



# State Planning and Research (SPR)

# Work Program and Cost Estimate

Fiscal Year 2020

Kansas Department of Transportation  
June 2019

KANSAS DEPARTMENT OF TRANSPORTATION  
REPORT  
OF THE FUTURE  
STATE PLANNING AND RESEARCH,  
DEVELOPMENT & IMPLEMENTATION PROGRAM  
PROJECTS

SPR-P010(043) Statewide Planning  
SPR-R010(043) Statewide Research

for the 2020 State Fiscal Year  
July 1, 2019 through June 30, 2020

and a

SUMMARY OF THE RELATED  
STATE PLANNING AND RESEARCH,  
ACTIVITIES  
WHICH ARE NOT FUNDED WITH SPR FUNDS

In cooperation with the  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

June 2019

# TABLE OF CONTENTS

---

<b>PART I: SPR PLANNING</b> .....	<b>1</b>
<b>1.0 – ADMINISTRATION AND CONTROL</b> .....	<b>2</b>
1.1 – HIGHWAY PLANNING SUPPORT P-0219-20 .....	3
<b>2.0 – ROADWAY INVENTORY</b> .....	<b>4</b>
2.1 – ROAD CHARACTERISTICS P-0002-20.....	5
2.2 – PAVEMENT INVENTORY P-0275-20 .....	6
2.3 – VIDEOLOG P-0431-20 .....	7
<b>3.0 – TRAFFIC MONITORING</b> .....	<b>8</b>
3.1 – TRAFFIC VOLUME COUNTING P-0004-20.....	9
3.2 – VEHICLE CLASSIFICATION P-0346-20.....	10
3.3 - TRUCK WEIGHT AND CHARACTERISTICS P-0094-20.....	11
3.4 - PURCHASE OF TRAFFIC MONITORING EQUIPMENT P-0008-20.....	12
<b>4.0 – HIGHWAY SYSTEMS AND PROGRAMMING</b> .....	<b>13</b>
4.1 – HIGHWAY CLASSIFICATION AND STATISTICS P-0200-20 .....	14
4.2 - GEOSPATIAL SYSTEMS ADMINISTRATION P-0007-20 .....	15
4.3 - GEOSPATIAL ANALYSIS, MAPPING AND REPORT PRODUCTION P-0365-20.....	16
4.4 – GEOSPATIAL DATA DEVELOPMENT AND COLLABORATION P-0739-20 .....	17
4.5 - HIGHWAY PERFORMANCE MONITORING SYSTEM P-0207-20.....	18
4.6 - CONSTRUCTION PROGRAM DEVELOPMENT P-0204-20 .....	19
4.7 - CRASH DATA COLLECTION, CODING AND PROCESSING P-0364-20.....	20
4.8 – CRASH DATA REPORTING P-0366-20 .....	21
4.9 - PAVEMENT MANAGEMENT SYSTEM P-0433-20.....	22
<b>5.0 – METROPOLITAN PLANNING AND LAND USE COORDINATION</b> .....	<b>23</b>
5.1 – MPO ADMINISTRATION AND SUPPORT P-0218-20.....	24
5.2 - SMALL URBAN AREA AND RURAL SUPPORT P-0278-20.....	25
<b>6.0 – STATEWIDE TRANSPORTATION STUDIES</b> .....	<b>26</b>
6.1 – STRATEGIC PLANNING PROCESSES P-0760-20 .....	27
6.2 – LOCAL CONSULTATION / PUBLIC PARTICIPATION P-0761-20.....	28
6.3 - RAIL AND FREIGHT PLANNING RA-0320-20.....	29
6.4 – KANSAS FREIGHT ADVISORY COMMITTEE SUPPORT P-0765-20 .....	31
6.5 - BICYCLE AND PEDESTRIAN PROGRAM P-0758-20 .....	32
6.6 - INTELLIGENT TRANSPORTATION SYSTEMS P-0763-20.....	33
6.7 – TRAFFIC STUDIES AND INTERSECTION INVENTORY P-0770-20 .....	34
6.8 – AVIATION PLANNING P-0772-20 .....	35
6.9 – LONG-RANGE TRANSPORTATION PLANNING P-0776-20 .....	36

<b>PART II: SPR RESEARCH .....</b>	<b>37</b>
<b>1.0 – RESEARCH WORK PROGRAM.....</b>	<b>38</b>
1.1 – RESEARCH AND DEVELOPMENT ADMINISTRATION RE-0274-20 67-1 .....	39
1.2 – CONDUCT RESEARCH AND DEVELOPMENT RE-0259-20 73-1.....	40
1.3 – IMPLEMENTATION OF RESEARCH FINDINGS RE-0667-20.....	44
1.4 – TECHNOLOGY TRANSFER RE-0001-20 93-1 .....	45
1.5 - TECHNOLOGY TRANSFER TRAINING – TRAINING COURSE FEES.....	46
<b>2.0 – LOCAL TRANSPORTATION ASSISTANCE PROGRAM RE-0255-20 .....</b>	<b>47</b>
<b>3.0 – POOL FUND STUDIES .....</b>	<b>48</b>
<b>4.0 – NATIONAL RESEARCH PROGRAMS .....</b>	<b>51</b>
4.1 – NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) RE-0257-20 .....	52
4.2 – TRANSPORTATION RESEARCH BOARD (TRB) RE-0260-20 .....	53
4.3 – AASHTOWare PROJECT DATA ANALYTICS JOINT DEVELOPMENT RE-0774-19 .....	54
<b>PART III: PLANNING NON-SPR ACTIVITIES.....</b>	<b>55</b>
<b>1.0 – GENERAL NON-PARTICIPATING PLANNING ACTIVITIES – STATE FUNDED.....</b>	<b>56</b>
1.1 – DIVISION OF PLANNING AND DEVELOPMENT OFFICE ADMIN. P-0473-20 .....	57
1.2 – BUREAU OF TRANSPORTATION PLANNING ADMINISTRATION P-0245-20.....	57
1.3 – BUREAU OF PROGRAM AND PROJECT MANAGEMENT ADMIN. P-0474-20.....	57
<b>2.0 – OTHER PLANNING ACTIVITIES FUNDED WITH STATE FUNDS .....</b>	<b>58</b>
2.1 – OFFICIAL STATE MAP P-0365-20 .....	59
<b>PART IV: RESEARCH NON-SPR ACTIVITIES.....</b>	<b>60</b>
<b>1.0 – STATE FUNDS – UNIVERSITY RESEARCH .....</b>	<b>61</b>
1.1 – K-TRAN PROGRAM .....	62
1.2 – UNDESIGNATED UNIVERSITY RESEARCH PROGRAM & AD-HOC UNIVERSITY RESEARCH PPROGRAM..	64
<b>2.0 – STATE FUNDS – INTERNAL RESEARCH PROGRAM.....</b>	<b>65</b>

## FOREWORD

This State Planning and Research, Development and Implementation Work Program and Cost Estimate has been prepared for submittal in compliance with Section 505 of Title 23, United States Code (23 USC 505), as amended, and Part 420 of Title 23 of the Code of Federal Regulations (23 CFR 420).

This program describes the State Planning and Research, Development and Implementation activities of the Kansas Department of Transportation proposed for state fiscal year 2020 (July 1, 2019 through June 30, 2020) to meet the needs of the Kansas Department of Transportation and the Federal Highway Administration.

This program is divided into four parts. Part I describes the State Planning and Research (SPR) participating planning projects (SPR-P010 (043)). The SPR participating research, development and implementation projects are described in Part II (SPR-R010 (043)). Related planning activities, which are not funded with SPR funds are described in Part III. Additional research, development and implementation projects funded with state funds are described in Part IV.

## INTRODUCTION

The highway-planning program was initiated by the Hayden-Cartwright Act of 1934. The planning activities were later expanded to include research, development and implementation activities. The Federal-Aid Highway Act of 1962 expanded the planning activities to include a continuing, comprehensive and cooperative (3C) planning process in each of the urbanized areas. The Federal-Aid Highway Act of 1973 provided special funding for the planning activities in the urbanized areas. The 1973 Act and other acts have expanded the State Planning and Research (SPR) activities to include safety activities and public transportation planning activities. The Intermodal Surface Transportation Act of 1991 (ISTEA) contained provisions for SPR funding that have largely been retained in the last several Transportation Acts.

The current law, Fixing America's Surface Transportation Act (FAST Act) provides that two percent (2%) of each State's total apportionment of five programs: National Highway Performance Program (NHPP); Surface Transportation Block Grant Program (STBGP); Highway Safety Improvement Program (HSIP); Congestion Mitigation and Air Quality Improvement (CMAQ) Program and the National Freight Program must be used as SPR funds. In addition, a minimum of twenty-five percent of that amount must be used for research purposes. The balance of the funds for the planning and research activities comes from the State Highway Fund, including the required matching funds.

This proposed Work Program has been prepared to provide for the continuation of the State Planning and Research activities in accordance with the transportation needs and goals of the State of Kansas, to provide for the fulfillment of State Statutory and Legislative requirements and needs, to provide for the fulfillment of the requirements of the United States Code and associated regulations, and to provide the necessary information for the continued development and maintenance of a safe, efficient and convenient transportation network for the State of Kansas.

The responsibilities for the activities in the State Planning Research Work Program are in the following areas at KDOT.

### Division of Planning and Development

- Bureau of Transportation Planning
- Bureau of Program and Project Management
- Bureau of Transportation Safety and Technology

### Division of Aviation

### Division of Operations

- Bureau of Construction and Materials
  - Pavement Management Unit
- Bureau of Research

**PART I: WORK PROGRAM PLANNING FY2020**  
**TOTAL PROGRAM FUNDING SUMMARY**

Item #	Work Program Task	Project #	SPR/FHWA	State Match	Work Program
<b>1.0 Administration and Control</b>					
1.1	Highway Planning Support	P-0219-20	\$96,000	\$24,000	\$120,000
	Subtotal:		<b>\$96,000</b>	<b>\$24,000</b>	<b>\$120,000</b>
<b>2.0 Roadway Inventory</b>					
2.1	Road Characteristics	P-0002-20	\$64,000	\$16,000	\$80,000
2.2	Pavement Inventory	P-0275-20	\$80,000	\$20,000	\$100,000
2.3	Videolog	P-0431-20	\$80,000	\$20,000	\$100,000
	Subtotal:		<b>\$224,000</b>	<b>\$56,000</b>	<b>\$280,000</b>
<b>3.0 Traffic Monitoring</b>					
3.1	Traffic Volume Counting	P-0004-20	\$440,000	\$110,000	\$550,000
3.2	Vehicle Classification	P-0346-20	\$200,000	\$50,000	\$250,000
3.3	Truck Weight & Characteristics	P-0094-20	\$40,000	\$10,000	\$50,000
3.4	Purchase of Traffic Monitoring Equipment	P-0008-20	\$40,000	\$10,000	\$50,000
	Subtotal:		<b>\$720,000</b>	<b>\$180,000</b>	<b>\$900,000</b>
<b>4.0 Highway Systems and Programming</b>					
4.1	Highway Classification & Statistics	P-0200-20	\$16,000	\$4,000	\$20,000
4.2	Geospatial System Administration	P-0007-20	\$280,000	\$70,000	\$350,000
4.3	Geospatial Analysis, Mapping and Report Production	P-0365-20	\$80,000	\$20,000	\$100,000
4.4	Geospatial Data Development and Collaboration	P-0739-20	\$400,000	\$100,000	\$500,000
4.5	Highway Performance Monitoring System	P-0207-20	\$120,000	\$30,000	\$150,000
4.6	Construction Program Development	P-0204-20	\$560,000	\$140,000	\$700,000
4.7	Accident Data Collection Coding and Processing	P-0364-20	\$200,000	\$50,000	\$250,000
4.8	Accident Data Reporting	P-0366-20	\$64,000	\$16,000	\$80,000
4.9	Pavement Management System	P-0433-20	\$360,000	\$90,000	\$450,000
	Subtotal:		<b>\$2,080,000</b>	<b>\$520,000</b>	<b>\$2,600,000</b>
<b>5.0 Metropolitan Planning &amp; Land Use Coordination</b>					
5.1	MPO Administration and Support	P-0218-20	\$240,000	\$60,000	\$300,000
5.2	Small Urban Area and Rural Support	P-0278-20	\$48,000	\$12,000	\$60,000
	Subtotal:		<b>\$288,000</b>	<b>\$72,000</b>	<b>\$360,000</b>
<b>6.0 Statewide Transportation Studies</b>					
6.1	Strategic Planning Processes	P-0760-20	\$80,000	\$20,000	\$100,000
6.2	Local Consultation	P-0761-20	\$64,000	\$16,000	\$80,000
6.3	Rail and Freight Planning	RA-0320-20	\$200,000	\$50,000	\$250,000
6.4	Kansas Freight Advisory Committee Support	P-0765-20	\$8,000	\$2,000	\$10,000
6.5	Bicycle and Pedestrian Program	P-0758-20	\$104,000	\$26,000	\$130,000
6.6	Intelligent Transportation Systems	P-0763-20	\$200,000	\$50,000	\$250,000
6.7	Traffic Studies and Intersection Inventory	P-0770-20	\$160,000	\$40,000	\$200,000
6.8	Aviation Planning	P-0772-20	\$80,000	\$20,000	\$100,000
6.9	Long-Range Transportation Plan	P-0776-20	\$800,000	\$200,000	\$1,000,000
	Subtotal:		<b>\$1,696,000</b>	<b>\$424,000</b>	<b>\$2,120,000</b>
<b>TOTAL PART I - PLANNING</b>			<b>\$5,104,000</b>	<b>\$1,276,000</b>	<b>\$6,380,000</b>

**PART II: WORK PROGRAM RESEARCH FY2020**  
**TOTAL PROGRAM FUNDING SUMMARY**

Item #	Work Program Task	KDOT#	FHWA#	SPR/FHWA	State Match	Work Program
<b>1.0</b>	<b>Research Work Program</b>					
1.1	Research and Development Administration	RE-0274-20	67-1	\$228,000	\$57,000	\$285,000
1.2	Conduct Research and Development	RE-0259-20	73-1	\$784,000	\$196,000	\$980,000
1.3	Implementation of Research Findings	RE-0667-20		\$120,000	\$0	\$120,000
1.4	Technology Transfer	RE-0001-20	93-1	\$240,000	\$60,000	\$300,000
1.5	Technology Transfer Training Course Fees	RE-0265-20		\$80,000	\$20,000	\$100,000
	Training Course Fees - CIT2	RE-0639-20		\$200,000	\$50,000	\$250,000
	Subtotal:			<b>\$1,652,000</b>	<b>\$383,000</b>	<b>\$2,035,000</b>
<b>2.0</b>	<b>Local Transportation Assistance Program (LTAP)</b>	RE-0255-20	R025(512)	<b>\$600,000</b>	<b>\$120,000</b>	<b>\$720,000</b>
<b>3.0</b>	<b>Pool Fund Studies</b>			<b>\$1,000,000</b>	<b>\$0</b>	<b>\$1,000,000</b>
<b>4.0</b>	<b>National Research Programs</b>					
4.1	National Cooperative Highway Research Program (NCHRP) Dedicated 5.5%	RE-0257-20	TPF-5(412)	\$430,000	\$0	\$430,000
4.2	Transportation Research Board (TRB) Core Support	RE-0260-20	TPF-5(261)	\$105,000	\$0	\$105,000
4.3	AASHTO Project Data Analytics Joint Development	RE-0774-20		\$250,000	\$0	\$250,000
	Subtotal:			<b>\$785,000</b>	<b>\$0</b>	<b>\$785,000</b>
<b>TOTAL PART II - RESEARCH</b>				<b>\$4,037,000</b>	<b>\$503,000</b>	<b>\$4,540,000</b>
<b>GRAND TOTAL - PLANNING AND RESEARCH</b>				<b>\$9,141,000</b>	<b>\$1,779,000</b>	<b>\$10,920,000</b>

May 22, 2019



## **Division of Planning and Development**

### **Bureau of Transportation Planning**

The Bureau is responsible for collecting, analyzing, and reporting information concerning the development and management of the statewide transportation system, and administration of KDOT's multimodal surface transportation programs and coordination with various transportation partners.

