

**STATE OF OKLAHOMA  
DEPARTMENT OF TRANSPORTATION  
PLANNING & RESEARCH DIVISION**

**FY2005**

**State Planning and Research (SPR) Program**

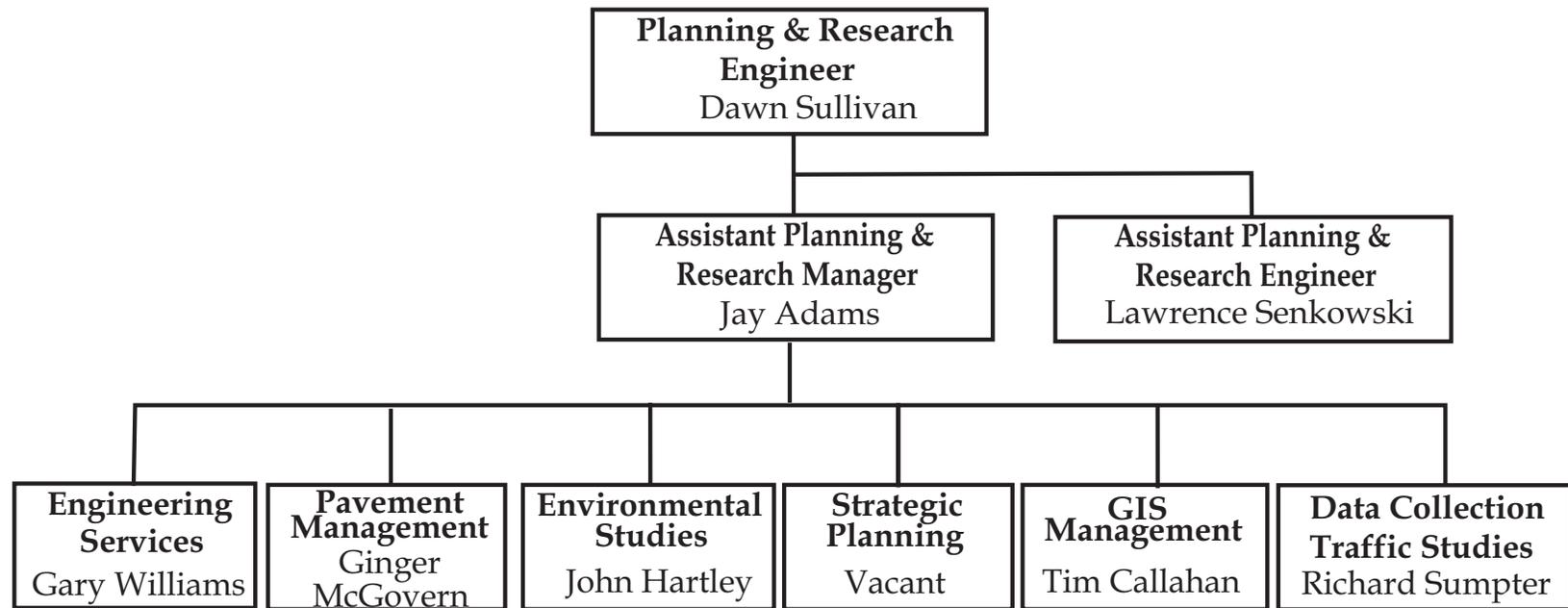
Part 1 - Planning

Part 2 - Research

In Cooperation with the  
United States Department of Transportation  
Federal Highway Administration

**October 1, 2004**

# Planning & Research Division



OCTOBER 1, 2004

**DEPARTMENT OF TRANSPORTATION  
Financial Summary Sheet**

**Work Program Number SPRY 0010(37) PL  
Fiscal Year 2005**

**Program Period October 1, 2004 through September 30, 2005**

**A. Total Estimated Costs**

SPR-Part 1 Planning	\$6,977,900.00
Metropolitan Planning (PL)	<u>1,932,887.00</u>

**TOTAL ESTIMATED COSTS** \$8,910,787.00

**B. Available Federal Funds**

<u>Source</u>	<u>SPR Unobligated Balance</u>	<u>PL Unobligated Balance</u>
<b>TOTAL AVAILABLE FEDERAL FUNDS</b>	\$6,977,900.00	\$1,932,887.00

**C. Proposed Financing**

<u>Type</u>	<u>Federal</u>	<u>Ratio</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
SPR	\$6,977,900.00	80%	\$0.00	\$0.00	\$6,977,900.00
PL	\$1,932,887.00	80%	\$0.00	\$529,524.00	<u>\$2,462,411.00</u>
<b>TOTAL PROPOSED FINANCING</b>					<u><u>\$9,440,311.00</u></u>

**Work Program Number SPRY 0010(38) RS  
Fiscal Year 2005**

**A. Total Estimated Costs**

SPR-Part 2 Research	\$1,964,204.00
---------------------	----------------

**B. Available Federal Funds**

<u>Source</u>	<u>Unobligated Balance</u>
<b>TOTAL AVAILABLE FEDERAL FUNDS</b>	\$1,964,204.00

**C. Proposed Financing**

<u>Type</u>	<u>Federal</u>	<u>Ratio</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
SPR	\$1,964,204.00	80%	\$0.00	\$2,500.00	\$2,991,704.00
Other FHWA	\$290,000.00				
<b>TOTAL PROPOSED FINANCING</b>			\$8,942,104.00		<u><u>\$2,991,704.00</u></u>
<b>TOTAL PART 1 AND PART 2</b>			\$8,942,104.00		

# TABLE OF CONTENTS

<b>SPR Part 1</b>	4
1101 Continuing Inventory Data Studies	7
1102 Highway Performance Monitoring System	8
1103 Geographical Information System for Transportation	10
1201 County General Highway Transportation, Incorporated City and other Planning Maps	12
1301 Coverage Count Program	14
1302 Permanent Traffic Count Program	15
1304 Purchase of Traffic Counting Equipment	16
1305 Vehicle Classification Counting Program	17
1306 Weigh-In-Motion Program	18
1308 Traffic Monitoring System	19
1309 Traffic Analysis and Projections	20
1310 Skid Studies Program	21
1402 Design and Survey Standards	22
1403 Design Manual	23
1510 Justification Studies	24
1511 Scoping	25
1601 Federal-aid Systems Coordination	26
1603 Highway Needs Study	27
1604 Pavement Management System	28
1700 General Urban Transportation Planning Activities	29
1701 Oklahoma City Area Regional Transportation Study	30
1702 Tulsa Metropolitan Area Transportation Study	31
1703 Lawton Metropolitan Area Transportation Study	32
1709 Fort Smith Area Transportation Study	33
1719 Statewide Transportation Improvement Program (STIP)	34
1901 NPDES Municipal Separate Storm Sewer System (MS4) Permits	35
1902 Statewide Planning & Corridor Studies	36
1903 Intelligent Transportation Systems Planning (ITS)	37
1904 Air Quality Transportation	38
1979 Environmental Studies - NEPA	39
1980 Environmental Studies - Environmental Affairs and Special Studies	40

## TABLE OF CONTENTS

<b>SPR Part 2</b>	<b>41</b>
2100 Transportation Research Board	43
2102 Research Library Services	44
2115 Long Term Pavement Performance	45
2120 Technical Assistance - Special Studies	46
2122 I-40 Crosstown Case Study	47
2130 General Research Activity	48
2146 Development of Intelligent Soil Compaction Technology	49
2156 Roadside Vegetation Management	50
2157 Herbicide Research Program	51
2158 Resilient Modulus Testing and Density Gradient Analysis	52
2160 Oklahoma Transportation Center	53
2161 Demonstration of a Non-Destructive Flexural Strength Test For Use During Construction	54
2167 Effect of Suction & Moisture on Resilient Modulus of Subgrade Soils	55
2168 Scale Effects in Oedometer - Based Predictions of Fill Settlement	56
2169 Evaluation of Test Methods for Determination of Aggregate Specific Gravity	57
2172 Oklahoma's Percent Defective Quality Assurance / Quality Control Spec.	58
2174 Investigation of Patching Materials for Portland Cement Concrete Pavements	59
2175 Investigation Into the Use of Portland Cement Concrete with Fiber for Bridge Decks	60
2176 Methods to Reduce or Eliminate End Region Corrosion - Prestressed Concrete Bridge Girde	61
2177 Determination of Dynamic Modulus Master Curves for OK Hot Asphalt Mixtures	62
2178 Evaluation of Cold, In-Place Recycling for Rehabilitation of Traverse Cracking on US 412	63
2180 National Association of Strand Procedures Bond Testing	64
2181 Development of a Mix Design for a High Performance Concrete (HPC) Bridge Deck	65
2182 Evaluation of Concrete Bridge Deck Overlays Using Bond Test	66
2183 Anti-Litter Campaign Effectiveness	67
2184 Creation of an ODOT Specification for Patching or Overlay of Bridge Decks	68
2440 LTAP	69
2700 Experimental Product & Evaluation Program	70

**FEDERAL FISCAL YEAR 2005  
OKLAHOMA PROJECT SPRY - 10(37) PL  
Part 1**

		<u>PROGRAM</u>	<u>SPR</u>	<u>STATE</u>	<u>PL</u>	<u>LOCAL</u>	<u>TOTAL</u>
<b>ROAD INVENTORY</b>							
1101	Continuing Inventory Data Studies		\$536,000.00	\$0.00			\$536,000.00
1102	Highway Performance Monitoring System		75,000.00	\$0.00			75,000.00
1103	Geographical Information System for Transportation		230,000.00	\$0.00			230,000.00
	<b>Total Road Inventory</b>		<b>\$841,000.00</b>	<b>\$0.00</b>			<b>\$841,000.00</b>
<b>MAPPING</b>							
1201	County, General Highway Transportation, Incorporated City and other Planning Maps		\$241,000.00	\$0.00			241,000.00
	<b>Total Mapping</b>		<b>\$241,000.00</b>	<b>\$0.00</b>			<b>\$241,000.00</b>
<b>TRAFFIC</b>							
1301	Coverage Count Program		441,000.00	0.00			441,000.00
1302	Permanent Traffic Count Program		231,000.00	0.00			231,000.00
1304	Purchase of Traffic Counting Equipment		325,000.00	0.00			325,000.00
1305	Vehicle Classification Counting Program		324,000.00	0.00			324,000.00
1306	Weigh in Motion Program		868,000.00	0.00			868,000.00
1308	Traffic Monitoring System		132,000.00	0.00			132,000.00
1309	Traffic Analysis and Projections		132,400.00	0.00			132,400.00
1310	Skid Studies Program		130,000.00	0.00			130,000.00
	<b>Total Traffic</b>		<b>\$2,583,400.00</b>	<b>\$0.00</b>			<b>\$2,583,400.00</b>
1402	Design and Survey Standards		\$0.00	\$0.00			0.00
1403	Design Manual		\$0.00	\$0.00			0.00
	<b>Total Standards</b>		<b>\$0.00</b>	<b>\$0.00</b>			<b>\$0.00</b>
<b>ECONOMIC AND FISCAL</b>							
1510	Justification Studies		10,000.00	0.00			10,000.00
1511	Scoping		5,000.00	0.00			5,000.00
	<b>Total Economic and Fiscal</b>		<b>\$15,000.00</b>	<b>\$0.00</b>			<b>\$15,000.00</b>

