

WORK PROGRAM & COST ESTIMATE

HIGHWAY PLANNING, RESEARCH,
DEVELOPMENT AND IMPLEMENTATION

FISCAL YEAR

2005



**KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION PLANNING**

ACKNOWLEDGEMENTS

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KANSAS DEPARTMENT OF TRANSPORTATION

**REPORT
OF THE CURRENT
STATE PLANNING AND RESEARCH,
DEVELOPMENT & IMPLEMENTATION PROGRAM**

PROJECT

SPR-0010(27) Statewide

for the 2004 Fiscal Year
July 1, 2003 through June 30, 2004

and

**OF THE FUTURE
STATE PLANNING AND RESEARCH,
DEVELOPMENT & IMPLEMENTATION PROGRAM**

PROJECTS

**SPR-P010(28) Statewide Planning
SPR-R010(28) Statewide Research**

for the 2005 Fiscal Year
July 1, 2004 through June 30, 2005

and a

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

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

June 2004

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RESEARCH, DEVELOPMENT & IMPLEMENTATION
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July 1, 2004 through June 30, 2005

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FOREWORD

This State Planning and Research, Development and Implementation Work Program and Cost Estimate has been prepared for submittal in compliance with subsection (c) of Section 307 of Title 23, United States Code.

This program describes the State Planning and Research, Development and Implementation activities of the Kansas Department of Transportation proposed for state fiscal year 2005 (July 1, 2004 through June 30, 2005) to meet the needs of the Kansas Department of Transportation and the Federal Highway Administration. In addition, this program provides a report of the State Planning and Research, Development and Implementation accomplishments of the Kansas Department of Transportation for state fiscal year 2004 (July 1, 2003 through June 30, 2004).

This program is divided into four parts. Part I describes the State Planning and Research (SPR) participating planning projects (SPR-P010 (28)). The SPR participating research, development and implementation projects are described in Part II (SPR-R010(28)). 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 the SPR funding that were largely retained the Transportation Equity Act for the 21st Century (TEA-21), passed in 1998, and in subsequent authorizing legislation.

The current law provides that two percent (2%) of each State's total apportionment of Interstate Maintenance, National Highway System, Surface Transportation Program, Bridge Replacement and Rehabilitation, Congestion Mitigation and Air Quality improvement funds must be used as SPR funds. In addition, a minimum of twenty-five percent of that amount must be used for research, development, and Technology Transfer activities. The balance of the funds for the planning and research activities comes from the State Highway Fund, including the required matching funds.

The SPR funds have been earmarked to provide funding for conducting, on a continuing basis, the activities necessary to accomplish "engineering and economic surveys and investigations; for the planning of future highway programs and local public transportation systems and for planning for the financing thereof; for studies of the economy, safety, and convenience of highway usage and the desirable regulation and equitable taxation thereof; and for research and development, necessary in connection with the planning design, construction, and maintenance of transportation systems, and the regulation and taxation of their use."

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. This proposed work program anticipates that Federal legislation will continue to be passed to provide funding at or above TEA-21 levels.

Bureau of Transportation Planning

The functions and responsibilities of the Bureau of Transportation Planning can be divided into eight functional areas, which correspond to the eight units of the bureau. These eight functional areas and units consist of Traffic and Field Operations, Geometric and Accident Data, Cartography/GIS(Geographical Information Systems), Urban Planning, Intelligent Transportation Systems (ITS), Public Transportation, Rail Affairs, and Statewide Planning. These eight units, along with a Long Range Planning Engineer position, and the Research Unit of the Bureau of Materials and Research are responsible for accomplishing the majority of the activities in the SPR work program. Management of these activities is included in the administrative sections of the work program.

The activities of the Bureau include the performance of needs analysis; collection, maintenance and analysis of traffic, accident and inventory data; preparation of State, district, county and city maps; conducting local, State and national transportation studies, metropolitan planning studies, and sub-state planning studies that include all modes within the particular region; "Statewide" planning where the emphasis is on a particular mode or combination of all modes involved in the movement of persons and goods; monitoring and coordinating railroad activities; administration of public transit programs; coordination of ITS activities; and many other analytical aspects of transportation planning. The information developed through these transportation planning activities provides the basis for administrative and legislative decisions and actions concerning the development and management of the transportation system. Because of the important role of planning data in the decision-making process, it is essential that many types of accurate and reliable data be maintained on a current basis. In addition, it is essential that the capability exists, including having adequate personnel, to provide the planning data in a timely manner, especially when requested by the management, the administration or the legislature.

Other Units and Offices

Other offices outside the Bureau of Transportation Planning that are involved in activities included in this program are the Bureau of Program Management (construction program development and monitoring) and the Bureau of Materials and Research (pavement management).

Bureau of Materials and Research Research Unit

Research, Development, and Technology Transfer (RD&T) are service-oriented staff operations that include field and laboratory analytical and experimental activities, which primarily seek to increase the understanding and usefulness of fundamental phenomena. Basic research looks at phenomena whose use may not yet be known. KDOT primarily does applied research on specific needs of the State's road system. This can include development of experimental hardware, but usually the output is a report for management to decide whether or not to use the research results. To be cost effective, RD&T must do one or more of several things: Increase safety, lower costs, reduce waste, increase personnel efficiency or production, eliminate unneeded work, improve working conditions, methods or equipment, improve operations or extend service life. KDOT Research has been shown to be highly cost effective.

Much Research Unit effort goes toward implementation, demonstration, or evaluation of experimental construction features that take many weeks of before, during, and after construction activities. The monitoring often requires several years of field and lab evaluations of the experimental feature before it can be accepted for standard practice or rejected if found unsatisfactory. Kansas signed a basic agreement with FHWA on November 15, 1974 to expedite and coordinate the evaluation of implementable research under the Federally Coordinated Implementation Program (FCIP). This was updated on January 1, 1985 (9DTFH61-85-C-00020).

The National Experimental and Evaluation Program (NEEP) has been dropped by FHWA but existing studies must be continued and reported according to the original work plans. Technologies are now developed, promoted, and evaluated through the issuance of Work Orders under a Demonstration Projects Basic Cooperative Agreement executed between FHWA Demonstration Projects Division and KDOT on June 6, 1981. A new Experimental Projects Program has been established for a select category of experimental features. These features are new technologies that are identified as potentially very promising with high pay-off but with little or no proven performance record. The National Coordinated Program (NCP) of Highway Research, Development and Technology includes the SPR, NCHRP, and FHWA staff and contract research. Former Strategic Highway Research Program (SHRP) implementation activities and Long Term Pavement Performance (LTPP) activities have been transferred to the FHWA.

The University of Kansas Transportation Center operates an effective Technology Transfer Center for Local Transportation agencies under an agreement with KDOT and FHWA. A cooperative transportation research program between the Kansas Department of Transportation, Kansas State University (KSU), and the University of Kansas (KU) was created during 1990. The program, called the Kansas Transportation Research and New-Developments (K-TRAN) Program, is modeled after the successful Texas program. The Research Program Council meets to set policy and approve the annual K-TRAN Program. The Research Technical Committee meets to consider new research proposals, prioritize candidate projects for the annual K-TRAN Program and to promote technology transfer. The FHWA Division Administrator and Planning Team Leader are ex officio members of these committees, respectively.

The K-TRAN Program currently budgeted at \$700,000 per year has been highly successful showing an overall benefit to cost ratio of 14.4 to 1 in the March 2004 compilation of triennial benefits. A revision to the K-TRAN master agreement to include all university RD&T and guarantee a funding level of \$350,000 per university per year was signed in January 2000.

Since the Research Unit is also a service unit, researchers are asked by various organizations and individuals to participate in solving construction problems, prepare experimental feature statements, complete questionnaires, serve on state and national task forces, technical panels, committees, councils, workshops, schools, etc. and make presentations about research findings at those and other group meetings. Researchers publish papers in national and state journals in addition to reports printed by KDOT. KDOT maintains membership in TRB, NCHRP, AASHTO, ASTM, AAPT and ACI and researchers serve on various committees and panels associated with these organizations. One researcher serves as the SHRP Long Term Pavement Performance (LTPP) liaison. The KDOT Library is now affiliated with OCLC and the Midwest Transportation Knowledge Network (MTKN). Research Unit technicians work on pavement management field crews each spring.

In the interest of technology sharing, KDOT now provides research publications to all interested parties via the KDOT Research Reports Catalog internet web page at: <http://www.ksdot.org/burmatres/kdotlib2.asp> E-mail notices of the availability on line of one page report summaries and full text reports are also sent to various distribution lists, other interested parties who have requested them, industry partners, NTIS, TRB (for the TRIS database), FHWA and KDOT staff. Limited numbers of paper copies of most research reports are also printed and mailed to those libraries and agencies that still prefer paper copies. KDOT also publishes a quarterly Technology Transfer Digest which receives widespread distribution to the various Division of Operations headquarters and field offices.

The Research Unit also maintains several other internet and intranet web pages to provide customers with easy access to publications and research-related information. KDOT inputs information on planned and active research projects directly into the TRB Research in Progress (TRBRiP) database. Information on completed research projects is entered into the TRIS database. Also, information related to transportation pooled fund projects is entered directly into the www.pooledfund.org database and information on limited numbers of approved New Products is also entered into the APEL database.

The KDOT Electronic Library Catalog became operational during January 2003. Essentially all KDOT publications have now been scanned and are available as full text documents to KDOT staff via the intranet. Work continues to enter information on all older publications held by the Library and new incoming publications. While all publications will not be scanned full text for the Electronic Library, the catalog will be used to document all holdings of the KDOT library. Only citation information and an image of the cover are being entered for some publications.

The Technology Transfer Section staff and the KDOT Library will relocate from the Materials and Research Center to the new KDOT Headquarters Building during late summer or early fall 2004.

KDOT certified that it is in compliance with all requirements of 23 U.S.C. 307 and its implementing regulations with respect to the RD&T program prior to June 30, 1995. A RD&T Procedures Manual that documents the RD&T process was revised November 2000. Peer exchanges were held during 1997 and 2000. A third KDOT peer exchange will be hosted during calendar year 2004.

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 Bureau of Personnel Services. KDOT's internal EEO officer processes internal civil rights complaints and conducts Title VI/Nondiscrimination training as a part of other classes. The internal EEO officer also prepares the annual affirmative action plan for the agency.
2. The external EEO activities are managed by the Office of Engineering Support, external EEO section. 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 STATE PLANNING and
RESEARCH, DEVELOPMENT & IMPLEMENTATION
WORK PROGRAM -- PROJECT
SPR-P010(28) Statewide Planning / SPR-R010(28) Statewide Research
Fiscal Year 2005 (July 1, 2004 through June 30, 2005)**

FINANCIAL SUMMARY SHEET

A.	Total Estimated Costs	SPR
	Part I Planning	\$6,105,000
	Part II Research, Development & Implementation	\$1,480,000
	Total	\$7,585,000

B. Available Federal Funds as indicated:

Fiscal Year	Type Funds	Federal Participation Ratio	Apportionment	Unobligated Amount
2004 (As of 05-01-04)	SPR	0.80	\$6,137,547	\$1,700,000
2005 (Est.)	SPR	0.80	\$6,137,547	\$6,137,547
Subtotal	SPR		\$12,275,094	\$7,837,547
Less:				
LTAP-HPR-NHI-010(005)SPR	SPR	0.80	140,000	140,000
SPR-TPF-5(405) Dedicated (5 1/2%) NCHRP				337,565
SPR-2(207) Traffic Management Center (TMC) Consortium				30,000
HPR-3(017) Crash Testing of Highway Safety Appurtenances and Obstacles				55,000
SPR-3(020) Enterprise (ITS)				50,000
TPF5(010) Structural Improvement of Flexible Pavements using Geosynthetics				20,000
TPF5(021) North Central States Superpave Center Operation and Support				25,000
TPF5(036) Transportation Asset Management Research Program				5,000
TPF5(048) Midwest States Accelerated Testing Program				75,000
TPF5(063) Smoothness Criteria for LWP and Van Prolifilometers				20,400
TPF5(065) Traffic Control Device Consortium				5,000
TPF5(066) Materials and Construction Optimization for Prevention of Premature Distress in PCC Pavements				15,000
TPF5(080) Investigation of Low Temperature Cracking in Asphalt Pavements				25,000
TPF5(090) Pavement Tools Consortium				20,000
TPF5(xxx) Scaling of PCCP and Bridge Decks with Slag Cement				25,000
TPF5(xxx) HITEC alternative Material Dowel Bars/Outreach, Clearinghouse and EXCOM Activities				15,000
				Subtotal
				862,965
				Total Available Federal
				\$6,974,582

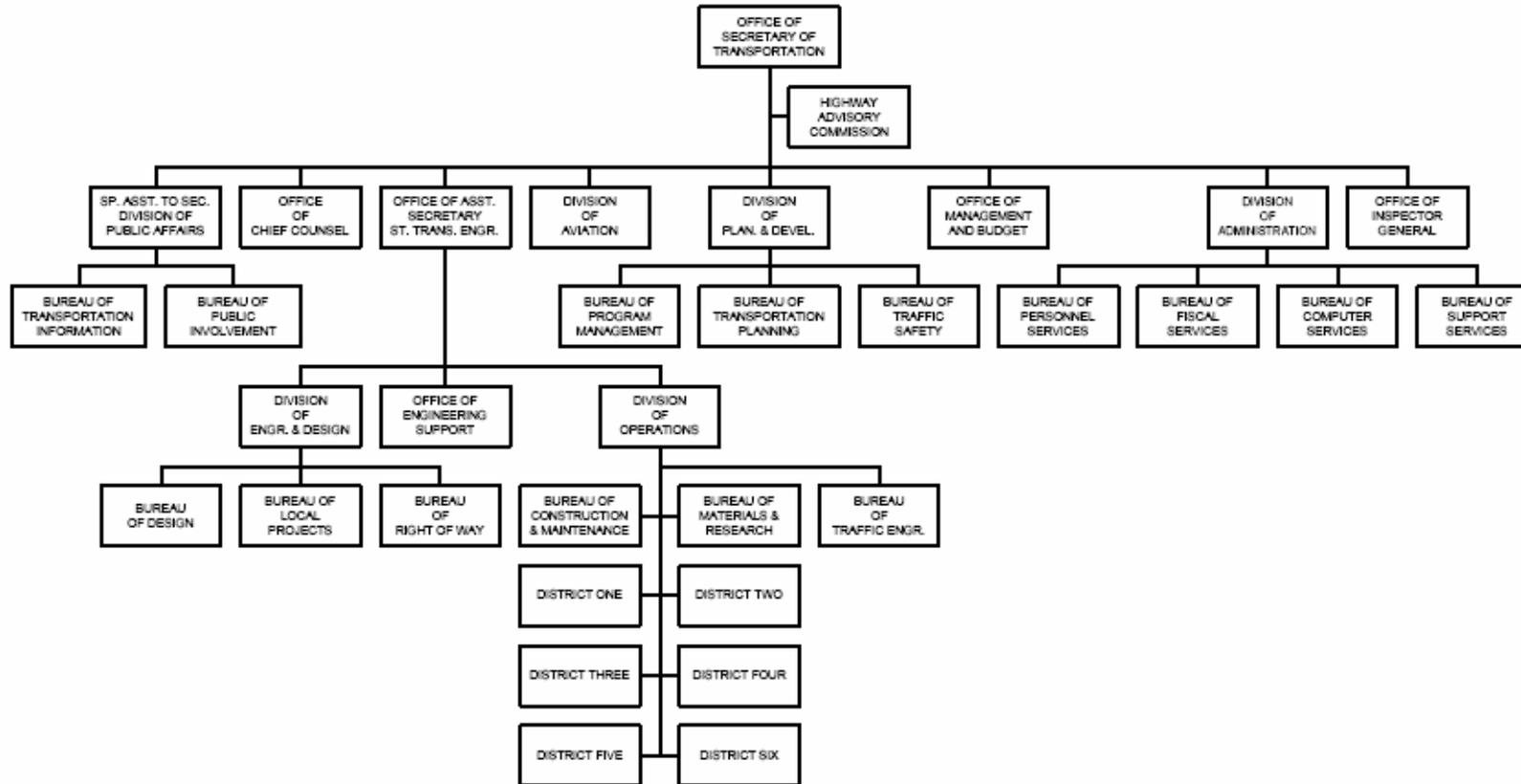
C. Proposed Financing

Fiscal Year	Type Funds	Federal Share	Federal Funds	State Funds	Total Funds
2004	SPR	0.80	\$1,700,000	\$425,000	\$2,125,000
2005 Est.	SPR	0.80	\$4,368,000	\$1,092,000	\$5,460,000
Subtotal	SPR	0.80	\$6,068,000	\$1,517,000	\$7,585,000

UNPROGRAMMED BALANCES OF FEDERAL FUNDS

Fiscal Year	Type Funds	Apportionment
2004	SPR	\$906,582

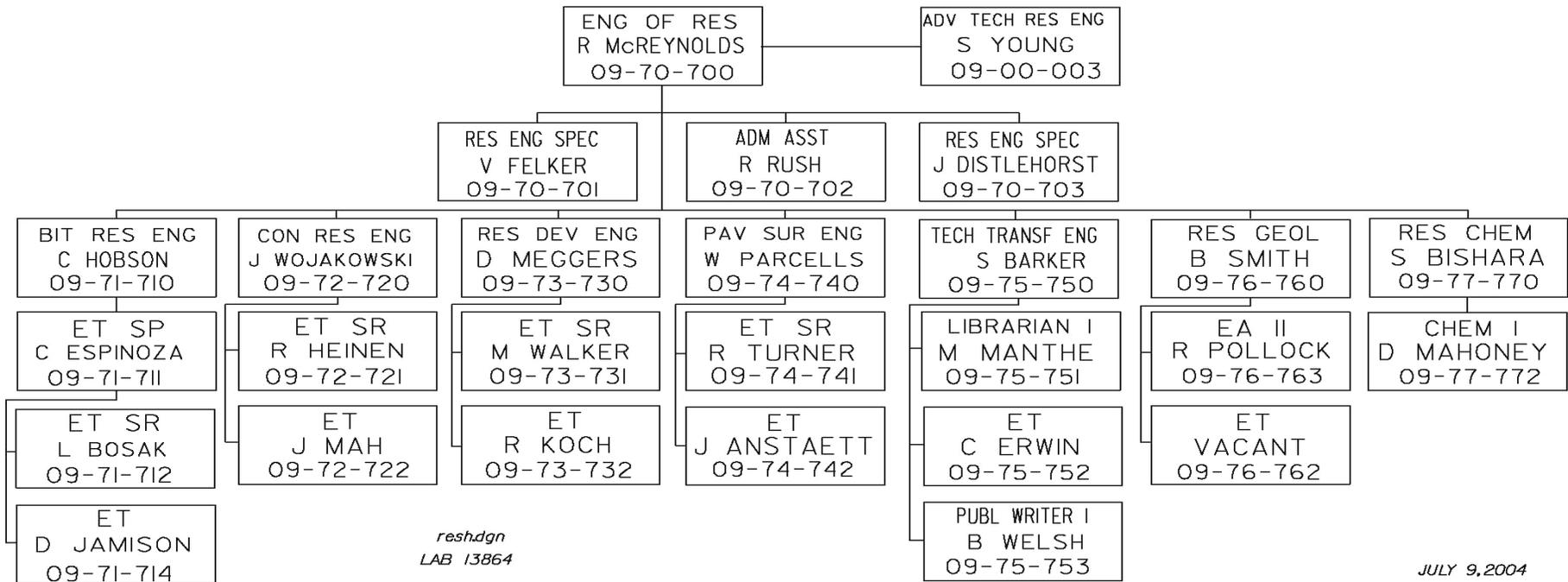
ORGANIZATIONAL CHART KANSAS DEPARTMENT OF TRANSPORTATION



INTERNAL EEO IS LOCATED WITHIN THE BUREAU OF PERSONNEL SERVICES.
EXTERNAL EEO IS LOCATED WITHIN THE OFFICE OF ENGINEERING SUPPORT.