#### **Traffic and Field Operations**

- Collect, analyze and report traffic data, which includes vehicle speed, standard traffic counts, and traffic counts by vehicle type and vehicle weight.
- Collect and distribute a visual record of the State Highway System.
- Analyze and report annual mileage and travel data and coordinate federally mandated functional classification updates.

#### **Geographic Information Systems**

- Develop and maintain applications using GIS concepts and technology to provide an integrated highway information system.
- Facilitate the georeferencing and geospatial enabling of department databases.
- Maintain department repository of imagery and raster data management and distribution.
- Maintain records on corporate boundaries for the purpose of determining payments to cities for maintenance of city connecting links.
- Develop and periodically update maps for cities, counties and the state including the official State Transportation Map.
- Maintain agency repository of accident data, travel information, and road and bridge data, including geometrics and roadway surface and bridge condition, for all public roadways in Kansas.
- Responsible for numerous required federal data submittals, including data for the Highway Performance Monitoring System and National Bridge Inventory.
- Perform roadside surveys to collect roadway feature information.

#### **Models and Forecasting**

- Perform sophisticated analyses and develop computer models required in the statewide and metropolitan planning processes.
- Model and analyze road systems to predict travel patterns, travel demand, geometric design, air and noise quality considerations, energy saving measures, economic impact, and system alternative analysis.
- Perform necessary technical reviews for break-in-access studies for the state and for cities and counties requesting new interchanges or modifications to existing access on limited access facilities.
- Perform necessary technical reviews for traffic impact studies as needed by the Access Management Unit.
- Conduct specialized studies and analyses, such as research on rail or other freight movements in Kansas for use in multi-modal and intermodal planning activities.

#### **Comprehensive Transportation Planning**

##### *Metropolitan Planning*

- Coordinate with and provide oversight to Metropolitan Planning Organization (MPO) areas and promote timely development of short-range and long-range transportation plans in accordance with the federal "3-C" (cooperative, comprehensive and continuing) transportation planning process.
- Administer and award federal funds to MPO areas in the form of a consolidated planning grant.
- Coordinate activities for various studies, including capacity studies, advance preliminary engineering studies, and major investment studies.
- Assist with coordination of air quality conformity activities and break-in-access studies in MPO areas.

### *Public Transportation Programs*

- Administer public transportation programs funded by the Federal Transit Administration and KDOT to help meet the transportation needs of elderly persons, persons with disabilities and the general public.
- Administer and coordinate public transportation projects funded with the Economic Development Set-Aside funding program.
- Advise incorporated private non-profit organizations, county governments, non-urban city governments (under 50,000 population) and Indian Nations of the availability of public transportation funds; and
- Review requests to fund programs including but not limited to the purchase of vehicles, ITS communication equipment, wheelchair lifts and restraints.
- Conduct annual site visits and vehicle inspections, monitor grantees to ensure compliance with federal and state regulations, and administer all programs related to public transportation, such as required employee drug and alcohol testing.

### *Bicycle and Pedestrian Programs*

- Select, manage, and coordinate projects for the federal Transportation Alternatives (TA) program.
- Provide technical assistance during the review of bicycle and pedestrian related TA applications.
- Develop and coordinate state policy on bicycle and pedestrian transportation issues and provide technical assistance statewide on bicycle and pedestrian issues.
- Provide technical assistance for the development of the Statewide Bicycle and Pedestrian Plan.

### **Freight and Rail**

- Develop and coordinate state policy on freight and rail transportation issues.
- Manage KDOT's rail and freight service programs.
- Administer and coordinate rail projects funded with the Economic Development Set-Aside funding program.
- Prepare the State Rail Plan and administer the state funded Rail Services Improvement Program that provides loans and grants to short-line railroads for track rehabilitation or acquisition.
- Administer KDOT's railroad crossing database and federally mandated updates and reporting.
- Coordinate state freight and rail activities with the Office of the Governor and other state agencies.
- Represent KDOT in American Association of State Highway Transportation Officials (AASHTO) of freight and rail activities.
- Provide motor-carrier statutory and legislation expertise pertaining to oversize and overweight motor carriers' issues while serving as liaison between KDOT and the Kansas Trucking Connection as well as other partners, such as the Kansas Motor Carriers Association, Kansas Highway Patrol, Kansas Corporation Commission and Kansas Department of Revenue.

### **Access Management**

- Coordinate access management activities and guidelines for access management.
- Review of Highway Access Permit Applications to the State Highway System.
- Coordinate agency review of Traffic Impact Studies for proposed developments.
- Maintain KDOT's statewide Highway Access Database.
- Assist the Chief Counsel in defending against lawsuits that name KDOT as a defendant in access management and property rights cases.
- Prepare corridor management plans for selected highway corridors around the state.
- Administer and coordinate roadway projects funded with Access Management and Economic Development set-aside programs.

## **Bureau of Program and Project Management**

The Bureau of Program and Project Management is responsible for developing and monitoring the Department's Multi-Year Highway Improvement Program and is responsible for the following functions:

- Prepare project authorization reports that provide descriptive information about the location, scope, program category and subcategory, fiscal year, letting type and date, estimated cost and funding for each project included in the program.
- Implement, coordinate, and maintain a project control system for the program that includes project scheduling, monitoring progress during the design phase, and coordinating contract lettings and award of contracts with the Federal Highway Administration and the State Transportation Engineer.
- Monitor the status of federal-aid obligation authority and future apportionment so that maximum usage of all available dollars is possible.
- Monitor and maintain the priority formulas for Interstate Roadways, Non-Interstate Roadways, and Priority Bridges along with project selection for those programs.
- Prepare the annual State Transportation Improvement Program (STIP) in accordance with federal guidelines.
- Evaluate data that reflects the needs and status of the State Highway System and the policy parameters established by the Secretary of Transportation and other KDOT officials.
- Administer and coordinate activities involving the Comprehensive Program Management System (WinCPMS), KDOT's program/project/fund management system that provides a work program level management capability. Provide WinCPMS training to KDOT users statewide and publish and maintain a WinCPMS user manual.

## **Bureau of Transportation Safety and Technology**

The Bureau of Transportation Safety and Technology consists of three functional sections: Traffic Engineering, Traffic Safety and Intelligent Transportation System (ITS). The Bureau of Transportation Safety and Technology is primarily responsible to develop, promote, and lead a program to reduce deaths, injuries, and economic losses resulting from traffic related collisions.

### **Traffic Engineering Section**

#### *Signing Unit*

- Prepare and review permanent and temporary signing plans for contract construction and maintenance projects, construction zones, and detours;
- Coordinate with the Districts to replace worn or damaged signs;
- Administer and coordinate projects funded with federal funds under the Highway Safety Improvement Program (HSIP);
- Coordinate with the Environmental Section of the Bureau of Design regarding Scenic Byway signs and Trail signs;
- Manage the state contracts for highway sign production;
- Maintain the Highway Sign Manual;
- Manage the Logo Signing Program, which is administered by a logo signing contractor for the State of Kansas; and
- Coordinate with the Department of Wildlife, Parks and Tourism, regarding the installation of tourism signing on the State Highway System.

#### *Traffic Engineering Unit*

- Review, recommend, and prepare designs for traffic control devices and geometric improvements on the State Highway System and City Connecting Links (CCL).
- Conduct Road Safety Audits and traffic studies to recommend measures to improve traffic operations and safety.

- Administer and coordinate projects funded with federal funds under the Highway Safety Improvement Program (HSIP).
- Administer and coordinate projects funded with Safety Set-Aside funding under the agency's Preservation Program.
- Assist the Chief Counsel in defending against lawsuits that name KDOT as a defendant in traffic accident cases.
- Prepare design plans for lighting on contract construction and maintenance projects, and administer federal aid lighting set-aside funding.
- Serve as a Traffic Engineering Consultant for KDOT and communities throughout the State.
- Serve as the Department's consultant on pavement marking issues, review/design plans, and administer a federal aid pavement marking set-aside fund.

## **Traffic Safety Section**

### *Highway Safety Unit*

- Develop, maintain, and implement a statewide Strategic Highway Safety Plan (SHSP) for the State of Kansas.
- Coordinate activities of stakeholders through an Executive Safety Council and related sub-committees.
- Report annually to the FHWA on all Highway Safety Improvement Programs, including intersection, lighting, pavement marking, signing, rail-grade crossing, high risk rural roads, and general safety improvements.
- Introduce new and emerging low-cost safety strategies and technologies through research and evaluation.

### *Traffic Safety Unit*

- Develop and implement a Highway Safety Plan to address problems related to identified safety priority areas.
- Maintain an inventory of equipment, vehicles and other items purchased with federal safety funds.
- Address nationally identified priority areas, including alcohol countermeasures, occupant protection, police traffic services, emergency medical services, traffic records, motorcycle safety, pedestrian safety and bicycle safety.
- Coordinate highway safety activities with other agencies and organizations in the State.
- Partner with law enforcement agencies throughout Kansas in the enforcement of traffic laws.
- Develop media campaigns addressing occupant protection, impaired driving, underage drinking issues and other identified safety priority areas.
- Support legislation and serve as the technical expert on safety issues.
- Administer the underage drinking program funds from the Department of Justice.

### *Crash Data Unit*

- Maintain the State's repository of all public road Motor Vehicle Accident Reports.
- Perform analyses and data assessment to produce information utilized by safety program managers, policy-makers, other governmental agencies, private industry, non-profit organizations, researchers and other interested parties.
- Maintain fatality accident data for the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS).
- Inventory all data from the Kansas Motor Vehicle Accident Report.
- Assist law enforcement personnel in coding the Kansas Motor Vehicle Accident Report.
- Provide quality control measures for Kansas Motor Vehicle Accident Reports.
- Maintain and update crash-related documents and reports.

## **Intelligent Transportation System (ITS) Section**

- Plan, develop and coordinate ITS activities within KDOT.
- Coordinate ITS activities with external partners.

- Plan ITS applications in cooperation with other agencies and states, participate in the design and implementation process of ITS applications and assure that the operations and maintenance of these systems are adequately addressed.
- Administer the ITS Set-Aside fund for KDOT, which provides funding for ITS initiatives statewide.
- Act as a technical resource to others within KDOT and other agencies on ITS issues.
- Produce and provide ITS articles and media releases, including on-line networking for education and outreach to facilitate dissemination of information on ITS activities in Kansas. Partner and coordinate with law enforcement agencies throughout Kansas for ITS initiatives and incident management issues.
- Support legislation as technical experts on ITS and incident management issues.
- Represent KDOT's ITS Program at state, regional (ITS Heartland) and national ITS and transportation organizations.
- Provide ITS management with recommendations, oversight and coordination for the Virtual Traffic Management Center (TMC) for I-70 ITS Corridor, Scout Advanced Traffic Management Center (ATMC) and Wichita TMC.

## **Division of Aviation**

The mission of the Division of Aviation is to drive economic development and enhance critical services in Kansas through infrastructure improvement; and to be regarded as the state aviation expert, innovator and resource for the Kansas aviation community. Further, the Division of Aviation is responsible to act as the guardian of the National Air System in Kansas and to be responsible for other aviation activities in the State. The Division administers the Kansas Airport Improvement Program and the Federal Airport Inspection Program. The Division also provides technical assistance to local airport officials through the Kansas Airport Development Program, the Kansas Airspace Protection Program, the Kansas Airport Pavement Management System, and the Kansas Aviation Marketing and Outreach Program and is responsible for the following functions:

- Develop a method of categorizing airport improvements according to priority need.
- Track the status of runway pavement conditions statewide.
- Administer the Federal Airport Inspection Program with the assistance of KDOT inspectors located in the district offices.
- Prepare and distribute a number of publications and plans, including the Kansas Airport Directory and the Kansas Aeronautical Chart.
- Represent the Secretary on aviation matters before legislative committees, federal and local aviation officials, representatives of interest groups and the general public.
- Apply for Federal Aviation Administration grant funds to support the update of the State Aviation System Plan and Kansas Aviation Economic Impact Study as part of a systematic effort to evaluate public use airports.
- Protect the National Air Space above Kansas.
- Monitor the FAA's creation and decommissioning of navigational aids and instrument approaches in Kansas.
- Assist airports in the development of instrument procedures.
- Assist in the administration and transfer of Federal non-primary entitlement funds.
- Administer the North Central Kansas Airfare Support Fund.
- Coordinate air fare support programs among Kansas communities.
- Support aerospace education activities, including the Kansas Commission on Aerospace Education.
- Promote aviation activities, including the evaluation of their economic impact on the State.
- Coordinate and lead the Aviation Advisory and Review Committee, which evaluates and provides feedback on proposed policies concerning aviation matters for the Secretary.

## **Division of Operations**

### **Bureau of Construction and Materials**

#### **Pavement Management Section**

- Administer and coordinate the PMS.
- Produce decision support information for KDOT's Substantial Maintenance Program and maintain supporting Pavement Management Information System (PMIS) data.