**FEDERAL FISCAL YEAR 2005  
OKLAHOMA PROJECT SPRY - 10(37) PL  
Part 1**

<u>PROGRAM</u>		<u>SPR</u>	<u>STATE</u>	<u>PL</u>	<u>LOCAL</u>	<u>TOTAL</u>
<b>SYSTEMS AND PROGRAMMING</b>						
1601	Federal Aid Systems Coordination	186,000.00	0.00			186,000.00
1603	Highway Needs Study	73,500.00	0.00			73,500.00
1604	Pavement Management	899,900.00	0.00			899,900.00
<b>Total Systems and Programming</b>		<b>\$1,159,400.00</b>	<b>\$0.00</b>			<b>\$1,159,400.00</b>
<b>URBAN TRANSPORTATION</b>						
1700	General Urban Planning Activities	33,500.00	0.00			33,500.00
1701	OCARTS	16,500.00	0.00	1,060,466.00	316,051.00	1,393,017.00
1702	Tulsa MATS	26,000.00	0.00	710,062.00	177,516.00	913,578.00
1703	Lawton MPO	15,900.00	0.00	148,533.00	32,500.00	196,933.00
1709	Fort Smith Area Study	6,600.00	0.00	13,826.00	3,457.00	23,883.00
1719	STIP	50,200.00	0.00			50,200.00
<b>Total Urban Transportation</b>		<b>\$148,700.00</b>	<b>\$0.00</b>	<b>\$1,932,887.00</b>	<b>\$529,524.00</b>	<b>\$2,611,111.00</b>
<b>LONG RANGE PLANNING/ENVIRONMENTAL STUDIES</b>						
1901	NPDES	160,000.00	0.00			160,000.00
1902	Statewide Long Range Transportation Planning Activities	300,000.00	0.00			\$300,000.00
1903	Intelligent Transportation Systems Planning (ITS)	65,000.00	0.00			65,000.00
1904	Air Quality Transportation Planning	9,900.00	0.00			9,900.00
1979	Environmental Studies - NEPA Review & Compliance	470,000.00	0.00			470,000.00
1980	Environmental Studies - Affairs & Specialist Studies	984,500.00	0.00			984,500.00
<b>Total Long Range Planning/Environmental Studies</b>		<b>\$1,989,400.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,989,400.00</b>

**FEDERAL FISCAL YEAR 2005  
OKLAHOMA PROJECT SPRY - 10(37) PL  
Part 1**

<i>PROJECT TOTALS</i>	<i>\$6,977,900.00</i>	<i>\$0.00</i>	<i>\$1,932,887.00</i>	<i>\$529,524.00</i>	<u><i>\$9,440,311.00</i></u>
<i>CONTINGENCY</i>	<u>                    </u>	<u><i>\$0.00</i></u>	<u>                    </u>	<u>                    </u>	<u><i>\$0.00</i></u>
<i>GRAND TOTALS SPR -10(37)</i>	<u><u><i>\$6,977,900.00</i></u></u>	<u><u><i>\$0.00</i></u></u>	<u><u><i>\$1,932,887.00</i></u></u>	<u><u><i>\$529,524.00</i></u></u>	<u><u><i>\$9,440,311.00</i></u></u>

**PURPOSE AND SCOPE:** To collect, record, and compile data on the physical characteristics of all public roads and streets implementing established road inventory procedures. Maintain current Electronic Data Processing (EDP) files of inventory data and update the Department's Central Data file. Write EDP program definitions necessary to extract needed summary data from the files. Produce and publish various mileage summary tables for the state, federal and public needs. Maintain necessary information for the National Network of Defense Routes. Maintain and develop the Control Section and other unique identification systems for all public roads. Establish AVMT to be used to calculate Annual Accident and Fatality Rates.

**ACCOMPLISHMENTS DURING FY 2004** The County Road inventory procedures were continued with seven county inventories completed; (Cleveland, Delaware, Marshall, Okfuskee, Okmulgee, Sequoyah, and Stephens) and two (Comanche and Pushmataha) in progress. Eight counties were reassessed and coded; (Craig, Creek, Mayes, Okfuskee, Pittsburg, Rogers, Stephens, and Wagoner) and two (Delaware and Okmulgee) are in progress. All County Action Reports were verified and processed accordingly. The Department's Highway, Graphical Roadway Network (NLF), Reference Point, and Open to Traffic databases were revised and processed through Agenda Items, Project Reports, Needs Study revisions, and special requests. The Rural (RFC), Urban (UFC), and Local databases, along with the ODOT Network Features were completed in conjunction with the 2000 Census Boundary revisions. Indian Jurisdictional Boundaries map is being created utilizing area features for future informational purposes. The following annual publications and reports were completed; the biannual 2004-2005 Control Section Map Book, 2003 Oklahoma Statewide Statistics Book, 2004 Certification of County Road Mileage, and 2004 HPMS Mileage and Travel Summary Tables.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue coding and updating the Department's Central Database files. Implement GPS technology into the field inventory data collection. Improve procedures for the rural county inventory methods for both the aerial and ground inventory operations. Five counties are scheduled to be inventoried; (Cherokee, Cotton, Kingfisher, Oklahoma, and Tulsa). Eight counties are scheduled to be reassessed and coded; (Cleveland, Comanche, Cotton, Kingfisher, Marshall, Oklahoma, Pushmataha, and Tulsa). The field inventory process of updating Urban Functional Classified (UFC) Roadways will be started. Continue collecting HPMS data items. Compile and publish various state and federal reports including the biannual 2005 Statewide Mileage Table Book. Complete the 2004 Oklahoma Statewide Statistics Book, 2005 Certification of County Road Mileage and 2005 HPMS Mileage and Travel Summary Tables. Keep abreast of the latest technological advances through attendance of seminars, conferences and workshops.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 519,000 (SPR) -0- (STATE)
Estimated Cost for FY 2004	\$ 584,000 (SPR) -0- (STATE)
Estimated Cost for FY 2005	\$ 536,000 (SPR) - 0 - (STATE)

**PURPOSE AND SCOPE:** To collect, process and compile data and information as needed to prepare and submit an accurate and timely HPMS submission to the Federal Highway Administration (FHWA) according to the reporting requirements established in the HPMS Field manual and utilizing the FHWA HPMS software.

**ACCOMPLISHMENTS DURING 2004:** The HPMS submittal was created using adjusted urban/urbanized areas based on the 2000 census and authorized smoothing techniques. The quality of data was improved for the Officially Designated Federal Commercial Vehicle Routes HPMS item. In the past, only roads designated as Interstate were considered to be Federal Commercial Vehicle Routes. Additional routes were developed, concurrence was received from the Oklahoma Division of FHWA, updates made to the appropriate Oracle packages and included in the HPMS submittal. HPMS data quality was also improved by using the most recent IRI data available from the Pavement Management data collection efforts. The HPMS submittal process uses a web based graphical user interface known as the HPMS Console and is very effective in managing the entire life cycle of the HPMS submittal process. The HPMS Console is intranet based and was designed to support the sharing of tasks with the appropriate HPMS data owners and personnel responsible for each of the six different phases of HPMS submittal development. Some significant improvements/enhancements have been made to the "Post-Submittal" phase of the HPMS Console. The HPMS console now updates AADT data in the appropriate history tables, generates a report of location changes which have occurred in the Road Inventory data since the Inventory Phase (1) validation was completed and updates the AADT data for all unresolved locations. The HPMS process validation component of the HPMS Console was improved. The HPMS process validation component uses color to indicate when a task is either eligible or ineligible to be executed. The HPMS process validation is a comprehensive tool based on parent-child relationships among tasks and subtasks. The 2003 HPMS data was made available to anyone having access to the OKDOT computer network through the GRIP browser application. The most recent HPMS data was published through the GRIP browser application under the HPMS business layer and is now available to the local FHWA division office. All data submitted to the FHWA in the 2003 HPMS submittal was formatted as defined by the HPMS field manual. The 2003 submittal was created using the FHWA supported HPMS software version 6.0 although all data domain and cross-check validation was done in Oracle before inserting the data into Microsoft Access through the HPMS software.

**PROPOSED ACTIVITIES FOR 2005:** HPMS data collection needs will be addressed by improving the coordination of all current and future data collection efforts within ODOT. Data collection needs will also be addressed by improved communication and data sharing between ODOT and other external entities such as city and county governments, metropolitan planning organizations and the Oklahoma Transportation Authority. Data collection needs will be addressed by using videolog obtained by the Pavement Management data collection contract. Sample adequacy analysis will be performed, in coordination with FHWA, and HPMS sample sections will be dropped or added based on the sample adequacy analysis. HPMS 2004 data will be made available to anyone having access to the ODOT computer network by publishing all HPMS 2004 universe and sample data through the Geographical Resource Intranet Portal (GRIP) web browser application.

**1102 ..... Highway Performance Monitoring System  
(Continued)**

The GIS Management Branch will conduct formal in-house training on how to use the HPMS Console to generate, validate and submit a HPMS submittal. The linear referencing system (LRS) component of HPMS will be greatly improved by providing the FHWA with GIS geometry data reflecting the most current road network in an ESRI Personal GeoDatabase format. A new set of HPMS LRS Route and Node maps will be generated both in hard copy and PDF format. The HPMS 2004 submittal will be delivered to FHWA no later than June 15, 2005. ODOT will keep abreast of the latest technological advances through attendance of seminars, conferences and workshops.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 150,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 150,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 75,000 (SPR) - 0 - (STATE)

**1103 ..... Geographical Information Systems for Transportation**

**PURPOSE AND SCOPE:** To design, develop and implement a Geographical Information System for Transportation (GIS-T). The system will produce quality GIS products and support the delivery of state-of-the art GIS services. The GIS-T will also provide enterprise-wide intranet access to thematic map displays, aerial photography, reports, analysis tools and attribute data for multiple business layers. Business data will include road inventory, needs study, programs and projects, crashes and traffic engineering related data, bridges, pavement management information, highway performance monitoring system (HPMS) and at-grade rail crossing information. The system will support map creation by multiple display areas to include counties, state senate districts, state house districts, US congress districts, ODOT commissioner districts and the entire state of Oklahoma. The GIS-T will provide decision support for ODOT and FHWA transportation planners, engineers and administrators.

**ACCOMPLISHMENTS DURING FY 2004:** The first year of the Maintenance/Improvements phase of the Geographical Resource Intranet Portal (GRIP) project was completed. ODOT provided two key personnel (project manager and GIS administrator) along with critical GIS products and services supporting the GRIP project. Some key accomplishments include the following:

- Completed the Annual Average Daily Traffic Map for Traffic Studies
- Completed numerous custom map products , including:
  - o Four Lane with no shoulders (Crash Rated and AADT Volume Group Emphasis)
  - o Load Posted Bridge Maps (Load Posted and Load Posted less than 15 Tons)
  - o Completed Sufficiency Maps for Needs Study Team
  - o Many corridor related Map Products
    - § Mingo Valley Expressway
    - § Martin Luther King Expressway
    - § Skelly Drive
    - § Cherokee Expressway
    - § Broken Arrow Expressway
    - § BeeLine Expressway
  - o 2030 Traffic Improvement Corridors Map

A major enhancement was implemented for the Inventory Data Entry Application (I.D.E.A.) known as the Cascade function. This function automatically cascades a specific length downstream or upstream on roads functionally classified above local. The function incorporates six different business rules, which were defined during the planning stage of development. This function was specifically developed to support the changes in urban and urbanized areas that were based on the 2000 census. The OKMILE software was put on the web for public consumption.