SECRETARY OF TRANSPORTATION
JANUARY 31, 2003

RESEARCH UNIT



**DETAILED COST ESTIMATE AND OUTLINE
FOR
THE 2005 WORK PROGRAM**

PART I

PLANNING ACTIVITIES

**PROJECT
SPR-P010 (28) Statewide**

KANSAS STATE PLANNING
DEVELOPMENT & IMPLEMENTATION
WORK PROGRAM -- PROJECT

SPR-P010(28) Statewide
Fiscal Year 2005
July 1, 2004 through June 30, 2005

SUMMARIES OF ESTIMATED COSTS
BY
SECTIONS AND SUBSECTIONS

PART I

	<u>AMOUNT</u>	<u>AMOUNT</u>	<u>AMOUNT</u>
1. ADMINISTRATION AND CONTROL			530,000
A. Salaries and Expenses		530,000	
2. INVENTORY			430,000
A. Mapping and Road Characteristics Inventory		120,000	
B. Railroad Crossing Hazard Rating		0	
C. Pavement Inventory Frictional Characteristics		130,000	
D. Videologging		180,000	

	<u>AMOUNT</u>	<u>AMOUNT</u>	<u>AMOUNT</u>
3. MAPPING/GEOGRAPHIC INFORMATION SYSTEMS			800,000
A. Mapping		300,000	
(1) General Mapping	250,000		
(2) Official State Mapping	50,000		
B. Geographic Information Systems		500,000	
(1) GIS Base Mapping	80,000		
(2) TerraShare Image Management and Distribution	80,000		
(3) KGATE – GIS Web Portal/ Road Condition Reporting System	150,000		
(4) Kanroad	160,000		
(5) GIS Strategic Management Plan Implementation	30,000		
4. TRAFFIC MONITORING			1,085,000
A. Traffic Volume Counting		560,000	
B. Vehicle Classification		230,000	
C. Truck Weight and Characteristics		200,000	
D. Speed Studies		5,000	
E. Purchase of Traffic Monitoring Equipment		90,000	
5. HIGHWAY STATISTICS			40,000

		<u>AMOUNT</u>	<u>AMOUNT</u>	<u>AMOUNT</u>
6.	ECONOMIC AND FISCAL			80,000
	A. Highway Construction Records		80,000	
7.	SYSTEMS AND PROGRAMMING			2, 030,000
	A. Highway Classification and Systems		60,000	
	B. Highway Needs and Performance		670,000	
	(1) Planning Database Management	470,000		
	(2) Database Conversion Analysis	160,000		
	(3) Rural and Urban Highway Needs	5,000		
	(4) Highway Performance Monitoring System	30,000		
	(5) National Bridge Inventory Program	5,000		
	C. Long-Range Program		480,000	
	(1) Construction Program Development	480,000		
	D. Accident Data Collection, Coding and Processing		270,000	
	E. Pavement Management System		550,000	

	<u>AMOUNT</u>	<u>AMOUNT</u>	<u>AMOUNT</u>
8. URBAN TRANSPORTATION STUDIES			410,000
A. Metropolitan Planning Support - General		100,000	
B. Metropolitan Planning Support - Wichita		50,000	
C. Metropolitan Planning Support - Kansas City		80,000	
D. Metropolitan Planning Support - Topeka		40,000	
E. Metropolitan Planning Support - Lawrence		40,000	
F. Transportation-Land Use Planning Coordination		20,000	
G. Small Urban Area Support		80,000	
9. STATEWIDE TRANSPORTATION STUDIES			600,000
A. Statewide Planning		60,000	
B. Rural Traffic Studies And Forecasts		30,000	
C. State Rail And Intermodal Planning		200,000	
D. Corridor Studies		40,000	
E. Bicycle and Pedestrian Program		50,000	
F. Intelligent Transportation Systems		220,000	
10. RESERVED			100,000
TOTAL PART I - PLANNING			6,105,000

1. ADMINISTRATION AND CONTROL

Total Estimated Cost \$530,000

A. Salaries and Expenses (P-0219-05)

Objective

The objective is to 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.

Accomplishments 2004

The salaries and authorized expenses of the Chief of Transportation Planning, the three Assistant Chiefs of Transportation Planning, the administrative assistants, and anyone else on administrative work were charged to administration when the activities involved were fully attributable to the administration of Part I of the work program. In addition, the salaries and authorized expenses for the auditors of the Bureau of Fiscal Services, when conducting audits of work performed with participating State Planning and Research and Metropolitan Planning funds, were charged to administration. Administrative activities not fully attributable to the administration of Part I of the work program were charged to State funded activities.

Proposed 2005

The salaries and authorized expenses of the Chief of Transportation Planning, the three Assistant Chiefs of Transportation Planning, the administrative assistants, and anyone else on administrative work will be charged to administration when the activities involved are fully attributable to the administration of Part I of the work program. Administrative activities, not fully attributable to the administration of Part I of the work program, will be charged to State funded activities.

2004 Program	2004 Estimated Expenditures	2005 Program
\$520,000	\$520,000	\$530,000

2. INVENTORY

Total Estimated Cost \$430,000

A. Mapping and Road Characteristics Inventory (P-0002-05)

Objective

The purpose of field inventory is to obtain information required for the drafting of maps; for statistical tabulations of such roadway characteristics as mileage, dimensions, surface type and such structure characteristics as type, dimensions and load postings; for the evaluation of needs to upgrade to current standards for functional adequacy; for verification of State Highway geometrics contained in the State System Control Section Data Base; and for other pertinent analyses.

Accomplishments 2004

Inventory was completed in 7 counties. Refer to the map on page I-7 which delineates these counties.

The inventory of the arterial and collector streets in two urban areas in District Three was updated. The updating includes any new mileage due to incorporation, system changes or construction and any changes or additions in the inventory of streets that existed at the time the previous inventory was obtained. Other inventory was accomplished statewide in urban and urbanized areas where there were changes in the functional classification or urban or urbanized area boundary changes. HPMS sections were inventoried for District Three.

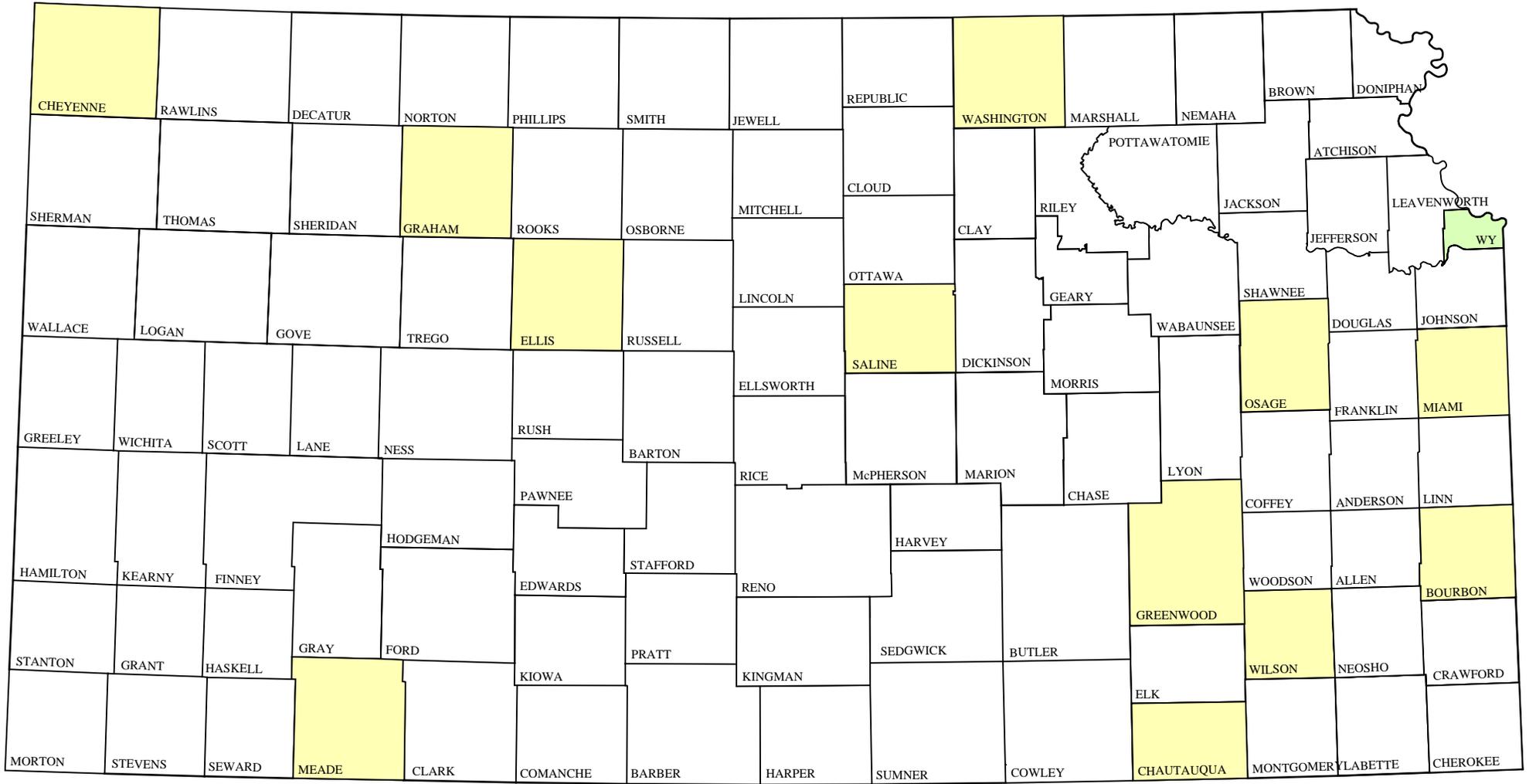
Proposed 2005

County or rural inventory is scheduled this year for 12 additional counties. Refer to the map on page I-7 which delineates these counties.

Urban inventory on all arterial and collector streets in the four urban areas in District Six will be updated. The updating will include any new mileage due to incorporation, system changes or construction and any changes or additions in the inventory of streets that existed at the time the previous inventory was obtained. The HPMS sections will be inventoried in District Six.

2004 Program \$110,000	2004 Estimated Expenditures \$120,000	2005 Program \$120,000
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KANSAS DEPARTMENT OF TRANSPORTATION RURAL ROAD INVENTORY STATUS MAP JUNE 2004



 INVENTORIED
FY 2004

 PROPOSED
FY 2005

B. Railroad Crossing Hazard Rating

Objective

The objective is to maintain a current inventory of data for each public at grade railroad crossing and to analyze this inventory data to determine if the need for improvement of protection type or approach sight distance exists at any of the railroad grade crossings, and if a need for improvement does exist, to further analyze the data to determine the relative priority ranking of the needed improvements.

Accomplishments 2004

A continuous update of the KDOT public at grade railroad crossing data file was performed from data obtained from railroad initiated U.S. DOT-AAR crossing inventory forms, from KDOT computer generated lists for railroad crossing evaluation and data correction, from the KDOT Coordinating Section's diagnostic team pre-inspection, and from the State Highway System Geometric Data Base. Railroad grade crossing index maps were updated as required to reflect any change in status of crossings; such as, rural to city or rail line abandonment. Various computer listings of railroad crossing inventory data and ratings were produced as requested by KDOT users and various public agencies.

Most of this work was charged to Planning Data Base Management - Section 7-B(1).

Proposed 2005

Inventory work will be included in Mapping and Road Characteristics (Section 2-A) and work with the railroad crossing data file will be included in Planning Database Management - Section 7-B(1).

2004 Program	2004 Estimated Expenditures	2005 Program
\$1,000	\$1,000	\$0

C. Pavement Inventory of Frictional Characteristics (P-0275-05)

Objective

The objective of skid inventory testing is to supply the frictional data necessary to determine and recommend pavement and material types that will provide adequate safety and reduce accidents. Inventory testing is a means of providing the necessary data for this function. It also provides a means of locating sections of pavement that may require immediate attention.

Accomplishments 2004

Inventory testing of approximately 7,000 miles of the State Highway System was accomplished. Special request testing conducted included the following: milled asphalt surfaces, latex slurry surfaces, asphalt surfacing using chat (chert) and limestone mix, and longitudinal and transverse tining on Portland Cement Concrete pavement.

All costs including personnel salaries and subsistence, equipment operation, repair and replacement expenses, and data processing were funded with SPR funds.

Proposed 2005

Inventory testing of approximately 7,000 miles of the State Highway System will be continued. The inventory testing will be done according to normal skid testing procedure. Five tests will be conducted in a 2-mile section of pavement, spaced strategically to represent the entire section of pavement constructed under a contract and having a common surface type. Testing will be done at both 40 and 55 mph so a speed gradient can be calculated. The inventory testing will include Interstate routes and research test sites on an annual basis and all other routes on a biennial basis. Highway sections that are resurfaced will be tested the following year. Other inventory testing will be conducted as necessary.

All personnel costs including salaries and subsistence expenses plus equipment operation, repair and replacement expenses and data processing will be funded with SPR funds in FY 2005. The increased amount is to provide funds to upgrade the operating system software in the tow vehicle.

2004 Program	2004 Estimated Expenditures	2005 Program
\$100,000	\$100,000	\$130,000

D. Videologging (P-0431-05)

Objective

The objective is to maintain and provide user accessibility to a pictorial record of numerous characteristics of the State Highway System which will reduce the need for time consuming, costly field trips and provide a historical record of these characteristics.

Accomplishments 2004

Videologging was completed in District 5 along with ramps in Districts 2 and 5. Digital videologging of Districts 1 and 4 was started along with the ramps in those Districts. All videolog data for Districts 2 and 5 was edited, indexed and delivered to the appropriate Bureaus and Districts.

The file server to store and access all digital images and data was upgraded. The lens for the digital camera was replaced.

Proposed 2005

Digital videologging will be completed in Districts 1 and 4 including ramps. The processing and editing of the videolog data for Districts 1 and 4 will be completed. Videologging in District 3 and 6 will start in the spring of 2005.

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.

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

2004 Program	2004 Estimated Expenditures	2005 Program
\$180,000	\$150,000	\$180,000

3. **MAPPING/GEOGRAPHIC INFORMATION SYSTEMS** Total Estimated Cost \$800,000

A. Mapping

Objective

To provide reliable, accurate, legible and reasonably current maps for all counties, cities and urban areas throughout the state; the official transportation map and other state and district maps for transportation planning activities and for general public use.

(1) General Mapping (P-0003-05)

Accomplishments 2004

Due to the All-Roads Network Project, no county maps were updated during fiscal year 2004. All 105 counties have been re-projected. 75 of the 105 counties transportation network center lines have been digitized. County borders have been edge-matched. This is being done as part of a multi-year process to create a new statewide GIS base map. When completed, this new base map will enable GIS applications on the individual county maps as well as the state map as a whole.

Reproductions of city plats were maintained for the city plat file of 628 incorporated areas. One hundred forty-five (145) city maps were created or updated in .dgn and .pdf format, printed, and published to the website.

Proposed 2005

The county mapping program will continue in October 2004 when the All-Roads Network Project is complete.

The city plat file of 628 incorporated cities will be maintained. Urban area boundary maps will be revised as needed. Other city and urban mapping will continue to be converted to digital format. City limits will be updated on all city maps as needed.

2004 Program	2004 Estimated Expenditures	2005 Program
\$260,000	\$240,000	\$250,000

(2) Official State Mapping (P-0084-05)

Accomplishments 2004

Distribution of the 2003-2004 Official Transportation Map as well as revision and updates for the 2005-2006 map is ongoing.

Proposed 2005

Preparation and printing of 1,500,000 copies of the 2005-2006 Official Transportation Map will be completed in January 2005.

2004 Program	2004 Estimated Expenditures	2005 Program
\$30,000	\$15,000	\$50,000

B. Geographic Information Systems

Objective

To develop and distribute a user-friendly Geographic Information System (GIS) environment that will foster data sharing and promote sound decision-making and solution-building throughout the Department in a timely manner.

(1) GIS Base Mapping (P-0737-05)

Accomplishments 2004

The Cartography/GIS unit staff is responsible for maintaining the agency's Base Map that depicts the 10,000 miles of state highway system network. A new base map (base network) was recreated in Intergraph's GeoMedia, with recalculated centerlines based on coordinates (latitude and longitude) collected using GPS technology. Work began to add 134,000 miles of rural non-state system roadways to the base network (All-Roads Network Project). KDOT had opted to develop these workflows around the roadway network from the county mapping series. 2002 Digital Orthophoto Quarter Quadrangles (DOQQs) are being used for digitizing rural non-state roadways from the county mapping series and for data validation. The road network will be edge matched. Quality control mechanisms are also in place.

Proposed 2005

Revisions and updates to the Base Map will continue.

2004 Program	2004 Estimated Expenditures	2005 Program
\$260,000	\$300,000	\$80,000

(2) TerraShare Image Management and Distribution (P-0741-05)

TerraShare is an enterprise image management and distribution solution. A pilot project to test the TerraShare OrthoManager product was conducted from January-April 2003. The pilot proved successful, and TerraShare Core, TerraShare OrthoManager Server and 20 concurrent TerraShare client seats were purchased. Subsequent work orders have been executed for skills transfer and training. Image acquisition for the production of second generation DOQQs was completed. Ortho production was also completed and 5,865 orthos were delivered to DASC. KDOT obtained copies of these orthos for ingest into the TerraShare environment.

Proposed 2005

Image data which have been loaded into the TerraShare environment include three different scales of the Digital Raster Graphics and year 1991 and year 2002 Digital Orthophoto Quarter Quadrangles (DOQQs). Sample line scan data and corridor ortho data are also in TerraShare. Work will continue to add pertinent data to the TerraShare environment, such as statewide Digital Elevation Models, KDOT project Digital Terrain Models, KDOT project orthos, 2-meter near InfraRed Imagery (U.S. Department of Agriculture) and pavement line scans.

Imagery and other raster data served from TerraShare will be used for data validation, data capture, inventory support, and analysis.

2004 Program	2004 Estimated Expenditures	2005 Program
\$0	\$0	\$80,000

(3) KGATE – GIS Web Portal (P-0740-05)

Accomplishments 2004

The Road Condition Reporting System was incorporated into Kanroad (Project P-0739) by October, 2003. The functionality was improved and the maintenance was improved to be maintained by KDOT personnel.

KDOT developed a GIS information web portal through a training session. Work Orders were implemented to enhance the application's functionality. The web portal programming of data set access will be done in house. The web portal will access data from any source across the agency through a data warehouse. GIS/Cartography also cooperated with the Bureau of Computer Services on the Geospatial requirements for the data warehouse to develop data for the KGATE project.

Proposed 2005

KGATE will continue to be enhanced with new data sets by GIS programmer analysts. The project will also be planning for additional functionality to be added at the end of the year 2005. This planning will involve training workshops, fact-finding workshops and documentation to develop requirements for the application. The KGATE GIS team will also work with Bureau of Computer Services to format Bureau of Transportation Planning data for the data warehouse.

2004 Program	2004 Estimated Expenditures	2005 Program
\$4,000	\$16,000	\$150,000

(4) Kanroad (P-0739-05)

Accomplishments 2004

NOTE: The Road Condition Reporting System (RCRS) and The Construction and Detour Reporting System (CDRS) will hereafter be referred to as Kanroad.

Kanroad replaced the remainder of the Alert Bulletin data collection and placed Construction Projects on a GIS map. This project includes Xtra-net data collection from the Kansas Turnpike Authority. Internally it involves participation from several KDOT bureaus to plan, build, and maintain the applications. The RCRS User's Guide, CDRS User's Guide, and Kanroad Administrator's Guide have been completed. The rollout date of January 15, 2004 completed the CITO Project Requirements for Kanroad.

Proposed 2005

Enhance Kanroad for internal users and the public. Construction project data will be pushed to the KDOT TRIS (Overweight permitting application) and accessed by the KDOT PIP (Public Information Portal). Construction project data and Road Condition data will be pushed to the 511 application. There will also be a connection completed for the Kansas CJIS (Criminal Justice Information System) application to provide Road Closed Reports, Construction Project and Road Condition reports. The FHWA will be notified by page immediately from the Kanroad system of fatality accidents. There are notifications from Kanroad to interested parties (including school districts, media, and headquarters staff) of Construction projects and closed roads.

2004 Program	2004 Estimated Expenditures	2005 Program
\$100,000	\$140,000	\$160,000

(5) Strategic Management Plan (P-0742-05)

Accomplishments 2004

KDOT's GIS Strategic Management Plan was completed in March, 2000. This plan is reviewed annually. Work began to formulate schedule and content to update the plan.

Proposed 2005

KDOT's Strategic Management Plan will be updated. The GIS Strategic Plan will be considerate of KDOT's IT Architecture Plan as well as the State of Kansas GIS Strategic Plan.

2004 Program	2004 Estimated Expenditures	2005 Program
\$30,000	\$1,000	\$30,000

4. **TRAFFIC MONITORING**

Total Estimated Cost \$1,085,000

A. Traffic Volume Counting (P-0004-05)

Objective

The objective of the traffic counting program is to collect traffic 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. The two basic types of traffic counts are continuous traffic counts and short-term traffic counts.