### **Bureau of Research**

The Bureau of Research is responsible for the oversight of federal funds dedicated to transportation research, KTRAN projects, KDOT library, and assisting in forensic investigations of prematurely failed transportation projects.

- Serve as Chair of the Research Technical Committee and assist in the identification and prioritization of projects for KDOT's research programs.
- Undertake research projects approved by the Research Technical Committee and Research Program Council, or KDOT's management.
- Administer the Local Technical Assistance Program (LTAP).
- Administer technical information services, National Highway Institute (NHI) technical training, and plan and host conferences and workshops.
- Edit and publish technical reports, write and publish research and technology transfer manuscripts, reports, news articles, and newsletters.
- Maintain a KDOT library, which interacts with the national library network to assist staff when it is necessary to acquire transportation-related information.
- Provide for research development and utilization of new highway construction materials and procedures.
- Report research findings in various categories including asphalt materials, concrete materials, pavement surfaces, geology, and chemistry.
- Develop the equipment and procedures necessary to implement research findings.
- Evaluate unusual situations that may occur during standard construction and maintenance field operations and recommend corrective actions.
- Maintain several national research databases and the bureau web site.
- Serve as project monitors on contracted university or private sector research projects.
- Chair the New Products Committee and administer new product evaluations.
- Serve as KDOT's representative to the Transportation Research Board, as a member of the AASHTO Research Advisory Committee, and as a member of various other state, regional, and national technical panels and committees.

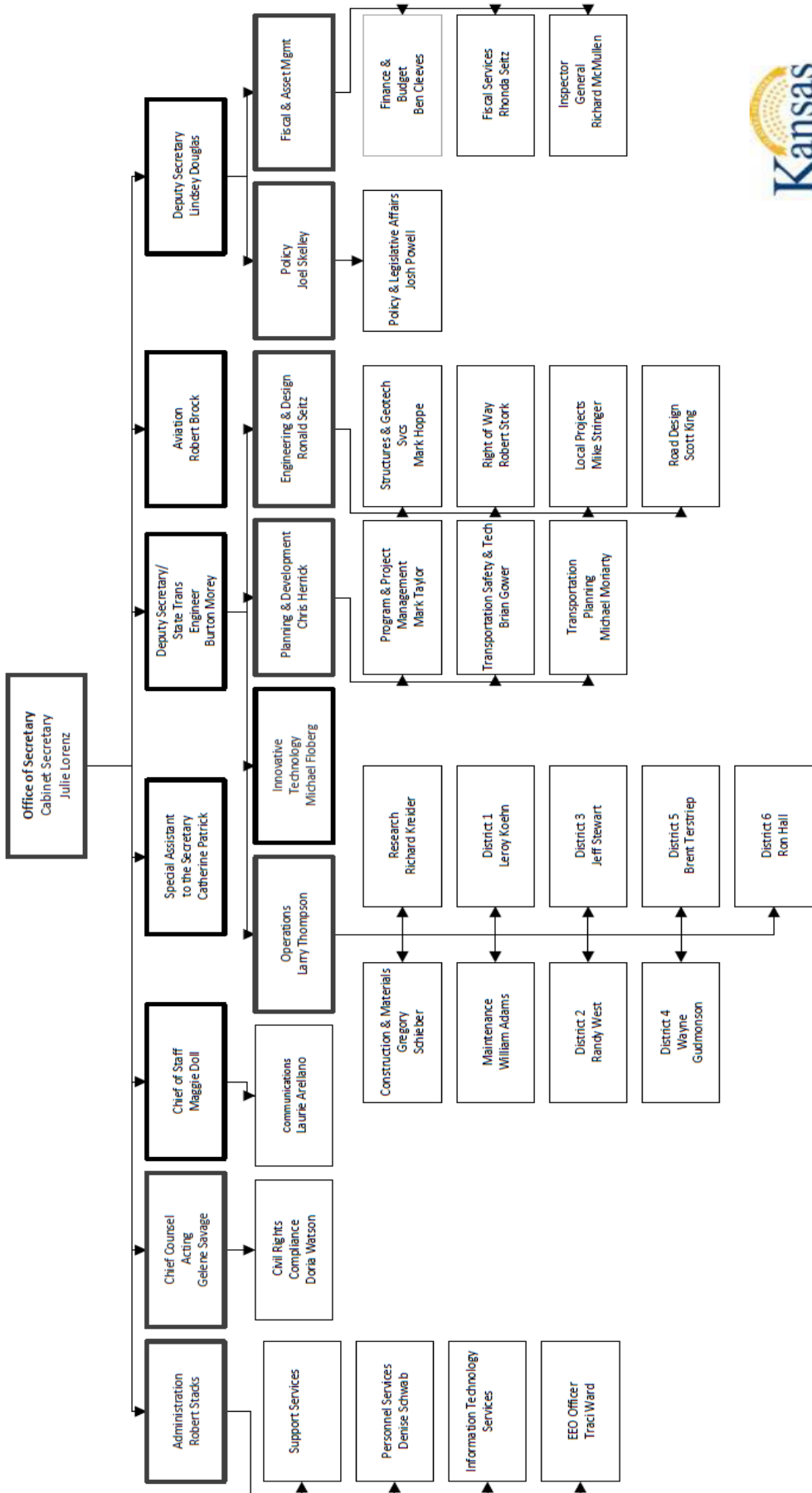
## TITLE VI/NONDISCRIMINATION PROVISIONS

Compliance with the requirements of Title VI of the Civil Rights Act of 1964 in conducting the Highway Planning and Research, Development and Implementation Activities is assured by the "Affirmative Action" program of the Kansas Department of Transportation. This program is administered in the following manner.

1. All internal EEO responsibilities within KDOT are assigned to the Office of Contract Compliance. KDOT's EEO officer processes internal civil rights complaints and conducts Title VI/Nondiscrimination training as a part of other classes. The EEO officer also prepares the annual affirmative action plan for the agency.
2. The external EEO activities are managed by the Office of Contract Compliance. The activities include processing Title VI complaints, services for minority and women owned businesses, contract compliance and the trainee program. Assistance is provided to contractors, consultants, local governments and KDOT bureaus to achieve Title VI/Nondiscrimination compliance.
3. The Prequalification procedure used in the selection of consultants includes Title VI assurance provisions.

In addition, the process described in the "Action Plan" includes procedures to obtain public involvement, including minority involvement, in the various aspects of the planning and project development activities.

# Kansas Department of Transportation





# **PART I: SPR PLANNING**

## 1.0 – ADMINISTRATION AND CONTROL

**KDOT CONTACT:** Michael Moriarty, Bureau Chief of Transportation Planning  
(785) 296-8864

---

### MISSION

Provide for the organization and direction of the State Planning and Research (SPR) program.

### ITEMS IN THIS SECTION

There is one sub-item in this section:

1.1 – Highway Planning Support

### TOTAL ADMINISTRATION AND CONTROL BUDGET

Federal Aid	\$96,000	+	Match	\$24,000	=	\$120,000
-------------	----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Mike Moriarty, Bureau Chief of Transportation Planning  
(785) 296-8864

---

### OBJECTIVES

Provide for the planning, organizing, direction, supervision, record keeping, auditing and general office work necessary for the administration of the planning work performed with participating State Planning and Research (SPR) funds.

### METHODOLOGY

The salaries and authorized expenses of the Chief of Transportation Planning, Assistant Chiefs, Section Heads, administrative assistants and anyone else doing administrative work will be charged to administration when the activities involved were fully attributable to administration of Part I of the Work Program.

Administrative activities not fully attributable to the administration of Part I of the Work Program are charged to State funded activities.

### FY2020 PRODUCTS

- Administration activities related to Part I of State Planning and Research Program
- Complete FY2019 Performance and Expenditure Report
- Complete FY2021 SPR Work Program and Cost Estimate document

### HIGHWAY PLANNING SUPPORT BUDGET

Federal Aid	\$96,000	+	Match	\$24,000	=	\$120,000
-------------	----------	---	-------	----------	---	-----------

## 2.0 – ROADWAY INVENTORY

**KDOT CONTACT:** Alan Spicer, Assistant Chief of Transportation Planning  
(785) 296-2906

---

### MISSION

Obtain roadway and roadside information required for several different work products.

### ITEMS IN THIS SECTION

There are three sub-items in this section:

2.1 – Roadway Characteristics

2.2 – Pavement Inventory

2.3 – Videolog

### TOTAL ROADWAY INVENTORY BUDGET

Federal Aid	\$224,000	+	Match	\$56,000	=	\$280,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Kevin Koester, HPMS/Non-State Road Systems Engineer  
(785) 296-3221

### OBJECTIVES

Obtain roadway information required for several different work products, including maps; non-state roadway fiscal oversight, HPMS reporting, and railroad crossing management. These products require statistical tabulations of such roadway characteristics as mileage, dimensions, surface type; such structure (bridge) characteristics as type, dimensions and load postings; photographs and track information at crossings; and verification of items in the HPMS sample data set.

### METHODOLOGY

Field staff will be trained to collect railroad crossing data and road characteristics data. The field staff will collect the information required to maintain the railroad crossing inventory and to collect the road characteristics for HPMS reporting on the non-state urban and rural road system. Learning Management System training modules reviewing the basics of railroad crossing and road characteristics data collection procedures will be developed and utilized by approximately 50 KDOT staff.

### FY2020 PRODUCTS

Field Inventory Roadway Information Data Collection and review will be completed for the Non-State Rural Samples statewide during fiscal year 2020 and further development of a similar process for Non-State Urban Samples will be undertaken.

Railroad crossing inventory counties for FY 2020: Any counties not collected in the previous three collection years (FY 2017-2019) to stay in compliance with the Federal Railroad Administration's desired 3-year data collection cycle.

### ROAD CHARACTERISTICS BUDGET

Federal Aid	\$64,000	+	Match	\$16,000	=	\$80,000
-------------	----------	---	-------	----------	---	----------

**KDOT CONTACT:** Rick Miller, Pavement Management Engineer  
(785) 291-3842

### OBJECTIVES

Surface friction inventory testing supplies the frictional data necessary to recommend pavement and material types that will provide adequate safety and reduce accidents. It also provides a means of locating sections of pavement that may require immediate attention.

### METHODOLOGY

The pavement friction values are collected annually in both directions on the interstate routes, and on a two-year cycle on the rest of the state highway system. Pavement surface friction is an indication of safety for vehicles on highways because it is a measure of the force that resists the sliding of vehicle tires on the pavement

### FY2020 PRODUCTS

Collect, process, and store pavement surface friction values for the interstate highways and half of the remaining state highway system.

### PAVEMENT INVENTORY BUDGET

Federal Aid	\$80,000	+	Match	\$20,000	=	\$100,000
-------------	----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Alison Bell, Videolog Technician  
(785) 296-4884

### OBJECTIVES

Maintain and provide user accessibility to a pictorial record of the State Highway System, which will reduce the need for field trips and provides a historical record of these roadways.

### METHODOLOGY

Collect digital images along the highway system using an instrumented van, and provide these images, indexed to the road mileage, to users throughout the Agency. In addition to managing the roadway images, provide derived products such as reference post locations. Bureau and District personnel will be supported in the use of digital videolog. Other technological advances will be monitored and new or updated hardware and software will be purchased if applicable using state funding.

Access and support for the digital videolog system will be provided. Editing and reproduction of digital videolog will be accomplished.

### FY2020 PRODUCTS

Videolog products in Districts One and Four.

Videologging in District Three and Six will start in the spring of 2020.

### VIDEOLOG BUDGET

Federal Aid	\$80,000	+	Match	\$20,000	=	\$100,000
-------------	----------	---	-------	----------	---	-----------

## 3.0 – TRAFFIC MONITORING

**KDOT Contact:** Alan Spicer, Assistant Chief of Transportation Planning  
(785) 296-2906

---

### MISSION

Efficient collection of valid statewide vehicle data. Collect, analyze, report, and retain traffic data to comply with the requirements of AASHTO and FHWA, and in support of HPMS and other national and State programs within KDOT.

### ITEMS IN THIS SECTION

There are four sub-items in this section:

- 3.1 - Traffic Volume Counting
- 3.2 - Vehicle Classification
- 3.3 - Truck Weight and Characteristics
- 3.4 - Purchase of Traffic Monitoring Equipment

### TOTAL TRAFFIC MONITORING BUDGET

Federal Aid	\$720,000	+	Match	\$180,000	=	\$900,000
-------------	-----------	---	-------	-----------	---	-----------



**KDOT CONTACT:** Bill Hughes, Weigh in Motion / Videolog Engineer  
(785) 296-6863

### OBJECTIVES

Collect traffic count data to meet Federal and State reporting requirements and for other uses including traffic studies, traffic forecasting, pavement design, and estimating travel on all roads in Kansas.

### METHODOLOGY

Continuous traffic counters operate at 103 locations throughout the state. Accuracy checks are made at all continuous traffic counters. Almost all locations transmit data by telemetry, 97 of which have cellular-IP addressable modems.

Portable traffic counters are deployed throughout the State on roadways of all functional classification. These collect simple count data for a period of 24-hours. On HPMS sample sections, 2 periods are collected. Data is transmitted to the central office for data entry and analysis.

The annual survey covers all state highways and their city connecting links in one half of the State, and a sample of the county-owned portion of the Major and Minor Collector Systems and Local roads.

Additional counts for special studies, railroad crossings, and other local issues that are not addressed by the standard sampling are set as time and personnel are available.

### FY2020 PRODUCTS

Continuous counts will be provided to FHWA. Factors based on these counts will be produced.

Coverage counting of State System roads in Districts Four, Five and Six will be completed in CY 2019; as well as Non-State roads in Districts Five and Six.

The 2019 State Traffic Flow Map (CY 2018 data) will be completed and distributed. City count maps for the urban cities and selected small cities in Districts Five and Six will be completed. The district Major Collector maps for Districts Five and Six will be completed.

All count maps are made available on the internet.

### TRAFFIC VOLUME COUNTING BUDGET

Federal Aid	\$440,000	+	Match	\$110,000	=	\$550,000
-------------	-----------	---	-------	-----------	---	-----------

**KDOT CONTACT:** Mark Maddux, Field Data Engineer  
(785) 296-6387

### OBJECTIVES

Provide truck volume data for the State Flow Map and State System database to support pavement design, HPMS and other State and national programs.

### METHODOLOGY

Vehicle Classification data is collected by hour, by lane, by vehicle category. The two basic types of vehicle classification counts are short-term (48-hour) and continuous vehicle classification. The vehicle categories used are the 13 vehicle groups defined by the Traffic Monitoring Guide (TMG), and the 6 vehicle groups defined by the Highway Performance Monitoring System (HPMS).