**PROPOSED ACTIVITIES FOR FY 2005:** The 2<sup>nd</sup> year of the Maintenance/Improvements contract for the Geographical Resource Intranet Portal (GRIP) project will be implemented. A major focus will be the training of Branch staff in the programming languages and concepts required to maintain the products resulting from the GRIP project. (i.e. HPMS Console, Inventory Data Entry Application or IDEA, GRIP browser application, GRIP Administration Console, etc) . A primary goal is to develop a curriculum to be used for In-House training on GeoMedia Professional, Oracle Spatial, LRSx and GeoMedia Transportation Manager. Implement an On-Line Help Authoring tool known as “RoboHelp”. This web-based help tool will be used to document each Section’s workflows, standard operating procedures and deadlines. Implement an Automated Map Product System (AMPS) by partnering with the Intergraph Corporation. The AMPS project will automate the creation and delivery of Bridge Vertical Clearance, Posted Load and Design Load map products that are used by the Department of Public Safety when issuing permits for Oversize/Overweight loads.

1103 ..... **Geographical Information Systems for Transportation**  
( Continued )

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 226,200 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 226,200 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 230,000 (SPR) - 0 - (STATE)

**1201 ..... County, City and other Planning Maps**

**PURPOSE AND SCOPE:** The purpose and scope is to produce county and city maps showing reliable, accurate, legible and current information for roads, drainage features, street names, city limits, boundaries and man made culture. The scope also includes the creation of other special purpose planning maps and graphics.

**ACCOMPLISHMENTS DURING FY 2004:** Six counties were completed using CADD software. The counties were Adair, Caddo, Dewey, Jefferson, Muskogee, Pittsburg and Washington. The Mapping Section reviewed all workflows required to complete a county map with particular emphasis placed on implementing changes that will boost productivity. Several changes have been implemented and the impact of these changes will be measured during the coming year. A new menu system was developed to use with MicroStation 2004 edition. The Mapping Section has migrated from MicroStation J to the Microstation 2004 edition environment.

The following incorporated city maps, listed by county, were drafted using CADD software:

**Adair County**

Stillwell            Watts    Westville

**Caddo County**

Anadarko           Apache            Binger            Bridgeport        Carnegie           Cyril    Eakey  
 Ft. Cobb            Gracemont        Hinton            Hydro              Lookeba

**Dewey County**

Carmargo           Leedy              Oakwood           Putnam              Seiling              Taloga    Vici

**Jefferson County**

Addington        Cornish            Hastings           Ringling            Ryan                  Sugden  
 Terral              Waurika

**Pittsburg County**

Alderson           Ashland            Canadian           Crowder              Haileyville        Hartshorne  
 Indianola           Kiowa                Krebs                McAlester           Pittsburg            Quinton  
 Savanna

**Washington County**

Bartlesville       Copan                Dewey              Ochelata            Ramona Vera

Special graphics for the revised 2003 Need Study Report, G.I.S cover graphics for 2004 System Atlas of County Collectors and Urban Area Functional Classification Maps, various highway corridor maps and other special graphics were also produced as needed by the Department.

**PROPOSED ACTIVITIES FOR FY 2005:** All cartographers will be trained to use the new menu system developed for MicroStation 2004 edition. The Mapping Section will implement changes that should boost productivity by around 30%. The Mapping Section will use CADD software to create eight or more county maps chosen from the following available inventories: Alfalfa, Choctaw, Coal, Craig, Creek, Delaware, Garfield, Grady, Lincoln, Mayes, Murray, Muskogee, Nowata, Okmulgee, Pawnee, Rogers, Stephens, Wagoner and Woods. Incorporated city maps within each county will also be drafted. All city and county maps currently in CADD format will be updated as highway system revisions are completed and opened to traffic. Bentley’s Geographics software will be implemented to enable the storing of map features in the Oracle Spatial database instead of design files. This will facilitate the sharing of map and GIS features between the mapping and GIS development sections.

1201 ..... **County, City and other Planning Maps**  
**(Continued)**

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 177,300 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 177,300 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 241,000 (SPR) - 0 - (STATE)

**1301 ..... Coverage Count Program**

**PURPOSE AND SCOPE:** To collect traffic data on state highways, interstates and the National Functional Classified System for establishing average daily traffic volumes. Approximately 3,300 locations are counted on the highway systems and 8,500 on the secondary system that includes the county road coverage and urban city street coverage in cities over 5,000 population. State highway and interstate locations are counted on a two-year cycle along with the county and city system coverage.

Counts collected on the highway system are incorporated into an Annual Average Daily Traffic (AADT) map printed annually for distribution. Counts collected on the county and city system are recorded and retained for office use. Highway traffic maps are published for public distribution.

**ACCOMPLISHMENTS DURING FY 2004:** All state, county and city systems were counted in the 38 counties scheduled for the 2004 count cycle.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue to analyze all road systems for areas where coverage is deficient, establish new count stations as needed and delete locations that are no longer of value. Count all state, county and city systems in the 39 counties scheduled for the 2005 count cycle. Attend seminars, conferences and workshops to keep abreast of the latest technological advances. Develop a Traffic Count Map Web Page for public access.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 483,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 308 ,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 441,000 (SPR) - 0 - (STATE)

**1302 ..... Permanent Traffic Count Program**

**PURPOSE AND SCOPE:** To collect hourly traffic data by lane for traffic monitoring design needs. There are 29 Automatic Traffic Recorder (ATR) locations and 28 Automatic Vehicle Classification (AVC) locations in Oklahoma. The traffic data obtained are the basis for seasonal and axle factor variation as recommended for traffic monitoring in FHWA's Traffic Monitoring Guide. A biennial traffic characteristic report is generated from the data collected at these sites. Utilities are maintained for all permanent sites through accounts with 23 different electric power companies and 12 different telephone companies.

**ACCOMPLISHMENTS DURING FY 2004:** Operational rates for the permanent traffic count stations improved to 97.5 % for the ATR sites and 97.3 % for the AVC sites. Utilities requirements increased with construction new AVC sites in urban as well as rural areas. Data collection efforts were enhanced with the installation of the first two 8-lane AVC sites in the OKC and Tulsa metro areas.

**PROPOSED ACTIVITIES FOR FY 2005:** Expansion of the scope of vehicle classification will continue with the conversion of existing ATR sites to AVC sites. Conversion of these sites will consequently increase utilities requirements for this year as in last year's. During FY 2005 all ATR sites with 4 or more lanes will be converted to AVC sites. This will complete the conversion requirements in the Oklahoma City and Tulsa metro areas. Work continues on the study to incorporate forward looking radar detectors at selected OKC metro area sites.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 217,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 195,300 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 231,000 (SPR) - 0 - (STATE)

**1304 ..... Purchase of Traffic Counting Equipment**

**PURPOSE AND SCOPE:** To improve the efficiency of the traffic counting operation by systematic replacement of older outdated equipment and to replace stolen or damaged equipment.

**ACCOMPLISHMENTS DURING FY 2004:** Several types of equipment were purchased during FY 2004. Purchases included: Ten (10) Peek ADR 2000 Classifiers, tools and accessories for maintenance of traffic monitoring stations, cell phones for field personnel, batteries for solar powered sites, road tube clamps and grips, and manufacturer repairs on ADR counter classifiers and RTMS radars.

**PROPOSED ACTIVITIES FOR FY 2005:** Purchase of equipment necessary for sustaining current operations as well as requirements in support of expanded operations and additional tasks to include: counter/classifiers and modems to support ATR to AVC site conversion; Road tube counters, hoses, clamps to support short duration count program; portable weigh scales in support of the weigh study program,

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 210,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 48,300 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 325,000 (SPR) - 0 - (STATE)

**PURPOSE AND SCOPE:** To gather vehicle classification data and develop estimates of the composition of traffic on the various Functional Classifications of roadways in the state and to collect complex traffic data required for planning, traffic and design studies. Data gathered and used to facilitate these studies includes machine counts, vehicle classification counts and turning movement studies with pedestrian counts.

**ACCOMPLISHMENTS DURING FY 2004:** Data gather will be incorporated into the “2005 Oklahoma Traffic Characteristics Report”. All 2-lane highway classification sites and 2-lane ATR (Automatic Traffic Recorder) locations were classified for 24 hours using Peek ADR-1000 machines.

A contract for vehicle classification by lane was completed and classified most of the HPMS segments in the Oklahoma City urban area and several design sites plus NBIS bridges and four-lane rural classification sites statewide. Data for numerous special studies were collected as follows:

**(A) For the Data Collection Branch**

- 2 - Turning movements with pedestrian counts
- 7 - (24 hour) Hourly Machine Counts
- 3 - (24 hour) Cumulative Machine Counts
- 137 - (24 hour) Vehicle Classification Counts

**(C) For the Traffic Engineering Division**

- 59 - Turning movements with pedestrian counts
- 195 - (24 hour) Hourly Machine Counts
- 54 - (24 hour) Cumulative Machine Counts
- 6 - (24 hour) Vehicle Classification Counts

**(B) For the Engineering Services Branch**

- 12 - Turning movements with pedestrian counts
- 264 - (24 hour) Hourly Machine Counts
- 61 - (24 hour) Cumulative Machine Counts
- 5 - (24 hour) Vehicle Classification Counts

**(D) For other Divisions**

- 0 - Turning movements with pedestrian counts
- 0 - (24 hour) Hourly Machine Counts
- 9 - (24 hour) Cumulative Machine Counts
- 0 - (24 hour) Vehicle Classification Counts

**PROPOSED ACTIVITIES FOR FY 2005:** Vehicle classification data will continue to be collected by machine from either state forces or by contract. A new contract will be issued for the collection of multi-lane urban and rural Interstate classification data. AVC (Automatic Vehicle Classification) and WIM (Weigh-in-Motion) sites will continue to be polled and statewide axle factors computed for traffic monitoring and pavement design needs and special studies data will be collected as requested. Attend seminars, conferences, workshops and set up demonstrations to keep abreast of the latest technological advances.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 303,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 306,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 324,000 (SPR) - 0 - (STATE)

**1306 ..... Weigh in Motion Program**

**PURPOSE AND SCOPE:** To collect and conduct preliminary analysis of data describing vehicle characteristics and vehicle weight trends. The Department uses this data as an intricate part of the traffic monitoring system. These data collection systems provide axle weight factors used in design and pavement management studies and to fulfill FHWA requirements for the Strategic Highway Research Program (SHRP) and the Long Term Pavement Performance (LTPP) program. The Department operates 20 permanent weigh- in- motion (WIM) data collection sites located throughout the state.

