Project Selection Criteria



PROJECT SELECTION CRITERIA

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

Projects in the STIP are created from various levels of government (city, county, and state). Consequently, they are also created from many different processes and criteria. The criteria described below were those used by KDOT when the projects currently programmed in FFY 2015-2018 and listed in this document were selected. KDOT has a legislatively approved 10-year transportation program in place, Transportation Works for Kansas (T-WORKS). The program was authorized by the state legislature in May 2010 and covers the period from SFY 2011 through 2020. T-WORKS primary areas of focus are:

- Preservation of the highway system
- A multi-modal approach to meet-

ing transportation needs with increased funding to Public Transit, Rail and Aviation programs

• The leveraging of transportation to further the state's economic goals

Under T-WORKS, road and bridge construction projects are categorized into four core groups or programs: Preservation, Modernization, Expansion and Local Construction. The majority of the modernization and expansion projects to be accomplished in the T-WORKS program were selected and announced jointly by the Governor of Kansas and the Secretary of Transportation in June 2011. Remaining program selection, as directed by the legislature and as outlined in the T-WORKS program, is on a two-year rolling schedule. By making selections on a rolling twoyear basis, KDOT has increased flexibility to respond to economic pressures or opportunities as they arise.

For projects in the STIP the 2-year rolling selection process means that the majority of the projects in the first two years of the STIP have been selected and programmed while the majority of the projects in the latter 2-years are yet to be selected. Although the majority SFY 2015 and 2016 projects have been selected and programmed, there are subcategories like the Preservation-1R program that are evaluated and selected on a yearly basis. As a result the programs evaluated on a yearly basis may be partially represented in the STIP document. The 2016-2017 projects listed in the STIP are those projects that have already been evaluated and committed. Projects with federal funding that are selected and developed after the preparation of the STIP document will be added to the STIP through the amendment process. For more information concerning the amendment requirements and process refer to the STIP webpage atwww.ksdot.org/Assets/wwwksdotorg/20 10-Approved-STIP-Revision-Procedures.pdf.

The approval of T-WORKS is of great benefit for transportation in Kansas. However, the continued uncertainty in federal transportation highway funding is of concern. The magnitude of the state program is impacted by the potential lack of consistent, long-term federal funding and makes planning difficult. Until secure long-term funding is in place at the national level, the existing uncertainty limits the number of new projects KDOT undertakes and will especially affect planning for projects in the years following T-WORKS. During this period of uncertainty, KDOT continues to develop plan production projects so that, when long-term federal funding is in place the agency is ready with projects that are construction ready, or are nearly construction ready.

- PROJECT SELECTION-(An Expanded Process)

One of the most significant changes implemented in T-WORKS is the manner in which KDOT selects projects. In the previous program, the Comprehensive Transportation Program (CTP), project selection was based solely on engineering factors. In T-WORKS, engineering factors are still used to select projects but in some project selections engineering factors have been augmented with economic impact evaluation and/or local input.

KDOT categorizes highway construction projects into four broad programs-Preservation 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 for 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.

In the past, 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 effective for selecting expansion and modernization projects. Additionally, since only engineering factors were considered in the priority formulas, other considerations that stakeholders and Kansans felt were important did not factor into the selection process.

Several important planning andpolicy 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 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, which is still evolving, that was crafted by T-LINK-rather than relying solely on engineering factors- regional priorities and potential economic impact were incorporated into project selection. This new selection process was 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. The following chart illustrates the initial recommendation from the T-LINK 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 economic output for a region due to a transportation improvement.

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

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, fulfill the goals of T-LINK and meet the requirements of the T-WORKS legislation.

In addition to state projects, there are local projects on county and city roads that have their own selection process. These projects are selected and developed by local public authorities (LPAs). 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 in T-WORKS 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 entirely on engineering factors.

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

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. Currently, all projects within these two subcategories are state funded and selection is usually on an annual basis.

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. These lists are then 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 then merged to create the yearly statewide repair list.

Bridge Painting (BSP)

Work performed in this subcategory is funded with state funds. Currently, project selection for Group A bridges is on an annual basis as need dictates. KDOT districts are responsible for painting Group B bridges and work is performed as need dictates.

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 then reviewed by the Bureau of Program and Project Management to verify that each candidate structure is not programmed for future work under any other KDOT program. Projects are scheduled in order of priority until available funds are exhausted. **Group B:** Consists of structures that have less than 10 tons of structural steel. Statewide this number is approximately 40 bridges. The districts where these bridges are located are responsible for prioritizing and painting of these structures.

