory are generally funded with 100 percent federal funds.

### **Railroad Crossing Surfacing (RRS)**

This subcategory was established in FY 2000. Projects in this subcategory are for at-grade highway/railroad crossing approach and surface upgrades. Eligible crossings are rural State Highway System Crossings and State Highway System City Connecting Link crossings in cities with populations up to 2,500.

Projects are selected from applications for crossing surface improvement projects submitted by railroad companies and KDOT district personnel. Project scopes include all necessary materials and activities required for long-term crossing surface and approach improvements. These projects are funded with 50 percent state and 50 percent railroad company monies.

### **Signing (SOS)**

This subcategory was established in 1996 to address necessary sign replacements on the State Highway System due to pending new federal requirements for minimum retroreflectivity of signs. This program schedules sign replacements based upon highway route mileage statewide and the total mileage of all the routes in each District for that year. This

program excludes signs on any other state projects that include sign replacement for that highway route in the same year. This program also excludes any signs that were replaced within seven years of the scheduled date of the replacement project. Projects within this subcategory are generally funded with 100 percent federal funds.

### **— MODERNIZATION — (Improving safety & existing roadways & structures)**

The Modernization program category is the second major component of the projects included in the FY 2011-2014 STIP. Projects in this program category are designed to improve existing roadways and enhance safety by flattening hills, adding shoulders, straightening curves and improving intersections. Included in this program category are the subcategories: Resurfacing with Improvements-Practical Design (IRS), Corridor Management (COR), Interstate Roadway Geometric Improvements (IRI), KCC Railroad Crossing Projects (KCC), Highway Lighting (LTG), Non-Interstate Roadway Geometric Improvements (RIM), and State Safety Projects (SAF). Of these subcategories- Corridor Management (COR), Highway Lighting (LTG) and State Safety Projects (SAF) are funded with set aside funding. The principle of safety from the LRTP is addressed by this program. Projects within this program are selected using a combination of engineering factors and regional priorities.

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### **Corridor Management (COR)**

The Corridor Management set aside program was created to address the growing need for KDOT, cities, and counties to jointly manage transportation corridors, particularly in high-growth developing areas. This fund is divided into two subcategories with two-thirds going to a project subcategory and one-third to a contingency subcategory. To be eligible for either subcategory of funds, a corridor must be designated in the district plan, there must be a partnering agreement between the Secretary, city, and county, and there must be a binding corridor master plan in place.

The contingency subcategory of funds is designed to address rapidly developing areas or sites where transportation infrastructure changes must be made to better accommodate changes in demand. This fund requires a minimum 50 percent local match for state monies. There is also a per-project maximum of \$200,000.

The project subcategory of funds is designed to assist newly developing areas in meeting the master plan or to retrofit established areas to master plan standards. Projects are solicited annually and require a minimum 33 percent local match for state monies. There is a per-project maximum of \$250,000.

In addition, in some special cases, Corridor Management funds may be used for advance right-of-way acquisition.

### **Interstate Roadway Geometric Improvements/ Non-Interstate Roadway Geometric Improvements/ and Resurfacing with Improvements (RIM & IRI & IRS)**

Interstate and Non-Interstate Roadway Geometric Improvements projects are major highway improvements that, in addition to pavement rehabilitation or replacement, include wider shoulders or intersection improvements but do not include passing or through lanes or interchanges. Resurfacing with Improvements projects are pavement rehabilitation projects with modest shoulder improvements using practical improvement principles. Projects within this subcategory are funded with a combination of federal and state funds.

Roadway projects are selected using the Non-Interstate and Interstate Priority Formulas which supply the engineering factors, along with regional priorities in the area of the proposed projects determined through Local Consult meetings. The formulas were developed by KDOT and Woodward-Clyde Consultants in 1981 and have been modified since then to incorporate updated technology, policy direction, and available data. Schematics of the formulas follow.