**ACCOMPLISHMENTS DURING FY 2004:** The Department renewed the Weigh - in - Motion Maintenance Contract for the 3rd year. New construction and site renovation continued through the year. The scope of the work completed during the third year of the contract encompassed:

- 1) Construction of two (2) new AVC sites
- 2) Conversion of six (6) ATR sites to AVC sites
- 3) Renovation of nine (9) existing sites (7 WIM and 2 AVC)
- 4) Routine scheduled maintenance and calibration for 20 WIM sites
- 5) On-call repair/services for 20 WIM sites

**PROPOSED ACTIVITIES FOR FY 2005:** The contract will be expanded in FY 2005 to incorporate maintenance of the AVC sites. Over the next three years all the ATR sites will be converted to AVC sites and included in the preventive maintenance, calibration, and on-call services support package provided in the contract. The scope of work to be accomplished in FY 2005 is as follows:

- 1) Conversion of ten (10) ATR sites to AVC sites
- 2) Renovation of nine (9) existing sites (3 WIM and 6 AVC)
- 3) Routine maintenance and calibration for 20 WIM sites and 39 AVC sites
- 4) On-call repair/services for 20 WIM sites and 39 AVC sites

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 665,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 667,400 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 868,000 (SPR) - 0 - (STATE)

**1308 ..... Traffic Monitoring System**

**PURPOSE AND SCOPE:** The Traffic Monitoring System (TMS) is a comprehensive statewide traffic data gathering, editing and reporting system created to fulfil the requirements of The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and TEA 21. The purpose of TMS is to computerize traffic estimation and reporting, including data from public and private non - state government entities.

**ACCOMPLISHMENTS DURING FY 2004:** Annual processing was completed for the traffic year 2003 and the data was checked for accuracy. The annual publication of the AADT map was completed. The implementation of the non - highway count program was completed. The complete NHS and non - highway count site location maps were updated and stored in digital format in preparation to be used with a GIS - based system.

**PROPOSED ACTIVITIES FOR FY 2005:** Revise and restructure existing traffic count programs. Convert the AADT computation process from a functional class base system to a route or geographic base system. Revise and streamline process of recording and compiling short term counts. Cross train personnel in daily, monthly and annual data processing. Streamline and simplify the process of editing and reporting data for HPMS and the Traffic Characteristic Report. Continue gathering data and production of the Annual Average Daily Traffic Map.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 132,000 (SPR) - 0 - (STATE)
Estimated cost for FY 2004	\$ 120,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 132,000 (SPR) - 0 - (STATE)

**1309 ..... Traffic Analysis and Projections**

**PURPOSE AND SCOPE:** Traffic forecasts provide the basis for geometric and structural design of new highways and improvement of existing highways. The existing or assigned traffic volumes are projected twenty (20) years into the future for design purposes. Also, the factors for determining Design Hourly Volume (DHV) of the Average Daily Traffic (ADT), percent of trucks in the DHV, and the percent of heavy trucks are prepared for each request of design traffic information.

**ACCOMPLISHMENTS DURING FY 2004:** Design traffic was furnished to the city and county governments and various divisions within ODOT. Information prepared for the larger population areas was based on the comprehensive area and regional transportation studies in those cities. Information for rural communities and small cities was prepared utilizing historical data, such as traffic volumes, vehicle use, population trends, special traffic counts and other related traffic information gathered through special studies. Approximately 76 requests for design traffic were completed. Several consultant traffic analyses were reviewed and edited.

**PROPOSED ACTIVITIES FOR FY 2005:** Design traffic data will continue to be furnished for cities, counties and to ODOT Divisions upon approved requests. Traffic analysis and projections will be completed, as requested for all programmed construction projects. Project planning reports and other required special studies will be developed. Keep informed of technological advances through attendance of seminars, conferences and workshops.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 132,400. (SPR) - 0 - (STATE)
Estimated cost for FY 2004	\$ 120,000. (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 132,400. (SPR) - 0 - (STATE)

**1310 ..... Skid Studies Program**

**PURPOSE AND SCOPE:** To assess the skid resistance for pavement surfaces of Oklahoma’s highway system in accordance with the guidelines of the Highway Safety Improvement Program and ASTM standards. The scope of the program includes: scheduled testing of all roadways comprising the National Highway System in a three-year test cycle, annual testing of all interstate highways and Strategic Highway Research Program (SHRP) sites, and special testing conducted as required.

**ACCOMPLISHMENTS DURING FY 2004:** The Department conducted pavement friction (skid) testing of approximately 10,600 miles of highway in Divisions 5,6,& 7 as well as interstate highways statewide. Approximately 6% of the roadways had recorded values of less than adequate skid resistance.

**PROPOSED ACTIVITIES FOR FY 2005:** Skid testing will be conducted in Divisions 4 & 8 in FY 2005. This encompasses all state, federal and interstate highways totaling approximately 7,400 miles. Acquisition of a new Pavement Friction Tester is programmed for FY 2005, as well as required repairs and services on the current system.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 370,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 122,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 130,000 (SPR) - 0 - (STATE)

**1402 ..... Design and Survey Standards**

Purpose and Scope: Complete Training of Central Office Divisions in the use of MicroStation Version 8.0 and InRoads Version 8.4. Provide additional development of Standards and Workflows and document these and existing workflows for the Construction Division, Bridge, Traffic, Planning and Right of Way Divisions. Develop additional documented standards and workflows to provide guidance for staff and for the consulting community, to ensure consistency and quality of construction plans.

**Accomplishments during 2004:** Provided training for the End users in Roadway, Survey, Right-of-Way, Planning, Traffic and Bridge Divisions. Provided additional development in Standards and Workflows for the Construction, Bridge, Right of Way and Traffic Divisions. Analyzed existing processes; procedures and workflows, and eliminate outmoded techniques and developed improved workflows and additional standards that were needed. All new developments were documented to provide detailed step-by-step descriptions of the processes and workflows. Training of the end users in the new workflows and processes as well as use of the new versions of the software were provided. Project is completed.

**Proposed Activities for 2005:** Project Completed

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 400,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004	\$ 400,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**1403** ..... **Design Manual**

**PURPOSE AND SCOPE:** To revise, update and prepare Highway Engineering Manuals for Bridge Design, Geotechnical, Project Development, Roadway Design, Roadway Drainage, and Traffic Engineering to current Department, AASHTO and FHWA design criteria, policies and procedures. Sections to be expanded and revised include, but not limited to, design exceptions, pavement design, safety design reviews and interstate access approvals.

**ACCOMPLISHMENTS DURING FY 2004:** Completed Phase I of Engineering Contract No. 625.

**PROPOSED ACTIVITIES FOR FY 2005:** None

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 386,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004	\$ 105,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**1510 ..... Justification Studies**

**PURPOSE AND SCOPE:** To study the economic environmental and other effects of design features such as interchanges, grade separations, bypasses, utility structures, pedestrian structures, etc., for the purposes of determining the economic and engineering feasibility of such proposals.

**ACCOMPLISHMENTS DURING FY 2004:** Review of consultant studies completed.

**PROPOSED ACTIVITIES FOR FY 2005:** Review consultant studies. Keep informed of technological advances through attendance of seminars, conferences and workshops.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 12,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 5,500	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 10,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** To implement the new scoping process. This includes coordination between multi-disciplinary divisions within ODOT to recommend improvement type and cost estimates prior to Commission approval.

**ACCOMPLISHMENTS DURING FY 2004:** With the revised 8 year Construction Work Program process, scoping activities post programming have been incorporated into Project Management work flows. No activities under this item were incurred in FY04.

**PROPOSED ACTIVITIES FOR FY2004:** Adjust the scoping process to incorporate the 8 Year Construction Work Plan process and any changes that occur in the development of the Environmental Procedures Manual.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>
Programmed Amount for FY 2003	\$ 70,000 (SPR) - 0 - (STATE)
Estimated cost for FY2003	\$ - 0 - (SPR) - 0 - (STATE)
Programmed Amount for FY2004	\$ 5,000 (SPR) - 0 - (STATE)

**1601 ..... Federal-aid System Coordination**

**PURPOSE AND SCOPE:** Establish and maintain the functional classification system and federal-aid eligibility of the Oklahoma highway system. To maintain all records, correspondence and documentation associated with the functional classification and federal-aid eligibility of roads under local jurisdiction. Provide coordination between local jurisdictions and the Federal Highway Administration (FHWA). Assist cities with a population of 5000 or greater in establishing an official urban area boundary by coordinating efforts between the local jurisdictions and the FHWA. Act as liaison between ODOT and the FHWA in determining the federal-aid eligibility of roads under state jurisdiction. To prepare and submit agenda items and supporting documents pertaining to state highway revisions to the State Transportation Commission. To coordinate any revisions to the United States route numbered system with the American Association of State Highway and Transportation Officials (AASHTO). To organize, maintain and secure all historical documents and maps pertaining to the history of the State Highway and functional classification systems.

**ACCOMPLISHMENTS DURING FY 2004:** Field meetings were conducted with local county officials, including the Directors of the Association of Regional Councils (OARC), whereby ODOT policies and procedures for rural functional classification revisions under Senate Bill No. 1056 were discussed. Local government requests to revise the functional classification system were processed and submitted to the FHWA. Urban and Rural functional classification map books were created depicting the 2000 small urban and urbanized areas and any updates necessitated by the boundary change and/or approved revision requests. The Map books were created using GIS software and methods insuring the maps remain dynamically updated. The functional classification system was updated for fifty-six small urban/urbanized areas. United States route revisions were coordinated with ASSHTO. Maps and documents pertaining to the national highway system were prepared and submitted to the FHWA. Functional Classification information was made available to anyone with access to the ODOT computer network through the Geographical Resource Intranet Portal (GRIP). In compliance with OAC 730:10-9-8 effective Jan. 1, 2000, the State Highway Infrastructure Bank was maintained. A database of Memorial Roads and Bridges was designed and populated. An Official Memorial Roads and Bridges publication was produced and distributed to Oklahoma senators and congressman. Maps depicting HPMS sample sections in urban and urbanized areas were generated for use in data collection efforts. The team leader continued to update the division wide training database used to track and better ascertain the training needs and requirements of Planning and Research Division personnel.

**PROPOSED ACTIVITIES FOR FY 2005:** The systems section will continue to transfer systems maps and documents to the ODOT geographical information system (GIS) environment. Agenda items and supporting documents used to add and remove roads to the highway system will be prepared and submitted to the Transportation Commission. Maps and documents pertaining to the national highway system will be prepared and submitted to the FHWA. The Systems Section will facilitate meetings with local government officials to address revisions to the rural and urban collector systems as set forth under Senate Bill No. 1056. Revisions to the control section system will be made as warranted. Updates will be made to the Memorial Roads and Bridges database and a new publication will be distributed. Requests for revisions to the functional classification system will be processed and submitted to the FHWA. The state highway infrastructure bank will be maintained as specified in OAC 730:10-9-8. Rural and Urban functional classification books will remain updated at all times. Staff will keep informed of latest advances in GIS, Remote Sensing and document management technologies by attending seminars, conferences and workshops.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for 2004	\$ 180,800 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 180,800 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 186,000 (SPR) - 0 - (STATE)

**1603 ..... Highway Needs Study**

To maintain up-to-date software and techniques to estimate current and future needs of the State Highway System. To publish a Needs Study & Sufficiency Report biennially showing the physical and financial needs of the State Highway System over a twenty-year period for construction, maintenance and administration. To identify the Top 25 Priority List of critical projects by Commission District. To maintain a geometric deficiency file of the State Highway System. To maintain a maintenance and construction log of highway projects. To develop, maintain and recommend a list of highway segments for removal from the State Highway System and its associated cost.