Bridge Replacement/ Rehabilitation (PBR)

The Bridge Replacement and Rehabilitation subcategory is designed to replace or rehabilitate sub-standard 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 is on the following page.

SFY 2015 and 2016 projects have been selected and programmed for this subcategory. However, in T-WORKS project selection for the PBR subcategory is being made on a rolling two- year basis and as such projects for SFY 2017 & 2018 will be evaluated and selected no earlier than SFY 2016. As additional projects are selected during the fiscal year, the projects will be added to the STIP using the amendment process.

Bridge Priority Formula								
(Attributes / Adjustment Factors)								
	Adjustment Factors							
Attribute (Need Value)	AADT ¹							
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						
Sum of All Weights 1.00								
 Average Annual Daily Traffic- The number of vehi- cles per day on a roadway segment averaged over one. 								

Bridge Re-Deck and Culvert Rehabilitation (PDR & PCR)

The Bridge Re-deck subcategory addresses bridges where the bridge superstructure and substructure are in satisfactory condition, but the bridge deck is deteriorated to the point thata Bridge Repair type project would not be adequate. The Culvert Rehabilitation subcategory addresses culverts that are beyond the scope of a Culvert Repair project, but do not 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 performed 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 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) ineligibility for other maintenance programs; 3) unforeseen (generally the result of weather or traffic conditions). Projects are selected on the basis of statewide need for corrective action, rather than selection based on a balanced distribution between districts.

Emergency Repair (EMR)

State funds are reserved annually for emergency repairs that occur as the result of accidents or weather- related disasters. Allocation of these funds is authorized by the State Transportation Engineer as events occur that warrant the need.

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 widened shoulders, added passing or through lanes, or intersection/ interchange improvements. The projects in the Non-Interstate Basic Improvement subcategory are funded with state funds while projects within the Interstate Basic Improvement subcategory are usually funded with a combination of federal and state funds.

The projects in these two subcategories are selected using the pavement condition-related attributes of the Non-Interstate and Interstate Priority Formulas along with input from district personnel. For additional discussion of the formulas, refer to the Modernization section of Project Selection Criteria. SFY 2015 and 2016 projects have been selected and programmed. Under T-WORKS project selection for these subcategories is being made on a rolling 2- year basis and as such projects for SFY 2017 & 2018 will be evaluated and selected no earlier than SFY 2016.

Interstate Resurfacing (ISR)

Center-line miles of divided Interstate roadway 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. Generally, projects in this subcategory are state funded.

Miscellaneous for Preservation (NHP)

This subcategory was established in SFY 2012. This subcategory is reserved for atypical preservation projects that occasionally arise. The scopes of work for projects in this subcategory do not fit into the standard preservation subcategories. However, the scope of work is preservation related with the desire to use preservation program funding. These projects are predominantly state funded and since these are non-routine projects, project selection is based upon need.

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 state set aside funded program. Since most of these projects are selected on an annual basis, projects for this group appear only in the first year of the STIP. 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. Currently, projects within this subcategory are state funded.

Pavement Marking (PMR)

This subcategory was established in 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 another KDOT program.

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

The Rail Road Crossing Surfacing subcategory was established in SFY 2000 to address projects that are at-grade highway/railroad crossing approaches 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 funds. Project selection is usually on an annual basis.

Signing (SOS)

Established in 1996, this subcategory addresses necessary sign replacements on the State Highway System in response to new federal requirements for minimum retro reflectivity of signs. This program schedules sign replacements based upon highway route mileage statewide and the total mileage of all the routes in each of KDOT's six districts for that year. Excluded from this program are signs that are scheduled for repair under other state projects 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 are selected annually and are generally funded with 100 percent federal funds.

Signing & Lighting Repair & Replacement (SLR)

This is a new subcategory created in SFY 2012 to address the need for signing and light structure maintenance across the state. The projects in this set aside are funded 100% with state funds. Currently, there are approximately 2,270 signing/lighting structures under KDOT's responsibility. The role of this program is to enable KDOT to monitor and prioritize the maintenance of these structures.

Every four years structure inspections are performed with the most recent inspection performed in 2013. Based upon the observations made during the inspection, ratings are assigned to each structure. Using this information, the Signing & Lighting Engineer then compiles the ratings and prepares a prioritized list recommending structures for replacement or repair. Projects are programmed from this list using the available set aside funds.