Short term vehicle classification data is collected by contractors at 700+ sites on a three-year cycle throughout the state. Additional vehicle classification data is collected each year by the portable WIM crew at “multilane” locations requiring the use of isolation tubes to collect the data. On rural highways, axle sensors are used to collect data for the 13 FHWA vehicle types. In urban areas, where axle sensors are more hazardous to deploy, various non-intrusive techniques are used to estimate the 6 HPMS vehicle types.

Continuous vehicle classification data is collected at 18 sites throughout the state. This equipment also collects Speed, sometimes Weight, and Volume. Where axle sensors are available, these sites will collect vehicle records which can be summarized to the FHWA vehicle types in hourly or other periods as required. Where axle sensors are not available, these sites will collect length-based measures for estimating the HPMS vehicle types.

### FY2020 PRODUCTS

Collection of continuous classification data will be completed at permanent count locations, data will be compiled, reports will be published and data will be submitted to FHWA.

Note – After reviewing data collection efforts from surrounding States, it was determined to increase the number of vehicle classification sites and data collection efforts with a contractor. The new contract will for FY20-22 with additional sites and funding. The new contract will include collecting traffic counts in the Kansas City and Wichita areas.

#### VEHICLE CLASSIFICATION STATE STAFF BUDGET

Federal Aid	\$40,000	+	Match	\$10,000	=	\$50,000
-------------	----------	---	-------	----------	---	----------

#### VEHICLE CLASSIFICATION CONSULTANT BUDGET

Federal Aid	\$160,000	+	Match	\$40,000	=	\$200,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Mark Maddux, Field Data Engineer  
(785) 296-6387

---

**OBJECTIVES**

Provide information on the weight, size, and load patterns of commercial vehicles. In conjunction with traffic volume and vehicle classification surveys, this data will provide measures of usage and demand upon the highway system.

**METHODOLOGY**

Weigh-In-Motion data is obtained by sampling locations on Urban and Rural roads functionally classified higher than Local. A portable weighing system will be used at various locations annually to collect axle weight of the commercial vehicles as they travel at normal operating speeds. Currently, five continuous Weigh-In-Motion sites are maintained throughout the state.

**FY2020 PRODUCTS**

Truck weight data will be processed and reported.

**TRUCK WEIGHT AND CHARACTERISTICS BUDGET**

Federal Aid	\$40,000	+	Match	\$10,000	=	\$50,000
-------------	----------	---	-------	----------	---	----------

**KDOT CONTACT:** Alan Spicer, Assistant Chief of Transportation Planning  
(785) 296-3470

---

**OBJECTIVES**

Replace, maintain, and update traffic monitoring equipment used to collect traffic counts, vehicle classification data and truck weight data.

**METHODOLOGY**

Select and obtain traffic monitoring equipment that meets accuracy and quality requirements of Federal Highway's Traffic Monitoring Guide.

**FY2020 PRODUCTS**

Equipment to be purchased to be determined.

**PURCHASE OF TRAFFIC MONITORING EQUIPMENT BUDGET**

Federal Aid	\$40,000	+	Match	\$10,000	=	\$50,000
-------------	----------	---	-------	----------	---	----------

## 4.0 – HIGHWAY SYSTEMS AND PROGRAMMING

**KDOT Contact:** Mike Moriarty, Bureau Chief of Transportation Planning  
(785) 296-8864

---

### MISSION

Manage data related to safety, geometry, performance, construction program development, and system infrastructure

### ITEMS IN THIS SECTION

There are nine sub-items in this section:

- 4.1 – Highway Classification and Statistics
- 4.2 – Geospatial System Administration
- 4.3 – Geospatial Analysis Mapping and Report Production
- 4.4 - Geospatial Data Development and Collaboration
- 4.5 – Highway Performance Monitoring System
- 4.6 – Construction Program Development
- 4.7 – Accident Data Collection, Coding and Processing
- 4.8 – Accident Data Reporting
- 4.9 – Pavement Management System

### TOTAL HIGHWAY SYSTEMS AND PROGRAMMING BUDGET

Federal Aid	\$2,080,000	+	Match	\$520,000	=	\$2,800,000
-------------	-------------	---	-------	-----------	---	-------------

**KDOT CONTACT:** Alan Spicer, Assistant Chief of Transportation Planning  
(785) 296-3470

### OBJECTIVES

- Develop, monitor and update Urban Area Boundaries, federal functional classification system, the National Highway System and KDOT's Route Classification system.
- Provide annual statistical measures of road infrastructure, usage and funding.

### METHODOLOGY

- Cities, counties, MPOs and KDOT may proposed functional classification change as needed on their roadway network. After local approval and review by KDOT the proposed recommendations are sent to FHWA for their approval.
- For internal KDOT road priority, a Route Classification system has been developed and maintained for all roads under KDOT jurisdiction. This priority measure supports Maintenance, Design and Planning activities.
- Maintain and report mileage statistics on all roads and streets. Data covered includes road types, surface widths, traffic volumes and administrative systems. This data is assembled from field inventories, construction records, and external agency records.
- Maintain and report data on motor vehicle registrations, motor fuel usage, highway-user tax revenue and licensed drivers.
- Maintain and report estimates of revenue and expenditures for highway construction, maintenance and operations for all units of government in Kansas.

### FY2020 PRODUCTS

- Updated functional classification network geometry for all 105 counties.
- Updated functional classification network geometry and revised urban area boundaries for the 33 urban areas.
- Updated functional classification network geometry and for the 6 urbanized areas.
- Updated National Highway System network geometry.
- Maintain Route Classification designations on new and existing roadways.
- Produce the annual certification of public road mileage.
- Produce the annual Mileage and Travel reports. These reports summarize mileage and travel information by county, functional classification and National Highway System.
- Produce the annual series of FHWA reports on motor vehicle registrations, motor fuel usage, highway-user tax revenues and license drivers.
- Produce the annual FHWA 534 reporting capital outlay finance.

### HIGHWAY CLASSIFICATION AND STATISTICS BUDGET

Federal Aid	\$16,000	+	Match	\$4,000	=	\$20,000
-------------	----------	---	-------	---------	---	----------

**KDOT CONTACT:** Kyle Gonterwitz, GIS Manager  
(785) 296-4899

### OBJECTIVES

- Administrate and provide access to geographic information, administrating systems to users and developing more efficient system processes, methods, and procedure.
- Improve efficiency of workflows for developing geospatial data for planning purposes.
- Provide an accurate and reliable method of identifying routes and features along the State Highway System, as well as all roads that receive state or federal aid

### METHODOLOGY

- Administration of an Enterprise Geographic Information System, including architecture, software, databases, application, data governance and user support.
- Identification of business requirements and legislative operating frameworks/limitations, and administration of software and systems to facilitate improvements in business process efficiency.
- Configuration of data management systems and software interfaces to improve user access to actionable planning information.
- Develop, maintain and manage interfaces between Geospatial Systems in planning and other KDOT/State of Kansas information systems.

### FY2020 PRODUCTS

- All Road linear referencing system for road centerlines that supports linear referencing interfacing for NBI, FMIS, NENA/NG911/511 systems, MIRE Highway Safety Elements, HPMS, Pavement
- Improved accident data processing using GIS technology
- Improved compliance and capacity for managing field inspections for HPMS, FRA, and other sampling/field activities.
- Data Model Diagram for All Road Linear Referencing System, LRS Event Data and feature level ISO standard metadata

### GEOSPATIAL SYSTEMS ADMINISTRATION BUDGET

Federal Aid	\$280,000	+	Match	\$70,000	=	\$350,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Kyle Gonterwitz, GIS Manager  
(785) 296-4899

### OBJECTIVES

Provide informative maps, reports and informational products for use by internal DOT customers and the general public in a timely and cost-efficient manner

### METHODOLOGY

Create and develop ad-hoc analyses, mapping and reports from spatial data to answer inquiries about KDOT's transportation systems: the State Highway System, local agencies' roadways, and other transportation modes.

Use Commercial Off-The-Shelf COTS GIS technology to produce base maps of current and future road networks, major rail networks, bikeway and airports.

### FY2020 PRODUCTS

- Produce maps and data for planning and communication with Local Public Authorities for City Connecting Link and Rural Highway resolutions and maps, AASHTO for US Route Changes, MPO Performance Measures, and various standard and special-request maps for a variety of other transportation planning and transit stakeholders.
- Provide data products to consultants authoring long range plans, research, and/or programs for the department
- State Highway System asset inventory/asset management prioritization reports
- Internet/intranet site with the most recent information
- Responses to inquiries from Legislature, executive managers, and the public.
- automated reports from Roadway and Crash records for standard request types
- Online Maps for sheriffs and local police to support accident coding.

### GEOSPATIAL ANALYSIS, MAPPING AND REPORT PRODUCTION BUDGET

Federal Aid	\$80,000	+	Match	\$20,000	=	\$100,000
-------------	----------	---	-------	----------	---	-----------



**KDOT CONTACT:** Kyle Gonterwitz, GIS Manager  
(785) 296-4899

### OBJECTIVES

- Keep transportation information pertinent, accurate, and up to date
- Maintain current and relevant transportation data

### METHODOLOGY

- Apply workflow and data governance processes for management of current and planned geospatial data, and identify improvements in workflows through the use of well-planned data models and well-defined governance procedures and
- Monitor multiple sources of dynamic information that indicate changes to highway systems including contracts, programmed projects, and engineering plans
- Review and Enter data from engineering plans, as built, videolog survey, or field data collection into the data repository to
- Provide informational data visualizations to knowledgeable staff that serves to improve staff access to information, and gives knowledgeable staff a mechanism to report corrections to that data to improve the data accuracy and usefulness

### FY2020 PRODUCTS

- Training programs in the use and functions of ArcGIS web and desktop software.
- ISO Standard Metadata for production data
- Business Process Documentation, Business Analysis, GIS IT Project Prioritization and Strategy

### GEOSPATIAL DATA DEVELOPMENT AND COLLABORATION BUDGET

Federal Aid	\$400,000	+	Match	\$100,000	=	\$500,000
-------------	-----------	---	-------	-----------	---	-----------

**KDOT CONTACT:** Kevin Koester, HPMS/Non-State Road Systems Engineer  
(785) 296-3221

### OBJECTIVES

- Inventory a statistical sampling of Kansas' roadways.
- Process roadway data using HPMS software.
- Improve data availability by implementing analysis and reporting tools.
- Submit an annual HPMS report to the FHWA for further processing and production of national highway statistical reports and other special reports to Congress and the public.
- Add new documents, reports, and plans to the division's internet/intranet sites as they are published.

### METHODOLOGY

Highway Performance Monitoring System (HPMS) requires an inventory of roadway features and an assessment of pavement conditions for a sampling of all Kansas' roadways. This data is then assembled into a report for the FHWA. Based on feedback from FHWA, changes in the data collection or reporting procedures may be initiated.

### FY2020 PRODUCTS

- HPMS annual submittal
- Inventory of a sampling of the state's roadways.
- Updates to data collection software used for field collection.
- Quality control for data in the CANSYS application.

### HIGHWAY PERFORMANCE MONITORING SYSTEM BUDGET

Federal Aid	\$120,000	+	Match	\$30,000	=	\$150,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Mark Taylor, Bureau Chief of Program and Project Management  
(785) 296-2058

## OBJECTIVES

Tracking progress in the various construction and funding programs to provide current status of agency infrastructure initiatives and financial condition. Publish the federally-mandated State Transportation Improvement Program (STIP). Develop projects and monitor progress in the T-WORKS Program.

## METHODOLOGY

- Monitor, review, and update FY 2020 T-Works construction projects (\$228 million construction \$) and FY 2020 Preservation Set-Aside projects (\$334 million available) to reflect changes in cost, project scope, schedule, rate of inflation, funding, and/or anticipated letting dates. Monitor the environmental effort, design, right-of-way acquisition, and utility relocation associated with identified FY 2021 and FY 2022 projects. Select FY 2021 T-WORKS projects based on Long-Range Plan policy recommendations and T-Works legislation.
- Continue refining business practices to institutionalize the series of T-LINK recommendations, such as: choosing transportation projects using engineering, regional priorities, and economic impact factors; implementing practical improvement approaches; creating regional transit approaches; and using a rolling program approach. Regional consultation and partnership efforts will be on-going.
- Continue training and the refinement of the WinCPMS project/fund/production/program management system to accommodate business practices, specific information requests, and new requirements.
- Implement project management initiatives to ensure timely, cost-effective project lettings.
- Coordinate with FHWA on publication of annual STIP to comply with Fixing America's Surface Transportation (FAST) changes and Kansas Division FHWA guidance.

## FY2020 PRODUCTS

- Publish FY 2021 construction projects and progress reports on current T-WORKS projects.
- Publish FFY 2020-2023 STIP in compliance with Fixing America's Surface Transportation (FAST) and Kansas Division FHWA guidance, to include the developing requirements associated with performance measures.
- Provide background and presentation materials and participate in regional consultation and partnership efforts as needed – a critical element in the construction project selection process.

## CONSTRUCTION PROGRAM DEVELOPMENT BUDGET

Federal Aid	\$560,000	+	Match	\$140,000	=	\$700,000
-------------	-----------	---	-------	-----------	---	-----------

**KDOT CONTACT:** Michael Ronin, Kansas Motor Vehicle Crash Data Manager  
(785) 296-7789

### OBJECTIVES

- Inventory all data from the Kansas Motor Vehicle Crash Report
- Assist Law Enforcement Personnel in coding the Kansas Motor Vehicle Crash Report
- Provide quality control measures for Kansas Crash Analysis Records System (KCARS)
- Improve data availability by implementing analysis and reporting tools
- Maintain and update crash-related documents

### METHODOLOGY

All Kansas Motor Vehicle Crash Reports are delivered to KDOT, either electronically or in paper format. An electronic image of the report is produced and stored in our document management system. The data items contained within the reports are validated and stored in a relational database KCARS. The work for this project is completed by KDOT staff and a consultant.

### FY2020 PRODUCTS

- KCARS Database
- Traffic Records Systems (TRS) connection to external records management systems for capture of crash reports electronically

### ACCIDENT DATA COLLECTION BUDGET

Federal Aid	\$200,000	+	Match	\$50,000	=	\$250,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Michael Ronin, Kansas Motor Vehicle Crash Data Manager  
(785) 296-7789

---

### OBJECTIVES

Provide accurate, consistent and objective information to requester of motor vehicle crash data.

### METHODOLOGY

All Kansas Motor Vehicle Crash Reports are delivered to KDOT, either electronically or in paper format. An electronic image of the report is produced and stored in our document management system. The data items contained within the reports are validated and stored in a relational database KCARS.