### **KCC Railroad Crossing (KCC)**

This is a state-funded program supplemented with Railroad Company funds. Eligible crossings through this



<b>Non-Interstate Priority Formula (Attributes / Adjustment Factors)</b>										
		<b>Adjustment Factors</b>								
		<b>Accident Rate</b> (See below)	<b>Posted Speed</b> (See below)	<b>Facility Type</b>		<b>Shoulder Type</b>		<b>Route Class</b> (See below)	<b>AADT<sup>1</sup></b> (See below)	
<b>Attribute (Need Value)</b>	<b>Relative Weight</b>	*	*	Divided	Undivided	Stabilized	Unstabilized	*	*	
<b>Driver Exposure Attributes</b>	No. Of Narrow Structures Per Mile	0.086	0 to 1	0 to 1					0 to 1	0 to 1
	Shoulder Width	0.089	0 to 1	0 to 1	0.54	1.0	.0607	1.0	0 to 1	0 to 1
	No. Of SSSD <sup>2</sup> Per Mile	0.069	0 to 1	0 to 1					0 to 1	0 to 1
	Lane Width	0.101	0 to 1	0 to 1	0.5	1.0			0 to 1	0 to 1
	No. Of SHC <sup>3</sup> Per Mile	0.099	0 to 1	0 to 1					0 to 1	0 to 1
Volume/ Capacity (Maximum Default Value = 1.15)	0.091							0 to 1	0 to 1	
Commercial Traffic (Maximum Default Value = 725)	0.065			.0376	1.0	0.519	1	0 to 1	0 to 1	
Rideability	0.088							0 to 1	0 to 1	
Pavement Structural Evaluation (PSE)	0.208							0 to 1	0 to 1	
Observed Condition	0.104							0 to 1	0 to 1	
<b>Sum of All Weights</b>	<b>1.00</b>									

<b>* Non-Interstate Priority Formula (Adjustment Factors)</b>							
<b>Accident Rate</b>	<b>Adjustment Factor</b>	<b>Posted Speed</b>	<b>Adjustment Factor</b>	<b>Route Class</b>	<b>Adjustment Factor</b>	<b>Capacity – Adjusted AADT<sup>4</sup></b>	<b>Adjustment Factor</b>
High	1.0	≥ 55 MPH	1.0	A	1.0	20,000	1.0
Medium	0.858			B	0.9	10,000	0.925
Low	0.734	≤ 55 MPH	Varies from	C	0.7	6,000	0.895
			0 to 1	D	0.5	2,000	0.865
				E	0.3	0	0.850

<b>Interstate Priority Formula (Attributes / Adjustment Factors)</b>							
		<b>Adjustment Factors</b>					
		<b>Facility Type</b>		<b>Shoulder Type</b>		<b>Route Class</b> (See below)	<b>AADT<sup>1</sup></b> (See below)
<b>Attribute (Need Value)</b>	<b>Relative Weight</b>	<b>Divided</b>	<b>Undivided</b>	<b>Stabilized</b>	<b>Unstabilized</b>		
Commercial Traffic	0.140	0.376	1.0	0.519	1.0	0 to 1	0 to 1
Rideability	0.189					0 to 1	0 to 1
Pavement Structural Evaluation (PSE)	0.447					0 to 1	0 to 1
Observed Condition	0.224					0 to 1	0 to 1
<b>Sum of All Weights</b>	<b>1.00</b>						

<sup>1</sup> **Average Annual Daily Traffic-** The number of vehicles per day on a road -way segment averaged over one year.

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program are crossings that do not meet the federal aid program eligibility requirements, but updates would improve safety. Local entities must submit potential crossings for funding through this program, and projects are programmed as funds are available. Prior to the CTP this program was administered by the Kansas Corporation Commission (KCC).

### **Lighting (LTG)**

Because lighting is beneficial to the safety and operation of the highway system, this subcategory was established in FY 2000. Projects are selected by Bureau of Transportation Safety and Technology using the engineering factors of the roadway's volume and night-time crash history along with consideration of existing regional priorities in the area of the proposed projects. This program is limited to projects which are not included under any other KDOT program. Projects are scheduled until the available lighting funds are exhausted and generally funded with 100 percent federal funds. (At other locations, lighting may be installed by the local unit of government by obtaining a highway permit. In general, when the local entities elect to install lighting, they bear the cost of installation, maintenance, and operation.)

### **Safety Projects (SAF)**

This program provides for improvement of intersections or spot locations where major improvement is not required. The addition of left-turn lanes,

pavement resurfacing, traffic signals, signing, and pavement marking provide cost effective solutions to reducing crashes at these locations.