State Route Removal (SRR)

The State Route Removal (SRR) subcategory was established in SFY 2013 as a mechanism for the transfer of short state routes to the Local Public Authority (LPA). Routes under consideration for transfer function more in the manner of local roads and are a better fit under the LPA jurisdiction. The transference results in state route reduction, thereby reducing state maintenance costs. Candidates for the SRR program include stub routes, spur routes and business routes.

Projects are selected based on coordination with LPA's that elect to participate in the set aside program. LPA's accept the route transfer in existing condition and in return receive a lump sum payment funded with state funds. The payment amount is determined based on a per center route mile cost and is intended to offset future maintenance costs. Participation in the program is at the discretion of the LPA's. Routes are selected based on order of submittal and the availability of funds in conjunction with the approval of the Director of Operations.

> MODERNIZATION – (Improving safety & existing roadways& structures)

The Modernization program category is the second major component of T-WORKS and addresses the LRTP principle of safety. Projects in this program category aim to improve existing roadways and enhance safety by flattening hills, adding shoulders, straightening curves and improving intersections. Under T-WORKS a combination of engineering factors and regional priorities were applied to select projects in this program category. The majority of the Modernization program projects to be undertaken in T-WORKS were selected and announced by the Governor of Kansas in June 2011.

The following subcategories are included in this program: Corridor Management (COR), General Safety Improvements (GSI), Highway Lighting (LTG), Interstate Roadway Geometric Improvements (IRI), Non-Interstate Roadway Geometric Improvements (RIM), Resurfacing with Improvements-Practical Design (1RS), KCC Railroad Crossing Projects (KCC), Miscellaneous for Modernization (MPR), State Safety Projects (SAF) and Scenic Byway (SBW).

Corridor Management (COR)

The Corridor Management setaside 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 groups with two-thirds of the available funding going to a project group and one-third to a contingency group. To be eligible for either group 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 project group of subcategory 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. Additionally, projects in this group have a perproject maximum of \$250,000.

The contingency group of subcategory 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. Additionally, projects in the contingency group have a per-project maximum of \$200,000 and, in some special cases, Corridor Management funds may be used for advance right-of-way acquisition.

General Safety Improvements (GSI)

This is a new subcategory established for general safety improvements at various individual locations across the state. The goal of this subcategory through a combination of safety analysis and prediction along with KDOT personnel input is to identify and address individual locations throughout the state such as curves, intersections, or short tangent sections with a documented crash history. Additionally, this subcategory is intended to address locations that demonstrate potential safety issues that are not currently being addressed by other KDOT programs or subcategories.

Projects selection is based on the following steps:

- 1) Using initial screening tools lists of locations with potential to be improved are provided to KDOT's district personnel.
- Districts then review the lists and assess their needs to produce a list of up to 15 locations for consideration. At this step, districts are encouraged to seek and utilize public input in this process.
- Staff at KDOT headquarters combine the lists from all the districts and generate the appropriate crash histories and geometric data for all locations listed.
- In consultation with each district, potential countermeasures are considered and locations are prioritized based on potential for safety improvement, available funds, and geographic distribution.
- 5) From the prioritized list, projects are selected and programmed.

Projects selected may include (though are not limited to) signing improvements, intersection improvements, shoulder improvements, and high-friction surface treatments that provide cost effective solutions to reducing crashes at identified locations. In general projects in this subcategory are funded with federal safety funds at a 90 percent pro rata and 10 percent state funding, except for certain safety improvements as listed in 23 U.S.C. 120 (c) which are eligible for 100 percent federal safety funding. Pilot project selections were made in SFY 2013. Continued project selection is contingent on fund availability and at this time excess fund levels no longer exist in the safety federal group of subcategories to allow funding of further projects. Project selection has been suspended but may resume if funding becomes available in future years.

Highway Lighting (LTG)

Since lighting is beneficial to the safety and operation of the highway system, this subcategory was created in FY 2000 to address highway lighting. The Bureau of Transportation Safety and Technology using the engineering factors of the roadway's volume and nighttime crash history along with consideration of existing regional priorities in the area of proposed projects make project selections. To receive funding projects selected for this program may not be included under another KDOT program.

Projects are selected on an annual basis and scheduled until all available funds are exhausted. Generally, projects are funded with 100 percent federal funds. (At some locations across the state, lighting is installed by the local public agency (LPA) after obtaining a highway permit. Generally, when the LPA elects to install lighting, the LPA is responsible for the costs of installation, maintenance, and operation.)