### FY2020 PRODUCTS

- Ad hoc crash data reports
- Publish the annual Kansas Traffic Crash FACTS Book
- As-requested data sets
- Quarterly Crash Record Data Reports
- Provide performance measures and data for Federal reports such as the Strategic Highway Safety Plan and Highway Safety Plan

### ACCIDENT DATA REPORTING BUDGET

Federal Aid	\$64,000	+	Match	\$16,000	=	\$80,000
-------------	----------	---	-------	----------	---	----------

**KDOT CONTACT:** Rick Miller, Pavement Management Engineer  
(785) 291-3842

### OBJECTIVES

Assist highway engineers and managers in making consistent and cost-effective decisions that maximize benefits achieved from expenditures for preservation and rehabilitation of State Highway System roadway surfaces.

### METHODOLOGY

KDOT's Pavement Condition Data Collection System is a vehicle equipped with a two wheelpath profile, a lane-width, downward 3-D imaging and transverse profiling system, and two camera forward imaging system. Processing software and hardware allows us to implement current AASHTO and HPMS standards "exactly" as written. The software uses the images (including range images of the transverse profiles) to automatically detect rutting and cracking. Faulting is determined automatically from the transverse profile data. International Roughness Index values are computed from the longitudinal profile data.

KDOT continues to work with vendors, AASHTO, FHWA, and others to refine the standards and the implementation of those standards in the computer systems. The goal is to have meaningful information about the pavement surfaces collected and analyzed as efficiently as possible to meet state and federal (including HPMS) needs. Among the federal requirements that will be met using this data is the new Performance Measures for pavement surfaces. Another federal requirement that will use this information is the implementation of an Asset Management Plan. While these were never the primary purpose for KDOT collecting this data, the means to collect the data once and use it many ways allows for the service of many masters.

The primary reason for the collection of pavement condition data is to feed the pavement management system (Enhanced PMS) for optimized recommendation of project locations and scopes to meet system performance requirements within budget and other constraints.

### FY2020 PRODUCTS

This is accomplished through the yearly production of the Substantial Maintenance mileage allotments by District and the Candidate Project List, which serves as the basis for developing the yearly Kansas highway rehabilitation program, and providing pavement condition data - both present and historical - in several formats for use in evaluating alternative pavement preservation actions.

The annual condition survey of the State Highway System and non-state HPMS location pavement condition data will be collected.

Pavement performance measures using state methods to help make and explain decisions related to funding and project programming will be generated and published. Federal versions also called pavement performance measures will be generated and published as well.

### PAVEMENT MANAGEMENT SYSTEM BUDGET

Federal Aid	\$360,000	+	Match	\$90,000	=	\$450,000
-------------	-----------	---	-------	----------	---	-----------

## 5.0 – METROPOLITAN PLANNING AND LAND USE COORDINATION

KDOT Contact: Matthew Messina, Comprehensive Transportation Planning Manager  
(785) 296-7448

---

### MISSION

Support for the transportation activities of urban areas.

### ITEMS IN THIS SECTION

There are two sub-items in this section:

5.1 – MPO Administration and Support

5.2 – Small Urban Area and Rural Support

### TOTAL METROPOLITAN PLANNING AND LAND USE COORDINATION BUDGET

Federal Aid	\$288,000	+	Match	\$72,000	=	\$360,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Matt Messina, Comprehensive Transportation Planning Manager  
(785) 296-7448

## OBJECTIVES

Facilitate the coordination and oversight of Metropolitan Planning Organization (MPO) transportation planning activities.

## METHODOLOGY

Administer the Consolidated Planning Grant (CPG) to the MPOs that funds their metropolitan planning process.

Establish partnerships and oversight roles with each MPO through the committee participation, applying federal rules and legislation to day to day operations, and providing needed information and guidance to sustain the 3C (Continuous Comprehensive Cooperative) process by:

- Attending regularly scheduled MPO meetings;
- Participating in the development of MPO work products (i.e., LRTP, TIP, UPWP, public involvement plans, etc.);
- Reviewing and commenting on MPO work products and advocating on behalf of the metropolitan viewpoint within the KDOT decision-making process.
- Providing clear guidance based on federal and state rules.
- Run and interpret output from travel demand models to support development of traffic forecasts and traffic studies.
- Identify areas of concern that affect the daily operations and work with staff to develop and evaluate those solutions.

## FY2020 PRODUCTS

- Execute Consolidated Planning Grant (CPG) funding agreements.
- Implement new FAST Act legislation in coordination with the MPOs. Amend the MPO Manual that outlines the roles and responsibilities of the MPOs and KDOT as it relates to the 3C process. Amendment will include updates as related to the FAST Act, performance measures and standard KDOT procedures.
- Continue to develop opportunities to strengthen the coordination between all units in the Comprehensive Transportation Planning Unit, including the Bike/Ped Program and the Office of Public Transportation.
- Assist in the implementation of performance measures established by KDOT for incorporation into the MPO planning process.
- Assist MPOs in updating their models and developing scenarios for their travel demand models and interpreting the results. Provide on-call modeling support as needed.
- Develop and or review microsimulation models as needed.
- Review traffic impact studies (TIS) as needed.
- Develop travel demand forecasts for projects in metropolitan areas and provide technical support for review and evaluation of transportation related studies.
- Review Break-in-Access requests as needed

## MPO ADMINISTRATION AND SUPPORT BUDGET

Federal Aid	\$240,000	+	Match	\$60,000	=	\$300,000
-------------	-----------	---	-------	----------	---	-----------



**KDOT CONTACT:** David Cronister, Models and Forecasting Planner  
(785) 296-0347

### OBJECTIVES

Provide support as-needed in the form of traffic forecasting, travel demand modeling and special studies for urban areas with a population under 50,000 and rural areas.

### METHODOLOGY

Provide traffic forecasts to the Bureau of Design for projects located in small urban and rural areas. To fulfill these requests, considerable effort is spent in gathering, tabulating, and analyzing data relating to traffic flow and travel patterns. Regression analysis of local traffic count history, along with a review of future land use when available, are used to develop 20-year forecasts of traffic and axle loads. Capacity and/or level of service studies are performed using the 2016 Highway Capacity Manual.

Travel demand modeling may be required for a comprehensive plan update or another discretionary program. In those cases, staff usually begins by building or updating a model in-house, working with consultants and local officials in calibrating and validating the traffic, and running whatever scenarios are required by the local officials. Models are constructed using Census and American Community Survey data as well as commercially-produced business data, and data from KDOT and local municipalities.

Create micro-simulation models or use Highway Capacity Software to evaluate the operational characteristics of roadways.

Review traffic analysis zones (TAZs) in non-metro areas as delineated for the Census' American Community Survey.

### FY2020 PRODUCTS

- Produce traffic forecasts.
- Produce or review microsimulation and travel demand models as needed.
- Apply for Break-in-Access on the Interstate Highway System.
- Break in access applications will be reviewed as needed.
- Review of traffic impact studies (TIS) for access to the state highway system.

### SMALL URBAN AREA SUPPORT BUDGET

Federal Aid	\$48,000	+	Match	\$12,000	=	\$60,000
-------------	----------	---	-------	----------	---	----------

## 6.0 – STATEWIDE TRANSPORTATION STUDIES

**KDOT Contact:** Mike Moriarty, Bureau Chief of Transportation Planning  
(208) 334-8864

---

### MISSION

To provide efficient collection of valid statewide transportation data in support of other systems within the department. Collect, analyze, report, and retain statewide traffic and roadway data.

### ITEMS IN THIS SECTION

There are nine sub-items in this section:

- 6.1 – Strategic Planning Processes
- 6.2 – Local Consultation
- 6.3 – Rail and Freight Planning
- 6.4 – Kansas Freight Advisory Committee Support
- 6.5 – Bicycle and Pedestrian Program
- 6.6 – Intelligent Transportation Systems
- 6.7 – Traffic Studies and Intersection Inventory
- 6.8 – Aviation Planning
- 6.9 – Long-Range Transportation Plan

### TOTAL STATEWIDE TRANSPORTATION STUDIES BUDGET

Federal Aid	\$1,696,000	+	Match	\$424,000	=	\$2,120,000
-------------	-------------	---	-------	-----------	---	-------------

**KDOT CONTACT:** David Schwartz, Assistant to the Director of Planning and Development  
(785) 296-7441

### OBJECTIVES

Develop Agency goals to address the requirements of federal legislation, provide direction and strategies to accomplish those goals.

### METHODOLOGY

After publication of Federal rules and regulations, KDOT reviews and identifies work items necessary to meet each plan/report requirement and deadline. With the passage of FAST ACT, the additional requirements of performance-based planning and coordination with locals/MPOs will be appropriately incorporated into plan development.

Gather, analyze and summarize data from various parts of the agency to develop statewide planning documents; such as the Asset Management Plan, Performance Report, or the Long-Range Transportation Plan.

### FY2020 PRODUCTS

On-going Performance Reports

### STRATEGIC PLANNING PROCESSES BUDGET

Federal Aid	\$80,000	+	Match	\$20,000	=	\$100,000
-------------	----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Chris Herrick, Director of Planning and Development  
(785) 296-2252

---

**OBJECTIVES**

Gather public input for the purposes of planning and program development, as well as meet federal requirements for Public Involvement and Local Consultation.

**METHODOLOGY**

KDOT will regularly plan and schedule meetings with the public, stakeholders and local partners for the purpose of gathering public input in various areas of the agency which may include but are not limited to program structure, program areas, project information and data, project priorities, performance areas, performance measures, performance targets, expenditure and revenue information, funding priorities, highway and non-highway needs and data.

**FY2020 PRODUCTS**

Local Consult Meetings will be held in the summer and fall of 2019 in coordination with the Long-Range Transportation Plan.

**LOCAL CONSULTATION BUDGET**

Federal Aid	\$64,000	+	Match	\$16,000	=	\$80,000
-------------	----------	---	-------	----------	---	----------

**KDOT CONTACT:** John Maddox, Rail/Freight Manager  
(785) 296-3228

### **OBJECTIVES**

Provide a framework for short and long range decision making regarding multimodal freight transportation and passenger rail trends and issues; disseminate relevant information to rail users and local governments faced with loss or change in freight rail service; administer the State Rail Service Improvement Fund (SRSIF) to assist short line railroads, port authorities, shippers and local units of government with rail infrastructure improvement projects; and administer any federal grants for short line or passenger rail infrastructure improvement projects and/or planning projects. Coordinate Kansas Freight Advisory Committee (KFAC), as well as any KFAC subcommittees, activities. Maintain and update rail crossing inventory data and associated city and county maps. Monitor the potential for the development of additional transload facilities in the state.

### **METHODOLOGY**

Collect and analyze detailed data about freight movements via truck and rail. This includes truck freight data from the Kansas Truck routing and Intelligent Permitting System (K-TRIPS) regarding permits issued by type, commodities hauled, routes traveled (by truck count, annual ton miles and other route data). Data collected from rail operators includes monthly carloadings, commodity types, and equipment (types of locomotives and types of rail cars; owned or leased), potential rail line abandonments and sales. This information supplements the rail freight and motor carrier data collected from other state DOTs, regional and national freight transportation organizations, local MPOs, shippers, state and federal agencies and other industry groups. This data is used to assess the impact of freight movements on the highway and railroad transportation networks, administer federal and state rail loan/grant program funds, monitor the condition of various segments of the short line rail network, identify areas in need of the most improvement, and better integrate freight rail, motor carrier, intermodal freight and passenger rail issues into the planning process and agency multimodal freight policies.

Monitor federal and state legislation dealing with issues pertaining to short line railroad and freight transportation funding, passenger and commuter rail service and potential funding, and railroad and motor carrier issues in general to evaluate any potential effect on the Kansas multimodal freight network.

Identify and address highway geometric issues as they pertain to the movement of OSOW loads.

Participate in AASHTO SCORT, AASHTO SCOHT, and MAASTO rail and freight committee activities, States for Passenger Rail, Midwest Interstate Rail Compact, Mid-America Freight Coalition (MAFC), Southwest Chief and Front Range Passenger Rail Commission, MPO freight committees, and KC Smartport multimodal freight activities and studies.

Continue to implement recommendations from the Kansas Statewide Freight Study and Commodity Flow Analysis and the KFAC.

### **FY2020 PRODUCTS**

- Update, as needed, MPO Urban Freight Corridors of Significance and statewide Rural Freight Corridors of Significance. KDOT will submit applications, for eligible projects, for any federal freight and/or rail grant programs that may be announced.
- The Freight and Rail Unit will contribute data and qualitative input to the update of the Long-Range Transportation Plan (LRTP)
- Provide input to the multistate/MPO Central Plains Heartland Freight Technology Plan
- Monitor all phases of rail improvement projects.
- Update monthly, quarterly and annual rail carloading reports.
- Update monthly, quarterly and annual motor carrier permit reports.
- Annual FHWA motor carrier reports will be submitted on or before deadline.

- Quarterly Truck Parking Information Management System (TPIMS) performance measure reports will be submitted on or before deadline.
- Ongoing monitoring of TPIMS system performance reliability metrics.
- Maintain and update rail crossing inventory data and associated city and county maps.
- Monitor progress of TIGER IX project to improve BNSF/AMTRAK line in southwest Kansas.
- Monitor progress of 2019 CRISI project to add Positive Train Control (PTC) on the BNSF/AMTRAK line from Dodge City to the Kansas/Colorado Border
- Continue to improve, through ongoing input from KDOT headquarters and field staff, web-based railroad crossing data collection software.

**RAIL AND FREIGHT PLANNING BUDGET**

<b>Federal Aid</b>	<b>\$200,000</b>	<b>+</b>	<b>Match</b>	<b>\$50,000</b>	<b>=</b>	<b>\$250,000</b>
--------------------	------------------	----------	--------------	-----------------	----------	------------------

**KDOT CONTACT:** John Maddox, Rail/Freight Manager  
(785) 296-3228

---

### OBJECTIVES

Identify multimodal freight infrastructure needs and priorities.

### METHODOLOGY

Continue to work with the Kansas Freight Advisory Committee (KFAC), as well as the Transload Facility Site Analysis Committee (TFSA) and Kansas Statewide Truck Parking Analysis Subcommittee (KSTPA) to discuss current, near term and potential future freight issues, needs and trends. Continue to refine the highway and railroad freight corridors of significance based on industry and K-TRIPS data, and input from the KFAC, TFSA and KSTPA. Additional input will be sought from shippers and manufacturers, industry groups, and MPOs.