Accomplishments 2004

Continuous traffic counters were operated at 102 locations. These locations are shown on the maps on pages I-17 and I-18. The 2003 annual continuous traffic count report was printed and distributed. Accuracy checks were made at all continuous traffic counters. Eighty-five (85) locations continue to transmit data by telemetry.

Short-term counts were taken on the Interstate routes and other routes with full control of access. Non-Interstate and State System routes in Districts 4, 5 and 6 were counted.

Statistical coverage count sampling on local city streets and by county for the county portions of the Major and Minor Collector Systems and for the rural roads functionally classified as local was completed for Districts 1 and 4. All HPMS sections were counted for 48-hour periods. Machine counts were edited, checked, and entered into the CVRG (coverage count) database.

The 2004 State Traffic Flow Map was completed and distributed. Traffic data for city traffic count maps for all cities over 5,000 population in Districts 1 and 4 was collected. The city traffic count maps will be completed by August 2004. All count maps were made available on the internet in .dgn and .pdf formats.

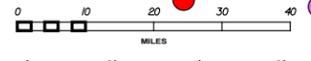
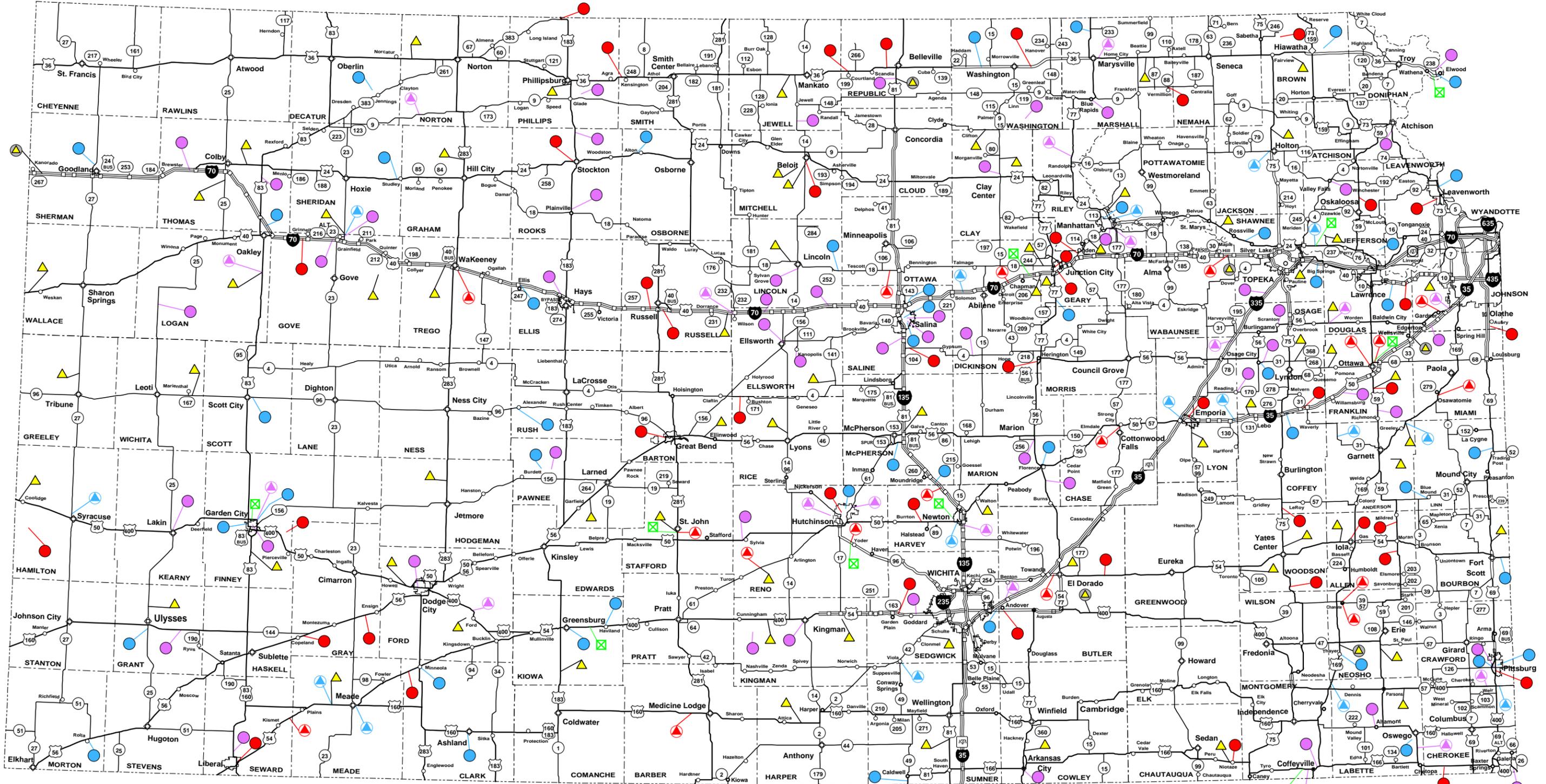
Special studies to collect peak hour traffic and turn movements were conducted throughout the State. The Kansas Traffic Monitoring System for Highways was updated, printed and distributed.

KANSAS DEPARTMENT OF TRANSPORTATION

BUREAU OF TRANSPORTATION PLANNING

JUNE 2004

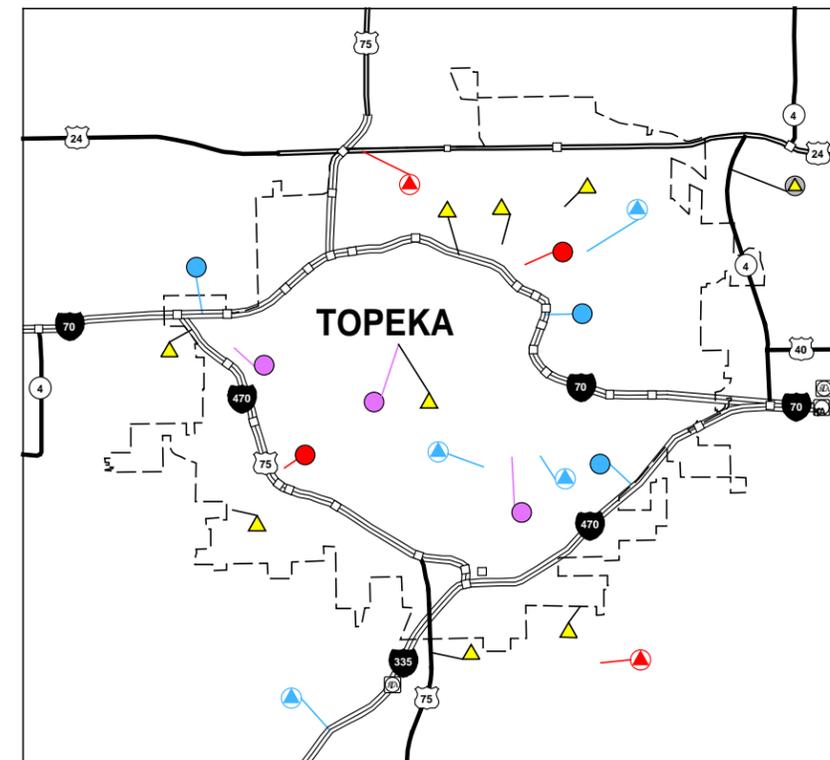
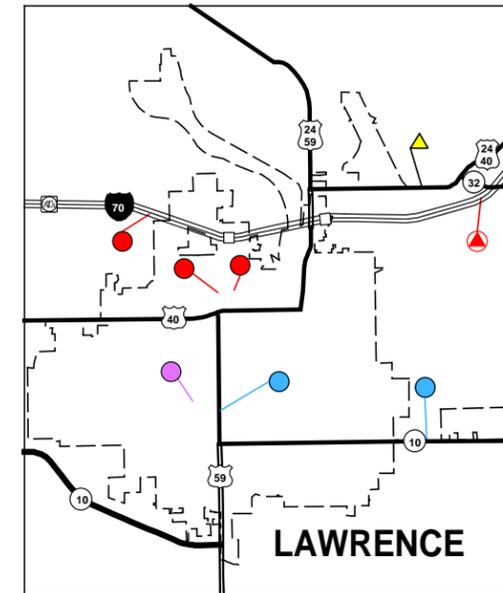
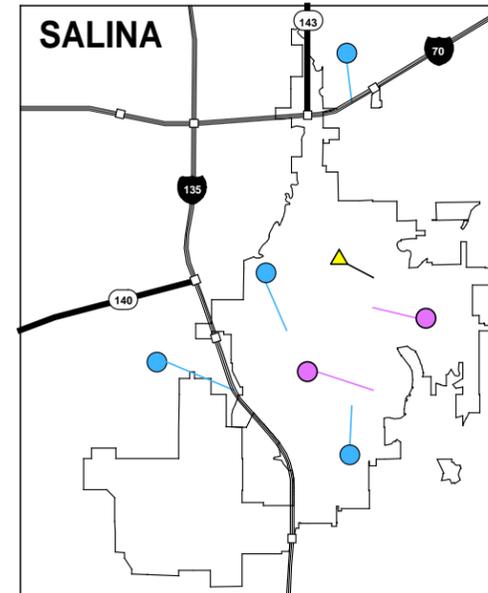
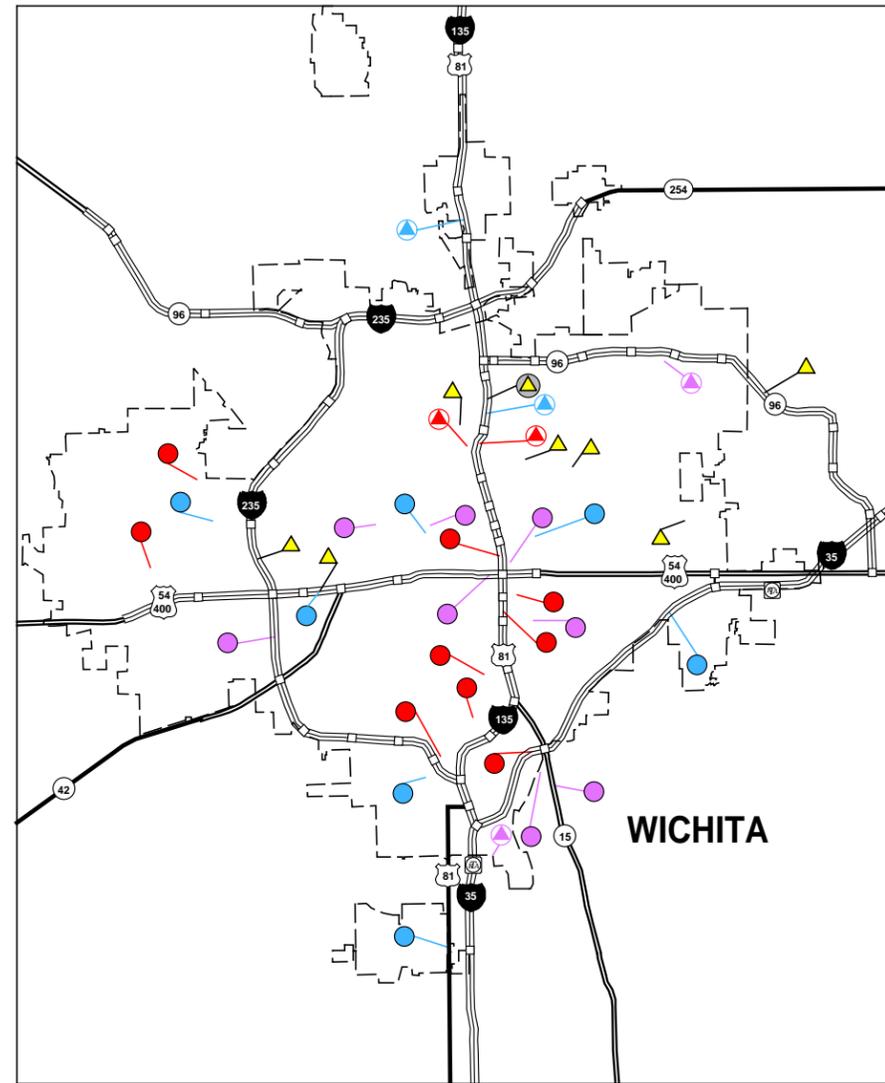
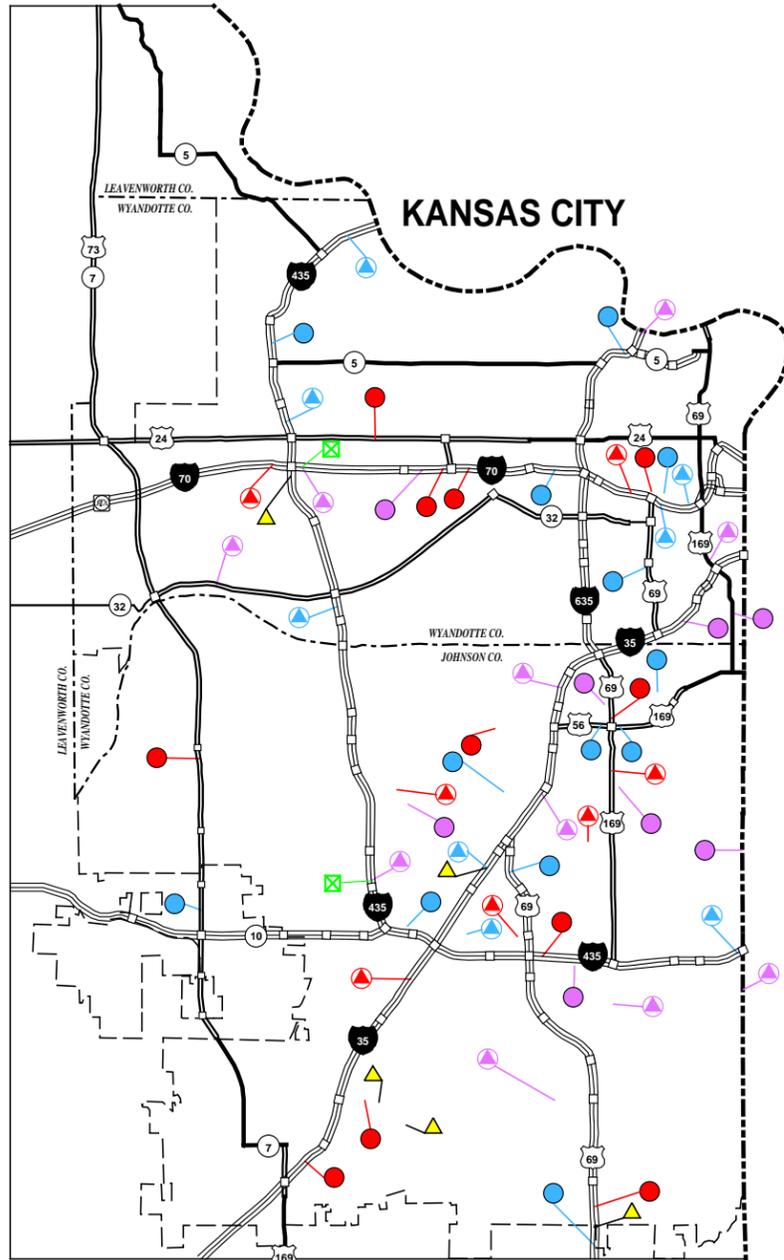
CONTINUOUS TRAFFIC COUNT, VEHICLE CLASSIFICATION, TRUCK WEIGHT AND LONG TERM PAVEMENT PERFORMANCE LOCATIONS



PREPARED BY THE
KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION PLANNING
August 2004
f:\fo\maps\counts\class_04.dgn

**KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION PLANNING
JUNE 2004**

CONTINUOUS TRAFFIC COUNT, VEHICLE CLASSIFICATION, TRUCK WEIGHT AND LONG TERM PAVEMENT PERFORMANCE LOCATIONS



- 2000 & 2003 VEHICLE CLASSIFICATION SITE
- ▲ 2000 & 2003 CLASSIFICATION & TRUCK WEIGHT SITE
- 2001 & 2004 VEHICLE CLASSIFICATION SITE
- ▲ 2001 & 2004 CLASSIFICATION & TRUCK WEIGHT SITE
- 2002 & 2005 VEHICLE CLASSIFICATION SITE
- ▲ 2002 & 2005 CLASSIFICATION & TRUCK WEIGHT SITE
- ▲ CONTINUOUS TRAFFIC COUNT SITE
- ▲ CONTINUOUS VEHICLE CLASSIFICATION SITE
- CONTINUOUS TRUCK WEIGHT SITE

Proposed 2005

Coverage counts for local city streets and the county portions of the Major and Minor Collector Systems and for rural roads functionally classified as local will be completed for Districts 2 and 3. Continuous recording traffic counters will be operated at all existing locations. Short period (24-hour) machine counts necessary for the annual survey will be taken on all state highways and their city connecting links in Districts 1, 2, and 3. The 2005 State Traffic Flow Map and city count maps for cities over 5,000 population in Districts 2 and 3 will be completed. The TMS/H will be reviewed and updated as necessary. Special traffic studies will be conducted as necessary.

2004 Program	2004 Estimated Expenditures	2005 Program
\$560,000	\$540,000	\$560,000

B. Vehicle Classification (P-0346-05)

Objective

The objective is to meet Federal reporting requirements for the Highway Performance Monitoring System (HPMS) and provide truck data for the State Flow Map and State System database. Vehicle Classification data will be collected in accordance with requirements of the Traffic Monitoring Guide (TMG). Vehicle classification counts are made visually and by machine throughout the state.

Accomplishments 2004

48-hour vehicle classification counts were completed for the 96 Traffic Monitoring Guide (TMG) locations for CY2003. Collection of data for the 100 regular TMG locations commenced for CY2004. 204 supplemental visual and machine classification counts were obtained. TRADAS software was purchased to manage and maintain the vehicle classification traffic data. The CY2003 data was compiled and reports were published and the data was submitted to FHWA. A review of the 300 regular vehicle classification schedule began. A total of six continuous vehicle classification sites are collecting traffic data.

Proposed 2005

Collection of 48-hour vehicle classification data for the 100 regular stations scheduled for CY2004 will be completed. Collection of 48-hour vehicle classification data for CY2005 will commence. Weekday 24-hour supplemental vehicle classification counts with turning movements, if needed, will also be collected as requested for traffic forecasts or other studies. The CY2004 data will be compiled and reports will be published and data will be submitted to FHWA.

2004 Program	2004 Estimated Expenditures	2005 Program
\$220,000	\$230,000	\$230,000

C. Truck Weight and Characteristics (P-0094-05)

Objective

The objective of this study is to 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. This data is obtained by sampling locations on Urban and Rural roads functionally classified higher than Local.

Accomplishments 2004

Weight data from the CY2003 sample sites was submitted. Weight and classification data at 23 CY2003 sites selected for sampling was collected. Weight surveys on the sites selected for the CY2004 sample began. Reports on weight data collected in 2003 were completed. Maintenance activities occurred at the permanent truck weight location. Weight data was collected at 7 permanent truck weight sites.

Proposed 2005

Weight surveys for the remaining sites in the CY2003 sample will be conducted. A report of the sites surveyed in CY2004 will be prepared and distributed. Data collection for the CY2005 sample sites will begin. A new permanent weigh site on K-27 will be installed and maintenance activities will occur at other permanent weigh sites.

2004 Program	2004 Estimated Expenditures	2005 Program
\$190,000	\$190,000	\$200,000

D. Speed Studies (P-0195-05)

Objective

Speed studies are conducted to provide reliable data to determine and provide speed summaries for monitoring speeds on state highways.

Accomplishments 2004

Speed data was collected at twenty-five monitoring sites for approximately two weeks each quarter. The data was compared with previous data to monitor changes in speed on the state highway system.

Proposed 2005

Speed data will be collected at the twenty-five monitoring sites for approximately two weeks each quarter. The data will be compared with previous data to monitor changes in speeds on state highways.

2004 Program	2004 Estimated Expenditures	2005 Program
\$5,000	\$4,000	\$5,000

E.Purchase of Traffic Monitoring Equipment (P-0008-05)

Objective

The objective is to replace, maintain, and update traffic monitoring equipment used to obtain traffic counts, vehicle classification, truck weight data through weigh-in-motion, and data at LTPP locations.

Accomplishments 2004

The following items were purchased during the year:

- Four (4) non-intrusive vehicle detectors at a cost of \$12,000
- One refit of existing in-pavement truck scale at an existing permanent truck weight location at a cost of \$18,000
- One repair of in-pavement truck scale at an existing permanent truck weight location at a cost of \$28,000
- Twelve (12) portable traffic data collectors at a cost of \$12,000
- Ten (10) Class 1 piezoelectric weight sensors at a cost of \$26,000
- Ten (10) Class 2 piezoelectric traffic sensors at a cost of \$6,000

Miscellaneous items including transistors, relays, fuses, hoses, tape, grout and other replacement parts for traffic monitoring equipment were purchased as needed.