The Bureau of Transportation Safety and Technology conducts studies on the physical and operational characteristics of high-crash locations. These studies:

- 1) identify the reason the particular location is being reviewed;
- 2) identify pertinent conditions;
- 3) identify concerns;
- 4) identify possible causes of the concerns;
- 5) identify possible solutions;
- 6) estimate cost of each possible solution;
- 7) rank each solution on the basis of engineering judgment;
- 8) consider effects on like or similar areas (uniformity factor);
- 9) provide benefit/cost analysis for each solution;
- 10) review regional priorities for projects under consideration;
- 11) recommend action.

Once projects are identified, they are ranked in descending order by average annual net return. KDOT determines the average annual net return for each location by subtracting the average annual cost from the average annual benefit. First priority is given to the location with the highest average annual net return and with overlapping regional priority.

Exceptions to this order are sometimes necessary because city matching

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funds are unavailable, future projects encompass the selected location, approximate locations are grouped into one project, or several smaller projects are combined resulting in a total net return larger than the return for one project. Projects are scheduled until the available Safety Project funds are exhausted.

**— EXPANSION —**  
(Adding something new)

The Expansion program is the third program category of projects in FY's 2011-2014 STIP. Expansion projects add new lanes or interchanges, enhance driving by relieving congestion and improving access, enhance economic development, and substantially improve safety. The LRTP principles of economic expansion and safety are the focus of projects within this program category.

The majority of projects in this category have not been programmed because state funding for this type of construction was only recently secured with the passage of T-WORKS, the Kansas transportation program effective beginning state fiscal year 2011. KDOT's approach for selecting Expansion projects will rely on a new local consultation process which is in the process of being implemented. In addition to considering the three factors that are used to score projects (engineering, local consult, and economic impacts), KDOT will also consider how much money is available through T-WORKS, how much money has been invested in projects already (e.g., engineering, right of way, etc), what local funding may be available, and

additional regional input as T-WORKS is developed.

Projects in the program are grouped into the following subcategories: Economic Development (EDP), Interstate Capacity Improvement (IRC), Intelligent Transportation Systems (ITS), Non-Interstate Capacity Improvement (RIC), Local Partnership Railroad Grade Separation (RSL), Railroad Grade Separations (RSP), Enhancement Bypass Construction (SEB), Enhancement Corridor Improvement (SEC), and Enhancement Interchanges/Separations Improvement (SEI).

**Economic Development**  
(EDP)

Due to previous funding constraints resulting from the lack of new state and federal transportation programs, Economic Development projects had not been selected for FY 2012 and subsequent years. With the passage of T-WORKS, KDOT anticipates an Economic Development program greatly expanded from that of the CTP. KDOT is currently piloting a computer modeling package to determine projects' potential economic impact, estimating the increase in jobs, income, and economic output for a region resulting from proposed projects. Additionally, desirable projects are those that align with regional priorities of the area. This information, in concert with recommendations from KDOT staff and an external Economic Development Review Panel, will be used to select Economic Development projects.

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### **Interstate Capacity Improvement & Non-Interstate Capacity Improvement (RIC & IRC)**

Interstate and Non-Interstate Capacity Improvement projects are major highway improvements that include passing or additional through lanes or interchanges in addition to pavement rehabilitation or replacement and geometric improvements. Projects in these categories will be selected using the new process being piloted by KDOT in selecting major highway construction projects for T-WORKS. See the beginning of this Project Selection Criteria section for a more detailed discussion of project selection.

### **Intelligent Transportation Systems (ITS)**

The Intelligent Transportation Systems (ITS) program was established to meet the funding needs of ITS/ technology-related projects in Kansas. The funding is available to apply technology such as advanced sensor, computer, electronics, and communications and management strategies to increase the safety and efficiency of the transportation system. The funding is available to both state and local agencies and is not necessarily limited to agencies that are transportation oriented. There are ITS applications in urban areas, rural areas, transit, and commercial vehicle operations, and consideration for funding will be given to all of these areas.

The Bureau of Transportation Planning, along with the ITS Steering Committee, establishes project rankings based upon:

- 1) project support and integration risks;
- 2) telecommunication considerations;
- 3) design considerations and factors of success;
- 4) funding sources and evaluation consideration;
- 5) cost effectiveness and benefits; ,
- 6) local funding match percentage.
- 7) economic impact of project
- 8) commonality with regional priorities in the area of the proposed project.

Projects are solicited annually as funding is available and selected based upon the criteria outlined above. ITS projects are generally funded with a combination of state and local funds. Due to previous funding constraints resulting from the lack of new state and federal transportation programs, ITS projects have not been selected for FY 2012 and subsequent years.