### FY2020 PRODUCTS

- Solicit input for the Long-Range Transportation Plan Update.
- KDOT will submit applications, for eligible projects, for any federal grant programs that may be announced.
- Annual FHWA motor carrier reports will be submitted on or before deadline.
- Refine the highway and railroad Freight Corridors of Significance map.
- Conduct data analysis, research and studies as recommended by KDOT management and the KFAC.

### KANSAS FREIGHT ADVISORY COMMITTEE SUPPORT BUDGET

Federal Aid	\$8,000	+	Match	\$2,000	=	\$10,000
-------------	---------	---	-------	---------	---	----------

**KDOT CONTACT:** Matthew Messina, Bicycle and Pedestrian Coordinator  
(785) 296-7448

## OBJECTIVES

Continue the bicycle and pedestrian program at the state level, including state initiatives and compliance with federal requirements of the Fixing America's Surface Transportation Act (FAST Act).

## METHODOLOGY

- Community outreach presentations to other agencies, community groups, interested citizens, and professional groups;
- Collaborate with internal and external partners for the creation of new and updates to existing planning documents—the Strategic Highway Safety Plan; the Kansas Bicycle & Pedestrian Transportation Plan; KDOT's Pedestrian Safety Action Plan; and others;
- Support and administer the Surface Transportation Block Grant Transportation Alternatives (TA) Set-Aside Program (formerly the Transportation Enhancements Program) by providing technical assistance and reimbursements to current grantees, promoting the program to interested applicants, and meeting with grantees to discuss the timely progression of their projects;
- Develop new program to administer state funds for pedestrian and bicycle projects;
- Assist in the program development and review and selection processes of the Bicycle and Pedestrian projects for the STBG Program;
- Work with consultants and other agencies to encourage bicycle and pedestrian-related project and program development throughout the state of Kansas;
- Work with various KDOT staff and external agencies to help meet bicycle and pedestrian accommodation needs on the Kansas State Highway System;
- Meet with bicycle and pedestrian organizations to provide technical assistance;
- Continuation of professional development through active participation in training sessions, webinars, workshops, seminars and conferences.

## FY2020 PRODUCTS

- Produce and distribute the 2020-21 Statewide Bicycle Map (a biennial process);
- Maintain the Bicycle and Pedestrian Transportation and the STBG/TAP/SRTS webpages on the KDOT website;
- Produce and distribute updated bicycle and pedestrian educational materials;
- Implement action items from the Pedestrian and Bicycle chapter of the 2019 Strategic Highway Safety Plan;
- Implement action items from the KDOT Pedestrian Safety Action Plan;
- State-funded pedestrian and bicycle program;

## BICYCLE AND PEDESTRIAN PROGRAM BUDGET

Federal Aid	\$104,000	+	Match	\$26,000	=	\$130,000
-------------	-----------	---	-------	----------	---	-----------



**KDOT CONTACT:** Shari Hilliard, ITS Program Manager  
(785) 296-6356

### OBJECTIVES

Improve safety, traffic flow and environment by providing leadership and support for the development, standardization, deployment, and update of ITS and Advanced Traveler Information System (ATIS) programs and projects.

### METHODOLOGY

Provide budgeting, contract administration, technology evaluation and oversight for planning and development of Traffic Management Centers (TMCs.) State TMCs include WICHway in Wichita, KC Scout in Kansas City in cooperation with Missouri DOT, and a virtual statewide TMC. Develop and evaluate state policies and programs to meet the goal of monitoring real-time traffic and travel conditions on major highways in Kansas, with the goal of sharing this information with the traveling public and other partners for the Federal Real-Time System Management Information Program. Develop evaluation measures for the Motorist Assistance program administered by the Kansas Highway Patrol. Participate with KDOT's Metropolitan Planning groups, FHWA and other service groups to update regional ITS Architectures. The State of Kansas currently has six regional architectures completed. The Statewide ITS Architecture will be coordinated with all the regional architectures. Develop and establish standards, specifications, special provisions, plans and design guidelines for ITS/ATIS and promote the use of systems engineering analysis in the selection of technologies and processes.

### FY2020 PRODUCTS

ITS Architecture plans in Kansas including Lawrence, Manhattan, Topeka, St Joseph and the Kansas Statewide ITS Architecture plans. Data availability and accuracy information plan for Real-Time System Management Information Program.

### INTELLIGENT TRANSPORTATION SYSTEMS BUDGET

Federal Aid	\$200,000	+	Match	\$50,000	=	\$250,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** Carla Anderson, State Traffic Engineer  
(785) 296-1181

### OBJECTIVES

Improve safety by identifying, planning and recommending potential safety improvements.  
Document compliance with the current Manual on Uniform Traffic Control Devices (MUTCD) on State routes.

### METHODOLOGY

KDOT staff initiates traffic studies throughout the state when we become aware of safety or operational concerns regarding the Kansas Highway System. As part of the traffic study, field data is typically collected (speed, volume counts, pedestrian counts, sight distance, ball bank, other) based on the type of study being done and a crash analysis is generally completed to understand crash patterns and identify potential improvements for safety and improved traffic flow. Reviews of the location(s) are completed either by making a site visit using video log or Google's Street View/Earth. Once all the necessary information is obtained and review of the location(s) are completed, a report is developed providing recommended solutions to address issues and improve safety. Recommendations may range from low cost solutions (i.e. signing, other) to geometric improvement. All reports are reviewed by the State Traffic Engineer and District/Area Engineers. Recommended geometric improvements may be prioritized and eventually pursued by the Agency using any state or federal funding sources which are available.

Intersection Inventory is a process of pulling all the data from previous Road Safety Audits as well as a visual review using Google Maps to identify Model Inventory of Roadway Elements (MIRE). This data is used for traffic studies and will grow each year that data is added. Intersection data collected will be collected in a format to assist with the use of AASHTOware Safety Analyst used to quantify safety on all public roads.

### FY2020 PRODUCTS

Traffic Studies final report and Intersection Inventory documents.

### TRAFFIC STUDIES AND INTERSECTION INVENTORY BUDGET

Federal Aid	\$160,000	+	Match	\$40,000	=	\$200,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:**     **Bob Brock, Director of Aviation**  
 (785) 296-2553

### **OBJECTIVES**

To improve safety, understanding the usefulness of UAS (Unmanned Aircraft Systems) in Kansas Government. To develop a strategic plan for the state for both public and private use of UAS.

### **METHODOLOGY**

Develop, coordinate and provide direction for partnership programs and activities with all governmental agencies, public and private educational institutions, both law enforcement and any other appropriate public and private sector organizations.

The outreach program should to educate both private and public sectors on the UAV industry and related industry stakeholders to develop interest and grow the UAS industry.

Developing, coordinating and providing direction for partnerships with agencies, appropriate authorities, boards, commissions or other public or private organizations or public or private educational institutions of other states where beneficial to development of the Kansas UAS industry.

The development of the Strategic Plan must be implemented and manage with a 5-10-year strategic outlook that will develop and support the UAS industry in the state of Kansas, and the Department of Transportation.

The strategic plan will focus its efforts on how best to leverage Kansas resources to ensure a fundamental sound development plan.

This will also require the management and understanding of the best practices that will allow for comparative advantages and that will offer the best opportunities for industry and employment growth and providing coordination and direction for implementation of the plan. This plan will be managed to accommodate different updates as needed do to the fluidity of the industry.

### **FY2020 PRODUCTS**

- Peer exchanges and planning/coordination presentations/panels for different awareness groups.
- Work with the Kansas UAS Consortium to involve Aviation education.
- Attend Various State Planning Organization meetings all over the state of Kansas.
- Develop Kansas UAS Program Strategic Plan for all agencies.
- Work with different State Agencies to develop studies that are applicable to improving current state processes in field work using UAS.

### **AVIATION PLANNING BUDGET**

<b>Federal Aid</b>	<b>\$80,000</b>	+	<b>Match</b>	<b>\$20,000</b>	=	<b>\$100,000</b>
--------------------	-----------------	---	--------------	-----------------	---	------------------

**KDOT CONTACT:** Mike Moriarty, Bureau Chief of Transportation Planning  
(785) 296-8864

### OBJECTIVES

Develop a Long-Range Transportation Plan for Kansas meeting federal requirements with input from the public, industry leaders and public officials.

### METHODOLOGY

Gather, analyze and summarize data from various parts of the agency to develop statewide multimodal planning documents. A consultant has been hired and the Plan should be completed in 2020. The main tasks for the Long-Range Transportation Plan are:

- Public and Stakeholder Engagement
- Issues and Trends
- System Conditions and Performance
- Strategic Direction
- Alternative Scenarios
- Needs Assessment
- Financial Plan
- Organizational Assessment
- Project Selection Assessment
- Policy Development and Implementation Strategy

### FY2020 PRODUCTS

Work products related the Long-Range Transportation Plan development.

#### LONG-RANGE TRANSPORTATION PLANNING BUDGET

Federal Aid	\$800,000	+	Match	\$200,000	=	\$1,000,000
-------------	-----------	---	-------	-----------	---	-------------

# **PART II: SPR RESEARCH**

## 1.0 – RESEARCH WORK PROGRAM

**KDOT Contact:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### MISSION

The mission of the Bureau of Research is to support and encourage innovation throughout the Department by promoting research, development and implementation (RD&T) activities by working with the Districts, other Bureaus in KDOT and the Universities. Research evaluates problems as they arise during standard construction and maintenance field operations and provides timely responses. The Bureau serves as an information resource for agency management.

While in-house RD&T activities of the Bureau are primarily focused on highway construction and maintenance materials, products and procedures, the Bureau supports all functional areas through general administration of the K-TRAN Research Program and provides technical information to management.

A goal of the Bureau is to be service oriented and provide timely responses to the wide array of questions and requests.

### ITEMS IN THIS SECTION

There are five sub-items in this section:

- 1.1 – Research and Development Administration
- 1.2 – Conduct Research and Development
- 1.3 – Implementation of Research Findings
- 1.4 - Technology Transfer
- 1.5 – Technology Transfer Training – Training Course Fees

### RESEARCH WORK PROGRAM BUDGET

Federal Aid	\$1,652,000	+	Match	\$383,000	=	\$2,035,000
-------------	-------------	---	-------	-----------	---	-------------

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

### OBJECTIVES

Provide general administrative control of SPR Research activities.

### METHODOLOGY

Prepare of the annual work program and cost estimate, research problem statements, proposals, and work plans for proposed studies.

Attend administrative or technical meetings and schools or workshops associated with research, development, implementation, and technology transfer.

Prepare progress reports or other special reports associated with the research, development, implementation and technology transfer administration.

Fund salaries and expenses associated with administering and auditing contract research or cooperative research conducted by persons other than personnel of the research unit.

### FY2020 PRODUCTS

Research Annual Reports provided to FHWA each April.

SPR Work Program provided to FHWA each year.

Research Final Reports provided to FHWA when projects are completed.

KDOT Specifications provided to Bureau of Construction and Materials for publication and reviewed by FHWA.

Support research documentation and outreach.

Attend TRB Meetings in January and July of each year.

Attend RAC Meetings in January and July of each year.

Attend Industry meetings for preparations of KDOT Specifications.

Support projects of the Division of Innovative Technologies.

### RESEARCH AND DEVELOPMENT ADMINISTRATION BUDGET

Federal Aid	\$228,000	+	Match	\$57,000	=	\$285,000
-------------	-----------	---	-------	----------	---	-----------

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

### OBJECTIVES

Bring the results of various research and development projects into operating practice.

### METHODOLOGY

KDOT will partner with contractors, suppliers, producers, districts, other bureaus, and the universities to evaluate products and procedures and implement those that will be most beneficial to KDOT. The Bureau of Research will assist in the writing of specifications for the use of these products and procedures in KDOT projects.

### IMPLEMENTATION OF RESEARCH AND DEVELOPMENT FINDINGS BUDGET

Federal Aid	\$784,000	+	Match	\$196,000	=	\$980,000
-------------	-----------	---	-------	-----------	---	-----------

A Listing of continuing studies follows.

### CRACK REDUCTION STUDIES:

**Reflective Crack Interlayer Evaluation:** Steven Houser

US-50 Harvey Co. (Constructed 2005)

**Cold In-Place Recycling vs. Mill & Inlay Evaluation:** Steven Houser

K-23 Sheridan Co. (Constructed 2005)  
US-24 Osborne Co. (Constructed 2005)

**Hot In-Place Recycling with Nova Chip:** Steven Houser

US-75 Shawnee County (Constructed 2008)

**NEW BITUMINOUS MIXES:** Steven Houser

**Permeable Friction Course Evaluation:** Steven Houser

US-50 Finney Co. (Constructed 2005)

**Stone Matrix Asphalt Evaluation:** Steven Houser

US-69 Crawford Co. (Constructed 2005)

**Perpetual Pavement:** Steven Houser

US-75 Brown Co. (Constructed 2005)

**Evaluation of Lignin as an Antioxidant in Asphalt Binders and Bituminous Mixes:** Steven Houser



**Spray Paver Technology:** Steven Houser

US-36 Washington County (Constructed 2009)  
Marshall County (Constructed 2009)  
Nemaha County (Constructed 2009)

US-24 Jefferson/Douglas County (2014)

Spray Paver Emulsion Bonding Liquid Rate Evaluation with Reclaimed Asphalt Pavement at Various Locations

**LABORATORY EVALUATION OF NEW BITUMINOUS PAVEMENT MIXES AND EQUIPMENT:**

Evaluation of Equipment, Bituminous Mixes and Procedures: KDOT Research

Evaluation of Carbon Char in Hot-Mix Asphalt Mixture: Richard Kreider

**BRIDGE DECK PROTECTIVE SYSTEMS:**

**Cathodic Protection of Bridges:** David Meggers

Active System: US-75 over 101<sup>st</sup> St., Shawnee Co. (Constructed 2000)  
Passive System: I-470 over I-70, Shawnee Co. (Constructed 2002)

**EXPERIMENTAL FEATURES FOR NEW BRIDGE DECKS:**

**Hycrete Concrete Anticorrosion Additive for Bridge Decks:** Nicole Carter, Jennifer Distlehorst

K-99 Elk Co. (Constructed 2004)

**Development and Implementation of Ternary Concrete Mixes:** David Meggers, Jennifer Distlehorst  
Previously Titled: Development and Implementation of High Performance Concrete:

**Full Depth Ternary Mix (with 14-day cure):** David Meggers, Jennifer Distlehorst

US-59 Franklin Co. (Constructed 2008)

**Full Depth Optimized Mix (with 3# fibers and 14-day cure):** David Meggers, Jennifer Distlehorst

US-59 Franklin Co. (Constructed 2008)