**ACCOMPLISHMENTS DURING FY 2004:** Updated highway subsection, system, inventory and improvement data for the sufficiency file prior to field collection of pertinent data. Updated municipal capacities. Updated the Sufficiency and Maintenance Manuals. Altered Sufficiency Rating Form and applied programs. Updated geometric data contained in the Deficiency File. Determined highways conforming to the new Historical and Recreational classification. Initiated field study for the 2005 Needs Study Report. Initiated preparation of the 2005 Needs Study and Sufficiency Rating Report, Volumes I & II.

**PROPOSED ACTIVITIES FOR FY 2005:** Begin in-house update of Needs Study Programs to a PC based use and incorporate data gathered by Pavement Management for use in determining highway needs. Finalize update of highway: subsection, systems and inventory for the 2005 Sufficiency File. Compile and validate field data collected for the 2005 Highway Needs Study and Sufficiency Rating Report. Determine construction and maintenance cost estimates for the 2005 program. Update factors for statewide traffic, accidents, surface replacement and surface obsolescence in various programs. Update proposed highway file for future routes. Assemble Top 25 Priority Construction Report of critical highways by Transportation Commission District. Assemble and publish the 2005 Needs Study and Sufficiency Rating Report. Update and publish 2005 Recommend Highway Removal report.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FFY 2004	\$ 320,000 (SPR) \$ - 0 - (STATE)
Estimated Cost for FFY 2004	\$ 80,000 (SPR) \$ -0- (STATE)
Estimated Cost for FFY 2005	\$ 73,500 (SPR) \$ -0- (STATE)

**1604 ..... Pavement Management Systems**

**PURPOSE AND SCOPE:** To develop and implement the Department’s Pavement Management System (PMS); maintain a computer database of pavement distresses and other roadway characteristics used for the analysis of pavement condition and performance and as an aid to pavement design; maintain application software necessary to analyze roadway information for pavement management; and supply data for inclusion in the Highway Performance Monitoring System (HPMS).

**ACCOMPLISHMENTS DURING FY 2004:** Completed initial development and implementation of PMS software. Produced analysis of entire non-toll state highway system in Oklahoma. Implemented an Intranet Query Tool allowing user’s to query a database for pavement condition information via the Department’s intranet. Developed guidelines for Pavement Preservation Program (3P) project treatment selection. Collected videolog on the entire state highway system. Performed correlation analysis of Needs Study Surface Condition Rating and pavement management data. Collected Falling Weight Deflectometer (FWD) and Ground Penetrating Radar (GPR) on entire non-toll National Highway System (NHS) in Oklahoma. Collected pavement condition data on the following:

- All NHS System (including Interstates) in all Divisions
- Non-NHS routes and non-highway HPMS sample sections in Divisions 4 and 8

**PROPOSED ACTIVITIES FOR FY 2005:** Continue refinement of PMS procedures. Develop and implement an intranet Analysis Tool to enable field divisions to analyze their roads based on different budget scenarios. Begin new round of data collection on non-NHS routes in Divisions 1-3 and 5-7. Perform a PMS analysis of system. Complete implementation of statewide videolog by installing on central office server and distributing to field divisions. Incorporate FWD data into PMS decision matrix. Keep informed of the latest technological advances and practices through seminars, conferences, and workshops.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 1,250,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004	\$ 1,992,595	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 899,900	(SPR)
	- 0 -	(STATE)

**1700 ..... General Urban Transportation Planning Activities**

**PURPOSE AND SCOPE:** This item includes managing the Strategic Planning Branch and the conduct of those general planning and research activities which cannot be ascribed to specific transportation studies contained in the unified planning work programs or other items in the SPR Work Program. These activities include; a) coordination with appropriate ODOT staff members and Field Divisions, b) coordination with and among local, state, and federal officials, c) dissemination of social and economic data and traffic counts to the public and private sector on request, d) providing technical assistance on planning and research activities/studies at request, e) tracking federal and state legislation and regulations affecting the Department and f) keeping abreast with the latest technological advances and federal regulations in transportation planning, ITS, Air Quality , etc. through seminars, workshops and reading materials.

**ACCOMPLISHMENTS DURING FY 2004:** Coordination work was continued with appropriate ODOT staff members and Field Divisions. Socioeconomic data and traffic counts were provided, at request, to local and state officials and to citizens. Staff attended various seminars and workshops related to management, transportation planning, homeland security and policies in order to maintain, upgrade and develop needed expertise, proficiency and professionalism. Assistance related to Branch Functions was provided. Coordination with and among local, state and federal officials was continued. Monitored federal and state legislation and regulations affecting the Department

**PROPOSED ACTIVITIES FOR FY 2005:** Coordination with appropriate ODOT staff members, Field Divisions and local, state and federal officials will be continued. Dissemination of pertinent planning, ITS, Air Quality, Needs Study and Research data and information will be accomplished on request. Technical assistance will be provided on request. concerning transportation planning and the re-authorization of TEA-21 will be provided upon request. Professional enrichment of branch members will be pursued through attendance at workshops, seminars and conferences.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Cost for FY 2004	\$ 50,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 48,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 33,500 (SPR) - 0 - (STATE)

**1701 ..... Oklahoma City Area Regional Transportation Study (OCARTS)**

**PURPOSE AND SCOPE:** To maintain up-to-date socioeconomic and land use data and a viable Long Range Transportation Plan in compliance with the provisions of TEA-21 and its subsequent reauthorization legislation for the Oklahoma City urbanized area.

**ACCOMPLISHMENTS DURING FY 2004:** ACOG developed the ITS Architecture Plan for the Oklahoma City area. Continued development and implementation of regional Incident Management system. MPO staff were involved in the ongoing Commercial Vehicle Information Systems and Networks (CVISN) planning process. Continued to work with ODEQ on monitoring CO and Ozone levels, financially assisted in the development of the statewide air quality model, and participated in development of the Early Action Compact State Implementation Plan (SIP). The Clean Air Committee promoted an extensive public education campaign “Let’s Clear the Air”. Continued coordinating services with COTPA for transportation of the Elderly and Disabled. Updated the 2002-2004 OCARTS Area Transportation Improvement Program (TIP). The FFY 2005-2007 TIP and the FY 2005 UPWP were prepared and approved by FHWA & FTA.. The FY 2005 Agreement was executed.

Department Staff worked with the ACOG staff in developing procedures for the STIP and yearly update of the ACOG TIP and UPWP. Worked closely with ACOG staff in developing the Early Action Compact SIP for meeting the new 8-Hour ozone National Ambient Air Quality Standard and ozone control measures for mobile sources appropriate to the Oklahoma City metropolitan area. Assisted ACOG staff with obtaining new software for updating the OCARTS. Assisted ACOG staff as preparations for 2030 update to OCARTS begin.

**PROPOSED ACTIVITIES FOR FY 2005.** This year will result in the 2030 update of the 2025 OCARTS Long-Range Plan. Areas of special emphasis in FY 2005 are: Review and approval of demographic and socioeconomic data and review and approval of transportation modeling results for evaluation and official acceptance of the 2030 OCARTS Plan by the Transportation Policy Committee. Initiation and continuation of extensive public involvement activities for input to the 2030 OCARTS Plan. Continue air quality efforts in development of the Early Action Compact SIP and implementation of ozone control measures relating to transportation sources. Continue Program Coordination and Local Technical Assistance. Maintain staff training and dissemination of planning documents. Continue management of the planning process. Continued updating of socioeconomic and traffic data for the Oklahoma City area.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004:	\$25,000	(SPR)
	- 0 -	(STATE)
	847,560	(PL)
	211,890	(LOCAL)
 Estimated Cost for FY 2004:	 \$ 23,000	 (SPR)
	- 0 -	(STATE)
	710,000	(PL)
	177,500	(LOCAL)
 Estimated Cost for FY 2005:	 \$ 16,500	 (SPR)
	- 0 -	(STATE)
	1,060,466	(PL)
	191,051	(LOCAL)
	125,000	(IN KIND)

**1702 ..... Tulsa Metropolitan Area Transportation Study**

**PURPOSE AND SCOPE:** To maintain up-to-date socioeconomic and land use data and a viable Long Range Transportation Plan (LRTP) in compliance with provisions of TEA-21 and all applicable transportation planning regulations for the Tulsa urbanized areas.

**ACCOMPLISHMENTS DURING FY 2004:** Elements of the *2025 Mobility Plan*, LRTP, were continued as described in the FY 2004 UPWP. A Joint Certification Statement between ODOT and the Indian Nations Council of Governments (INCOG) was signed. Preparation and finalization of the FY 2005 UPWP was completed. The FY 2005 Agreement was executed and authorization to expend federal funds effective July 1, 2004 through June 30, 2005 was granted by the FHWA. Public involvement activities were continued. Technical support was provided to Oklahoma Department of Environmental Quality (DEQ) and the Tulsa City-County Health Department to maintain compliance with Federal Clean Air Act provisions and new National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter. Continued support of Ozone Alert and MERIT programs. Conducted broad based public involvement activities in support of the planning process, air quality and transit programs. The INCOG area FY 2005 - 2007 TIP was prepared and approved. INCOG in cooperation with ODEQ and ODOT continued development of an "Early Action Compact" (EAC) for meeting the new 8-hour ozone National Ambient Air Quality Standard and Ozone control measures for mobile sources for the Tulsa Metropolitan Area. Work on updating the 2025 Mobility Plan is underway.

**PROPOSED ACTIVITIES DURING FY 2005:** Implementation of the FY 2005 UPWP: traffic counts collection; accident data analysis; truck and travel estimates; gathering material to support the Incident and Congestion (including incidents) Management Systems; complete the ITS study and initiate deployment; continue monitoring of O3 and CO emissions; complete modeling and development of the Early Action Compact (EAC) and selection of appropriate mobile source control measures, improve the private sector participation opportunities in the transportation planning process; continue the ride share and car pool assistance programs and providing technical support to the Oklahoma DEQ and Tulsa City-County Health Department; continue implementation of the Ozone Alert days and MERIT programs; a public information/education program on air quality will be maintained and supported especially the 8-hour ozone standards and the new NAAQS standards for particulate matter. The FY 2006 UPWP and TIP will be prepared in full compliance with the re-authorized TEA-21. Administration of the urbanized STP funds project selection process will be maintained. The FY 2005 Joint Certification Statement and the FY 2006 Agreement will be prepared and executed. Continue staff training, education and attendance at workshops and seminars.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 30,000 (SPR) - 0 - (STATE) 839,870 (PL) 209,968 (LOCAL)
Estimated Cost for FY 2004	\$ 25,000 (SPR) - 0 - (STATE) 752,247 (PL) 188,062 (LOCAL)
Estimated Cost for FY 2005	\$ 26,000 (SPR) - 0 - (STATE) 710,062 (PL) 177,516 (LOCAL)

**1703 ..... Lawton Metropolitan Planning Organization (LMPO)**

**PURPOSE AND SCOPE:** To maintain an up-to-date socioeconomic and land use data and a viable Long Range Transportation Plan in compliance with the provisions of TEA-21 for the Lawton urbanized area.