### **Local Partnership Railroad Grade Separations & State Railroad Grade Separations (RSP & RSL)**

These two programs were established just prior to and during the CTP and replaced highway railroad at-grade crossings with grade separation structures. Currently, there are no new projects programmed for construction in these two subcategories, although there may be some projects carried over from the CTP still being completed. Funding for work in these subcategories is usually from a combination of state and/or local and/or federal

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sources. When programs at the state and federal levels are secured, KDOT may once again elect to fund additional railroad grade separation projects.

**System Enhancement Bypass/  
Corridor Improvement/  
Interchanges-Separations Improvement  
(SEB, SEC, SEI)**

Currently, there are no new projects programmed for construction in these three subcategories, although there may be some projects carried over from the CTP still being completed. Projects in these subcategories provide bypasses around cities, substantially improve the capacity and serviceability of significant segments of the State Highway System, or provide new interchanges, improve existing interchanges, or build separation structures which reduce congestion on the State Highway System. Funding for work in these subcategories is usually from a combination of state and/or local and/or federal sources. KDOT has a few expansion corridor projects in plan production. In this way, as funding becomes available projects will be ready or nearly ready for construction.

**— LOCAL CONSTRUCTION —  
(City and county road improvements)**

The fourth program category in FY 2011-2014 is Local Construction. Local Construction projects involve improvements on city or county roads. The work encompassed by this program is varied in nature- some projects are safety-oriented, others focus on maintaining existing roadways, and still others are smaller, expansion-type projects.

The funding within this program of projects is also varied, coming from a combination of state and/or local and/or federal sources. The LRTP principles of safety and preservation are the focus of projects within this program category.

Like the other programs already described, the Local Construction program is grouped into subcategories. The subcategories included in this program are: HSIP Safety Projects-off system (HAZ), HSIP Safety Projects-on system (HES), KLINK resurfacing projects (K1R), Geometric Improvements for KLINKs (K3R), Local Administered projects (LOC), KDOT Administered projects (RES), HSIP Railroad Crossing Protection-on system (RRX), HSIP Railroad Crossing Protection-off system (RXR), Safe Routes to Schools projects (SRT) and Transportation Enhancement (TEX) projects. Each of these subcategories is described in more detail on the following pages.

**City Connecting Link  
(KLINK) Resurfacing  
(K1R)**

This KLINK Resurfacing program assists local governments in making needed road improvements on city connecting links (KLINKs) and other city and county roads. The KLINK Resurfacing set aside program provides funding for resurfacing projects on city streets that connect two rural portions of state highway (called City Connecting Links).

In the past, these projects were



funded under a 50 percent state/50 percent city funding matching arrangement for cities with populations greater than 10,000 and a 75 percent state/25 percent city ratio for cities with populations less than 10,000. The maximum state share for a project is \$200,000. With the passage of T-WORKS, funding levels are being revisited.

KDOT annually solicits requests for eligible projects by sending letters to all eligible cities in the state asking for project applications. All State Highway System City Connecting Links are eligible except those on the Interstate System and fully-controlled access sections on the Freeway System. Cities requesting projects are encouraged to review the proposed projects with the KDOT District Engineer or designated representative before submitting their applications. If project applications exceed available funds, projects are prioritized and selected on the basis of pavement survey conditions.

KDOT received KLINK applications for potential FY 2012 projects in September 2009 from interested cities. Project selection had been placed on hold due to previous funding constraints resulting from the lack of new state and federal transportation programs. With T-WORKS funding, however, FY 12 projects will now be programmed.

**Federal Safety Projects  
(HAZ & HES)**

These federal-aid projects provide safety improvements on all federal-aid sys-

tems. Federal Safety funds provide 90 percent of these projects' construction and construction engineering costs, except that certain safety improvements as listed in 23 U.S.C. 120 (c) are eligible for 100 percent funding. The Bureau of Transportation Safety and Technology administers the majority of the safety projects. The Bureau of Local Projects administers a small portion of projects that are on county roads and in cities under a population of 5,000.

Four categories of roadway systems have been established for location analysis and funding to ensure that all roadway systems benefit from federal-aid safety improvements. Each category is allotted a portion of the total amount of safety funds available at the beginning of each federal fiscal year.