Proposed 2005

It is planned to purchase the following equipment during the year:

- Two (2) electronic weighing units to replace existing vehicle detection and weighing sensor equipment at a cost of \$30,000.
- Two (2) portable weigh pad sensors to replace existing equipment at a cost of \$17,000.
- Ten (10) automatic traffic recorders to replace existing equipment at a cost of \$20,000.
- Twenty (20) portable traffic data collectors to collect classification data at a cost of \$20,000.

Miscellaneous items including transistors, relays, fuses, hoses, and other replacement parts for traffic monitoring equipment will be purchased as needed.

2004 Program	2004 Estimated Expenditures	2005 Program
\$80,000	\$90,000	\$90,000

5. HIGHWAY STATISTICS (P-0006-05)

Total Estimated Cost \$40,000

Objective

To maintain and report mileage statistics on all roads and streets in Kansas. Data covered includes road types, surface widths, traffic volume and administrative systems. Included in this work is the maintenance of records of all city limits and the urban limits of the larger cities.

To maintain and report data on motor vehicle registrations, motor fuel usage, highway-user tax revenues and licensed drivers.

To maintain and report estimates of revenue and expenditures for highway construction, maintenance and operations for all units of government in Kansas.

Accomplishments 2004

Records were updated from inventories and construction records. The certification of public road mileage was prepared and submitted to the Federal Highway Administration. Summaries of mileage and vehicle-miles of travel by county were prepared for use by the State Treasurer's office. An annual series of mileage reports and travel summary tables were prepared for KDOT use. See Section 7 for activities relating to the Highway Performance Monitoring System, which includes the mileage reporting requirements. The State Highway System mileage network was updated to reflect highway system improvements.

The annual series of FHWA reports on motor vehicle registrations, motor fuel usage, highway-user tax revenues and licensed drivers were prepared and forwarded to the FHWA. Related analysis and reporting were performed for State use.

The annual series of FHWA reports on state highway income, expenditures, obligations issued, and status of transportation debt were prepared and forwarded to the FHWA.

The annual report for capital outlay finance report FHWA Form 534 was submitted for 2003 data.

Proposed 2005

Records will be updated from inventories and construction records. The certification of public road mileage will be prepared and submitted to the Federal Highway Administration. Summaries of mileage and vehicle-miles of travel by county will be prepared for use by the State Treasurer's office. Mileage and travel summary tables will be prepared from the 2004 data. An annual series of mileage reports and travel summary tables will be prepared for KDOT use. See Section 7 for activities relating to the Highway Performance Monitoring System, which includes the mileage reporting requirements. The State Highway System mileage network will be updated to reflect highway system improvements.

The annual series of FHWA reports on motor vehicle registrations, motor fuel usage, highway user tax revenues and licensed drivers will be prepared and forwarded to the FHWA. Related analysis and reporting will be performed for State use.

2004 Program
\$40,000

2004 Estimated Expenditures
\$35,000

2005 Program
\$40,000

6. ECONOMIC AND FISCAL

Total Estimated Cost \$80,000

A. Highway Construction Records (P-0198-05)

Objective

The objective is to maintain an accurate record of all state highway construction on strip maps, sketches and logs for planning and other State use.

Accomplishments 2004

The construction strip maps and city connecting link sketches were maintained, published and distributed to most Bureaus and Districts of the Kansas Department of Transportation. Revision of city connecting link resolutions was performed as needed.

Currently, 100% of the State System Construction strip maps have been converted to a digital format using Micro-Station and CADScript. We currently have about 10% of the digital files converted to PDF format, and plan to publish them on our website in the near future.

Proposed 2005

The construction strip maps and city connecting link sketches will be maintained, published and distributed to most Bureaus and Districts of the Kansas Department of Transportation. Revision of city connecting link resolutions and sketches will be maintained and converted to digital format as needed.

Currently, approximately 60% of the City Connecting Link strip maps have been converted to a digital format using Micro-Station and CADScript. When this process is complete, the digital files will be converted to PDF format, and published on our website.

2004 Program	2004 Estimated Expenditures	2005 Program
\$80,000	\$70,000	\$80,000

7. SYSTEMS AND PROGRAMMING

Total Estimated Cost \$2,030,000

A. Highway Classification and Systems (P-0200-05)

Objective

The objective is the establishment of defined systems of roads, streets and highways, classified according to their functional usage, to provide guidelines for the rational assignment of jurisdictional responsibility and to provide a framework for the orderly and efficient development of a modern highway system. Within this established framework, the determination of needs and priorities may be realistically related to the present and anticipated future traffic and service demands. This will in turn provide a basis for the development of relatively stable long range financial and physical programs for orderly system development.

Accomplishments 2004

Functional classification designations and supporting documents were revised as necessary to reflect requested and approved modifications to the systems. A review of functional classification for each county and urban area continued. At the end of CY2003, FHWA had approved the Urban Area Boundary and Functional Classification changes for 20 Urban/Urbanized Areas. The Functional Classification review was completed for 67 rural and 14 urban counties. The census urban area files were used to adjust the urban areas. The functional classification for the rural areas and most of the urban areas were updated and approved by FHWA.

Proposed 2005

Statewide functional classification and urban area boundaries supporting documents will be revised as necessary. The review of urban area boundaries and functional classification for each urban area and county will be completed and the databases updated.

2004 Program
\$40,000

2004 Estimated Expenditures
\$70,000

2005 Program
\$60,000

B. Highway Needs and Performance

Objective

The objective is to establish and maintain the necessary systems and procedures for conducting continuing and comprehensive Federal and statewide needs and performance studies. The total statewide needs determination would be arrived at by determining the needed improvement type. The needed improvement type for each control section of highway would be a function of the existing roadway geometrics, present and estimated future base, surface and shoulder conditions, maintenance costs, present and estimated future traffic volumes and service demands, social and environmental effects, and the appropriate minimum tolerable standards. The needs evaluation system should be developed so that the effects of new construction, roadway and bridge obsolescence, alternative minimum tolerable and design standards and changes in traffic flow could easily be determined. The accomplishments and proposed activities in this area are directed toward the continued development of the components of a continuing, comprehensive statewide needs determination and performance evaluation system in the following subareas:

(1) Planning Data Base Management (P-0007-05)

Accomplishments 2004

The library of computer programs necessary to maintain, access and query the databases continued to be maintained, refined and expanded. Procedure manuals for the databases were refined, updated and distributed as necessary. County and city maps necessary to locate roadway control sections, bridges and railroad crossings were refined, updated, and distributed as necessary. Field inventory of highways, city classified streets and bridges was completed. Data preparation, entry and editing continued. Existing data was updated where appropriate to reflect system changes, construction project changes, field inventory and inspection data. Computer programs necessary to produce state and FHWA needs/performance studies and reporting were created, tested, modified and maintained as necessary. Planning databases for bridges and railroad crossings are operating in production mode using the Highways software from exor Corporation. Conversion to Highways Version 3 was completed. The mainframe version of the database was shut down.

Proposed 2005

The library of computer programs necessary to maintain, access and query the databases will continue to be maintained, refined and expanded. Procedure manuals for the databases will be refined, updated and distributed as necessary. County and city maps necessary to locate roadway control sections, bridges and railroad crossings will be refined, updated and distributed as necessary. Field inventory of highways, city classified streets, and bridges was completed. Data preparation, entry and editing will continue. Existing data will be updated where appropriate to reflect system changes, construction project changes, field inventory and inspection data. Computer programs necessary to produce state and FHWA needs/performance studies and reporting were created, tested, modified and maintained as necessary.

2004 Program	2004 Estimated Expenditures	2005 Program
\$440,000	\$460,000	\$470,000

(2) Database Conversion Analysis (P-0001-05)

Accomplishments 2004

In house training continues on the Highways software by exor Corporation. Planning databases for bridges and railroad crossings are operating in production mode using Highways software from exor Corporation. Conversion to Highways Version 3 was completed. The mainframe version of the database was shut down in the last quarter of this fiscal year. Reports from exor Highways database continue to be developed. Beta testing of exor Highways new spatial manager will commence. This version will use Oracle Spatial for its interface and should be easier to communicate with Cartography and Intergraph. Commence creating new applications to replace old functionality.

Proposed 2005

Reports from the exor Highways database will continue to be developed. Exor Spatial Manager testing will continue. New applications will continue to be developed to replace old functionality.

2004 Program	2004 Estimated Expenditures	2005 Program
\$160,000	\$160,000	\$160,000

(3) Rural and Urban Highway Needs (P-0202-05)

Accomplishments 2004

Field sheets were prepared and the inventory of the classified and local streets in the sample cities in District Two was performed, as reported in Section 2-A, INVENTORY. The updating of the geometric, condition, traffic and bridge data necessary for needs analysis on the State Highway System was performed in the Control Section Data Base and Bridge Data System subareas. Needs analysis support was provided for the project identification phase of developing and updating the construction programs, which is reported in Section 7-C, Long-Range Program. An additional year's (2003) accident data was added to the KARSHIST database. Processing of accident data for the five year period 1999 through 2003 to identify "spots" with accident rates that exceed the expected critical accident rate was completed. Work continues on HFALS for the new KARS database.

Proposed 2005

Field sheets will be prepared and inventory of the classified and local streets in the sample cities in District Three will be performed, as reported in Section 2-A, INVENTORY. The updating of the geometric, condition, traffic and bridge data necessary for needs analysis on the State Highway System will be performed in the Control Section Data Base and Bridge Data System subareas. Needs analysis support will be provided for the project identification phase of developing and updating the construction programs, which is reported in Section 7-C, Long-Range Program. An additional year's (2004) accident data will be added to the KARSHIST database. Processing of accident data for the years 2000 through 2004 will be performed to identify "spots" with accident rates that exceed the expected critical accident rate.

2004 Program	2004 Estimated Expenditures	2005 Program
\$5,000	\$5,000	\$5,000

(4) Highway Performance Monitoring System (HPMS) (P-0207-05)

Accomplishments 2004

HPMS computer software routines were modified to meet new FHWA software and submittal requirements. In accordance with the instructions, current and new data was collected, assembled and submitted to reflect the status of all Kansas roads as of December 31, 2002.

Coding of new submittal software to be used in conjunction with the Highways software by exor Corporation continued.

Proposed 2005

Coding of new submittal software to be used in conjunction with the Highways software by exor Corporation will be completed.

Alterations to processes and procedures will be accomplished as required. Sampling procedures will be validated with adjustments where necessary. In accordance with the instructions, current data will be collected, assembled and submitted to the FHWA to update the Kansas portion of the HPMS Study to reflect the status of all Kansas roads as of December 31, 2003.

2004 Program	2004 Estimated Expenditures	2005 Program
\$30,000	\$30,000	\$30,000

(5) National Bridge Inventory Program (NBIP) (P-0009-05)

Accomplishments 2004

Alterations to processes and procedures were accomplished as required. In accordance with the instructions, current bridge condition data was collected, assembled and submitted to the FHWA to update the Kansas portion of the NBIP Study to reflect the status of all Kansas bridges as of December 31, 2003.

Coding of new submittal software to be used in conjunction with the Highways software by exor Corporation continued.

Proposed 2005

Coding of new submittal software to be used in conjunction with the Highways software by exor Corporation will be completed.

NBIP computer software routines will be modified as needed. In accordance with the instructions, current bridge condition data will be collected, assembled and submitted to the FHWA to update the Kansas portion of the NBIP Study to reflect the status of all Kansas bridges as of December 31, 2004.

2004 Program	2004 Estimated Expenditures	2005 Program
\$5,000	\$5,000	\$5,000

C. Long-Range Program

Objective

The long-range program is one of the major goals of a comprehensive transportation planning program and should fully utilize the data developed in the areas of "Highway Classification and Systems" and "Highway Needs and Performance."

Programming for transportation improvement projects can be defined as the process of stipulating the work to be performed on individual projects within a specified period of time to accomplish the goals and objectives set for that period, with due regard given to the relative urgency of the work. The end product is a carefully developed and documented plan whereby projects are arranged in a logical sequence to most effectively meet transportation goals and use anticipated funds as they are made available. The process of programming transportation improvement projects is a complex operation which considers the relative urgency of the needs for each transportation segment, the scheduling time (which varies from two to ten years) required to prepare for each major project, the funds available by fund classification, the estimate of revenues, the consideration of project distribution over an area to maintain a balanced work force, coordination with the programs of other governmental agencies, and the orderly and systematic development of the entire transportation system.

The Statewide Transportation Improvement Program (STIP) for FY 2005 will be developed utilizing existing plans and policies. This Program will be compiled and prepared by the Office of Engineering Support. It will represent all federally funded highway and transit projects under Title 23 and the Federal Transit Act.

The accomplishments and proposed activities in the area of Long-Range Programming are performed in the following subareas:

(1) Construction Program Development (P-0204-05)

Accomplishments 2004

The fifth year of the ten-year Comprehensive Transportation Program (CTP) as enacted by the 1999 Kansas Legislature was completed. Cost estimates for all projects in the various construction programs were reviewed and updated as necessary to reflect changes in project scope, in the rate of inflation, and/or in the anticipated letting dates. Revenue, operating expense, and federal-aid fund projections were reviewed and updated to determine the availability of future construction funds on a fund class basis. The multi year construction program was reviewed and updated. Requests for program additions, deletions, and adjustments were reviewed and processed. Proposed and passed legislation was reviewed to determine the effect on a future highway construction program. Analysis was made to determine the effect of the program on the transportation system.

As a part of the CTP, the System Enhancement Program was established and 29 projects, totaling over \$1 billion, were selected and programmed. Several of these projects have been let and two of the projects have been cancelled by the cities that sponsored them. Project development activities continue on the remaining projects.

Considerable effort was spent developing and enhancing computer files and procedures to aid the programming activities. Considerable effort was also expended in continued development, testing, training, and utilization of the agency's Comprehensive Program Management System (CPMS).

Phase II of the Priority Formula review continued. Extensive work was required in managing the consultant team conducting the evaluation and the Steering Committee providing input to the process.

Staff participated in the following work groups:

- The Corridor Management working group was created to develop and manage KDOT's Corridor Management Policy.
- The Records Work Flow Management working group was created to improve the agency's document processes.
- The Comprehensive Transportation Program (CTP) Financial Reporting Steering Committee was created to oversee improvements to KDOT's information systems to insure that KDOT has uniform financial management and reporting capability with regard to the CTP.
- Priority Formula Review Project to assist and update the agency's major highway construction prioritization formulas.
- The Partnership Project – “a top-to-bottom” review of the agency initiated by the Secretary of Transportation.

Proposed 2005

Entering the sixth year of the ten-year Comprehensive Transportation Program (CTP), cost estimates for all of the projects in the various project categories will be reviewed and updated as necessary to reflect changes in project scope, in the rate of inflation, and an anticipated fiscal year of letting will be assigned. The multi year construction program will be reviewed, updated, and published.

System Enhancement Program project development activities will continue. Revenue, operating expense, and federal-aid fund projections will be reviewed and updated to determine the availability of future construction funds on a fund class basis. Efforts to efficiently utilize funds, provided as a result of new federal and state transportation legislation, will continue.

Requests for program additions, deletions and adjustments will be reviewed and processed. Proposed and passed legislation will be reviewed to determine the effect on a future highway construction program. Analysis will be made to determine the effect of the program on the highway system. All necessary data processing will be performed. Training and familiarization with CPMS will continue.

Work on Phase III of the Priority Formula Review project will be initiated, including project management, work product review, and data/information input. Staff will also participate in Corridor Management, Records Work Flow Management, CTP Financial Reporting, and the Partnership Project work efforts.

2004 Program	2004 Estimated Expenditures	2005 Program
\$450,000	\$475,000	\$480,000

D. Accident Data Collection, Coding and Processing (P-0364-05)

Objective

The objective is to collect, code, and process data for all reportable motor vehicle accidents in Kansas and to provide accident data analysis and report generation. The analysis of these data is essential for use in planning highway construction and for implementing accident reduction measures. The maintenance of such data is vital to the promotion of highway safety and for fulfilling data needs at the Federal level.

Accomplishments 2004

Data developed in Section 7-B and this section, was utilized to provide input to the Highway Safety Improvement Program and to produce the Annual Evaluation Report as required by the Federal-Aid Highway Program Manual. All necessary data processing was performed.

The scanning, coding and keying of all data for all reportable calendar year 2003 motor vehicle accidents in Kansas was performed by inmates at the Kansas State Correctional Facility under an agreement with the Kansas Department of Corrections (KDOC). The agreement and activities directly related to administration of the contract were State funded. The remaining checking, editing and coordination necessary to accomplish the objectives was SPR funded. The reporting of all calendar year 2003 traffic accident data was completed.

Plotting accident locations and associated data using current Intergraph GeoMedia equipment continued. Accident location maps were supplied to selected users. Linking of accident data to the new CANSYS database (Section 7-B-2) continued.

A new scanner was purchased for KDOC.

Electronic submission of motor vehicle accident reports continues to be investigated. To date approximately 50 local accident reporting agencies are using KDOT's EADCR product to edit and produce the accident form. To date no agencies are submitting electronically. KDOT is working with KHP to insure that KDOT's accident editor is included in their software.

Proposed 2005

Data developed in Section 7-B and this section, will be utilized to continue the development and updating of the Highway Safety Improvement Program and to produce the Annual Evaluation Report of the Safety Program as required by the Federal-Aid Highway Program Manual.

The coding, data entry and scanning for all reportable 2003 motor vehicle accidents in Kansas will be performed under agreement with Kansas Department of Corrections, by inmates at the Kansas State Correctional Facility. The agreement and activities directly related to administration of the contract will be State funded. The remaining checking, editing and coordination necessary to accomplish the objectives will be SPR funded. The analysis and reporting of all traffic accidents for calendar year 2003 will be completed. System testing and enhancements continue. Plotting accident locations and associated data using current Intergraph GeoMedia equipment continues. Accident location maps will be supplied to selected users. Linking of accident data to the new CANSYS database (Section 7-B-2) continues. Selected accident and CANSYS elements will be incorporated using KDOT's Location Referencing System into a Geographic Information System.

The electronic accident data (EADCR) submittal project will continue.

2004 Program	2004 Estimated Expenditures	2005 Program
\$250,000	\$260,000	\$270,000

E. Pavement Management System (P-0433-05)

Objective

The Pavement Management System (PMS) assists 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. 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.

Accomplishments 2004

The annual condition survey of the State Highway System and review and analysis of the condition survey data were accomplished. Oversampling continued for both the manual rating system and the laser profiling vans as a data quality assurance measure as well as for research purposes. The PMS was used successfully in the surface rehabilitation project selection process for the FY 2005 program. Development efforts continued in all areas of PMS. The Enhanced Network Optimization System (ENOS) was run in parallel with the traditional system again this year to ensure the enhancements were performing as expected and that no unintended consequences appeared. These runs highlighted a need to improve the action cost algorithms that continues. A full statewide run of the Project Optimization System (POS) was again completed. A contract programming project to enhance POS is underway and will result in significant changes to the system. Many of the revisions are designed to better integrate the ENOS solutions with action recommendations and thus enhance the entire PMS and finally meet Construction and Maintenance schedules. The Laboratory Information Management System (LIMS) implementation continued with implementation of three sub-processes related to materials testing. The aggregates testing process is the most advanced of the LIMS efforts. Again this year major strides were taken in integrating Geographic Information System (GIS) capabilities into the PMS. Additionally, Global Position System (GPS) data was collected in the PMS data collection process to allow for future simplification of referencing procedures. The GPS data is used to generate a four-dimensional mathematical model of the highway system and now nears production. Simplifications of the data collection process were tested on a few sample locations. Also a new line-scan imaging vehicle was purchased to attempt automated distress data collection and analysis. Many of the existing Pavement Management reports have been transferred to electronic media and are currently available via KDOT's internet. A project to evaluate the impacts of the AASHTO Provisional Standards for Pavement Surface Data Collection jointly funded by KDOT, FHWA, and Kansas State University is nearing completion.