**ACCOMPLISHMENTS DURING FY 2004:** Transportation Planning for the Lawton Metropolitan Area was carried out as described in the Unified Planning Work Program (UPWP) FY 2004. This consisted of: Hiring consultants for air quality campaign , modeling update and traffic count. Successfully completed the first FTA Triennial Review; updated electronic base map to reflect new LMA and urbanized area; updated TAZ and other socioeconomic database and Census 2000 data; created accident/incident database; prepared a 2004 Joint Certification Statement between ODOT and LMPO and developed the FY 2005 UPWP in accordance with TEA-21. The FY 2005 Agreement was executed and authorization to expend federal funds was granted by FHWA. The FY 2005-2007 Transportation Improvement Program (TIP) was compiled, circulated and approved.

**PROPOSED ACTIVITIES FOR FY2005.** Continue to ensure that the basic socioeconomic and other data needed to continue the transportation planning process is up-to-date utilizing the most current available data. Continue to work with the City of Lawton in maintaining recently instituted transit services. Implement short-range transportation activities derived from the long-range transportation plan. Update the 2025 Long Range Transportation Plan and develop an Air Quality Plan. Continue staff education and training. Prepare the FY 2006 UPWP, execute the FY 2006 Agreement and ensure an FY 2005 Joint Certification Statement. Develop the FFY 2006-2008 Transportation Improvement Program. Develop appropriate safety goals and implement tools for safety and security in the transportation system.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 15,000	(SPR)
	- 0 -	(STATE)
	146,524	(PL)
	36,631	(LOCAL)
Estimated Cost for FY 2004	\$ 15,000	(SPR)
	- 0 -	(STATE)
	120,830	(PL)
	30,208	(LOCAL)
Estimated Cost for FY 2005	\$ 15,900	(SPR)
	- 0 -	(STATE)
	148,533*	(PL)
	32,500	(LOCAL)

\* Currently only \$130,000 has been authorized by the FHWA.

**PURPOSE AND SCOPE:** To maintain up-to-date socioeconomic and land use data and a viable Long Range Transportation Plan in compliance with the provisions of TEA-21 and all applicable transportation planning regulations for the Fort Smith urbanized area.

**ACCOMPLISHMENTS DURING FY 2004:** The tasks listed in the FY 2004 Unified Planning Work Program (UPWP) were completed. Continued analysis of the transportation and socioeconomic elements of the Long Range Transportation Plan. Staff continued to collect data on proposed corridors for a controlled-access facility in the Oklahoma portion of the Ft. Smith metropolitan planning area. General administrative functions and coordination among the local, state, and federal agencies was continued. The FY 2005 Agreement was completed and authorized. The FY 2005 UPWP was prepared and approved. A new MPO was designated as the Bi-State MPO. Work on updating the 2025 LRTP was initiated. Development of ITS plan and architecture were initiated.

**PROPOSED ACTIVITIES FOR FY 2005:** The Oklahoma Department of Transportation will continue coordination with the Bi-State Metropolitan Planning Organization and the Arkansas DOT in maintaining the 3-C planning process in the Fort Smith metropolitan area. Complete the update of the LRTP. Continued staff education, training, and attendance at workshops and seminars. Continue work on the development of the ITS plan and architecture.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004:	\$ 3,500	(SPR)
	- 0 -	(STATE)
	13,826	(PL)
	3,826	(LOCAL)
 Estimated Cost for FY 2004:	 \$ 3,500	 (SPR)
	- 0 -	(STATE)
	11,096	(PL)
	2,774	(LOCAL)
 Estimated Cost for FY 2005:	 \$ 6,600	 (SPR)
	- 0 -	(STATE)
	13,826	(PL)
	3,457	(LOCAL)

**1719 ..... Statewide Transportation Improvement Program (STIP)**

**PURPOSE AND SCOPE:** To develop, maintain and amend a financially-constrained three year federally funded transportation construction program for the State of Oklahoma in compliance with TEA-21 and in cooperation with the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), three Metropolitan Planning Organizations (MPO): ACOG - Association of Central Oklahoma Governments, INCOG - Indian Nations Council of Governments and LMPO - Lawton Metropolitan Planning Organization, Bureau of Indian Affairs (BIA) and tribes.

**ACCOMPLISHMENTS DURING FY 2004:** Developed the FFY 2005-2007 Statewide Transportation Improvement Program (STIP) in accordance with the *Procedures for Developing and Amending the STIP and TIP* approved by the Department of Transportation, Federal Highway Administration, Federal Transit Administration, ACOG, INCOG and LMPO. Maintained the FFY 2004 - 2006 STIP through the following amendment process: All Amendments of the FFY 2004 - 2006 STIP and TIPs were completed in accordance with the *Approved Procedures for Developing and Amending the STIP and TIP*. The Process includes publication of proposed amendment for a minimum of 14 days for review and comment. The public involvement process was completed in accordance with TEA 21 Section 1203 and 1204, regarding publication of project amendments. Also procedures for consultation with non- metropolitan local officials was developed and finalized.

**PROPOSED ACTIVITIES FOR FY2005.** Development of the FFY 2006 - 2008 Statewide Transportation Improvement Program for implementation. Maintaining the FFY 2005 portion of the STIP through the approved *STIP/TIP Amendment Procedures*. Consultation with non-metropolitan local officials will be emphasized.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 65,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 60,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 50,200 (SPR) - 0 - (STATE)

**1901 . . . . . National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permits**

**PURPOSE AND SCOPE:** The United States Environmental Protection Agency (EPA) has promulgated regulations in 40 CFR 122 requiring municipalities with a population over 250,000 to obtain a National Pollutant Discharge Elimination System (NPDES) permit for their separate stormwater sewer systems. ODOT is required under this regulation to obtain a permit for its stormwater runoff system within the cities of Oklahoma City (OKC) and Tulsa city limits. ODOT selected the option to be a CO-permittee with the City of Oklahoma City and Tulsa in obtaining an NPDES permit and is required to be permitted under Phase II under the same regulation. ODOT does not have the expertise or staff available to perform the storm sewer outfall water testing required under this permit, or to develop the Phase II permit. ODOT has a Memorandum of Understanding with OKC and Tulsa for performing the testing and report writing necessary to monitor the outfall selected to be representative of highway runoff, and will develop a permit to cover ODOT under Phase II.

**ACCOMPLISHMENTS DURING FY 2004:** Completed annual reports for Oklahoma City and Tulsa for submission to EPA. Completed required stormwater runoff testing. Contracted for assistance in developing a Phase II permit.

**PROPOSED ACTIVITIES FOR FY 2005:** Conduct required stormwater runoff testing and monitoring, prepare ODOT section for, and review, annual OKC and Tulsa NPDES MS4 reports prior to submission to EPA. Develop Phase II permit.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 400,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 211,200 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 160,000 (SPR) - 0 - (STATE)

**1902 ..... Statewide Long Range Transportation**

**PURPOSE AND SCOPE:** To update the Statewide Intermodal Transportation Plan (“The Plan”) and other associated statewide planning activities in accordance with the provisions of TEA-21 and its subsequent reauthorization legislation. To conduct and/or participate in the development of plans relating to Transportation Improvement Corridors and other corridors identified in the Plan.

**ACCOMPLISHMENTS DURING FY 2004:** Began the update process for the 2005 - 2030 Plan in the areas of demographic trends utilizing the 2000 Census data; traffic assignment and preliminary identification of Transportation Improvement Corridors; modal updates requested and initiated for highways, waterways, rural transit, airports, and rail; and developed and initiated consultant contract for Intermodal Element with focus on economic and transportation linkage. Financial options research started. Worked with the Oklahoma University and Oklahoma State University in updating and/or implementing a new multi modal statewide freight forecasting model. Participated in the steering committee for the Ports-to-Plains Congressional High Priority Corridor Management Plan development in cooperation with the states of Texas, New Mexico, and Colorado. Developed and instituted a multi-agency conference of the availability and appropriateness of social, economic and environmental data for use in statewide and metropolitan area long-range planning processes. Developed a brochure for use in public involvement activities for the Statewide Intermodal Transportation Plan and Statewide Transportation Improvement Program. Developed the public participation plan for non-metropolitan area local officials, submitted for the required public comment period, finalized this process, and submitted to FHWA and FTA. Instituted coordination with FHWA on the Statewide Intermodal Transportation Plan update process.

**PROPOSED ACTIVITIES FOR FY 2005:** Initiate public involvement activities for the 2005 - 2030 Statewide Intermodal Transportation Plan and complete all studies relative to the Plan. Submit The Plan for public comment and finalize The Plan. Publish The Plan in paper and compact disc formats, and on the Department’s internet site. Continue to monitor transportation, legislative, and demographic trends relative to The Plan. Initiate, participate and/or complete corridor studies on Transportation Improvement Corridors or other corridors in the State. Monitor studies for a statewide freight forecasting model to be conducted by university-based researchers. Continue to attend conferences and training courses related to Statewide and Corridor planning and grant applications. Continue with the Ports-to-Plains Corridor Management Plan development.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004:	\$ 200,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004:	\$ 200,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005:	\$ 300,000 (SPR) - 0 - (STATE)

**PURPOSE AND SCOPE:** Incorporate Intelligent Transportation Systems (ITS) into the transportation planning process in compliance with the provisions of TEA-21 and / or other transportation re-authorization. Use an ITS Integration Strategy by defining roles, responsibilities and shared operational strategies to address key policy and operational issues creating and/or updating the conceptual design for ITS within the Planning area. Ensure the interoperability and institutional / technical integration of ITS efforts through compliance with ITS Statewide / Regional Architectures and related ITS Standards.

**ACCOMPLISHMENTS DURING FY 2004:** Secured ITS Integration funding for the systems analysis / design and deployment of Oklahoma’s Commercial Vehicle Information Systems and Networks (CVISN) Program Plan projects. Continued the use of 511 Traveller Assistance Program funding to develop a 511 deployment plan. Assisted Oklahoma City Metropolitan Planning Organization (MPO) by serving on ITS committees for Incident Management, Quick Clearance Policy and Technology / Operations. In coordination with MPOs and other state and local agencies, completed a Statewide Strategic ITS Implementation Plan / Architecture / Evaluation Plan, the Oklahoma City ITS Implementation Plan/Architecture, and the Tulsa Area ITS Implementation Plan/Architecture. Assisted Oklahoma City and Tulsa areas with development of Incident Management procedures and training. Maintained Oklahoma’s CVISN and Statewide Strategic ITS Program Plans and Architectures.