Jurisdiction Location	Population	Funding Split
N (Metropolitan)	Kansas City / Wichita	38 %
U (Urban)	Over 5,000	30 %
K & KA (Rural State Hwys)	Less than 5,000	20 %
C (County Rds and other Rdwys)	Less than 5,000	12 %

*(These figures are not rigid. The percentages may vary by a few points in any given year and funds that cannot be utilized in one category may be transferred to another category.)*

**Identification of High Accident Locations** - For Jurisdictions N and U, cities are requested to submit two years of crash data for up to five high-crash locations on federal-aid routes within their areas. High-crash locations are determined and ranked by descending equivalent-property-damage-only (EPDO) accident rate. The top 50 (approximately) are considered high-crash locations warranting

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further analysis. Projects in these categories are financed with federal and local funds.

For jurisdiction K and KA projects, to determine whether a location is a high-frequency crash location, a comparison is made between the actual crash rate and the statewide average rate for similar highways. Bureau of Transportation Safety and Technology conducts county-wide road safety audits. From these audits and from traffic studies, high-crash locations are established. High-crash locations are ranked in descending EPDO crash rate order. The top ten are considered high-crash locations warranting further analysis. Projects in jurisdiction K or KA on the rural State Highway System are financed with federal and state funds.

Jurisdiction C projects are financed with federal and local funds rather than state funds. These projects are selected by local units of government and are subject to Federal Highway Administration approval. They are administered by the Bureau of Local Projects.

**Prioritization** - The identified high-crash locations are prioritized on the basis of the average annual net return for each location. The average annual net return is a dollar amount found by subtracting the average annual costs from the average annual benefits. First priority is given to the location with the highest average annual net return. Remaining projects are scheduled in descending order until funds are exhausted. Exceptions to this order of work may occur when a city does not have

the necessary matching funds, a future project is planned that may encompass the selected location, a grouping of proximate locations into one project, or combining several smaller projects for a total net return larger than one project.

### **Geometric Improvement (K3R)**

The Geometric Improvement program assists cities with funding geometric improvements on City Connecting Links (KLINK's)-city streets which connect two portions of rural state highway. Geometric improvements are designed to widen pavements, add or widen shoulders, and add needed turning, acceleration, and deceleration lanes. In the past, these projects were funded with either a combination of local and state funding or solely with state funds, and the maximum state share per project is between \$700,000 and \$950,000. The minimum local funding share ranges from 0 percent to 25 percent of the project cost and the percentage of participation is dependent on city size.

Also, in the past, KDOT annually solicits requests for projects and projects were presented to the Highway Advisory Commission for review and recommendation to the Secretary of Transportation for final selection.

Due to previous funding constraints resulting from the lack of new state and federal transportation programs, Geometric Improvement projects had not been selected for FY 2012 and subsequent years. With the passage of T-WORKS, both

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funding levels and the project selection process are being revisited.

**Local Construction  
Locally and State Administered  
(LOC & RES)**

The projects in these two subcategories are varied and may have elements of each of the three state programs—preservation, modernization and expansion, but all are performed on city and county roads. Local construction projects are divided into two groups—those administered by the local entity (LOC) and those administered by the state (RES). For local entities to qualify to administer their own federally funded non-National Highway System (Non-NHS) projects, they must meet minimum requirements established by FHWA and KDOT. These requirements are intended to ensure that projects are developed in accordance with all applicable laws, regulations, criteria, and accepted engineering practices. KDOT-administered projects are similar in nature to locally administered, with the only difference being that the state lets the project to construction and oversees the work on these projects on behalf of the local entity. Local construction projects are funded with a combination of federal and local funding with a usual funding ratio of 80 percent federal funds and 20 percent local funds.

Local governmental agencies select their projects using a number of criteria. Projects are often proposed because of safety concerns, the need to maintain existing facilities or structures, and community

needs fueled by growth and other factors. To assist in their selection process, bridge inspection data and other management systems are available to local entities to use in their decision making processes.

Local agencies prepare a list of proposed projects and public input is solicited. After the local entities have gained approval for their projects from their governing bodies, the proposed projects are prioritized and submitted to KDOT's Bureau of Local Projects with proof of public involvement. These lists are the cities' and counties' Five-Year Federal Aid Construction Program. Projects are then programmed from these lists based upon the availability of funds.

The projects identified in the Five-Year Federal Aid Construction Program are the local entities' portion of the STIP and identify their prioritized road or bridge construction projects. The STIP document reports on a four year basis, so only four years of the local agencies' programmed projects are included.