Non-Interstate Priority Formula (Attributes /Adjustment Factors)											
			Adjustment Factors								
		Accident Rate (See below)		Posted Speed (See below)	Facility Type		Shoulder Type		Route Class (See below)	AADT ¹ (See below)	
	Attribute (Need Value)	Relative Weight	*	*	Divided	Undivided	Stabilized	Unstabi- lized	*	*	
tes	No. Of Narrow Structures Per Mile	0.086	0 to 1	0 to 1					0 to 1	0 to 1	
er Exp Attribut	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 ² Per Mile	0.069	0 to 1	0 to 1					0 to 1	0 to 1	
Drive ure	Lane Width	0.101	0 to 1	0 to 1	0.5	1.0			0 to 1	0 to 1	
S D	No. Of SHC ³ Per Mile	0.099	0 to 1	0 to 1					0 to 1	0 to 1	
	Volume/ Capacity (Maximum Default Val- ue = 1.15)	0.091							0 to 1	0 to 1	
	Commercial Traffic (Maximum Default Value = 725)	0.065			.037 6	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	
	Sum of All Weights	1.00									

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

Interstate Priority Formula (Attributes / Adjustment Factors)									
	Adjustment Factors								
	Facility Type		Should	der Type	Route	AADT ¹			
Attribute (Need Value	Relative Weight	Divided	Undivided	Stabilized	Unstabilized	Class (See below)	(See below)		
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		
Sum of All Weights	1.00								
¹ Average Annual Daily Traffic- The number of vehicles per day on a road -way segment averaged over one year.									

Interstate Roadway Geometric Improvements/ Non-Interstate Roadway Geometric Improvements (RIM, IRI)

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. Projects within these subcategories are usually 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 as determined through local consult meetings. The formulas used for the engineering factors were developed by KDOT and Woodward-Clyde Consultants in 1981 and have been modified since to incorporate updated technology, policy direction, and available data. Schematics of the formulas are on the previous page. The majority of projects in these subcategories were selected and announced in June 2011 and are in the STIP.

KCC Railroad Crossing (KCC)

Prior to 1999, this program was administered by the Kansas Corporation Commission (KCC), since then KDOT has managed the program. This is a state funded program supplemented with railroad company funds. Eligible crossings in this program are crossings that do not meet the federal funded program eligibility requirements, but if updated would improve safety. To be considered for this program, LPAs must submit potential crossings for funding. Projects are programmed, as funds are available in the order requests are made.

Resurfacing with Improvements (1RS)

Resurfacing with Improvements projects are pavement rehabilitation projects with modest shoulder improvements using practical improvement principles. These projects are evaluated and selected at the same time as the Preservation- Non-Interstate Resurfacing (1RR) projects and like those projects, selections are on an annual basis. As a result of the yearly selection process, the projects in this group are only in the first year of the STIP.

Resurfacing projects with improvements are an extension of the 1RR group of projects (described above). The 1RR list developed from the PMS system is further analyzed by KDOT personnel. From the analysis projects are identified as candidates for minor shoulder enhancements and resurfacing. These projects become the 1RS projects for the year and like the 1RR project selection, the number of projects programmed from one year to the next varies. Currently, projects within this subcategory are state funded.

Safety Projects (SAF)

This subcategory provides for improvement of intersections or spot locations where major improvement is not required. The addition of turn lanes, traffic signals, roundabouts, pavement resurfacing, signing, and pavement marking provide cost effective solutions to reducing crashes at eligible locations. The majority of the projects in this subcategory are for improvements along the Kansas State Highway System in areas either within communities or in rural locations.

The Bureau of Transportation Safety and Technology identifies possible projects by conducting studies on the physical and operational characteristics of high-crash locations. In the past these studies where often done at the request of Local Public Authorities (LPAs). Once identified, projects were ranked in descending order by average annual net return. First priority was given to the project with the highest average annual net return and with overlapping regional priority.

Generally, funding is expected to continue to be used for high crash locations identified by the Bureau of Transportation Safety and Technology. Whenever feasible safety projects will be combined with existing projects already selected where adding a safety feature like turn lanes to the existing project is practical. In this way the limited safety funds are stretched and used as efficiently as possible. Currently, projects in this subcategory are predominantly 100% state funded with projects selected and scheduled until the available funds are exhausted.