Proposed 2005

The annual condition survey of the State Highway System will be accomplished. Quality control/quality assurance (QCQA) measures will again be used to insure the validity of the data collected. Automated collection of distress through line-scan images will be a point of emphasis. Global Positioning System (GPS) use in the data collection process will be expanded to simplify referencing procedures and provide a reference database of latitude and longitude that make additional GIS capability feasible. Enhanced PMS will continue to be developed to tie together Enhanced NOS and a new POS process. The Laboratory Information Management System (LIMS) related to PMS will continue with limited implementation. KDOT will continue to develop GIS capabilities with PMS to create user understandable maps and charts efficiently as well as electronic interfaces via the KDOT intranet and possibly the internet. The Pavement Management Section will also monitor activities associated with proposed state highway legislation and funding issues. The activities will consist primarily of using the optimization system to estimate appropriate funding levels for various levels of service.

2004 Program	2004 Estimated Expenditures	2005 Program
\$490,000	\$550,000	\$550,000

8. Urban Transportation Studies

Total Estimated Cost \$410,000

Objective

KDOT is the liaison between each metropolitan planning organization (MPO) and the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) and performs two distinct roles in the metropolitan transportation planning process. First, KDOT is one of the three cooperative partners in the metropolitan transportation planning process, and fully participates in the development and implementation of the metropolitan LRTP, TIP, congestion management system, public involvement plan and other planning activities within metropolitan planning areas that are either required by federal laws and regulations or funded with the federal planning funds (e.g., SPR, PL and 5303 funds). Second, KDOT also performs an oversight role. In this role, KDOT is responsible for approving the TIP and unified planning work program (UPWP) and annually certifying to FHWA and FTA that the metropolitan transportation planning process meets all state and federal requirements. KDOT is also responsible for ensuring that each MPO complies with all federal grant management regulations.

Land use and transportation are inexorably linked. Land uses generate demand for transportation facilities. Transportation investments can result in changes in land use patterns. Federal law (23 USC § 134 - 135) requires transportation planning at the metropolitan and statewide levels. State statutes (KSA 12-741 et. seq.) permit all Kansas cities and counties to undertake “comprehensive planning” which includes both transportation and land use elements. Typically, these state, metropolitan and local planning processes occur in a disjointed, uncoordinated manner resulting in transportation plans and land use plans that may be inconsistent with one another. KDOT will initiate a program to coordinate local land use planning with statewide transportation planning. Emphasis will be given to the metropolitan areas of the state, particularly Kansas City and Wichita. However, some effort may be directed toward the small urban areas and rural areas of the state as well. The approach KDOT will take toward coordinating land use and transportation planning will be to develop relationships with local government officials in order to develop a mutual understanding of land use and transportation issues and mutually adjust plans, programs, policies and spending priorities.

A. Metropolitan Planning Support - General (P-0218-05)

Accomplishments 2004

- An MPO was re-designated by agreement between the Secretary of KDOT, the City of Topeka, and Topeka Metropolitan Transit Authority (TMTA) on March 4, 2004. This was necessary because the previous MPO was dissolved by action of the City of Topeka and Shawnee County in November 2003. While the metropolitan planning area now encompasses less area than before, the designation agreement should help improve how decisions are made within the region.
- KDOT continued working on the K-10 Transportation Study. The purposes for this study are to: determine possible locations for additional interchanges, if any; determine capacity additions that will be necessary; determine multi-modal issues within the corridor (i.e., bicycle, pedestrian, transit, etc).
- KDOT continued to monitor the air quality attainment status for the Kansas City and Wichita metropolitan planning areas. KDOT participated in air quality discussions within the regions.
- KDOT hosted the annual MPO meeting in July 2003 in Wichita to discuss a range of pertinent issues.
- KDOT updated the MPO manual and presented it at the annual MPO meeting held in St. Joseph on June 4, 2004.
- In partnership with the MPOs, KDOT adjusted urbanized area boundaries and updated functional classification maps for all locations within metropolitan planning areas.

Proposed 2005

This year, effort will be directed toward the following priorities:

- Solidifying the cooperative partnership relationships between KDOT, the MPOs and the public transit providers. This will be done 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 draft work products, and
 - ✓ Advocating on behalf of the metropolitan viewpoint within the KDOT decision-making process.
- Solidifying the oversight partnership relationships between KDOT, FHWA and FTA. This will be done by having regular quarterly meetings between the three agencies to review MPO practices and develop approaches to helping the MPOs improve those practices when appropriate.

- Developing and utilizing criteria for determining whether an MPO has met federal metropolitan transportation planning requirements as specified in 23 USC § 134 and 49 USC § 5303 & 5304. Certification decisions shall be accompanied by appropriate documentation of the basis for those decisions.
- Developing and implementing a Quality Assurance Review program to monitor and evaluate the performance of the various MPOs to ensure they are complying with administrative and financial management requirements as detailed in FHWA’s Common Rule, that is, 49 CFR Part 18 (i.e., Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments) and OMB Circular A-87 (i.e., Cost Principles for State, Local and Indian Tribal Governments).
- Monitoring the progress of the two MPOs with significant Consolidated Planning Grant (CPG) carry-over balances (i.e., PL funds and Section 5303 funds) in reducing those carry-over balances. Significant carry-over balances are those that exceed the larger of \$20,000 or 10% of the annual CPG. Should either or both of the MPOs not reduce their carry-over balances in accordance with their approved 2004 Unified Planning Work Programs (UPWP), KDOT will reduce the amount of the 2005 CPG award appropriately. KDOT will do one of the following four things with any “excess” 2005 CPG funds:
 - ✓ Redistribute the funds to the other MPOs based on the formula developed by KDOT in consultation with the MPOs and approved by FHWA/FTA.
 - ✓ Make the funds available to other MPOs on the basis of competitive application.
 - ✓ Make the funds available to rural areas in Kansas since they are not needed in metropolitan areas.
 - ✓ Pay for KDOT services in metropolitan areas for value added activities like: travel demand modeling, micro-simulation modeling, highway capacity analysis, etc.
- To provide assistance to and oversight of the St. Joseph/Elwood MPO.

2004 Program	2004 Estimated Expenditures	2005 Program
\$100,000	\$85,000	\$100,000

B. Metropolitan Planning Support - Wichita (P-0214-05)

The Wichita-Sedgwick County MPO has many planning activities underway during state fiscal year 2005 (See Wichita-Sedgwick County Unified Planning Work Program). It will be necessary for KDOT staff:

- To encourage/require regular monthly meetings of the Technical Advisory Committee (TAC) and Coordinating Advisory Committee (CAC) in order to ensure that the planning process functions in a cooperative manner. For the past several years, the TAC has met only twice per year. The CAC has not met because CAC members were delegating attendance for the committee to TAC members. This is simply not frequent enough to develop and maintain cooperative relationships to support the process. Failure to hold regular meetings of the TAC and CAC should result in findings and corrective action as part of the annual planning certification process.
- To require the development of project selection criteria and procedures to be used by the MPO as part of the LRTP and TIP development processes. Failure to develop such criteria and procedures should result in findings and corrective action as part of the annual planning certification process and possibly have project funding implications, particularly for the CMAQ program.
- To require the development and implementation of a public involvement program to ensure that MPO work products are developed with public input. Particular emphasis needs to be given to ensuring participation of low-income and minority groups to satisfy Title VI and Environmental Justice obligations. Failure to develop such program should result in findings and corrective action as part of the annual planning certification process.
- To fully participate in the processes to expand the boundaries of the metropolitan Wichita planning area and to add new members to the Policy Board for the MPO. Expansion of the planning area and policy board membership is necessary because the US Census Bureau expanded the boundaries of the Wichita Urbanized Area to include Andover and Mulvane both of which are at least partly outside of Sedgwick County. Discussion with all local jurisdictions within the region should be held, not with just the new ones added as a result of the 2000 Census. This must be completed by March 16, 2005.
- To fully participate in the process of updating the LRTP for the metropolitan Wichita planning area. This must be completed by March 16, 2005.
- To fully participate in the process of developing a congestion management system for the Wichita urbanized area which must be completed by December 31, 2004.

- To provide assistance with the K-96 Corridor Study, the K-254 Corridor Study, the 21st Street Revitalization Plan, the South Area Transportation Study, and the Wichita Trade Center Feasibility Study.

2004 Program	2004 Estimated Expenditures	2005 Program
\$50,000	\$42,000	\$50,000

C. Metropolitan Planning Support - Kansas City (P-0215-05)

The Kansas City MPO has many planning activities underway during state fiscal year 2005 (See Kansas City Unified Planning Work Program). It will be necessary for KDOT staff:

- To fully participate in the process of updating the LRTP for the metropolitan Kansas City planning area. This must be completed by December 27, 2005.
- To fully participate in the process to expand the boundaries of the metropolitan Kansas City planning area. Expansion of the planning area is necessary because the City of Lansing is currently not included in the metropolitan Kansas City planning area, but is part of the Leavenworth/Lansing small urban area and the City of Leavenworth and all of Leavenworth County are currently inside the planning area. This must be completed by December 27, 2005.
- To monitor the regions air quality attainment status and fully participate in air quality conformity issues.
- To fully participate in the process to select and develop multi-jurisdictional projects. Of particular interest to KDOT is the proposal to build new or to modify existing interchanges on freeways that are part of the state highway system by cities and counties. Also of interest to KDOT is the proposal to add traffic signals or modify private and public access to other state highways (i.e., expressways and lower classes of facilities). KDOT is aware of the need to ensure the state and local systems complement one another and function in a regionally beneficial manner.

2004 Program	2004 Estimated Expenditures	2005 Program
\$60,000	\$110,000	\$80,000

D. Metropolitan Planning Support - Topeka (P-0216-05)

The Topeka MPO has many planning activities underway during state fiscal year 2005 (See Topeka Unified Planning Work Program). It will be necessary for KDOT staff:

- To fully participate in the process of developing bylaws for the MPO Policy Board and Technical Advisory Committee (TAC). This must be completed by December 31, 2004.
- To fully participate in the process of developing: project selection criteria and procedures, annual planning self-certification criteria, planning products/process evaluation criteria, and staff support services evaluation criteria. These activities must be completed by December 31, 2005.
- To convert the Topeka Travel Demand Model from QRS II/GNE to TransCAD and update model using 2000 Census data and to offer training to Topeka MPO staff on the use and maintenance of the model.

2004 Program	2004 Estimated Expenditures	2005 Program
\$60,000	\$15,000	\$40,000

E. Metropolitan Planning Support – Lawrence (P-0217-05)

The Lawrence MPO has many planning activities underway during state fiscal year 2005 (See Lawrence-Douglas County Unified Planning Work Program). It will be necessary for KDOT staff:

- To convert the Lawrence Travel Demand Model from QRS II/GNE to TransCAD and update model using 2000 Census data and to offer training to Lawrence MPO staff on the use and maintenance of the model.
- To fully participate in the process of developing the public involvement plan.
- To fully participate in the process of developing the TIP. This must be completed by February 14, 2005.

2004 Program	2004 Estimated Expenditures	2005 Program
\$50,000	\$30,000	\$40,000

F. Transportation-Land Use Planning Coordination (P-0213-05)

The Bureau of Transportation Planning will initiate a program to better coordinate statewide transportation planning with local land use planning. This program would consist of four complementary components.

- The Urban Planning Unit will serve as a clearinghouse for land use planning and land development activities within cities and counties across Kansas. Specifically, the Urban Planning Unit will:
 - ✓ Collect city and county comprehensive plans;
 - ✓ Receive all public notices issued by cities and counties regarding rezoning applications and subdivision plats to be considered for land within 200 feet of state highways;
 - ✓ Receive notices from cities pertaining to annexations, notify appropriate offices within KDOT when land development proposals are in the vicinity of Major Modification or System Enhancement projects;
 - ✓ Develop relationships with the various district and area offices since they may be aware of development activities about which KDOT had not been formally notified; and
 - ✓ Develop relationships with the various KDOT headquarters offices to share this information about development activities.

- The Urban Planning Unit will establish an on-going planning education campaign by assisting the Kansas Chapter of the American Planning Association (KAPA), the Kansas Association of County Planning And Zoning Officials, the League of Kansas Municipalities, and the Kansas Association of Counties with training for planning commissioners, local elected officials, and local public officials (i.e., planners, city administrators, engineers, city clerks, etc.).

- The Urban Planning Unit will establish an on-going land use planning training program for KDOT employees. The primary purpose of this component is to raise awareness on the part of KDOT employees involved in making project decisions about the need to coordinate local land use with transportation investment decisions.

- The Urban Planning Unit will offer planning assistance to Kansas communities. The objectives for these efforts should be to develop mutual trust, shared understanding of land use and transportation issues, and to foster a cooperative approach to addressing those issues. This assistance should aim to improve the quality of local plans, particularly in terms of coordinating land use and transportation elements of local plans.

2004 Program	2004 Estimated Expenditures	2005 Program
\$0	\$0	\$20,000

G. Small Urban Area Support (P-0278-05)

Accomplishments 2004

Work in this area consisted of the review of planning studies, assistance in preparing corrections and additions to those studies, attendance at related meetings, preparation of requested traffic forecasts and development of travel models. Some of these studies include reviewing access break requests to insure that state and federal guidelines are followed and operational characteristics of the interstate system are not degraded. Work continues on building a travel demand model of the Manhattan area. The network for this model has been built and input data collected. We are waiting on data from the City of Manhattan so we can finish the calibration process.

Proposed 2005

Work in this area will consist of the review of planning studies, assistance in preparing corrections and additions to those studies, attendance at related meetings, preparation of requested traffic forecasts, development of travel demand models, and development of micro-simulation models to evaluate the operational characteristics of roadways.

Work continues with the City of Manhattan in developing a travel demand model. Work in developing a travel demand model and collecting socioeconomic and demographic data of Manhattan continues. Since Manhattan did not become a MPO with the 2000 census population projections, work on the Manhattan model has been slow. Access break applications will be reviewed as needed. KDOT plans on building travel demand models of Dodge City, Arkansas City, and Garden City when these areas become a priority. We plan on assisting small urban cities with their planning efforts by building travel demand models and micro-simulation models analyzing future traffic and operational characteristics of their roadways as time and priorities dictate. Other models are in the planning stages. The models will be used to forecast future traffic and help the cities with their transportation planning.

2004 Program	2004 Estimated Expenditures	2005 Program
\$80,000	\$30,000	\$80,000

9. Statewide Transportation Studies

Total Estimated Cost \$600,000

A. Statewide Planning (P-0760-05)

Objective

The objective is to support statewide transportation planning through the Statewide Long Range Transportation Plan, studies of freight movements around and through the state, studies of demographics and their relations to transportation, studies of economic development/impacts related to transportation, and provide traffic estimates for proposed projects.

Accomplishments 2004

Steps were taken to implement the 60 recommendations of the Statewide Long Range Transportation Plan updated in 2002. Sponsors were selected for each of the recommendations, and a progress report was given to the Program Review Committee in March 2004. The report will be available on the Plan's website. The recommendations and related issues are being coordinated with the Partnership Project.

Technical support was provided to the modeling efforts of the Bureau, including the Lawrence and Topeka travel demand models. Assistance was provided for the K-10 Corridor Study forecast and other unconventional forecasts.

Activities related to freight and passenger movement, economic development, state and federal legislation, and transportation related demographics were compiled and monitored in support of a variety of statewide issues.

Proposed 2005

Work will continue on implementation of the broad-based policy recommendations made in the Statewide Long Range Transportation Plan. Opportunities for the public to give and receive information regarding highway programs and public preferences for future programs will continue. Proposed federal legislation impacts on KDOT's long range planning efforts will be monitored. Demographic, freight, and economic development/impact studies will be emphasized. In particular, efforts toward constructing a statewide congestion management system will be undertaken.

A Strategic Safety Plan, similar to the national plan produced by AASHTO, will be drafted. This will assemble descriptions of all the varied safety efforts of the State and prescribe goals for reducing accidents statewide.

General transportation planning support related to statewide issues will be provided.

2004 Program	2004 Estimated Expenditures	2005 Program
\$80,000	\$40,000	\$60,000

B. Rural Traffic Studies and Forecasts (P-0005-05)

Objective

The objective of rural traffic studies is to satisfy requests for traffic analysis, traffic forecasts, and special studies. The majority of these requests are for location or design related activities. To fulfill these requests considerable effort is spent in gathering, tabulating, and analyzing data relating to traffic flow and travel patterns. These traffic studies are used to develop factors and assumptions for projecting future needs analysis.

Accomplishments 2004

Traffic forecasts were prepared and additional traffic information was provided as requested.

Proposed 2005

Traffic forecasts will be prepared along with any additional traffic information requested. Special traffic studies will also be conducted as requested.

2004 Program	2004 Estimated Expenditures	2005 Program
\$30,000	\$5,000	\$30,000

C. State Rail and Intermodal Planning (RA-0320-05)

Objective

The objectives are to gather, analyze and evaluate economic, financial and operational data, as well as federal and state legislative issues, on railroads and intermodal freight transportation freight transportation facilities in Kansas and provide a framework for short and long range decision making, to disseminate relevant information to rail users and local governments faced with loss or changes in rail services, and administer the federal Local Rail Freight Assistance (LRFA) and state Rail Service Improvement Fund (RSIF) rail assistance loan/grant programs which assist short line railroads with infrastructure improvements allowing for more efficient operations and improved service to shippers. Information will also be provided internally to KDOT Bureaus and Offices in an effort to better coordinate rail issues into the planning process and establish or modify agency-wide rail and intermodal policies.

Accomplishments 2004

The ongoing research and analysis of rail and intermodal freight issues by the Office of Rail Affairs continued. Rail lines faced with potential abandonment were identified and studied. Their viability for continued operations was evaluated. Meetings were held with shippers, railroad company management, and local officials. Rail freight assistance was administered and documentation submitted to the Federal Railroad Administration. The administration of loans/grants funded by the federal LRFA and state RSIF assistance program was also done. Abandonments and sales of rail lines were monitored. Issues pertaining to the rail industry before the Kansas Legislature in the 2004 general session were monitored. Input was provided to other Bureaus and Offices within KDOT on rail and intermodal issues, including those related to the Transportation Equity Act for the 21st Century (TEA-21), such as Transportation Enhancements, Management Systems, Long-Range Planning, Bicycle and Pedestrian Facilities, and Rails-to-Trails Corridor preservation. The Kansas Rail Plan Update 2002-2003 was completed and distributed. The KDOT Rail Affairs web page and KDOT Bicycle/Pedestrian web page were updated with new information and statistics. The Office of Rail Affairs staff was involved with Operation Lifesaver through attendance at meetings, giving presentations and helping at the Operation Lifesaver booth at the Kansas State Fair.

Proposed 2005

Analysis of potential rail line abandonments in Kansas, sales, and potential mergers will continue. The Office of Rail Affairs will continue to monitor the Acquisition of the Central Kansas Railway by Watco Companies, Inc., and service to shippers on the acquired lines will continue to be monitored as well. The Office of Rail Affairs also will continue to monitor the activities of the City of Pittsburg Port Authority in the area of railroad services. The acquisition of the Kyle Railroad, as part of the Rail America acquisition of States Rail, will continue to be monitored. The Office of Rail Affairs will continue to monitor short line and Class I rail activities, including customer service, car loadings, and system infrastructure improvements. Potential federal legislation dealing with short line railroad funding issues, as well as railroad issues in general, will be monitored. Evaluation of the viability of continued rail operations will be provided to shippers, local governments, and potential short line operators. Information on rail matters will be furnished to the Legislature, the Governor, and other state agencies and local governments as needed. Management and administration of federal and state rail loan/grant programs will continue, including the gathering and analysis of financial and operation data on proposed short line railroad rehabilitation projects. A K-TRAN study analyzing the effects of large heavy axle load (HAL) 286,000 pound freight rail cars on the short line railroad system infrastructure, shippers and the communities they serve, as well as the state transportation network, was conducted. Assistance will be provided to the Division in implementing the rail, intermodal, transportation enhancement, long-range planning, and non-motorized programs under Federal legislation. The Office of Rail Affairs will continue to monitor passenger and commuter rail service issues and legislation as well as the future of Amtrak and the nation's intercity passenger rail system via federal legislation. The Office of Rail Affairs staff will continue to be involved with Operation Lifesaver activities.

2004 Program	2004 Estimated Expenditures	2005 Program
\$200,000	\$195,000	\$200,000

D. Corridor Studies (P-0320-05)

Objective

The objective is to identify and coordinate the scope and needs of potential projects with regional or statewide significance. This includes MIS-like studies between regional activity centers or longer corridors within the state and may or may not include a metropolitan area. Results of these studies will be used to help prioritize competing activities within the corridor to meet the anticipated transportation demand.