**Lightweight Concrete Mixtures for Bridges:** David Meggers

Development and Implementation of Lightweight Concrete Mixes for Kansas Department of Transportation Bridge Applications

**PORTLAND CEMENT CONCRETE PAVEMENT STUDIES:** Nicole Carter, Dave Meggers, Daniel Wadley and Jennifer Distlehorst

**Contaminated Crushed Limestone Coarse Aggregate in PCCP:** Jennifer Distlehorst

I-35, US-50 Lyon Co. NEPT KS 9601 (Constructed 1993, 1994)

**High Performance Concrete Pavement (HPCP) (initially funded as DTFH 71-96TE30-KS-22):**

K-96, Reno Co. (Constructed 1997) Nicole Carter, Jennifer Distlehorst

**Ternary Mix PCCP, Use of Supplemental Cementitious Materials for Control of ASR:**

US-24/K-7, Wyandotte County (Constructed 2008) Jennifer Distlehorst

**Evaluation of the AVA, Super Air Meter, and Hardened Air Methods for Determining Concrete Air Voids:**

Jennifer Distlehorst, Randy Billinger

Evaluation of Current Kansas Department of Transportation Air Void Analyzer Specifications  
Comparison of SAM data to ASTM C-457  
Super Air Meter as an Alternative to the Air Void Analyzer

**Concrete Permeability Comparison Studies:**

Jennifer Distlehorst, Randy Billinger

Concrete Permeability Comparison Study (ASTM C642 versus ASTM C1202)  
Surface Resistivity as an Alternative for Rapid Chloride Permeability Test and Volume of Permeable Voids of Hardened Concrete,”

**Internal Curing of PCCP Using Lightweight Aggregate. Dave Meggers, Nicole Carter**

US-54, Allen County (Constructed 2014)

**LABORATORY EVALUATION OF NEW CONCRETE PAVEMENT MIXES AND EQUIPMENT: KDOT Research**

Evaluation of Equipment, Concrete Mixes and Procedures

Evaluation of Durability of Select Coarse Aggregate for Wear Versus Select Coarse Aggregate for Wear and Absorption: Nicole Carter

Evaluation of Natural Pozzolans for Use in Concrete and Potential Replacement of Class F Fly Ash as an ASR Mitigation Tool: Coltin Wichtner

**ACTIVITIES:**

**Analysis of Aggregates for AC and PCC Pavement:** Randy Billinger

**Repair of Corroded Corrugated Metal Pipe Culverts:** David Meggers

**20 Year Evaluation of Existing Corrugated Metal Pipes:** David Meggers

**Evaluation of High Friction Surfaces:** David Meggers

**Monitor Progress on University (K-TRAN and other) Research Projects and serve as Technical Advisory Committee Members on Transportation Pooled Fund Projects:** Randy Billinger, David Meggers, Nicole Carter, Steven Houser, Daniel Wadley, Coltin Wichtner, and Jennifer Distlehorst

**Coordination Long Term Pavement Performance (LTPP) Activities:** Daniel Wadley

**Textural and Mineralogical Characterization of Kansas Limestone Aggregates in Relation to Physical Test Results:** Randy Billinger

**Support the Certified Inspection and Testing Training (CIT2) Classes by Instructing Those Classes Fitting Research Personnel's Expertise.**

**Special Investigations and Studies of PCC and AC Pavements and Materials:** Nicole Carter, David Meggers, Randy Billinger, Cliff Hobson, Daniel Wadley, Coltin Wichtner and Jennifer Distlehorst

**Noise Studies:** David A. Meggers and Daniel Wadley

I-70, Saline Co. (Exposed aggregate/new generation milled surface PCCP, two-lift construction, Constructed 2008)

US-24 Evaluation of High Friction Surfaces for Noise Abatement, 2016

**Advanced Technology Research:** Cliff Hobson

Magnetic Tomography – Assessing Tie Bar and Dowel Bar Placement Accuracy

**Other**

Do Polyepoxy/Polyisocyanate Composite Resins for Concrete Protection Perform Better Than Either of their Components: Coltin Wichtner

Predicting Critical Shear Stress of Fine-Grained Soils in Kansas: David Meggers

Review of QC/QA Data to Improve Current Specifications for PCC Pavements in Kansas: Richard Kreider

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### OBJECTIVES

Bring the results of various research and development projects into operating practice that require a startup cost to implement.

### METHODOLOGY

Provide the funds need to implement research findings. This may include the cost to hire a contractor to construct test sections, purchasing new testing equipment, training manuals/courses, i.e., obtain the tools needed to achieve implementation.

In FY-2019, KDOT would like to implement the findings from KTRAN KSU-15-5, Predicting Critical Shear Stress of fine-grained soils in Kansas. The KTRAN research project showed that electrical resistivity will work but Kansas needs a larger database with the soils across the State.

### IMPLEMENTATION OF RESEARCH FINDINGS BUDGET

Federal Aid	\$120,000	+	Match	\$0	=	\$120,000
-------------	-----------	---	-------	-----	---	-----------

KDOT would be using toll credits for matching funding.

**KDOT CONTACT:** David Behzadpour, Technology Transfer Engineer  
(785) 291-3847

---

### OBJECTIVES

Identify research of specific interest to KDOT and coordinate dissemination of research results to researchers and implementers.

### METHODOLOGY

Fund the operation of the KDOT Library.

Edit technical reports for publication.

Assist in the coordination of research efforts, review publication to identify areas of specific interest to KDOT.

Develop implementation plans to transfer technology advances into the field and/or design with internal and external partners.

Serve as a liaison to Midwest Transportation Knowledge Network, University of Kansas Transportation Center; Monitor the LTAP program, etc.

### FY2020 PRODUCTS

- Offer at least twenty webinars to KDOT staff
- Publish and develop KDOT research reports, implementation plans, and findings
- Continue to provide a valuable research Library to KDOT staff and our local partners, catalog new acquisitions and notify respective staff on new research available.

### TECHNOLOGY TRANSFER BUDGET

<b>Federal Aid</b>	<b>\$240,000</b>	+	<b>Match</b>	<b>\$60,000</b>	=	<b>\$300,000</b>
--------------------	------------------	---	--------------	-----------------	---	------------------

## 1.5 - TECHNOLOGY TRANSFER TRAINING – TRAINING COURSE FEES

**KDOT CONTACT:** David Behzadpour, Technology Transfer Engineer  
(785) 291-3847

---

### OBJECTIVES

Provide training courses that lead to the adoption of new technologies and products, and keep personnel current on methodologies and design procedures.

### METHODOLOGY

- Offer at least four NHI (or similar) classes in Kansas
- Fund the KDOT's Field Personnel's Certified Inspection and Testing Training (CIT2)
- Provide funding to send selected KDOT individuals to NHI courses offered in other states that only a few individuals from KDOT need to attend (We plan to send 2-3 individuals to the NHI Materials Course in FFY2019)
- Provide KDOT's Certified Inspection and Testing Training

### TECHNOLOGY TRANSFER TRAINING BUDGET

<b>Federal Aid</b>	<b>\$280,000</b>	+	<b>Match</b>	<b>\$70,000</b>	=	<b>\$350,000</b>
--------------------	------------------	---	--------------	-----------------	---	------------------

BUDGET	Training Course Fees NHI (RE-0265-19)	\$85,000
	Training Course Fees CIT2 (RE-0639-19)	\$250,000
	Travel Expenses to attend courses (RE-0265-19)	\$15,000

**KDOT CONTACT:** David Behzadpour, Technology Transfer Engineer  
(785) 291-3847

**MISSION**

Provide Local authorities access to training and information, workforce development services; resources to enhance safety and security; solutions to environmental, congestion, capacity and other issues; technical publications; and training videos and materials.

**METHODOLOGY**

Provide technical hands-on information as it pertains to roadway/ bridge design, construction and materials topics and state-of-the art/practice.

Assist with information and training as it pertains to program implementation, administration and oversight/stewardship matters. KDOT provides the LTAP Work Plan annually to FHWA for acceptance.

Funding for this Program comes from Federal Aid SPR (\$150,000), Federal Aid LTAP Funding (\$150,000) and the local match is provided by Kansas University whom is contracted by KDOT to provide these services. RE-0255-19

Kansas Safety Circuit Rider Program for Local Transportation Agencies-KDOT will partner with the Kansas LTAP Center to expand LTAPs services to include a Safety Circuit Rider Program. The Safety circuit rider program will provide transportation analysis services and on-site technical assistance to assist local agencies in identifying practical safety improvements within cities, counties and townships, implementation low-cost safety strategies to reduce crashes on local roads in Kansas.

**LOCAL TRANSPORTATION ASSISTANCE PROGRAM (LTAP) BUDGET**

Federal Aid	\$600,000	+	Match	\$120,000	=	\$720,000
-------------	-----------	---	-------	-----------	---	-----------

BUDGET	LTAP—Federal Aid LTAP Funds (RE-0255-19)	\$150,000
	LTAP—Federal Aid SPR Match Funds (RE-0255-19)	\$600,000

### 3.0 – POOL FUND STUDIES

**KDOT CONTACT:** David Behzadpour, Technology Transfer Engineer  
(785) 291-3847

**MISSION**

Support national research and development addressing KDOT’s strategic goals and initiatives, and offer practical solutions for problems facing the Kansas DOT.

**METHODOLOGY**

When significant or widespread interest is shown in solving transportation-related problems, research, planning, and technology transfer activities may be jointly funded by several federal, state, regional, and local transportation agencies, academic institutions, foundations, or private firms as a pooled fund study. Studies of this nature often extend over many years; the budget includes on-going studies as well as reserved funds to participate as new studies are initiated.

**POOL FUND STUDIES BUDGET**

Federal Aid	\$1,000,000	+	Match	\$0	=	\$1,000,000
-------------	-------------	---	-------	-----	---	-------------

FY 2020 (As of June 5, 2019)

FHWA NO.	KDOT NO.	TITLE	FFY 2019 FUNDS PLEDGED
TPF-5(193)	RE-0516-01	Crash Testing of Highway Safety Appurtenances and Obstacles	\$66,200
TPF-5(281)	RE-0620-01	IN-Center for the aging Infrastructure: Steel Bridge Research, Inspection, Training, and Education Engineering Center SBRITE	\$50,000
TPF-5(290)	RE-0643-04	IA-Aurora Program Facilitate RWIS research	\$25,000
TPF-5(311)	RE-0678-01	implementation of the AASHTO MEPDG for pvmt rehab	\$150,000
TPF-5(319)	RE-0698-01	FHWA Transportation Management Center, formerly SPR-2(021)	\$25,000
TPF-5(320)	RE-0685-01	North Central States Superpave Center Operation and Support formerly TPF-5(021)	\$25,000
TPF-5(326)	Pending	RI-Transportation Performance Management	\$40,000
TPF-5(353)	RE-0722-01	Clear Roads Winter Highway Maintenance Operations	\$25,000
TPF-5(354)	RE-0724-01	Improving the Quality of Highway Profile Measurements	\$20,000
TPF-5(359)	RE-0725-01	Enterprise (ITS)	\$50,000
TPF-5(368)	RE-0743-01	IA-Performance Engineered Concrete Paving Mixtures. Approved Funding for 5 years,	\$15,000
TPF-5(372)	RE-0742-01	IA- Building Information Modeling (BIM) for Bridges and Structures	\$20,000
TPF-5(375)	RE-0745-01	MN-National Partnership to Determine the Life Extending Benefit Curves of Pvmv Preservation Tech. (MnDOT/NCAT Joint Study)	\$50,000
TPF-5(380)	RE-0768-01	Co-Autonomous Maintenance Technology (ATM)	\$25,000
TPF-5(391)	RE-0775-01	Comprehensive Field Load Test and Geotechnical Investigation	\$30,000



TPF-5(392)	RE-0778-01	KS_Construction of Low-Cracking High-Performance Bridge Decks Incorporating New Technology	\$45,000
TPF-5(396)	RE-0780-01	WI-Mississippi Valley Freight Coalition Pooled Fund Previous TPF-5(293)	\$37,000
TPF-5(399)	RE-0782-01	FHWA_Improve pavement surface distress and transverse profile data collection and analysis, Phase II	\$20,000
Sol 1419		Unpaved Road: A Research Collaboration to Determine Crash Causation and Countermeasures	\$15,000
Sol 1488	RE-0785-01	Development of Criteria to Assess the Effects of Pack-out Corrosion in Built-up Steel Members	\$40,000
Sol 1491	RE-0784-01	WI_Bridge Element Deterioration for Mid-west States	\$20,000
Sol 1492	Pending	Technology Transfer Concrete Consortium Formerly TPF-5(159) and 5(313)	\$20,000
Sol 1493	Pending	Smart Work Zone Deployment Initiative (FY20-FY24)	\$15,000
Sol 1496	RE-0783-01	IA_Aurora Program-25K/5 yrs	\$25,000
TOTAL			\$853,200

The Following Are Active or Recently Completed with No Funds Committed by KDOT for Fiscal Year 2020:

TPF-5(178)	RE-0505-01	Implementation of Asphalt Mixture Performance Tests for Superpave Validation
TPF-5(210)	RE-0561-01	In Situ Scour Testing Device
TPF-5(218)	RE-0584-01	Clear Roads Winter Highway Operations
TPF-5(255)	RE-0588-01	Highway Safety Manual Implementation
TPF-5(269)	RE-0607-01	Improved Design Procedure for Unbonded concrete Overlays
TPF-5(272)	RE-0615-01	Utah-Evaluation of Lateral Pile Resistance Near MSE Walls at a Dedicated Site
TPF-5(291)	RE-0644-01	Dev of an SPS-2 Pavement Preservation Experiment
TPF-5(293)	RE-0649-01	Mid-America Freight Coalition-II Pooled Fund Formerly TPF-5(156)
TPF-5(295)	RE-0650-01	Smart Work Zone Deployment Initiative Formerly TPF-5(081)
TPF-5(297)	RE-0665-01	Improving Specifications to Resist Frost Damage in Modern Concrete Mixtures
TPF-5(299)	RE-0668-01	Improving the Quality of PVMT Surface Distress and Transverses Profile Data Collection & Analysis
TPF-5(301)	RE-0723-01	Support Services for Peer Exchanges
TPF-5(305)	RE-0675-01	FHWA Regional & National Implementation and Coordination of ME Design
TPF-5(313)	RE-0679-01	Technology Transfer Concrete Consortium Formerly TPF-5(159)
TPF-5(314)	RE-0680-01	FHWA Statewide Geospatial Transportation Strategic Plan Development and All Road Network of Linear Data Pilot Project Solicitation 1366
TPF-5(316)	RE-0682-01	Traffic Control Device Consortium (Brian Gower) formerly TPF-5(068)
TPF-5(319)	RE-0698-01	FHWA Transportation Management Center, formerly SPR-2(021)
TPF-5(328)	RE-0699-01	KS-Strained Fatigue Crack Monitoring of Steel Bridges using wireless Elastometric Sensors, solicitation 1372
TPF-5(336)	RE-7000-01	Construction of Low Cracking-High Performance Bridge Decks Incorporation New Technology

TPF-5(339)	RE-0701-01	Contaminated Release from Storm Water Culvert Rehab Technologies
TPF-5(340)	RE-0703-01	WI-Axle and Length Classification Factor Analysis/Effects on Annual AADT
TPF-5(351)	RE-0721-01	Self-De-icing Lights
TPF-5(364)	RE-0738-01	KS-Utilization of Laser Induced Breakdown Spectroscopy (LIBS) for Real-Time Testing and Quality Control Monitoring of Aggregate Materials used in Highway Const
TPF-5(370)	RE-0741-01	FHWA Fostering Innovation in Pedestrian & Bicycle Transportation
TPF-5(379)	Pending	IA-International conference on Low Volume Roads and Peer Exchange
TPF-5(385)	RE-0776-01	VA_Pavement Structural Evaluation with Traffic Speed Deflection Devices (TSDDs)

## 4.0 – NATIONAL RESEARCH PROGRAMS

**KDOT Contact:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### MISSION

Provide funds to national research programs as required by Federal Highway Administration

### ITEMS IN THIS SECTION

- 4.1 - National Cooperative Highway Research Program (NCHRP)
- 4.2 - Transportation Research Board (TRB) Core Program
- 4.3 – AASHTOWare Project Data Analytics Joint Development

### NATIONAL RESEARCH PROGRAMS BUDGET

Federal Aid	\$785,000	+	Match	\$0	=	\$785,000
-------------	-----------	---	-------	-----	---	-----------

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

**OBJECTIVES**

Provide Kansas' annual assessment to NCHRP to fund the National research program

**METHODOLOGY**

Continue national highway research program and initiate new projects as approved by the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Research.