Kansas Byways (SBW)

Currently, in Kansas there are eleven designated byways- eight scenic, two of which are National Scenic Byways and three historic byways. The byways are located in 32 counties and cover approximately 647 state and county road miles. These Byways were established and developed through a grant from FHWA's Scenic /Historic Byways program.

Under Map-21 the majority of the Scenic /Historic Highway program was eliminated from federal funding with only a few specified activities like construction of turnouts, overlooks or viewing areas still qualifying for federal funding. As a result of the change in federal support for this program, the Kansas Byways program is no longer administered by KDOT. Instead the administration of this program was transferred to the Kansas Department of Wildlife Parks and Tourism (KDWP&T). All decisions regarding this program including project selection and funding level now reside with KDWP&T.

- EXPANSION - (Adding something new)

T-WORKS's third program category of projectsis Expansion. Expansion projectsadd 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 the expansion projects were announced along with the modernization projects by the Governor of Kansas and the State Transportation Secretary in early June 2011. With the exception of the economic development subcategory of projects, which will be reviewed and selected on an on-going basis during T-WORKS, most expansion projects have been selected.

KDOT's approach for selecting Expansionprogram projects relied on the new local consultation process, implemented under T-WORKS. This new approach used three factors, rather than relying solely upon engineering formulas like prior transportation programs. The three factors used to select projects were engineeringformulas, regional priorities and economic impacts. In addition to considering these three factors, KDOT also considered the money available through T-WORKS, the money already invested in projects (e.g. design engineering, right of way, etc), and the local funding available.

Projects in the program are

grouped into the following subcategories: Advanced Acquisition of ROW (AAR), Economic Development (EDP), Interstate Capacity Improvement (IRC), Intelligent Transportation Systems (ITS), and Non-Interstate Capacity Improvement (RIC).

Advanced Acquisition of ROW (AAR)

Advanced Acquisition of ROW projects are the use of State of Kansas funds to acquire ROW for highways planned to be converted to urban freeways. There are several benefits from AAR projects:

- 1) Reduces acquisition and transportation infrastructure cost by purchasing before development takes place,
- 2) Reduces delay in roadway projects and disruption to communities,
- 3) Promotes orderly urban growth,
- 4) Creates good will and support for KDOT from communities,
- 5) Promotes voluntary transactions, thus reducing eminent domain costs (monetary and public relations),
- 6) Alleviates hardship to property owners and local governments by addressing the uncertainty about the impact of proposed long-range projects on the owner's ability to sell or develop property.

KDOT currently requires a onethird match from local communities wishing to use AAR funds to acquire properties. However, a reduced match may be negotiated for communities without the resources to pay the full one-third match or when communities are able to demonstratethat the acquisition haslimited benefit to the community. Projects for this subcategory are developed on an as needed basis often in response to proposed private developments.

Economic Development (EDP)

Economic development projects are projects that help spur financial growth. A key priority identified in the LRTP, local consultation meetings and T-WORKS was the need for transportation projects to be linked to the state's economic priorities. To assess the potential impact of proposed economic development projects, KDOT utilizes a computer modeling package- the Transportation Economic Development Impact System (TREDIS). TREDIS estimates the increase in jobs, income, and economic output for a region due to a transportation improvement. In addition to scoring well in the TREDIS analysis, desirable projects are those that align with regional priorities of an area, have the recommendation of KDOT staff and the endorsement of an external Economic Advisory Panel.

To increase flexibility during the 10-year period of T-WORKS, proposed economic development projects will be reviewed and selected on an ongoing basis. In this way a source of funding will be available over the next ten-years as desirable opportunities arise. Generally, these projects are funded using a combination of state and local funding.

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 are selected using the updated project selection process launched by KDOT at the start of the T-WORKS program. Refer to the section "Project Selection Pilot" at the beginning of the Project Selection Criteria for a detailed discussion of project selection. Projects in these two subcategories include projects that prior to T-WORKS were in the System Enhancement Bypass, System Enhancement Corridor Improvement and System Enhancement Interchange- Separations Improvement subcategories. Subcategory RIC & IRC projects are usually funded using a combination of federal and state funds. The majority of the projects in these subcategories were selected and programmed in June 2011.

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. ITS applications are widespread with applicants fromurban areas, rural areas, transit, and commercial vehicle operationsand funding consideration is given to all 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;
- 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. ITS projects have been selected for SFY 2015 and annual selection is anticipated to continue with a state transportation program in place.