**PROPOSED ACTIVITIES FOR FY 2005:** Secure ITS Integration funding for the systems analysis / design and deployment of Oklahoma’s Commercial Vehicle Information Systems and Networks (CVISN) Program Plan projects. Complete the deployment plan for the 511 study. Maintain the Statewide ITS Plan and Architecture including the CVISN. Assist Oklahoma City and Tulsa areas in maintenance of their regional ITS and Architecture

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004:	\$ 80,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004:	\$ 80,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005:	\$ 65,000 (SPR) - 0 - (STATE)

**PURPOSE AND SCOPE:** To monitor and participate in air quality transportation planning developments relating to requirements of the Clean Air Act Amendments and TEA-21. To represent the Department in air quality nonattainment and transportation conformity developments and actions, if necessary. To analyze and comment on air quality nonattainment and transportation regulations and law. To maintain information flow to and from decision-makers regarding air quality/transportation issues, developments, regulations and laws. To develop staff personnel to participate in air quality/transportation planning. To enable the Department to be a progressive participant in reducing the impacts of transportation-related pollution.

**ACCOMPLISHMENTS DURING FY 2004:** Participation in the air quality/transportation planning activities of the Lawton, Oklahoma City, and Tulsa Metropolitan Planning Organizations (MPO). These activities included participation in the development of “Early Action Compacts (EAC)” for the Oklahoma City and Tulsa Metropolitan areas as pre-emptive actions to avoid designation as nonattainment for the new 8-Hour Ozone National Ambient Air Quality Standards (NAAQS). As an adjunct to this EAC development, was the securing of funds for the Oklahoma Department of Environmental Quality (ODEQ) to conduct air quality modeling which is critical to development of the EACs. Funds for the EACs came from the SPR funds allocated to the Department and PL funds from both the Oklahoma City and Tulsa MPO. The Department also participated in post-EAC activities such as developing appropriate ozone control measures for mobile sources and participation in the Technical Advisory Committee for development of the EAC State Implementation Plan (SIP).

Other accomplishments: research and development of resource materials on air quality/transportation issues; and review and comment on MPO air quality education programs. Coordinate the planning process for air quality modeling funding and actions between the State’s MPOs, ODOT, and the ODEQ; monitoring air quality court decisions on new ozone and particulate matter regulations and regulatory agency (Environmental Protection Agency - EPA) actions toward implementing new 8-Hour Ozone Standard NAAQS.

**PROPOSED ACTIVITIES FOR FY 2005:** Maintain participation in EACs and development of the EAC Statewide Implementation Plan. Maintain research and participation in air quality/transportation issues, developments, regulations and laws. Participate in Memorandum of Agreement and other requirements (transportation conformity) of nonattainment status if any area of the State becomes nonattainment. Provide data for air quality modeling efforts. Continue to develop education materials and courses for Department personnel regarding air quality and transportation. Participate in MPO and ODEQ air quality/transportation initiatives, educational programs, and efforts to reduce pollution. Continue staff education through FHWA, EPA, NHI, NTI and other agency courses, seminars, and conferences.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004:	\$ 25,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004:	\$ 12,500	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005:	\$ 9,900	(SPR)
	- 0 -	(STATE)

**1979 ..... Environmental Studies (NEPA Review and Compliance)**

**PURPOSE AND SCOPE:** This item includes all coordination required to complete Environmental Impact Statements (EIS), Environmental Assessments (EA), and Categorical Exclusions (CE) required to obtain federal funding authority for the Department’s construction program, including necessary ongoing reevaluation and consultation with FHWA regarding existing environmental clearances. It also includes coordination with the Department’s public involvement specialist, Planning and Research Division environmental specialists, Project Management Division, Planning and Research Division Long range and Corridor planning staff, Design Divisions, Field Divisions, the interested public, public officials, FHWA, NEPA contract service providers and other internal and external entities to ensure compliance with NEPA and close adherence to the Department’s construction work plan. Major environmental issues considered in project development include historic and archaeological resources, endangered species and other wildlife concerns, wetlands, social and economic impacts, including disproportionate impacts to minorities and low income communities, noise, air quality, water quality, and hazardous materials. The input of appropriate state and federal agencies, Native American tribes, and other appropriate entities is solicited, necessary environmental studies are requested and findings summarized, and a plan for public involvement is formulated and executed when necessary. The preparation of the necessary NEPA review documents is performed in-house or by consultants retained through consultant contracts. All draft NEPA documents are reviewed jointly by in-house coordinators and FHWA and finalized for presentation to the public and other review entities. Following all comments, the final documents are provided to FHWA for execution of appropriate concurrences, FONSI’s or ROD’s.

**ACCOMPLISHMENTS DURING FY2004:** The NEPA review process was completed for a total of 315 state and local transportation projects, including 312 projects processed as categorical exclusions and 2 as environmental assessments. Public involvement, including formal meetings and hearings as well as informal citizen/stakeholder meetings, was an important component of 20 completed projects. NEPA review is underway on another 35 projects. Reevaluations and consultation with FHWA regarding existing NEPA clearances have been completed for 1 EIS, 16 EAs, and 2 CE projects.

A total of 219 Phase I cultural resources studies were completed in-house through our Interagency Agreement with the University of Oklahoma for archaeological studies including consultation with SHPO and appropriate Tribal officials. Additional Phase II NRHP evaluation and mitigation work was completed or is in progress for 3 projects. Studies resulted in the identification and assessment of 333 historic structures and 11 archaeological sites. HABS/HAER documentation was completed on 2 historic bridges. The Department is initiating a reevaluation of its 12-year old historic bridge survey. 820 steel trusses and concrete/masonry arches have been revisited and documented during this study to date. 206 Projects were reviewed for biological/wetlands impacts, including 12 wetland assessments, 160 informal consultations with USFS for endangered species, and 24 surveys for the American Burying Beetle (ABB). Most of this work was accomplished through our Interagency Agreement with the University of Oklahoma for biological studies. 78 Section 404 and 20 FEMA permits were processed. Initial site assessments and LUST reviews were completed for 225 projects. Preliminary Site Investigations for hazardous wastes were completed for 16 projects. Eleven TMN noise studies were undertaken

**PROPOSED ACTIVITIES FOR FY 2005:** Continue routine NEPA and environmental impact review of federal, state and local transportation projects. Improve mechanisms for early coordination with FHWA and other federal land owning agencies in Oklahoma to streamline NEPA process and document preparation. Begin developing new environmental procedures manual. Participate in workshops, conferences, and meetings to keep abreast of best practices and regulatory changes; where appropriate, assume leadership roles in work-related professional organizations and committees.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004:	\$ 1,280,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004:	\$ 1,313,600	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005:	\$ 470,000	(SPR)
	- 0 -	(STATE)

**1980 ..... Environmental Studies (Environmental Affairs and Special Studies)**

**PURPOSE AND SCOPE:** This includes detailed environmental studies required by the Planning and Research Division to ensure Department compliance with all appropriate state and federal laws and regulations protecting all aspects of the human and natural environment. A principal focus is providing studies and evaluations for NEPA studies. Environmental specialists also provide studies and assessments as needed for long-range planning and corridor studies, mitigation of impacts identified during NEPA review, ongoing coordination with regulatory agencies and Field Divisions to ensure implementation of special environmental measures during project construction, maintenance, and operation, and provide expert interpretations to ODOT and FHWA of proposed and current legislation/laws protecting the environment. As requested, special environmental studies are conducted for other ODOT design, traffic, enhancement, and construction functions. In-house and through Interagency Agreements with the University of Oklahoma, expertise in wetland biology, COE regulatory requirements, plant ecology, endangered species policy, archaeology, architectural history, tribal coordination and historic preservation policy, environmental health and hazardous waste issues, noise evaluation and mitigation, social and economic impacts, and NEPA policy and regulation is maintained. As needed additional expertise is retained through consultant contracts. Also included in this item is the processing of Section 404 and FEMA permits for state and local transportation projects, and the review of proposed right-of-way releases for consistency with environmental clearances.

**ACCOMPLISHMENTS DURING 2004:** None. New Item for FY2005

**PROPOSED ACTIVITIES FOR 2005:** Continue to improve and expedite tribal consultation processes through meetings with FHWA and all tribes in Oklahoma, and implement MOAs and Programmatic Agreements with tribes as necessary. Complete first phase of reevaluation of Oklahoma historic bridge survey and initiate 2<sup>nd</sup> phase documentation of bridges not included in original study. Provide updated assessments and recommendations for previously documented bridges. Continue to explore opportunities for establishment of wetland and hardwood tree banks. Continue to improve coordination and consultation with USFWS regarding E/T species. Develop ABB protocol to expedite reviews of projects potentially effecting this species. .

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004:	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004:	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005:	\$ 984,500	(SPR)
	- 0 -	(STATE)

**FEDERAL FISCAL YEAR 2005  
OKLAHOMA PROJECT SPRY - 10(38) RS  
Part 2**

	<u>PROGRAM</u>	<u>SPR</u>	<u>STATE</u>	<u>FHWA</u>	<u>TOTAL</u>
2100	Transportation Research Board	\$105,000.00	\$0.00		105,000.00
2102	Research Library Services	56,000.00	0.00		56,000.00
2115	Long Term Pavement Proformance (LTPP/SHRP)	25,000.00	0.00		25,000.00
2120	Technical Assistance - Special Studies	350,000.00	0.00		350,000.00
2122	I-40 Crosstown Case Study	82,000.00	0.00		82,000.00
2130	General Research Activity	211,793.00	0.00		211,793.00
2700	Experimental Product & Technology Evaluation Program	71,000.00	0.00		71,000.00
	<b>Total General Activities</b>	<b>\$900,793.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$900,793.00</b>
2146	The Development of Intelligent Soil Compaction	0.00	0.00		0.00
2156	Roadside Vegetation Management	171,000.00	0.00	10,000.00	181,000.00
2157	Herbicide Research Program	70,000.00	0.00		70,000.00
2158	Resilient Modulus Testing and Density Gradient Analysis / Asphalt Mixes	0.00	0.00		0.00
2160	Oklahoma Transportation Center	150,000.00	0.00		150,000.00
2161	Demonstation of a Non-Destructive Flexural Strength Test - Const. use	0.00	0.00		0.00
2167	Effect of Suction & Moisture on Resilient Modulus Of Subgrade Soils	63,000.00	0.00		63,000.00
2168	Scale effects of Oedometer Based Predictions of Fill Settlement	62,411.00	0.00		62,411.00
2169	Test Methods for Determination of Aggregate Specific Gravity	0.00	0.00		0.00
2172	Oklahoma's Percent Defective Quality Assurance / Quality Control	75,000.00	0.00		75,000.00
2174	Investigation of Patching Materials for PCC Pavements in OK	0.00	0.00		0.00
2175	Investigation Into the Use of PCC with Fiber Additives for Bridge Decks	0.00	0.00		0.00
2176	Investigation of Methods - Corrosion - Prestressed Concrete Bridge Girders	0.00	0.00		0.00
2177	Determination of Dynamic Modulus Master Curves- Hot Mix Asphalt	86,000.00	0.00		86,000.00
2178	Evaluation of Cold, In-Place Recycling, Rehab. Transverse Cracking, US 412	75,000.00	0.00		75,000.00
2180	National Association of Strand Producers Bond Testing	58,000.00	0.00		58,000.00
2181	Resilient Modulus of Asphalt - Correlation with Asphalt Pavement Analyzer Rut	60,000.00	0.00		60,000.00
2182	Evaluation of Concrete Bridge Deck Overlays Using Bond Test	58,000.00	0.00		58,000.00
2183	Anti - Litter Campaign Effectiveness	0.00	0.00		0.00
2184	Creation of an ODOT Specification for Patching or Overlay for Bridge Decks	108,000.00	0.00		108,000.00
2440	LTAP	27,000.00	0.00	280,000.00	307,000.00
	<b>Total Projects</b>	<b>\$1,063,411.00</b>	<b>\$0.00</b>	<b>\$290,000.00</b>	<b>\$1,353,411.00</b>
	<b>Total SPRY Projects and Studies 10(38) RS</b>	<b>\$1,964,204.00</b>	<b>\$0.00</b>	<b>\$290,000.00</b>	<b>\$2,254,204.00</b>
	<b>Total Pooled Fund Studies</b>	<b>\$1,027,500.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,027,500.00</b>
	<b>Grand Total</b>	<b>\$2,991,704.00</b>	<b>\$0.00</b>	<b>\$290,000.00</b>	<b>\$3,281,704.00</b>