**FY2020 PRODUCTS****NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) BUDGET**

Federal Aid	\$430,000	+	Match	\$0	=	\$430,000
-------------	-----------	---	-------	-----	---	-----------

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

## OBJECTIVES

Support the mission of TRB to promote innovation and progress in transportation through research.

## METHODOLOGY

Help TRB to facilitate the sharing of information on transportation practice and policy by researchers and practitioners; stimulate research and offer research management services that promote technical excellence; provide expert advice on transportation policy and programs; and disseminate research results broadly and encourage their implementation.

- Conduct and promote knowledge creation and dissemination, especially on innovative practices and technologies in the transportation sector.
- Promote collaboration on transportation research, education, and technology transfer at international, national, regional, state, and local levels; across public and private sectors; and with transportation providers, customers, and other stakeholders.
- Contribute to the professional development of individuals currently working in transportation and to the education and enhanced diversity of the pool of individuals who will work in the field in the future.
- Conduct and promote communications efforts to enhance the awareness of transportation research and its contributions to innovation and progress in transportation.
- Contribute to the public's understanding of transportation and its significance to the nation.

## TRANSPORTATION RESEARCH BOARD (TRB) BUDGET

Federal Aid	\$105,000	+	Match	\$0	=	\$105,000
-------------	-----------	---	-------	-----	---	-----------

**KDOT CONTACT:** Lanny Campbell, Systems Manager  
(785) 296-7132

---

### OBJECTIVES

Develop the next generation of the AASHTOWare Project Data Analytics software application.

### METHODOLOGY

Working through AASHTO, update the AASHTOWare BAMS/DSS application by developing AASHTOWare Project Data Analytics.

KDOT has been an active user of the AASHTOWare Project BAMS/DSS application since adopting it in 1982. Currently all line item profiles, post-letting, pre-award, and market analysis is done through BAMS/DSS. The models in AASHTOWare Project Data Analytics allows estimators to create a confident engineering estimate, provide detailed analysis for decision makers, and identifies uncompetitive markets or bidding practices. Being an active participant in the major upgrade allows KDOT to provide direction in the development, which is beneficial to the agency.

### AASHTOWare PPROJECT DATA ANALYTICS JOINT DEVELOPMENT BUDGET

Federal Aid	\$250,000	+	Match	\$0	=	\$250,000
-------------	-----------	---	-------	-----	---	-----------

Funding for this project is a 3-year commitment for \$250,000 each year for FY Years 2019-2021 - 100% Federal Aid SPR Part B.

**PART III:  
PLANNING  
NON-SPR  
ACTIVITIES**

## 1.0 – GENERAL NON-PARTICIPATING PLANNING ACTIVITIES – STATE FUNDED

KDOT CONTACT: Chris Herrick, Director of Planning and Development  
(785) 296-3090

---

### MISSION

Provide for the general support for the organization, leadership and administration of the Division of Planning and Development.

### ITEMS IN THIS SECTION

There are three sub-items in this section:

- 1.1 – Division of Planning and Development Office Administration
- 1.2 – Transportation Planning Administration
- 1.3 – Program and Project Management Administration

### TOTAL GENERAL NON-PARTICIPATING PLANNING ACTIVITIES BUDGET

Federal Aid	\$0	+	State	\$700,000	=	\$700,000
-------------	-----	---	-------	-----------	---	-----------



**1.1 – DIVISION OF PLANNING AND DEVELOPMENT OFFICE ADMIN.****P-0473-20**

**KDOT CONTACT:** Chris Herrick, Director of Planning and Development  
(785) 296-3865

---

**1.2 – BUREAU OF TRANSPORTATION PLANNING ADMINISTRATION****P-0245-20**

**KDOT CONTACT:** Mike Moriarty, Bureau Chief of Transportation Planning  
(785) 296-8864

---

**1.3 – BUREAU OF PROGRAM AND PROJECT MANAGEMENT ADMIN.****P-0474-20**

**KDOT CONTACT:** Mark Taylor, Bureau Chief of Program and Project Management  
(785) 296-2058

---

**OBJECTIVES**

Provide for the planning, organizing, training, supervision, administrative support and office work necessary for the general operations of the Division of Planning and Development.

**METHODOLOGY**

Selected highway planning activities and expenditures are not eligible for funding with SPR funds. The general administration activities related to the general operation of the Division. Items included are general communication services, general office supplies, personnel work and organizational training and conference.

**DIVISION OF PLANNING AND DEVELOPMENT OFFICE ADMINISTRATION BUDGET**

Federal Aid	\$0	+	State	\$100,000	=	\$100,000
-------------	-----	---	-------	-----------	---	-----------

**BUREAU OF TRANSPORTATION PLANNING ADMINISTRATION BUDGET**

Federal Aid	\$0	+	State	\$500,000	=	\$500,000
-------------	-----	---	-------	-----------	---	-----------

**BUREAU OF PROGRAM AND PROJECT MANAGEMENT ADMINISTRATION BUDGET**

Federal Aid	\$0	+	State	\$100,000	=	\$100,000
-------------	-----	---	-------	-----------	---	-----------

## 2.0 – OTHER PLANNING ACTIVITIES FUNDED WITH STATE FUNDS

**KDOT CONTACT:** Mike Moriarty, Bureau Chief of Transportation Planning  
(785) 296-8864

---

### MISSION

Support processes to implement programs of State importance.

### ITEMS IN THIS SECTION

There is one sub-item in this section:

2.1 – Official State Map

### OTHER PLANNING ACTIVITIES BUDGET

Federal Aid	\$0	+	State	\$40,000	=	\$40,000
-------------	-----	---	-------	----------	---	----------

**KDOT CONTACT:** Kyle Gonterwitz, GIS Manager  
(785) 296-4899

---

**OBJECTIVES**

Provide reliable, accurate, legible and reasonably current general state and Official State map.

**METHODOLOGY**

Prepare and print the Official State map for distribution.

**FY2020 PRODUCTS**

Print and distribute the 2020-2021 Kansas Bicycle Map. Cost of the printing is state funded.

Distribute the 2019-2019 Map Official Kansas State Map.

**OFFICIAL STATE MAP BUDGET**

Federal Aid	\$0	+	State	\$40,000	=	\$40,000
-------------	-----	---	-------	----------	---	----------

**PART IV:  
RESEARCH  
NON-SPR  
ACTIVITIES**

## 1.0 – STATE FUNDS – UNIVERSITY RESEARCH

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### MISSION

To support transportation research, development and technology transfer activities (RD&T) in State Universities.

### ITEMS IN THIS SECTION

There are two sub-items in this section:

1.1 – K-TRAN Program

1.2 – Undesignated University Research Program & Ad-Hoc University Research Program

Federal funds are not used for these activities. However, they are included to show the overall Research activity of KDOT

### UNIVERSITY RESEARCH BUDGET

Federal Aid	\$0	+	State	\$1,349,521	=	\$1,349,521
-------------	-----	---	-------	-------------	---	-------------

## 1.1 – K-TRAN PROGRAM

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### OBJECTIVES

To address transportation needs of the State utilizing academic and research resources from Kansas State University, University of Kansas and other State of Kansas Universities in an on-going cooperative research program called the Kansas Transportation Research and New-Developments (K-TRAN) Research Program.

### METHODOLOGY

The projects included in the research program are jointly developed by transportation professionals in KDOT and the universities.

Below is the approximate timeline for K-TRAN project selection:

Solicit Research Ideas from KDOT Staff, Local Government Staff, KTA, University Faculty, and Industry Associations	June 1
<b>All K-TRAN project contracts signed</b> (previous solicitation)	<b>Aug. 1</b>
Research Ideas Due to Bureau of Research	Aug. 1
Send KDOT Research Needs to University	Aug. 7
Host <u>Research Needs Day</u> for University and KDOT staff	Aug. 25
Research Program Council Meeting meets to review ideas program status and set policy	Sept. 15
Request for K-TRAN Research Project Statements from KU and KSU	Oct. 1
K-TRAN Research Project Statements Due (RPS/Preproposals)	Oct. 31
Assistant Bureau Chief Research assigns RPS to Area Panels	Nov. 15
Area Panel Evaluations Completed	Dec. 31
Research Technical Committee Prioritizes RPS into “candidate project list”	Jan. 15
Research Program Council Approves K-TRAN Program and Budget	Feb. 15
Assistant Bureau Chief of Research Assigns New K-TRAN Projects to Area Panels	Mar. 1
Area Panel Leaders Assign Project Monitors (submit names to ABC Research)	Mar. 15
Assistant Bureau Chief of Research Provides Project Related Information to all University and KDOT staff involved in new projects	April 1
Assistant Bureau Chief of Research Provides Orientation and Training to Project Monitors	Apr. 1
<b>For Early Start Projects (before July 1), contracts prepared and signed</b>	<b>May 1</b>
<b>For Project Starting July 1, Detailed Proposals are Prepared for Each Project by Principal Investigator and Approved by Project Monitor</b>	<b>Jun. 1</b>

**FY2019 PRODUCTS**

The following is the Approved FY 2020 K-TRAN Program.

K-TRAN Project Number	KDOT Project Number	ESTIMATED TOTAL COST	DUR MO	Title
KSU-20-1	RE-0787-01	\$58,891	12	Developing an Online Interstate Lane Closure Guide and Work Zone Capacity Analysis for the Wichita, Kansas Metropolitan Area
KSU-20-2	RE-0788-01	\$69,588	24	Use of Vegetation Enhances by Green Soil Stabilization for Protection of Kansas Roadsides Against Erosion
KSU-20-3	RE-0789-01	\$60,090	27	Initial Analytical Investigation of Cantilever and Butterfly Aluminum Overhead Sign Trusses with Respect to Remaining Fatigue Life.
KSU-20-4	RE-0790-01	\$65,032	18	Durable High Early Strength Concrete Mixtures for Pavement Repair
KSU-20-5	RE-0791-01	\$53,135	12	Computationally informed methodologies for capturing the effect of intervening structures during truck impact events
KU-20-1	RE-0792-01	\$65,956	15	Bridge Deck Drainage: Evaluation of KDOT's Current Design Guidance
KU-20-2	RE-0793-01	\$116,774	24	Evaluation of Vibration Mitigation Techniques for KDOT Cantilever and Butterfly Sign Structures
KU-20-3	RE-0794-01	\$87,770	24	Snow Plow Truck Route Optimization for Kansas's roadway system (Phase 1)
KU-20-4	RE-0795-01	\$69,982	18	Determination of Micropile Connection Flexural Resistance

RE-0708-20 KSU Administration and Technical Writer Review \$40,000

RE-0709-20 KU Administration and Technical Writer Review \$40,000

The Project Monitor's Orientation was provided on April 19, 2019 with 15 KDOT Personnel in attendance.

**K-TRAN PROGRAM BUDGET**

<b>Federal Aid</b>	<b>\$0</b>	+	<b>State</b>	<b>\$719,521</b>	=	<b>\$719,521</b>
--------------------	------------	---	--------------	------------------	---	------------------

## 1.2 – UNDESIGNATED UNIVERSITY RESEARCH PROGRAM & AD-HOC UNIVERSITY RESEARCH PPROGRAM

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### OBJECTIVES

Provide funding and management to allow for critical or complex agency problems to be quickly assigned to appropriate university staff that is outside the K-TRAN cycle.

### METHODOLOGY

When problems arise throughout the year, KDOT seeks proposals from the Universities for quick assessment and solution of complex problems. Proposals are then forwarded to the State Transportation Engineer for approval.

### UNDESIGNATED UNIVERSITY RESEARCH PROGRAM BUDGET - Tentative

Federal Aid	\$0	+	State	\$630,000	=	\$630,000
-------------	-----	---	-------	-----------	---	-----------



## 2.0 – STATE FUNDS – INTERNAL RESEARCH PROGRAM

**KDOT CONTACT:** David Meggers, Assistant Bureau Chief of Research  
(785) 291-3845

---

### MISSION

Provide administrative, budgetary, clerical, computer, training, and other support activities related to the general operation of the bureau or unit and not specifically related to the administration or accomplishments of the annual SPR Work Program. Included are research laboratory operation expenses such as inventory, telephone, freight, equipment repair, new equipment, supplies, repair or replacement parts, computer charges, field expenses, contractual services, etc. that spread over all research projects and are not fully chargeable to any particular one.

### INTERNAL RESEARCH PROGRAM BUDGET - Tentative

Federal Aid	\$0	+	State	\$312,000	=	\$312,000
-------------	-----	---	-------	-----------	---	-----------