- LOCAL CONSTRUCTION-(City and county road improvements)

The fourth program category in T-WORKS is Local Construction. Local

Construction projects involve improvements on city or county roads. The work encompassed by this program is varied in nature withsome projects being safetyoriented, while 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 acombination 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 of similar work type. The subcategories are: HSIP Safety Projects-off system (HAZ), HSIP Safety Projects-on system (HES), KLINK resurfacing projects (K1R), Geometric Improvements for KLINKs (K3R),Local Bridge Transfer (LBT), Local Fund Transfer (LFT), 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)

The KLINK Resurfacing Program is a portion of the Kansas Department of Transportation's (KDOT) Local Partnership Program which is intended to improve the roadway surfacing of City ConnectingLinks of the State Highway System. All cities with City Connecting Links of the State Highway System within city limits are eligible for KLINK resurfacing improvements. All City Connecting Links of the State Highway System areeligible except those on the Interstate System and fully controlled access sections on the Freeway System.

The Bureau of Local Projects (BLP) solicits applications for KLINK resurfacing projects for each year in which funding is available.KDOT solicits requests for eligible projects by mailing applications to all eligible cities in the state. Cities requesting projects are encouraged to review the proposed projects with the KDOT District or Area Engineer or designated representative in their area before submitting their applications. Governmental bodies within urbanized areas (with populations greater than 50,000) should also submit copies of their applications to their Metropolitan Planning Organization's (MPO's). If project applications exceed available funds, projects are prioritized and selected based on pavement survey conditions.

For KLINK projects, KDOT participates in the cost of construction and construction engineering at the rate of 75 percent for cities with a population of less than 10,000 or 50 percent for cities with a population of 10,000 or greater, not to exceed \$200,000 of state funds. Currently, SFY 2016 applications are being reviewed with selection anticipated to be made in the fall of 2015. Annual selection is anticipated to continue with a state transportation program in place. The Secretary will announce the approved projects after selections are made.

Federal Safety Projects (HAZ & HES)

These federal-aid projects provide safety improvements on all federal-aid systems. The construction and construction engineering costs of projects in these two subcategories are generally funded with federal safety funds at a 90 percent federal pro rata with 10 percent local or state matching funds, except for certain safety improvements as listed in 23 U.S.C. 120 (c) which are eligible for 100 percent federal funding. The majority of the safety funding is administered by the Bureau of Transportation Safety and Technology and is applied to projects in communities with a population of 5,000 or greater. However, a small portion of funding is reserved for projects on county roads and in cities under a population of 5,000. These projects are administered by the Bureau of Local Projects.

For projects administered by the Bureau of Transportation Safety and Technology cities are requested to submit four high-crash locations on federal-aid routes within their areas every two years. High-crash locations are those that have 10 or more crashes in a 3 year period. Along with the high-crash locations, cities must also submit their scope of improvement and all necessary supporting data like crash reports and volume counts. To select projects from the requests received KDOT evaluates the submittals using the following criterion:

- 1) Verify crash history meets minimum requirement- submittals that do not meet the requirement are placed on hold.
- Crash analysis is performed to determine if the proposed scope will effectively address the existing crash pattern. The scope may be modified if the crash pattern data indicates change is warranted. Also, in this step a crash rate and equivalent-property-damage-only accident (EPDO) rate are developed. These ratings are used as tools to rank and prioritize the project submittals received.
- A benefit cost ratio is developed for each project that proceeds from step 1. Benefit cost is a function of reduction factors and crash costs. Benefit cost is another tool used to rank and prioritize projects.

Project submittals are then ranked based upon the crash rates, EPDO rates, and benefit cost analysis information. Selections are generally made based upon a combination of project ranking and engineering judgment and projects are selected until the available funding is exhausted. Projects selected in this subcategory may be financed with federal and local and/or state funds. However, since 2008 there has been a sharp decline in LPA interest and requests for projects given the economic downturn. As a result when available funding exceeds the number of submittals received, KDOT utilizes the remaining funding in the following ways:

- 1) By pursuing locations KDOT has identified as needing improvement and then providing a state match to the federal funding
- 2) By adding more funding to selected projects as appropriate
- 3) By reevaluating submitted projects with less than 10 crashes in a 3 year period to determine if the crash numbers have increased to the minimum requirement since the last evaluation.