**Railroad/Highway Crossing Protection  
(RRX & RXR)**

This federal-aid program funds protective device installation and hazard elimination at railroad/highway grade crossings on public roads. Federal-aid finances up to 100 percent of the cost of these projects. In accordance with Section 130 of the 1973 Federal-aid Highway Act, KDOT has established a state rail crossing inventory and formula to prioritize all 6,200 at-grade public crossings in Kansas.

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The priority formula “hazard index is used to rate the relative hazard potential for all crossings and is based on highway traffic, train traffic, and a warning device factor.

**Priority Formula For  
Railroad Crossings**

$$\text{Hazard Index} = \text{AADT} \times \text{T} \times \text{W}$$

Where

AADT = Average Annual Daily Traffic

T = Average Trains per day

W = 0.1 for gates, 0.6 for flashing lights & 1.0 for cross bucks

Each year a number of the highest ranked crossings that have not been addressed in prior programs are selected for review. A preliminary review of the crossings is conducted to verify crossing inventory information.

Crossings from this list that pass the preliminary review are scheduled for on-site diagnostic reviews. The diagnostic review team consists of KDOT, railroad, and local government staff. This team makes recommendations for each crossing as to type of warning system, crossing surface work, approach roadway improvements, drainage improvements, and brush and timber clearing. A rough cost estimate of the recommendations is developed for each crossing.

The on-site review is sent to the local government officials who have maintenance responsibilities for the highway or roadway. When crossing projects receive a

commitment from local government, railroads, and the state, a project implementation procedure is started that leads to improvements at the crossing. With the implementation of prior federal transportation acts, KDOT now utilizes 100 percent federal funding for these railroad/highway crossing safety projects.

In conjunction with the United States Department of Transportation’s national highway/railroad crossing safety initiatives, KDOT is also addressing railroad corridor highway/railroad crossing safety projects. For corridor project approval there must be a reasonable number of highway/railroad crossing closures. The highest priority highway /railroad crossings in the corridor are improved with active flashing light and gate signal systems

**Safe Routes to Schools  
(SRT)**

Safe Routes to Schools (SRTS) is a new federal reimbursement program that was authorized under SAFETEA-LU. This program is currently funded with 100 percent federal funds. The SRTS goal is to increase the number of school children who walk or bike to school. SRTS provides reimbursements to local public authorities, school districts, and non-profit associations for projects or activities that will make walking and bicycling to school safe, enjoyable, and routine. In this subcategory, projects are selected by soliciting applications and then selecting projects from the applications submitted. To qualify for consideration applications must meet one of the following three criteria:

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1) Project provides for infrastructure such as improvements to pedestrian and bicycle crossings, sidewalks, traffic calming, on- and off-street bicycle facilities, secure bicycle parking, and traffic diversions.

2) Project provides for non-infrastructure activities such as public awareness campaigns and outreach to press and community leaders, establishing walking school buses and bike trains, traffic education and enforcement, student training on bicycle and pedestrian safety, and funding for training volunteers and staff.

3) Project provides for plan development of safe routes to schools, with possible future funding to implement the plan.

Applications were solicited from local public authorities, school districts, and non-profit associations in spring and summer 2008, evaluated, and selected based on the criteria of the program. Some of the projects selected during this process are still underway completing the construction work phase. However, pending the authorization of a new federal program or extension of the current program, no further applications have been solicited for SRTS, and it is unknown at this time if this program will continue to be funded.

### **Transportation Enhancement (TEX)**

Federal statute requires that a minimum of

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10 percent of the Federal Surface Transportation Program funding received by the State of Kansas be reserved for Transportation Enhancement projects. Projects in this subcategory must correspond with one of the following three groups: historic, scenic and environmental, or pedestrian and bicycle facilities, and must be directly related to a surface transportation system. This program is funded based on an 80 percent federal/20 percent local match, and applicants need to be able to demonstrate their financial ability to meet their obligation.

Applications are solicited from local governing entities (city, county, school district or other governing subdivision) and evaluated and selected based on the criteria of the program. Applications for FY 2011 & 2012 were sent out in September 2009, and the deadline for receipt of applications was December 2009. Pending authorization of a new federal program or extension of the current program, project selections will be made at the end of June 2010. Since this will be concurrent with the STIP preparation, there will be insufficient time to get these projects programmed and included in the FFY 2011-2014 STIP. Instead, the projects, once programmed, will be amended into the STIP at a later date.