Accomplishments 2004

KDOT continues to attend meetings regarding phase II of the NW Bypass Study in Wichita. Discussion of alignments, interchange locations, noise study, environmental issues, and traffic projections are still on the table. KDOT's Planning staff is working with the City of Wichita to model the different alignments for the NW Bypass. Many iterations of traffic projections were completed during 2003. Planning staff continues to work on traffic and analyzing delay for different alignments and geometrics. A micro-simulation model was built of the Goddard portion of the NW Bypass to determine the advantages and disadvantages of adding additional above grade crossings. Staff presented findings to the city engineer of Goddard and will be scheduled to make a presentation to city and public officials. KDOT has attended meetings for the K-96 corridor study between Wichita and Hutchinson that is being conducted by these cities. KDOT continues to attend meetings and provide direction to the study. KDOT has met with all of the local governments along the corridor and discussed transportation and land use. KDOT staff held the second advisory committee meeting and discussed progress on the K-10 Transportation Study. Planning staff also met with the local and city staffs to discuss future traffic. KDOT completed future traffic forecasts assuming no improvements are made to K-10 or the local interchanges and assuming proposed interchanges are added to the current system and improvements are made to both mainline K-10 and the existing interchanges. For the US-54 corridor between Kingman and Pratt, KDOT continues to attend meetings, work on traffic forecasts, analyze the OD study results, and provide technical support to the Bureau of Design in the area of traffic and transportation planning. KDOT staff continues to attend K-7 corridor study meetings. KDOT staff built micro-simulation models of K-7 and Johnson Drive, K-7 from Parallel north to Hollingsworth, and K-7 from Kansas Avenue north to Parallel. Planning staff has presented the K-7 and Johnson Drive microsimulation model findings to the City of Shawnee and to the public. We will continue to provide technical support to KDOTs Design as needed.

Proposed 2005

KDOT will continue to attend meetings, complete traffic forecasts as requested, analyze or conduct OD studies as needed, and complete operational analyses as requested. For the K-10 corridor study, KDOT will hold public involvement meetings to get input from the public and update the public as to the progress of the study. KDOT will also hold another advisory committee meeting and finish the study by late December. The final report will be published in late 2004 or early 2005. KDOT Planning will provide technical support to the Corridor Management Unit as they start another K-7 Corridor Study in the hopes of developing a master plan of the K-7 corridor.

2004 Program	Estimated 2004 Expenditures	2005 Program
\$20,000	\$40,000	\$40,000

E. Bicycle and Pedestrian Program (P-0758-05)

Objective

The objective is to continue the bicycle and pedestrian program at the state level as required by the current Federal legislation. The program consists of participation in the implementation of the Transportation Enhancement Program, working with KDOT staff to meet bicycle/pedestrian accommodation needs on the Kansas State Highway System and disseminating information to the public about bicycle and pedestrian efforts at KDOT and in Kansas.

The program also includes updating and distributing the Kansas Bicycle Guide map, distribution of the Kansas Bicycle Transportation Facilities Guide and safety brochures as discussed in the Kansas Bicycle and Pedestrian Transportation Plan completed and adopted in 1995. Preliminary work has started on the development of a Kansas Pedestrian Transportation Facilities Guide. Final development is expected to begin after the national document is completed.

Accomplishments 2004

Copies of the Kansas Bicycle Transportation Facilities Guide were distributed as requested. The 2002-2003 Kansas Bicycle Guide and safety brochures continue to be distributed upon request from the public. The Kansas Bicycle Guide reflects current traffic conditions on State and County roadways, and includes local and state points of interest.

Presentations to community groups, bicycle clubs, trail groups, and other interested citizen and professional groups continued. On-going assistance was provided to bicyclists planning to travel across the state and to the Kansas City Metropolitan Planning Organization. The Bicycle & Pedestrian Coordinator attended the joint conference for state bicycle and pedestrian coordinators and members of AASHTO's Joint Task Force on Non-Motorized Transportation in Burlington, Vermont.

A web site to be used to disseminate information externally and internally is on-line and is continually updated to reflect changes in content.

Proposed 2005

Updating the Kansas Bicycle and Pedestrian Transportation Plan and Kansas Bicycle Transportation Facilities Guide is continuing. Planning and development of the Kansas Pedestrian Facilities Guide will continue.

Development of reference material library of bicycle/pedestrian documents and photographing and logging pictures and slides of bicycle/pedestrian facilities in Kansas, including all bicycle/pedestrian TE projects, and such facilities of communities across the country visited through travel will continue.

Meetings with bicycle and pedestrian organizations and providing assistance will continue as requested.

Review applications for TE Pedestrian and Bicycle projects should applications be solicited.

2004 Program	2004 Estimated Expenditures	2005 Program
\$60,000	\$30,000	\$50,000

F. INTELLIGENT TRANSPORTATION SYSTEMS (P-0763-05)

Objective

The goal of Intelligent Transportation Systems (ITS) in the State of Kansas is to decrease congestion and increase driver safety through the use of a variety of available technologies, including information processing, integration, control, and communications. In metropolitan areas, this can be as complex as a fully staffed Traffic Operations Center (TOC) monitoring and controlling all aspects of transportation or it can be as simple as the timing of the traffic signals along a major arterial.

Rural ITS is an emerging field of the nationwide ITS movement. Of primary concern to rural motorists is safety and traveler information. Response times to accidents, animal-vehicle incidents, and roadway and weather condition information are all areas that ITS technologies can be applied to.

The objective of Planning's involvement in ITS activities is to assist KDOT and the State of Kansas in taking full advantage of ITS technologies as they become available and economically feasible. To accomplish this objective, Planning's role is to serve as the focal point and clearinghouse in the agency for major ITS activities and to promote, coordinate, and facilitate the development and use of ITS technologies throughout the state. The primary goal is to mainstream ITS into the planning and design process within KDOT.

Accomplishments 2004

In Kansas City, the construction of the Phase 1 portion of the Kansas City Scout project has been completed but not finalized. Capital Electric is the prime contractor. The traffic operations center (TOC) is now staffed by MoDOT customer service staff and operational. The operation of the center is being accomplished with contract staff by PB Farradyne and TransCore effective March 8th, 2004. The steering committee and the Scout Board of Directors have met regularly to direct the development and direction of this project. The Missouri Department of Transportation (MoDOT) is the lead agency for this phase of the project and the contract was approved by the Missouri Highway Commission in March 1998. Design began in April 1998. The Early Deployment Plan for Kansas City was completed by HNTB in 1996. This project has equipped approximately 70 miles of freeway in Kansas City with ITS elements.

The ITS Early Deployment Study was completed in December 1998 for the Wichita area. The study recommended what ITS user services would benefit Wichita, developed the system architecture, created an incident management plan for I-135, and established an action plan for the deployment of ITS technologies in Wichita. In 2000, funding was approved through the ITS Set-Aside fund for the design and implementation of the project (\$750,000 per year for FY 2001 to 2005). The ITS Committee in Wichita has continued to meet regularly to guide development of the project. The Wichita area has completed a study for alternate communications for the future Automated Vehicle Location (AVL) project. Currently, proposals have been accepted by the Wichita area for a coordinated traffic signal study that will eventually integrate into the future ATMS.

The ITS Unit has just entered into an agreement with PB Farradyne for consulting services that will study KDOT's options for a Statewide TOC. This study will incorporate stakeholders input to assist with decisions related to the Centers functions and location. The initial cost of this study is \$250,000.

The ITS Set-Aside fund was created in August 1999. Its purpose is to provide funds for transportation technology applications in Kansas. In FY 2000, the fund amount is \$1 million, in FY 2001, the fund amount is \$1.5 million; in FY 2001 and beyond, the fund amount will be \$2 million. Fourteen projects were selected for FY 2004 and FY 2005 for a total of \$4,000,000. An additional 10 projects were selected for FY 2006 for a total of \$2.1 million.

The ITS Unit has contracted with three consulting firms to perform On-Call ITS services. All of the firms are currently working on scopes and estimates of proposed projects.

The ITS Unit continued work on the Commercial Vehicle Information System and Network (CVISN) project development. The completed projects include an on-line registration and fuel tax system for commercial vehicles. Both of these projects were funded through the ITS Set-Aside program.

KDOT continued work in the pooled fund research program, called ENTERPRISE, with six other states, the FHWA, the Province of Ontario, the Dutch DOT and Transport Canada. The purpose of this pooled fund study is to collaborate on ITS research, development and deployment reflecting the interests of the member groups. In FY 1999, KDOT contributed \$25,000; in FY 2000, KDOT contributed \$30,000; in FY 2001 through FY 2003, KDOT contributed \$50,000. The ITS Unit has also participated in the Traffic Management Center (TMC) pooled fund study. The purpose of this study is to research new methodologies for the management of urban transportation systems. KDOT's FY 2002 through FY 2004 contribution was \$30,000. The ITS Unit has also been involved with SSOM AASHTO subcommittee. Kansas will host the 2005 SSOM (Subcommittee on Systems Operation and Management) and SCOP (Standing Committee on Planning) AASHTO meetings in Kansas City, KS.

Work continued on the planning and design of a rural transit technology demonstration project. A contract amount of \$200,000 was designated for the planning and design of technologies for two rural Kansas transit providers. The contract on this project has been awarded to RSI for the deployment of the demonstration project. In addition, \$20,000 has been obtained from the ENTERPRISE group for independent project evaluation.

Construction of the fiber optic infrastructure system throughout the state of Kansas was finalized in April 2003. The ITS Unit was responsible for the coordination of these construction contracts. KDOT's private partner, DTI (Digital Teleport Inc.), did file Chapter 11 bankruptcy in FY 2002. KDOT has successfully restructured our contract to accommodate these changes. DTI is currently owned by CenturyTel and DTI has formally changed its name to LightCore. KDOT has since lit the KDOT owned fiber from Lenexa to Topeka and signed a lease with the City of Topeka. The lease with the city allowed KDOT to obtain rights to three fibers for five years from the regeneration building located at the Gage office to the Harrison Center. KDOT is currently looking to expand our lit fiber network to create a redundant path for the 800 MHz system from Wichita to Salina.

The ITS Steering Committee continued regular meetings approximately every 3 months to monitor the development and review of ITS policies and issues.

The ITS Heartland Chapter of ITS America was officially formed in 2000. The 5th Annual Meeting was held in Kansas City, MO in March 2004 with approximately 200 attendees.

Proposed 2005

Continue to work with the Missouri Department of Transportation in the administration of the operation and maintenance contracts for Phase I of the Kansas City Scout project. Operations of the Scout Center began on January 12, 2004.

Continue the contract for the Coordinated Traffic Signal system and Regional Architecture for Wichita and Sedgwick County. Initiate a contract to design the integrated Advanced Traffic Management System with 911 services. Keep the KDOT Urban Planning Section and the District involved in the ITS process in Wichita.

The ITS Set-Aside Program will be administered by the ITS Unit. For FY2004, \$2.0 million is programmed to fund ITS projects for both state and local agencies. This year's ITS Set-Aside solicitation will distribute \$2.0 million for FY2007.

Oversee the operational demonstration of ITS for rural transit providers. This demonstration will involve the application of Automated Vehicle Location (AVL), Computer Aided Dispatch (CAD), and Mobile Data Terminals (MDT) on a rural fleet to use as a showcase for other transit providers on the benefits of these technologies. This project is expected to cost approximately \$750,000.

KDOT will be contracting for the completion of a Fiber Optic Business Plan. This plan will assist KDOT in planning the future of KDOT's fiber optic network.

Continue participation in the ENTERPRISE Pooled Fund Study with research into quantifying benefits of maintenance and transit ITS applications. KDOT is proposing that \$50,000 be contributed for FY 2005. The ITS Unit will also participate in the Traffic Management Center (TMC) pooled fund study through the US DOT. KDOT is proposing to contribute \$30,000 in FY2005.

A Statewide Architecture will be completed in FY 2005 with the assistance of the FHWA, KDOT staff, and stakeholders. It may be required to hire a consultant to complete this effort.

One of the major focuses of the CVISN architecture is the sharing of safety and other data both inter and intra-state. A related effort involves further automation of Weigh-in-Motion (WIM) technology in order to aid in our own data collection efforts as well as the enforcement efforts of the Kansas Highway Patrol. The ITS unit has initiated a project to examine existing virtual weigh station technology, determine the workability of such technology in Kansas and recommend architecture (proof-of-concept). An effort will be undertaken to analyze the surface transportation network in Kansas (on and off state system) and recommend locations for such virtual weigh stations based upon statistical sampling and enforcement concerns. Recommendations for phasing (prioritizing) of such deployments will also be included in this effort.

KDOT will continue to support efforts of Kansas City SmartPort working through the Mid-America Regional Council. SmartPort has a goal to make it cheaper, faster, more efficient, and secure for companies to move goods into, out of, and through the Kansas City area by using Intelligent Transportation Systems.

The ITS Unit will continue to act as chair of the ITS Steering Committee at KDOT. Participate in and sponsor workshops, conferences and committees as appropriate in the ITS area.

KDOT will continue its membership with ITS America in 2004. Membership dues will be \$2,500. ITS Heartland dues will be \$2000.

2004 Program	2004 Estimated Expenditures	2005 Program
\$200,000	\$210,000	\$220,000

10. RESERVED (P-0209-05)

Total Estimated Cost \$100,000

Objective

The objective is to provide for changes in the work program which may require additional funds and to allow for the possibility that anticipated expenditures may exceed estimated costs.

Accomplishments 2004

Funds were used to help fund the Kansas City Household Survey.

Proposed 2005

It is proposed to provide an adequate reserve for possible program changes which may require additional funds.

2004 Program
\$100,000

2004 Estimated Expenditures
\$100,000

2005 Program
\$100,000

**DETAILED COST ESTIMATE AND OUTLINE
FOR
THE 2005 WORK PROGRAM**

PART II

**RESEARCH, DEVELOPMENT AND
IMPLEMENTATION ACTIVITIES
PROJECT**

SPR-R010 (028) Statewide

KANSAS PROJECT SPR-R010 (28)
R&D Work Program - Part II
Fiscal Year 2005
07/01/04 to 06/30/05

<u>State Study</u>	<u>Title</u>	<u>Budget FY 2005 (FY 2004)</u>	<u>Exp. To Date (Total Appr.)</u>	<u>Principal Inv. (Compl. Date)</u>	<u>FTC</u>	<u>W. H. Contact Code</u>
	Administration	\$200,000 (200,000)				
67-1	R&D Administration (\$109,810)					Wm. Zaccagnino HRD-10
64-10	Transportation Research Correlation Ser. (\$90,190)					
73-1	Implementation of Research and Development Findings	\$900,000 (890,000)		#R. McReynolds	B. Low	Wm. Zaccagnino HRD-10
93-1	Technology Transfer and Training	\$320,000 (310,000)		#S. Barker	B. Low	Wm. Zaccagnino HRD-10
67-2	Contingencies and Proposed Studies	\$50,000 (50,000)	*J. Tobaben		B. Low	Wm. Zaccagnino HRD-10
	TOTAL	\$1,480,000 (1,460,000)				

#Phone (785) 296-7410

*Phone (785) 296-3841

TRANSPORTATION POOLED FUND STUDIES

<u>FHWA NO.</u>	<u>KDOT NO.</u>	<u>TITLE</u>	<u>FY 2005 FUNDS PLEDGED</u>
SPR-2(207)	RE-0228-01	Traffic Management Center (TMC) Consortium (Mike Floberg)	\$ 30,000
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HPR-3(017)	RE-0020-01	Crash Testing of Highway Safety Appurtenances and Obstacles (Rob Lacy)	\$ 55,000
SPR-3(020)	RE-0215-01	Enterprise (ITS) (Mike Floberg)	\$ 50,000
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TPF-5(010)	RE-0xxx-01	Structural Improvements of Flexible Pavements Using Geosynthetics for Base Course Reinforcement (Jim Brennan)	\$ 20,000
TPF-5(021)	RE-0163-01	North Central States Superpave Center Operation and Support (Dick McReynolds)	\$ 25,000
TPF-5(036)	RE-0xxx-01	Transportation Asset Management Research Program (Dean Testa)	\$ 5,000
TPF-5(048)	RE-0328-01	Midwest States Accelerated Testing Program (Andrew Gisi) Kansas is Lead State. Estimated total for annual program is \$300,000.	\$ 75,000
TPF-5(063)	RE-0333-01	Smoothness Criteria for LWP and Van Profilometers (Bill Parcels)	\$ 20,400
TPF-5(065)	RE-0334-01	Traffic Control Device Consortium (Mike Crow)	\$ 5,000
TPF-5(066)	RE-0353-01	Materials and Construction Optimization for Prevention Of Premature Distress in PCCP (John Wojakowski)	\$ 15,000
TPF-5(080)	RE-0xxx-01	Investigation of Low Temperature Cracking in Asphalt Pavements (Cliff Hobson)	\$ 25,000
TPF-5(090)	RE-0xxx-01	Pavement Tools Consortium (Rick Miller)	\$ 20,000
TPF-5(xxx)	RE-0xxx-01	Scaling of PCCP and Bridge Decks with Slag Cement (Dave Meggers)	\$ 25,000
TPF-5(xxx)	RE-0xxx-01	HITEC Alternative Material Dowel Bars/Outreach, Clearinghouse and EXCOM Activities (Andy Gisi)	\$ 15,000

The Following Are Active or Recently Completed With No Funds Committed by KDOT for FY 2005

SPR-2(203)	RE-0264-01	Truck/Pavement/Economic Modeling and In Situ Field Testing (Rick Barezinsky)
SPR-2(204)	RE-0224-01	HITEC FRP Bridge Decks and Sign Retroreflector Evaluations (Dave Meggers/Mike Crow)
SPR-2(208)	RE-0262-01	Pavement Subgrade Performance Study (Rick Barezinsky)
SPR-2(212)	RE-0263-01	Non Nuclear Testing of Soils and Bases Using GeoGauge (Morris Hunt)
HPR-2(800)	RE-0757-01	SHRP Implementation - Asphalt Test Equipment (Dick McReynolds)

SPR-3(065)	RE-0188-01	Design Model for Use of Geosynthetics to Reduce Granular Base Course Thickness (James Brennan)
SPR-3(071)	RE-0212-01	A New Approach to Assessing Road User Charges (Bob Stacks)
SPR-3(073)	RE-0211-01	Micro-surface Mix Design Procedure (Dick McReynolds)
SPR-3(075)	RE-0214-01	Smart Work Zone Deployment Initiative (Kurt Miyamoto)
SPR-3(076)	RE-0304-01	Animal Vehicle Crash Mitigation Using Advanced Technologies (David Church)
SPR-3(081)	RE-0250-01	HERMES II (Dave Meggers)
SPR-3(083)	RE-0225-01	Fabrication Error Indexed Examples and Solutions (FIXS) (Kansas is the Lead State.) (Ken Hurst)

TPF-5(001)	RE-0295-01	Soil Mixing Methods for Highway Applications (Jim Brennan)
TPF-5(002)	RE-0269-01	Update "A Guide to Standardized Highway Lighting Pole Hardware Manual" (David Church)
TPF-5(004)	RE-0293-01	LTPP SPS Traffic Data Collection (Bill Hughes)
TPF-5(005)	RE-0296-01	Extension of FHWA Curved Steel Bridge Tests (Ken Hurst)
TPF-5(019)	RE-0324-01	Full Scale Accelerated Performance Testing for Superpave and Structural Validation (Cliff Hobson)
TPF-5(026)	RE-0300-01	Durability of Segmented Retaining Wall Blocks (Jim Brennan)
TPF-5(039)	RE-0356-01	FWD Calibration Centers and Operation Improvements (Albert Oyerly)
TPF-5(043)	RE-0306-01	Rail Freight Bottom Line Report (John Maddox)
TPF-5(051)	RE-0329-01	Construction of Crack Free Concrete Bridge Decks (Ken Hurst)
TPF-5(058)	K-9059-01	Enhanced Guidance for Implementation of Safety Strategies Phase III (Pete Bodyk) (Section 163 funds used)
TPF-5(068)	RE-0354-01	Development and Maintenance of LFRD Specifications (Loren Risch)
TPF-5(071)	RE-0332-01	Evaluation FRP Temporary and Permanent Structures. Kansas is Lead State. (Dave Meggers)

OTHER STUDIES

RE-0257-05:
TPF-5(405)

National Coordinated Highway Research Program (NCHRP) \$ 340,000

RE-0255-05:
LTAP-HPR-NHI-010(005)SPR

Local Transportation Assistance Program (LTAP) (matching funds) \$ 140,000

WORK PROGRAM FOR KANSAS PROJECT SPR-R010 (28)
Part II Research and Development
July 1, 2004 to June 30, 2005

KSDOT 67-1
RE-0274-05

TITLE: Research and Development Administration

PROPOSER: Kansas Department of Transportation
Topeka, Kansas

MAJOR SUBDIVISION: Bureau of Materials and Research

PRINCIPAL: Mr. Richard L. McReynolds, P. E.
Engineer of Research
Materials and Research Center
2300 SW Van Buren Street
Topeka, Kansas 66611

MONEY REQUESTED:

Salaries	\$101,000
Travel, Misc.	<u>8,810</u>
Total	\$109,810

These funds are to be used for salaries and travel expense for time expended in general administrative control of SPR activities; in preparation of the annual work program and cost estimate, in preparation of research problem statements, proposals, and work plans for proposed studies; for attending administrative or technical meetings and schools or workshops associated with research, development, implementation, and technology transfer, and for salaries and reproduction costs for the preparation of progress reports or other special reports associated with the research, development, implementation and technology transfer administration. Funds are also for salaries and expenses associated with administering and auditing contract research or cooperative research conducted by persons other than personnel of the research unit. Funds will also be used for attendee travel and related costs associated with conducting an in-state peer exchange meeting every three to five years.