For locations on county roads and other roadways that are administered in KDOT by the Bureau of Local Projects (BLP), projects are selected by LPAs and are submitted to the BLP and the Federal Highway Administration for review and approval. These projects are financed with federal and local funds and projects are selected until available funding is exhausted.

Geometric Improvement (K3R)

The Geometric Improvement (GI) Program is a highway-constructing program intended to improve geometric deficiencies on City Connecting Links (KLINK's). BLP will solicit application for GI projects for each year in which funding is available. A City Connecting Link is a routing within the city limits of a city that connects a state highway through a city; or connects a state highway to a City Connecting Link or another state highway; is a state highway which terminates within such city; connects a state highway with a road or highway under the jurisdiction of the Kansas Turnpike Authority; or begins and ends within a city's limits and is designated as part of the national highway system of Interstate and Defense Highways. Geometric improvements are designed to widen pavements, add or widen shoulders or add needed turning, acceleration, and deceleration lanes.

KDOT participates in funding for projects selected as City Connecting Link Geometric Improvement Projects. The maximum KDOT contribution toward recipient projects is dependent upon the sponsor city population. However, the maximum state participation ranges from \$700,000 to \$950,000 with the maximum participation ratio ranging from 100% to 75%.

Projects are solicited and reviewed by KDOT's Bureau of Local Projects. Before an application is submitted, cities are encouraged to review the proposed projects with the KDOT District or Area Engineer. Governmental bodies within urbanized area (populations greater than 50,000) should also submit copies of their applications to their Metropolitan Planning Organization (MPO). After submission of the application, BLP will review the proposed project's scope and estimated cost.

Applications for 2017 have been solicited and onsite reviews were conducted in June 2014. The applications are

currently under review and the selection process is anticipated to be completed in the fall of 2015. The Secretary will announce the approved projects once the selection has been made.

Local Bridge Improvements (LBT)

The Local Bridge Improvement (LBT) Program is a new program initiated in 2014 that provides funds to local public authorities (LPA) for the rehabilitation or replacement of deficient locally-owned bridges. The focus of this program is to reduce the number of deficient bridges in the state in a cost effective manner. This program targets bridges with span length of 50 feet or less, which comprise more than half of all deficient bridges in the state. The Bureau of Local Projects (BLP) will solicit application for LBT projects for each year in which funding is available with the first solicitation occurring in 2014. Eligible bridges will be on very low-volume roads, have a span of 50 feet or less and be classified as structurally deficient or functionally obsolete. Longer bridges on higher volume roads are eligible, but are limited to the same state funding amounts.

KDOT has currently created a onetime set aside of \$10 million for this program. A decision whether to continue the program and provide additional funds will be made at a future date. Projects will be funded with state and local funding with the local share set at a 10-percent match of any state funds expended on a project. The maximum amount of state dollars that will be provided for an individual project is \$120,000. If the LPA agrees to close and remove another bridge on their system, the maximum state dollars will be increased to \$160,000.

The program is competitive and projects are selected through an application process. Once a project is selected for funding, KDOT and the LPA will enter into an agreement for the project. All project development and administration is the responsibility of the LPA. Projects must be let to contract. The BLP will issue a call for projects in early SFY 2015 with the selection process to be completed in early October 2014. After the announcement of funded projects, the LPA must advance the project through letting within 24 months. For further information about the LBT program, contact the KDOT Bureau of Local Projects at 785-296-3861. Or visit KDOT's BLP website at

<u>http://www.ksdot.org/bureaus/burLocalPr</u> <u>oj/default.asp</u>

Local Construction Locally and State Administered (LOC,RES, LFT)

The projects in these 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 three subcategories: LOC, for those projects administered by the LPA with federal funding; RES, for those projects with federal funding administered by KDOT on behalf of the LPA and LFT for those projects developed without federal funding usinginstead the Federal Fund Exchange Program where the LPA has exchanged federal dollars for state dollars to administer local transportation projects.

In order for LPAs to qualify for LOC subcategory funding and the administration of 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, which are grouped into subcategory RES. are similar in nature to locally administered projects with the key difference being that the State lets the project to construction and oversees the work on behalf of the LPAs. Local construction projects in the LOC and RES subcategories 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. Since the LOC and RES subcategory of projects are federally funded, these projects are listed in the STIP or in the applicable TIP when an MPO area is involved.