WORK PROGRAM FOR KANSAS PROJECT SPR-R010 (28)
Part II Research and Development
July 1, 2004 to June 30, 2005

KSDOT 64-10
RE-0260-05

TITLE: Transportation Research Correlation Service

PROPOSER: Kansas Department of Transportation
Topeka, Kansas

MAJOR SUBDIVISION: Bureau of Materials and Research

PRINCIPAL: Mr. Richard L. McReynolds, P. E.
Engineer of Research
Materials and Research Center
2300 SW Van Buren Street
Topeka, Kansas 66611

MONEY REQUESTED: \$90,190

These funds are for the annual subscription payment to the Transportation Research Board's Research Correlation Service. The payment is reviewed every three years and adjustments made as required. The current rate began in FY 2004 and will remain unchanged for three years.

WORK PROGRAM FOR KANSAS PROJECT SPR-R010 (28)
Part II Research and Development
July 1, 2004 to June 30, 2005

KSDOT 73-1
RE-0259-05

TITLE: Implementation of Research and Development Findings (Approved May 1972)

PROPOSER: Kansas Department of Transportation
Topeka, Kansas

MAJOR SUBDIVISION: Bureau of Materials and Research

PRINCIPAL: Mr. Richard L. McReynolds, P.E.
Engineer of Research
Materials and Research Center
2300 SW Van Buren Street
Topeka, Kansas 66611

CO-PRINCIPAL: David A. Meggers, P.E.
Research Development Engineer
Materials and Research Center
2300 SW Van Buren Street
Topeka, Kansas 66611

MONEY REQUESTED:	Salaries	\$875,000
	Supplies, Travel, Reproduction, Misc.	20,000
	Equipment	<u>5,000</u>
	Total	\$900,000

Objective: To use special efforts to bring the results of various research and development projects into operating practice.

Accomplishments: Since being originated, numerous innovative research ideas, product evaluations, implementation reports and related activities have been accomplished under this line item which gives the flexibility necessary for stimulating new ideas. The most productive research under this line item was the rebar insertion for concrete girder repair project that saved the KsDOT about \$25,000,000. Numerous other innovative ideas have become successful research results because of the flexibility allowed to quickly pursue ideas while they are fresh. Implementation of SHRP test equipment was enhanced by purchases made under this line item.

Staffing Plan: Civil engineers, engineering technicians, publications writer, librarian, secretaries, photographers, chemists, geologists, laborers, and other employees from the Bureau of Materials and Research and from recipient departments or districts will be utilized as needed and available.

Plan for Fiscal Year: This work will involve several levels of implementation, development, and technology transfer efforts such as: preparation of implementation reports which translate research and development findings into usable format for engineering practice, helping prepare engineering specifications, reviewing research and development reports for implementable materials, publishing K-TRAN Program and other research reports, attending workshops, seminars, demonstrations, schools and technical meetings associated with highway research, development, and implementation, distribution of research and development reports from various sources, evaluating new or special products under the experimental construction feature studies, task order studies, or other related programs, aiding other groups such as FHWA implementation and demonstration teams, University faculty working on KDOT research, other research contractors, NCHRP, TRB or HITEC, etc., and any other mechanisms needed in the development, implementation and technology transfer process. A listing follows:

**KSDOT RESEARCH AND DEVELOPMENT
EXPERIMENTAL FEATURE, DEMONSTRATION, POOLED FUND,
TECHNOLOGY TRANSFER,
AND IMPLEMENTATION PROJECTS**

NOTE: NEPT = National Experimental Project Tabulation

CRACK REDUCTION STUDIES: Cliff Hobson

Aggregate Base (AB-1)/Geogrid:

US-54 Kiowa Co. (Constructed 1993) NEPT KS 8903
(SHRP SPS-1 and SPS-9)

Strata Sand Anti-Fracture Interlayer/Saw and Seal:

US-75 Osage Co. (Constructed 2000)

NEW BITUMINOUS MIXES: (Cliff Hobson)

Superpave Mixes:

US-75 Osage Co. (Constructed 1998)
US-281 Pratt Co. (Constructed 1998)
K-254 Butler and Sedgwick Cos. (Constructed 1998)

Mixes with and without Anti-Strip Agent:

US-24 Mitchell Co. (Constructed 1999)
K-28 Jewell Co. (Constructed 1999)
K-96 Sedgwick and Reno Cos. (Constructed 1997)
Pomona State Park Roads Osage Co. (Constructed 1998)
K-27 Stanton Co. (Constructed 1998)
K-25 Rawlins Co. (Constructed 1998)
US-83 Logan Co. (Constructed 1999)

Perpetual Pavement

US-75 Brown Co. (Constructed 2004)

LABORATORY EVALUATION OF NEW BITUMINOUS PAVEMENT MIXES AND EQUIPMENT: Cliff Hobson

Evaluation of Superpave Equipment, Mixes and Procedures
Evaluation of Bituminous Mixes

TREATED BASE STUDDIES: Cliff Hobson

Evaluation of Portland Cement Treated Base and Asphalt Treated base Study

BRIDGE CAMBER STUDIES: John Wojakowski

US-50 near Elmdale (Constructed 1975)
K-4 Valley Falls (Constructed 1976)
K-177 at Cottonwood Falls (Constructed 1976)

BRIDGE DECK PROTECTIVE SYSTEMS: John Wojakowski (Former NEEP 12)

Cost Effective Bridge Deck Reconstruction:

Iowa System Deck Overlays (on old decks):

Industrial Avenue over I-35 NEPT KS 7802A (Installed 1978) (Replaced 1994)
E.B I-470 over Shunganunga Creek NEPT KS 7802B
(Installed 1979)
W.B. I-470 over Shunganunga Creek NEPT KS 7802B
(Installed 1977) (Replaced 1990)
Milford Lake Road (FAS 270) over I-70 NEPT KS 7802C
(Installed 1979)

Kansas System Deck Overlays (on old decks):

FAS 511 over Marias des Cygnes R., S of Quenemo
(Installed 1987)

Interlayer Membrane with Asphaltic Concrete Wearing Surface:

S.B. I-235 over Zoo Blvd., Wichita, NEPT KS 8501
(Installed 1986)

S.B. I-235 over Floodway, Wichita, NEPT KS 8501
(Installed 1986)

Silica Fume Concrete Deck Overlays (on new decks):

W.B. I-470 over Fairlawn Ave. in Topeka (Constructed 1990)
NEPT KS 9003

E.B. I-470 over 29th Street in Topeka (Constructed 1990)
NEPT KS 9003

Thin Membrane or Seals (on old decks): David A. Meggers

K-16 (Randolph Bridge), Riley and Pottawatomie Cos.
Etanplast System (Constructed test section 1993, remainder 1995, modified slurry
seal 2000)

Polymer Concrete-Two Coat Broom and Seat: David A. Meggers, Cliff Hobson

I-470 WB ramp over I-70 in Topeka (Constructed 1999, repaired 2000)

K-96 in Hutchinson (Constructed 2000)

Viaduct in Hutchinson (Constructed 2003)

US-54 Butler Co. (Constructed 2003)

I-70 Dickinson Co. (Constructed 2003)

US-24 Clay Co. (Constructed 2003)

**Evaluation of Thin (38 mm) Concrete Bridge Deck Overlays with Silica Fume, Steel Fibers,
Polypropylene Fibers and Lightweight Aggregates: David A. Meggers**

I-70(024) WB over Snokomo Creek, Wabaunsee Co.
- 38 mm silica fume (Constructed 1993) NEPT KS 9201

EXPERIMENTAL FEATURES FOR NEW BRIDGE DECKS: John Wojakowski

Dow Latex System Deck Overlays (on new decks):

- Second St. over Ark River, Wichita NEPT KS 7501
(Installed 1976) Biannual Report on odd numbered years
- Twin Bridges over Floodway, Wichita NEPT KS 7601A
(Installed 1976, 77) Biannual Report on even numbered years
- Twin Bridges over Big Slough, Wichita NEPT KS 7601A
(Installed 1977) Biannual Report on odd numbered years
- Rock Road over Gypsum Creek, Wichita NEPT KS 7601B
(Installed 1977) Biannual Report on odd numbered years

Epoxy Coated Rebars:

- N.B. US-75 over Lower Silver Lake Road in Topeka
(Constructed 1978)
- S.B. US-75 over Lower Silver Lake Road in Topeka
(Constructed 1978)

Concrete Consolidation Studies:

Automated Vibration Systems:

- N.B. US-75 over 25th Street in Topeka (Constructed 1977)
- S.B. US-75 over 25th Street in Topeka (Constructed 1977)
- K-96 over Arkansas River in Hutchinson
(Constructed 1977-78)
- K-31 over Elm Creek, south of Harris (Constructed 1978)
- E.B. US-36 over FAS-69 north of Robinson
(Constructed 1978)
- E.B. US-36 over outfall from Brown Co. Lake
(Constructed 1978)
- N.B. US-75 over Lower Silver Lake Rd. In Topeka
(Constructed 1978)
- S.B. US-75 over Lower Silver Lake Rd. In Topeka
(Constructed 1978)
- N.B. US-75 over US-24 in Topeka (Constructed 1978)
- S.B. US-75 over US-24 in Topeka (Constructed 1978)
- E.B. US-36 over Co. road, NW of Robinson
(Constructed 1979)

Manual Vibration Systems:

- US-75 over Wakarusa River, South of Topeka
(Constructed 1973)
- US-50 over Diamond Creek, South of Strong City
(Constructed 1975)

PORTLAND CEMENT CONCRETE PAVEMENT STUDIES: John Wojakowski

Crushed Limestone Coarse Aggregate in PCCP:

US-169 Johnson and Miami Co. NEPT KS 8505 (Constructed 1986)
I-35, US-50 Lyon Co. NEPT KS 9601 (Constructed 1993, 1994)

PROFILOGRAPH EVALUATION OF PAVEMENTS: Wm. Parcels, Jr.

Control of Pavement Smoothness (PCCP and ACP):
(Interim Report April 2004)

USE OF CHEMISTRY TO EVALUATE ASPHALT CEMENT AND OTHER HIGHWAY MATERIALS: S. W. Bishara and Donna Mahoney

Applying Microwave aging for Binders Used in Accelerated Loading Facility at TFHRC

Microwave Aging of Modified and Unmodified Binders Using Same Microwave Unit

Microwave Aging to Replace Short-Term (RTFO) Aging.

Aging at Room Temperature and its Correlation with the Phenol Concentration.

SPECIAL PRODUCT EVALUATION STUDIES:

Analysis of Aggregates for AC and PCC Pavement: Barbara Smith

Elastomeric Concrete Evaluation (Delcrete and Wabocrete): John Wojakowski

I-135, SB Bridge over Arkansas River, Sedgwick County,
NEPT KS 9102

Concrete Pavement Joint Sealants: John Wojakowski

US-36 Doniphan Co. NEPT KS 8904 (Installed 1990)(Replaced with low modulus hot pour sealant, 1999)

Repair of Corroded Corrugated Metal Pipe Culverts: David A. Meggers

Evaluation of Metal, PCC and Plastic Pipe Culverts: David A. Meggers

Monitor Progress on University (K-TRAN and other stated funded) Research Projects:
Barbara Smith, David A. Meggers, W. H. Parcels, Jr., John Wojakowski, Cliff Hobson and Jennifer Distlehorst

Coordination of Strategic Highway Research Program (SHRP) Long Term Pavement Performance (LTPP) Activities: Wm. Parcels, Jr.

Chip Seals Using Lightweight and Precoated Aggregates with High Traffic: Cliff Hobson

K-57 Geary Co. (Constructed 2001)

Textural and Mineralogical Characterization of Kansas Limestone Aggregates in Relation to Physical Test Results Barbara Smith and Ralph Pollock

Special Investigations and Studies of PCC and AC Pavements and Materials John Wojakowski, David A. Meggers, Barbara Smith, W. H. Parcels, Jr., Cliff Hobson and Jennifer Distlehorst

Low Temperature Cracking of PG Binder Study (assist Western Research Institute, Laramie, WY): Cliff Hobson

US-77, Marion Co. (Constructed 2002)

Evaluation of Standard vs. Optimized PCCP Mixes for Cracking Potential (Topeka Area): John Wojakowski and Barbara Smith

Air Void Analyzer – Real Air Testing in Real Time: John Wojakowski

Assist with Development of a Road Recycling Machine for PCCP: John Wojakowski

Supersmooth Concrete Pavement: John Wojakowski

Evaluation and Implementation of Fiber Reinforced Polymer (FRP) Materials for Use as Bridge Decks: David A. Meggers

Cathodic Protection of Bridges: David A. Meggers

Active System: US-75 over 101st St., Shawnee Co.

Passive System: I-470 over I-70, Shawnee Co.

PCCP Random Transverse Tining Evaluation: W. H. Parcels, Jr.

Development and Implementation of High Performance Concrete: David A. Meggers

Evaluation of Daylighted Bound Drainable Base: W. H. Parcels, Jr., Andrew Gisi, James Brennan (Final Report FHWA-KS-03-5)

US-50, Marion Co. NEPT KS 9702

Develop a KDOT Geotechnical Manual: Jennifer Distlehorst

Thin Bonded Concrete Inlay Over Asphalt (UTW): John Wojakowski (Final Report FHWA-04-2)

Advanced Technology Research: Stan Young

Alliance for Transportation Research and Applied Development (ATRAD)

Dowel Bar Location in Plastic Concrete in Real Time

3D Highway Model

Laboratory Information Management System (LIMS)

Notification of Delay During Pilot Car Operations

Intelligent Transportation Systems (ITS)

Evaluation of Personal Rapid Transit for a University Campus

WORK PROGRAM FOR KANSAS PROJECT SPR-R010 (28)
Part II Research and Development
July 1, 2004 to June 30, 2005

KSDOT 93-1
RE-0001-05
RE-0265-05

TITLE: Technology Transfer and Training

PROPOSER: Kansas Department of Transportation
Topeka, Kansas

MAJOR SUBDIVISION: Bureau of Materials and Research

PRINCIPAL: Ms. Susan Barker, P.E.
Technology Transfer Engineer
Kansas Department of Transportation
2300 SW Van Buren Street
Topeka, Kansas 66611

MONEY REQUESTED:	Salaries	\$ 258,000
	Travel Expense	3,000
	Misc. Expense	3,000
	Training Course Fees (RE-0265)	<u>56,000</u>
	Total	\$ 320,000

Objectives: These funds are to be used for salaries and travel expense for time expended in administration of technology transfer activities including the library and training activities. Funds will be used to operate the KDOT Library (paper and electronic); assist with coordination of research efforts; assess current research and review publications to identify areas of specific interest to KDOT; develop implementation plans to transfer technological advances into field operations; provide training courses that lead to the adoption of new techniques or products; assist with assessment of new products and their implementation if warranted by preparation of new specifications and procedures; serve as liaison to organizations such as the Midwest Transportation Knowledge Network, University of Kansas Transportation Center, etc.; monitor the LTAP Program, schedule and administer training courses; edit technical reports for publication; and edit and publish Technology Transfer Digest on a quarterly basis.

Accomplishments: Technology transfer materials were distributed, the LTAP administered, the KDOT Library operated, a new KDOT Research Reports Catalog placed into service to provide access to KDOT research reports on the internet, a number of seminars, training activities and conferences arranged and technical assistance provided for a variety of RD&T activities. Staff assisted with technical training for Superpave QC/QA and certified inspector testing that was provided to KDOT, Local Government, Consultant and Contractor personnel. Nine major training courses were provided during the fiscal year. Training course expenditures and receipts were tracked using a separate project number (RE-0265). A number of K-TRAN and in house final reports were edited and published in paper and electronic formats. The KDOT Electronic Library is now being used to catalog all new publications received at the library. During the year, KDOT joined the Online Computer Library Center (OCLC) and prepared and sent information to them to catalog over 1000 publications not previously in their database. Preparation of the KDOT Library for the move to the new Headquarters location is nearly completed.

Staffing Plan: Civil engineers, publications writer, engineering technicians, librarian, secretaries, and other employees from the Bureau of Materials and Research and from recipient bureaus and districts will be utilized as required.

Plan for Fiscal Year: Administration of KDOT technology transfer activities and operation of the KDOT paper and electronic libraries will be accomplished. Ten major training courses covering a variety of subjects will be provided to KDOT staff. Research staff will assist with providing Superpave and other testing certification training as needed. Other training courses will be arranged or presented on an as needed basis. K-TRAN and in house final reports will be edited and published in paper and electronic formats. The Technology Transfer Section and KDOT Library will move to the KDOT Headquarters building during the year. Cataloging of library holdings into OCLC will also continue.

WORK PROGRAM FOR KANSAS PROJECT SPR-R010 (28)
Part II Research and Development
July 1, 2004 to June 30, 2005

KSDOT 67-2
RE-0453-05

TITLE: Research and Development Contingencies and Proposed Studies

PROPOSER: Kansas Department of Transportation
Topeka, Kansas

MAJOR SUBDIVISION: Division of Planning and Development

PRINCIPAL: Mr. James Tobaben, P.E. and Chief
Bureau of Transportation Planning
Kansas Department of Transportation
Harrison Center
700 SW Harrison Street
Topeka, Kansas 66603

CO-PRINCIPAL: Mr. Richard L. McReynolds, P.E.
Engineer of Research
Kansas Department of Transportation
Materials and Research Center
2300 SW Van Buren Street
Topeka, Kansas 66611

MONEY REQUESTED: \$50,000

Objectives: These funds are to be used to provide for change of scope of projects in the program and for funding of new projects introduced during the fiscal year.

DETAILED COST ESTIMATE AND OUTLINE

FOR

THE 2005 WORK PROGRAM

PART III

PLANNING ACTIVITIES

NOT FUNDED WITH

SPR FUNDS

**KANSAS STATE PLANNING and
RESEARCH, DEVELOPMENT & IMPLEMENTATION
WORK PROGRAM**

Fiscal Year 2005
July 1, 2004 through June 30, 2005

SUMMARIES OF ESTIMATED COSTS
BY
SECTIONS AND SUBSECTIONS

**PART III
PLANNING ACTIVITIES**

	<u>AMOUNT</u>	<u>AMOUNT</u>
1. GENERAL NON-PARTICIPATING PLANNING ACTIVITIES - STATE FUNDED		320,000
A. Administration	320,000	
2. OTHER PLANNING ACTIVITIES FUNDED WITH STATE FUNDS		592,000
A. Official State Map	250,000	
B. Accident Microfilming, Data Coding and Keying	92,000	
C. Public Transportation	250,000	
Total Part III		<u>912,000</u>

**1. GENERAL NON-PARTICIPATING
PLANNING ACTIVITIES-STATE FUNDED**

Total Estimated Cost \$320,000

A. Administration (P-0245-05)

Objective

Selected highway planning activities and expenditures are not eligible for funding with SPR funds. In addition, there are a few activities which occur during the year which would be eligible for funding from one of these categories, but due to the limited scale of the effort for these activities, modification of the affected portion of the work program to obtain the funding is not warranted. These non-participating planning activities are grouped into an "Administration" category. The "Administration" category consists of the general administrative activities related to the general operation of the Bureau of Transportation Planning and not specifically related to the administration or accomplishment of the Annual SPR Work Program. Included are the expenditures for general communication services, microfilming, general office supplies and related items, acquisition and maintenance of office and shop tools and equipment, and organizational training and conferences. Miscellaneous service function activities involved in accomplishing non-SPR related activities for the KDOT Secretary of Transportation, the KDOT Division Directors and for other KDOT bureaus and offices are also included in the "Administration" category.

Accomplishments 2004

Non-participating planning activities, as described above, resulted in the estimated expenditures as shown below.

Proposed 2005

Non-participating planning activities, as described above, are expected to result in the following estimated costs.

2004 Program	2004 Estimated Expenditures	2005 Program
\$320,000	\$280,000	\$320,000

**2. OTHER PLANNING ACTIVITIES
FUNDED WITH STATE FUNDS**

Total Estimated Cost \$322,000

A. Official State Map (P-0084-05)

Objective

The objective is to provide a reliable, accurate, legible and reasonably current general state transportation map.

Accomplishments 2004

Distribution of 1,500,000 copies of the 2003-2004 Official State Map as well as updates for the 2005-2006 map is ongoing. Refer to Section 3, MAPPING, of Part I for a report of the drafting activities (SPR participating).

Proposed 2005

Refer to Section 3, MAPPING, of Part I for the proposed drafting activities (SPR participating). It is anticipated that 1,500,000 copies of the 2005-2006 Official state Map will be printed.

2004 Program
\$2,000

2004 Estimated Expenditures
\$2,000

2005 Program
\$250,000

B. Accident Data Scanning, Coding and Keying (P-0364-05)

Objective

The objective is to collect, code, and process data for all reportable motor vehicle accidents in Kansas and to provide accident data analysis and report generation. The analysis of these data is essential for use in planning highway construction and for implementing accident reduction measures. The maintenance of such data is vital to the promotion of highway safety and for fulfilling data needs at the Federal level.

Accomplished 2004

Selection and training of scanning, coding, and keying personnel continued at KDOC as turnover occurred. The target date for closing calendar year 2002 data was impacted due to law enforcement not submitting accident reports in a timely manner. KDOT personnel continued to perform batch processing, editing, spot checking and coordination functions including preparation and updating of location coding materials and aids.

Electronic submission of motor vehicle accident reports continues to be investigated. To date, one accident report has been received electronically.

Proposed 2005

The same agreement between the Kansas Department of Corrections (KDOC) and the Kansas Department of Transportation will continue for the aforementioned services. KDOT will continue aforementioned tasks.

Electronic submission of motor vehicle accident reports will continue to be investigated and initiated.

2004 Program	2004 Estimated Expenditures	2005 Program
\$90,000	\$90,000	\$92,000

C. Public Transportation

State Program

State Funds for Coordinated Transportation Services to elderly persons, persons with disabilities, and the general public.

Objective

The objective of this program is to provide funds for coordinated transportation services to elderly persons, persons with disabilities, and the general public through established transportation providers who already participate in the Federal 49 U.S.C. #5307, #5310 or #5311 programs.

State Program Accomplishments 2004

Transit Authority Grants

A \$460,462 grant was awarded to Topeka Metropolitan Transit Authority to assist with operating and maintenance expenses.

A \$1,282,715 grant was awarded to Johnson County Transit to assist in the purchase of vehicles and to assist with the operating expenses associated with their commuter rail and transit services.

A \$1,110,434 grant was awarded to the Wichita Transit Authority to assist in the purchase of four (4) vehicles, an AVL & GPS system, and for operating costs to enhance their bus route system.

A \$460,462 grant was awarded to assist the Unified Government of Wyandotte County/Kansas City, Kansas with the purchase of vehicles and to assist with operating expenses associated with their regular and medical transit services.

A \$250,986 grant was awarded to assist the City of Lawrence with the purchase of vehicles, fare box equipment, to upgrade their telephone system and to assist them with their general operating costs.

Other grants/contracts

A \$45,984 grant was awarded to Developmental Services of Northwest Kansas to assist with the operating costs of their Health Express program.

A \$40,500 grant was awarded to Topeka Red Cross to help with the operating costs of their TransLINC service.

A \$44,952 grant was awarded to OCCCK to assist with the operating cost of their Medical Van program.

A contract was awarded to The Consortium, Inc. to serve as KDOT's third party administrator for the Drug and Alcohol Testing Program required for Public Transit Section 5311 providers.

Vehicle Awards

A total of \$471,196 was set aside for the purchase of seventeen (17) vehicles. Vehicles will be delivered early to mid 2004 to sixteen (16) transportation provider agencies across the state.

Operating Expenses

A total of \$1,457,518 was set aside to provide financial assistance for operating expenses to 49 U.S.C. #5311 grantees and to the active 49 U.S.C. #5310 providers who were not receiving 49 U.S.C. #5311 operating grants.

Forty-nine (49) 49 U.S.C. #5310 providers received assistance.

Fourteen (14) Coordinated Transit Districts (CTDs)–received 49 U.S.C. #5311 assistance.

Proposed 2005

Continue the state program as established.

Federal Programs

The Office of Public Transportation administers four federal programs.

5309 Objective

The 49 U.S.C. #5309 funds provided for this program are for discretionary capital investment grants to public bodies and agencies. Funds from this program are awarded through Congressional earmarks. This assistance is available for the purchase of multiple vehicles, vehicle/transit related equipment, and facility construction or renovation.

5309 Accomplishments 2004

Vehicle Awards

An allocation of \$489,076 (federal funds) was set aside for the purchase of eighteen (18) vehicles. Vehicles will be delivered early to mid 2004 to thirteen (13) transportation provider agencies across the state.

Other Grants/Contracts

A \$1,200,000 grant was awarded to Developmental Services of Northwest Kansas in FY 03 and an additional grant in the amount of \$300,000 was awarded in FY 04 to assist with the construction of their transit maintenance facility.

A \$640,000 grant was awarded to OCCK, Inc. in FY 03 and an additional grant in the amount of \$240,000 was awarded in FY 04 to assist with the renovation of their transit maintenance facility.

A contract was awarded to Radio Satellite Integrators (RSI) in the amount of \$261,364.00 to provide servers, software and licenses for our ITS projects with Developmental Services of Northwest Kansas (DSNWK) and Reno County Public Transportation.

A grant in the amount of \$76,224 was awarded to Reno County Public Transportation Department to assist in the purchase of Mobile Data Terminals (MDT) and workstations for their ITS project.

A grant in the amount of \$65,232 was awarded to DSNWK to assist in the purchase of Mobile Data Terminals (MDT) and workstations for their ITS project.

In FFY 04, Kansas received \$8,742,112 in earmarked 5309 funds. Approximately two-thirds went directly to the urbanized areas of Wichita, Topeka, and Kansas City. The remainder of the earmark was used in the Rural Public Transit Program statewide.

Proposed 2005

Continue the federal 49 U.S.C. #5309 program as established.

Section 5310 Objective

The 49 U.S.C. #5310 grant program provides capital assistance (vehicles) to private non-profit organizations specifically for the purpose of assisting them in providing transportation services for elderly persons and persons with disabilities.

All grants awarded are based upon an 80% federal and 20% local matching formula.

Accomplishments 2004

Vehicle Awards

An allocation of \$939,703 (federal funds) was set aside for the purchase of thirty-nine (39) vehicles. Vehicles will be delivered early to mid 2004 to thirty-three (33) transportation provider agencies across the state.

Proposed 2005

Continue the federal 49 U.S.C. #5310 program as established.

Section 5311 Objective

The 49 U.S.C. #5311 grant program provides funding to rural and small urban areas (under 50,000 population) transportation providers for capital and operating assistance. Kansas has one of the largest numbers of Section 5311 providers in the nation.

5311 Accomplishments 2004

No vehicles were purchased in 2004.

KDOT provided approximately \$3.2 million (federal funds) of operating assistance to 14 CTDs. Fourteen (14) CTDs is the number of districts receiving funding. A CTD is made up of a number of individual transportation providers, with each provider receiving assistance for operating expenses.)

A \$40,000 grant was awarded to the University of Kansas Center for Research to supplement the Kansas Rural Transit Assistance Program (RTAP).

Proposed 2005

Continue the federal 49 U.S.C. #5311 program as established. Federal funds will be used for operating and capital assistance.

49 U.S.C.5311 (f) Intercity Bus Program

Objective

This program is designed to support services to meet the intercity travel needs of residents in non-urbanized areas.

5311(f) Intercity Bus Program Accomplishments 2004

A \$29,230 grant was awarded to OCCK, Inc. to assist with the operating costs of their intercity bus program.

A \$31,151.50 grant was awarded to Developmental Services of Northwest Kansas to assist with the operating costs of their intercity bus program.

Proposed 2005

Continue the federal 49 U.S.C. #5311(f) Intercity Bus Program as established. Federal funds will be used for operating and capital assistance.

49 U.S.C.5311, Rural Transit Assistance Program (RTAP)

Objective

These funds are used to support the KDOT non-urbanized transit activities related to training, technical assistance, research, and related support services. RTAP has both state and national support components that offer varying degrees of assistance. The State program provides funding for training and technical assistance while the national program provides for the development of resources by the local service providers and state administering agencies.

5311 RTAP Program Accomplishments 2004

A \$95,754 grant was awarded to the University of Kansas Center for Research to fund Technical Services for the Kansas Rural Transit Assistance Program (RTAP). Activities included are:

- 10 Drivers training workshops
- Managers Training
- Quarterly Newsletter
- General Technical/Other Assistance

Proposed 2005

Continue the federal 49 U.S.C. #5311 RTAP program as established. Having new training sessions and resources added as necessary.

Section 5313(b) Objective

This program provides funds that can be used for a variety of public transportation purposes such as planning, technical studies and assistance, demonstrations, management training, and cooperative research.

5313(b) Accomplishments

A \$23,000 grant was awarded to the Kansas Public Transit Association (KPTA) to assist with their operating costs. A portion of these funds comes from the 5311 program. Activities included are:

- Bi-monthly newsletters
- Public bulletins
- Annual conference and training workshops
- Provide scholarships to attend conferences and workshops to transit providers

A \$16,000 grant was awarded to the Kansas Coordinated Transit District Council (KCTDC) in FY 03 and an additional grant in the amount of \$4,312 was awarded in FY 04 to assist with their operating costs.

Proposed 2005

Continue the federal 49 U.S.C. #5313(b) program as established.

2004 Program*	2004 Estimated Expenditures*	2005 Program*
\$280,000	\$250,000	\$280,000

*Costs to administer the Public Transportation Programs.

DETAILED COST ESTIMATE AND OUTLINE

FOR

THE FY 2005 WORK PROGRAM

PART IV

**RESEARCH ACTIVITIES
NOT FUNDED WITH
SPR FUNDS**

**KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF MATERIALS AND RESEARCH
WORK PROGRAM
RESEARCH, DEVELOPMENT AND IMPLEMENTATION ACTIVITIES**

DETAILED COST ESTIMATE AND OUTLINE

PART IV

Fiscal Year 2005
July 1, 2004 through June 30, 2005

KDOT RESEARCH POLICY

MISSION OF THE RESEARCH UNIT

RESEARCH, DEVELOPMENT AND IMPLEMENTATION ACTIVITIES FUNDED WITH:

1. STATE FUNDS - UNIVERSITY RESEARCH
 - a. K-TRAN Program
 - b. Undesignated University Research Program
2. STATE FUNDS - INTERNAL RESEARCH PROGRAM

KANSAS DEPARTMENT OF TRANSPORTATION

RESEARCH POLICY

The Department has a strong commitment to support research, development and technology transfer activities (RD&T) in the Bureau of Materials and Research. While the focal points of RD&T activities are in the Bureau of Materials and Research and the K-TRAN Research Program in conjunction with KU and KSU, the Department advocates an interest and involvement in these activities by all KDOT staff members. Activities such as submitting research ideas, implementing research results, providing or monitoring test sections, and administering a K-TRAN or other research projects are all important RD&T functions and examples of the involvement and commitment desired from staff.

Management support of RD&T activities will be provided through advocacy, funding and a willingness to promote implementation of research findings.

MISSION OF THE RESEARCH UNIT

The mission of the Research Unit is:

1. To support and encourage innovation throughout the Department by promoting research, development and implementation (RD&T) activities.
2. To evaluate problems as they arise during standard construction and maintenance field operations and provide timely responses.
3. To serve as an information resource for agency management.

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

BUREAU OF MATERIALS AND RESEARCH

WORK PROGRAM

RESEARCH, DEVELOPMENT AND IMPLEMENTATION ACTIVITIES

SUMMARY OF ESTIMATED COSTS

Fiscal Year 2005
July 1, 2004 through June 30, 2005

Summary of Estimated Costs

1.	State Funds - University Research Program	
	a. K-TRAN Program	\$757,000
	b. Undesignated University Research Program	\$ 80,000
2.	State Funds - Internal Research Program	\$225,000
	Total Part IV	\$1,062,000

1a. GENERAL NONPARTICIPATING RESEARCH, DEVELOPMENT AND IMPLEMENTATION ACTIVITIES-STATE FUNDED UNIVERSITY RESEARCH K-TRAN PROGRAM

Total Estimated Cost \$757,000

Objective:

The Kansas Transportation Research and New-Developments (K-TRAN) Research Program is an on-going, cooperative and comprehensive research program addressing transportation needs of the State of Kansas utilizing academic and research resources from KDOT, Kansas State University and the University of Kansas. The projects included in the research program are jointly developed by transportation professionals in KDOT and the universities.

The K-TRAN Program was initiated on August 21, 1990 and is currently governed by an agreement signed January 25, 2000. The minimum funding level (all research expenditures) is \$700,000 annually (\$350,000 per university). Available funds, research needs and the availability of researchers will govern the number of projects that can be included in the research program.

The K-TRAN Research Program is governed by the theme of the organization -- addressing transportation needs of the State of Kansas for the 21st Century so that its people will enjoy better transportation provided in a more efficient and effective manner.

To develop a program to achieve K-TRAN objectives, eight major categories have been established for the review and development of research ideas:

- planning (including administration)
- pavements & materials (construction & maintenance)
- traffic operations and geometric design
- structural
- computing
- drainage
- rail, aviation and public transit
- local governments

The K-TRAN effort is timely and a critical need for Kansas in view of the opportunity it represents to maintain and rebuild the aging and transitional Kansas transportation system, the opportunity at a time of the post-Interstate environment, and the opportunities created by National and Kansas transportation legislation passed during the last 10 years. Major benefits of the program include development of a flow of high quality transportation research targeted to Kansas transportation needs; financial support to engineering students contributing to the pool of transportation professionals in Kansas; continuing education opportunities for KDOT personnel; enhanced quality of faculty, staff and graduates in the transportation area; attracted federal

research resources for use in Kansas; and a much expanded but efficiently organized transportation research resource in Kansas. A benefit cost ratio of 15.4:1 has been reported for the overall program.

The Research Program Council approved a FY 2004 K-TRAN Program consisting of 15 projects as shown on the next page. Future K-TRAN Programs will be developed using the following schedule:

K-TRAN SCHEDULE

Solicit Research Ideas from KDOT staff	June 15
Deadline for Ideas	August 15
Program Council Review	September 1
Request for K-TRAN Research Project Statements	November 1
Deadline for Research Project Statements	December 1
Categorize and Assign RPS to Area Panels	December 15
Area Panel Evaluations Completed	February 1
Technical Committee Formulates Recommended Research Program	February 15
Program Council Approves K-TRAN Program and Budget	March 1
Detailed Proposals and Agreements Prepared and Signed for Projects Beginning Prior to July 1	May 15

**FY 2005 K-TRAN Program
July 1, 2004**

K-TRAN PROJ. NO.	KDOT PROJ. NO.	PREPROP OSAL NO.	EST. TOTAL COST	MO	APL	PM	PI
Admin			\$17,500			R. McReynolds	
KSU-05-1		KSU-7	\$78,000	18	LSI	R. Barezinsky	Hossain
KSU-05-2		KSU-2	\$65,000	12	DAC	P. Bodyk	Dissanayake
KSU-05-3		KSU-29	\$30,000	12	KFH	R. Reynolds & B. Filippi	Esmaeily, Peterman
KSU-05-4		KSU-27	\$49,000	12	DAC	C. Lambrecht	Russell
KSU/KU-05-5		KSU-25*	\$35,000	12	LWE	L. Holmes	Russell, Mulinazzi
KSU-05-6		KSU-22	\$64,990	24	JET	K. Rizek	Najjar
KU/KSU-05-8		KSU-28*	\$20,000	12	JET	G. Olson	Mulinazzi, Russell
SUBTOTAL	KSU		\$359,490				
Admin			\$17,500			R. McReynolds	
KU-05-1		KU-8	\$48,000	18	DAC	K. Miyamoto	Bai, Lee
KU-05-3		KU-19	\$85,000	18	LSI	J. Brennan	Parsons
KU-05-4		KU-6	\$30,000	12	JOB	J. Richardson	McEnroe
KU-05-5		KU-18	\$30,000	18	JOB	J. Richardson	Parr
KU-05-6		KU-16	\$30,000	12	DAC	C. Huffman	Givechi
KU-05-7		KU-25	\$112,000	24	NBN	C. Wade	Graham, Matamoros
KU/KSU-05-8		KU-21*	\$30,000	12	JET	G. Olson	Mulinazzi, Russell
KSU/KU-05-5		KU-24*	\$15,000	12	LWE	L. Holmes	Russell, Mulinazzi
SUBTOTAL	KU		\$397,500				
GRAND TOTAL			\$756,990				

KANSAS STATE UNIVERSITY

KSU-05-1	Field Verification of Superpave Mixture Properties To Be Used As Inputs in the AASHTO Mechanistic Design Guide for Pavement Structures
KSU-05-2	Exploring the Methods to Increase Safety Belt Usage in Kansas
KSU-05-3	Feasibility of Using Clear-Span Arches for Short-Span Bridges
KSU-05-4	A Study of the Effect of ADA Access Proposals on Kansas Roundabout Growth
KSU/KU-05-5	Redevelopment of the Kansas Low-Volume (LVR) Handbook
KSU-05-6	Mining the Kansas traffic-crash database to extract and discover new useful correlations (Phase II)
KU/KSU-05-8	Develop a Crash Identification and Mitigation Guide for Rural, Two-Lane State and Local Highways

UNIVERSITY OF KANSAS

KU-05-1	Determining Major Causes of Highway Work Zone Accidents in Kansas
KU-05-3	Development of p-y Criteria for Drilled Shafts in Loess
KU-05-4	History of Hydrologic and Hydraulic Design Criteria for Culverts and Bridges
KU-05-5	Effects of Gradual and Abrupt Bends in Culverts
KU-05-6	Guidelines for Left-Turn Treatments at Unsignalized Intersections and Driveways
KU-05-7	Developing a Taxonomy for Document Management
KU/KSU-05-8	Develop a Crash Identification and Mitigation Guide for Rural, Two-Lane State and Local Highways
KSU/KU-05-5	Redevelopment of the Kansas Low-Volume (LVR) Handbook

1b. GENERAL NONPARTICIPATING RESEARCH, DEVELOPMENT AND IMPLEMENTATION ACTIVITIES-STATE FUNDED UNIVERSITY RESEARCH-UNDESIGNATED UNIVERSITY RESEARCH PROGRAM

Total Estimated Cost \$80,000

Objective:

Funds were included in the requested FY 2005 Agency budget for undesignated university research. These funds will be used to fund emergency projects or to perform ad hoc research determined to be needed by the Department. The FY 2004 funds were used for the following projects:

- RE-0232-01: Amend KSU-01-1 (automated measurement of SSD on aggregate specific gravity), Dr. Hossain, KSU, \$2,500.
- RE-0641-04: Hamburg Testing on polyphosphoric acid treated binder plugs at KSU, \$2,250.
- RE-0278-01: Additional testing on KSU-02-3, Dr. Peterman, KSU, \$4,850.
- RE-0309-01: Amend KSU-03-2 (3D models), Dr. Chang, et. al.,KSU, \$11,500.
- RE-0232-01: Amend KSU 01-1 (automated measurement of SSD on aggregate specific gravity), Dr. Hossain, KSU, \$1,215.
- RE-0xxx-01: Laser Speckle Method to Measure Transfer Length in Prestressed Members with Self Consolidating Concrete, Dr. Peterman, KSU, \$12,000.
- RE-0xxx-01: ATRAD Project Support for PRT Modeling,3D Modeling, and Measuring Steel Placement in PCCP, Dr. Soldan, KSU, \$23,300.

2. GENERAL NONPARTICIPATING RESEARCH, DEVELOPMENT AND IMPLEMENTATION ACTIVITIES-STATE FUNDED INTERNAL KDOT RESEARCH

Estimated Cost \$225,000

Objective:

Certain highway research, development and implementation activities and expenditures are not eligible for SPR participation or do not warrant modification of the program to include them.

The General Research Administration and Support Category (RE-0641) includes administrative, budgetary, clerical, drafting, 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, chemicals, laboratory glassware, 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.