Projects in the third subcategory, LFT, are funded with local and state funds, with the state funds coming from an exchange of LPA federal obligation for the state funds. While the LFT subcate-

gory is included in this discussion, the subcategory is not part of KDOT's Local Construction program and does not use federal funds. As a result, LFT projects are not included in the STIP. LFT subcategory projects are referenced in this document to explain the recent decrease in the number of RES and LOC projects undertaken and the corresponding decrease in LPA projects present in the STIP. Most LPAs have elected to use the LFT program to fund the repairs on city and county roads. For more information concerning the Federal Fund Exchange Program, refer to the Program Finance section of this narrative or visit KDOT's website at

http://www.ksdot.org/bureaus/burLocalPr oj/default.asp

Regardless of the funding used for repairs, LPAs select all of their projects in a similar manner 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, KDOT bridge inspection data and other management systems are available to locals to use in their decision-making processes.

The LPA is responsible for public involvement in the selection/prioritization process of projects with the public involvement for each project being determined by the complexity of the project scope. At a minimum, public involvement should include a public notice indicating when a governing body will be making a decision on reviewing needs, selecting projects and setting priorities for federal aid projects. As each project selected develops, additional public involvement may be warranted. The public involvement in the project development process will be in accordance with KDOT's publication "Sharing the Future, Public Involvement in the Kansas Transportation System".

After the selection and prioritization process is completed, projects are listed by priority and programmed based upon the availability of funds. For federally funded projects, these lists are the local entities' portion of the STIP and identify their prioritized road or bridge construction projects. These projects are incorporated into the STIP or TIPs as appropriate. For all federally funded projects in these subcategories, project selection is contingent upon a federal continuing resolution of Map-21 providing funding.

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. 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 factors. Each year a number of the highestranked 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.

Priority Formula For Railroad Crossings

Hazard Index = AADT x T x 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

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 funding commitments from local government, railroad, 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. Projects in these two subcategories are reviewed and selected on anannual basis. Currently, projects for 2015 have been selected and programmed. However, a few additional projects may still be programmed throughout the year and these projects, if any, will be amended to the STIP as programmed.

Safe Routes to Schools (SRT)

Prior to MAP-21 Safe Routes to School (SRTS) was a stand-alone program authorized and funded under SAFETEA-LU. This changed with the authorization of MAP-21 and SRTS along with several other stand-alone programs were merged into a single program the Transportation Alternative program (TA). Most TA funded projects regardless of project type are funded at an 80 percent federal fund and 20 percent local match ratio with a sliding scale.

The focus of the SRTS has not changed with the merger into the TA program. The primary purpose for projects in this subcategory is to increase the number of school children who walk or bike to school.SRTS provides reimbursements to local public authorities and school districts 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:

- 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.
- Project provides for non-infrastructural 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.
- 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 and school districts in the spring of 2014. Potential projects and activities will be evaluated throughout the summer and selected by October 2014 (SFY 2015). Projects programmed from this selection will be amended to the FFY 2014-2017 STIP at that time. The next round of applications is anticipated to occur in the spring of 2015. However, project selection is contingent upon a federal continuing resolution of Map-21 providing funding for these projects.

Transportation Enhancement (TEX)

Under MAP-21 federal funding for Transportation Enhancement (TE) projects is no longer from the Federal Surface Transportation Program. Instead, MAP-21 designated a new program-Transportation Alternative program (TA) that provides federal funding for TE projects along with the RT program and SRTS projects.Requirements for projects in this subcategory have, also, undergone some changes under TA. Projects in the subcategory must correspond with one of the following criteria:

- 1) Project provides environmental mitigation related to storm-water management or reduction in wildlife mortality from vehicles,
- 2) Project provides construction of pedestrian and bicycle facilities,
- Project provides conversion and use of abandoned railroad corridors for trails,
- 4) Project provides construction of

turnouts, overlooks and viewing areas, (formerly part of the now discontinued federal Scenic Byways program)

5) Project provides community improvement activities including inventory, control or removal of outdoor advertising; historic preservation and rehabilitation of historic transportation facilities; vegetation management practices and archaeological activities relating to impacts from the execution of a transportation project.

As part of the TA federal program projects in this subcategory are 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. Project selection is currently underway and projects selected that do not meet the deadline for entry into the STIP document will be amended to the STIP. These projects will be funded using SAFETEA-LU carry over funds.

The next application cycle is expected to occur in the fall of 2016 with project selection anticipated to be in the summer of 2017. However, project selection is contingent upon a federal continuing resolution of MAP-21 providing funding for these projects.