**FEDERAL FISCAL YEAR 2005  
OKLAHOMA PROJECT SPRY - 10(38) RS  
Part 2**

**POOLED FUND PROJECTS**

<b>Project Number</b>		<b>Estimated ODOT Total Cost to Project</b>	<b>Estimated Duration of Project (Months)</b>	<b>Annual Budget</b>	<b>Federal Funds</b>	<b>State Funds</b>
TPF-5(072)	Accelerated Loading Pavement Study (NCAT Track)	\$1,401,000	72	\$300,000.00	\$300,000.00	\$0
SPR-4(201)	NCHRP - FY 04	Continuing	Continuing	\$500,000.00	\$500,000.00	\$0
SPR-2(181)	National Vehicle Detector Test Center	\$0.00	180	\$0.00	\$0.00	\$0
TPF-5(017)	WASHTO-X Videoconferencing Program	\$20,000	24	\$20,000.00	\$20,000.00	\$0
TPF-5(063)	Improving the Quality of Profiler Measurements	\$81,600	48	\$26,000.00	\$26,000.00	\$0
TPF-5(009)	AASHTO Snow and Ice Cooperative Program (SICOP)	Continuing	Continuing	\$4,000.00	\$4,000.00	\$0
TPF-5(009)	AASHTO Snow and Ice Cooperative Program (SICOP)	\$30,000	12	\$30,000.00	\$30,000.00	\$0
TPF-5(046)	Transportation Curriculum Council Training Management & Developmen	\$100,000	60	\$20,000.00	\$20,000.00	\$0
TPF-5(051)	Construction of Crack - Free Bridge Decks	\$60,000	36	\$20,000.00	\$20,000.00	\$0
TPF-5(068)	AASHTO - LT Maintenance of Load & Resistance Factor Design Spec.	\$40,000	48	\$20,000.00	\$20,000.00	\$0
TPF-5(066)	Material & Construction Optimization, PCC Pavements	\$100,000	48	\$25,000.00	\$25,000.00	\$0
TPF-5(094)	TOP Survey	\$32,500	12	\$32,500.00	\$32,500.00	\$0
TPF-5(099)	Evaluation of Low Cost Safety Improvements	\$90,000	36	\$30,000.00	\$30,000.00	\$0
<b>Total Pooled Fund Studies</b>		<b>\$1,732,600</b>		<b>\$1,027,500.00</b>	<b>\$1,027,500.00</b>	<b>\$0</b>

**PURPOSE AND SCOPE:** This project covers the annual subscription to the transportation Research Board to pay the cost of the Transportation Information Retrieval Service (TRIS) in providing ODOT with current reports and data from research studies in the highway and transportation field as gathered from federal, state, university or other sources.

**ACCOMPLISHMENTS DURING FY 2004:** Continued subscribing to TRB.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue accessing TRIS database for information, receiving reports on studies conducted by the TRB, and utilizing other TRB services.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 103,810	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 103,810	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 105,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** Provide the Oklahoma Department of Transportation and customers with an information clearinghouse. The primary goals of this Technology Transfer Office are to provide a sound, progressive, flexible library available to ODOT personnel statewide and to keep them informed of recent innovations in transportation technology, methodologies and programs as soon as information becomes available. Aligning with this is the goal of providing proficient systematic searches of all resources when needed and knowing where to reference for the sought after information. Additional services are aimed at providing ODOT with competent editing and publishing capabilities to assist Planning & Research Division in generating and distributing quality reports and publications.

**ACCOMPLISHMENTS DURING 2004:** Successfully implemented tracking program to insure a higher percentage of responses to questionnaires and surveys received by the Planning & Research Division from other state and federal transportation agencies. Provided publications and miscellaneous information in response to numerous requests. Performed numerous information searches for various divisions and personnel within ODOT. Developed centralized Research project/cost database to give versatility in establishing overall view of project cost distribution.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue to provide information services as before and expand services to include Research In Progress (RIP) database administration. Continue to develop software and application capabilities to enhance services and accessibility to Library by ODOT personnel.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>
Programmed Amount for FY 2004	\$ 60,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2004	\$ 60,000 (SPR) - 0 - (STATE)
Estimated Cost for FY 2005	\$ 56,000 (SPR) - 0 - (STATE)

**PURPOSE AND SCOPE:** To Maintain LTPP test sites, markings and current status, report maintenance activity to Southern Region Contract office (SRCO), assist SRCO with data gathering as necessary, act as general liaison between SRCO and the Department. Maintain working knowledge related to SHRP product implementation, act as general liaison between FHWA and the Department for product implementation activities.

**ACCOMPLISHMENTS DURING FY 2004:** Provided traffic control for Southern Region Contract Office (SRCO) at time of tour for gathering data.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue monitoring active sites in Oklahoma, maintain signing and markings for all active sites, report to Southern Region Contract Office (SRCO) other activities about maintenance of sites.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 25,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004	\$ 25,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 25,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** This project was established to provide ongoing technical support, or special investigations to the Department when a full-scale project is not warranted or when a “quick-turnaround” is required.

**ACCOMPLISHMENTS DURING FY 2004:** Provided support for the Department with assistance and equipment in: core drilling, traffic control, special investigations, bridge deck testing and any other activities when needed.

**PROPOSED ACTIVITIES FOR FY 2005:** Provide support for the Department with assistance and equipment in: core drilling, traffic control, special investigations, bridge deck testing and any other activities when needed.

<b>ESTIMATED TOTAL COST</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 457,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004	\$ 400,400	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 350,000	(SPR)
	- 0 -	(STATE)

**Purpose and Scope:** Langston University (the University) has developed the Transportation Center of Excellence to assist government entities and others in the transportation industry in the conduct of research and to provide technical assistance and training services in the resolution of transportation issues. The purpose of this project is to conduct research entitled “Interstate 40 Crosstown: A Case Study”. The construction of the I-40 Crosstown Project will occur in a completely new and relocated location from the existing freeway. One of the results of this construction project will be the relocation of existing businesses and residences along the right-of-way areas of both the existing and the new roadway. The case study will investigate the perceptions of the citizens affected by residential or business relocation of the services provided by Coates Field Services, the representatives of the Department in acquisition and relocation of the owners and/or occupants of these residences and businesses.

**Accomplishments During FY 2004:** Completed the Draft report of Phase 1, and interviewed approximately half of the commercial relocations.

**Proposed Activities for FY 2005:** Complete the final report for Phase 1, complete the interviews for the commercial relocatees, analysis of the data and complete Phase 2 Report, Begin Phase 3 interviews and data collection when the 12 month period in a new location is completed

<b>Estimated Total Cost:</b>	<b>\$ 212,000</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2004	\$ 130,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 82,000	(SPR)
	- 0 -	(STATE)

**2130 ..... General Research Activity**

**PURPOSE AND SCOPE:** This activity covers various research activities which are necessary for the operation of a research section but which cannot be accurately included in other projects. Examples of this type of activity include attending Quality Task Force meetings, writing work plans for emerging research projects which have not been assigned an item number when the work plan is written, reviewing research reports, meeting with university and private researchers regarding proposed projects, attending industry seminars, conferences, etc. This project also covers costs of various professional services contracts for research projects which fill needs of the Department, but were not foreseen when the SPR budget was written, and therefore were not included as separate items. This may include special technical assistance on multiple projects, and providing matching funds for leveraging research program funds such as OCAST/IDEA programs, for research significant to the Department.

**ACCOMPLISHMENTS DURING FY 2004:** Attended meetings, wrote work plans, reviewed reports, discussed proposed work with researchers and ODOT personnel, as described above. Items undertaken include:

Item 2122 I-40 Crosstown Case Study	\$ 130,000
Item 2178 Evaluation of Cold-in-place Recycling ...on US421	\$ 40,000

**PROPOSED ACTIVITIES FOR FY 2005:** Continue work on general research for ODOT.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 400,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 200,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 211,793	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** The purpose of this project is to develop and implement intelligence into vibratory soil compaction by establishing communication between the compactor and the material being compacted.

**ACCOMPLISHMENTS DURING FY 2004:** The Final Report has been completed and reviewed.

This project will be completed as soon as modifications recommended in the review are made. The project will be closed out when the corrected Final Report is received from the Principal Investigator.

**PROPOSED ACTIVITIES FOR FY 2005:** Publish Final Report when internal review is completed.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 294,141</b>	
Programmed Amount for FY 2004	\$ 50,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** The purpose of this project is to provide ODOT with certified training related to Roadside Vegetation Management (RVM), consultation to ODOT field divisions, and development of manuals of practice for ODOT. This includes the implementation of the Native Vegetation Demonstration Project.

**ACCOMPLISHMENTS DURING FY 2004:** Conducted annual certified pesticide applicator training for all ODOT field divisions. Maintained pesticide applicator training records for ODOT applicators. Provided consultation to ODOT field as requested, produced annual consultation report. Reviewed and surveyed each ODOT field division’s herbicide program and equipment, and produced an annual equipment report. Surveyed new RVM equipment and technologies, provided applicable information to ODOT field personnel, and produced annual report. Provided as-needed updates to ODOT personnel regarding herbicide/pesticide legislation and new products. Conducted annual RVM implementation tour.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue training, field surveys and consultations as described above. Produce annual Equipment, Consultation and Herbicide Reports. Monitor the Native Vegetation Demonstration Project.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 136,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 136,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 171,000	(SPR)
	- 0 -	(STATE)
	10,000	(FHWA)
	2,500	(PRIVATE)

**PURPOSE AND SCOPE:** The purpose of this project is to conduct field investigations which evaluate herbicide products, applications and equipment.

**ACCOMPLISHMENTS DURING FY 2004:** Evaluated experimental herbicides for control of annual ryegrass on various different plots at three separate locations. Evaluated experimental herbicides for control of Johnson grass on test plots at three different locations. Evaluated experimental herbicides for control of Sericea Lespedeza on plots at three separate locations. Tested premix herbicides for control of broadleaf weeds at test plots in three separate locations. Demonstrated results of the above experiments during a van tour for ODOT maintenance personnel in June 2004.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue testing herbicides for the applications listed above. Report on all herbicide applications during annual panel meeting in February 2004. Produce written reports on herbicide applications (one report per application category), with conclusions and recommendations.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 117,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 117,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 70,000	(SPR)
	- 0 -	(STATE)

**2158 ..... Resilient Modulus Testing and Density Gradient Analysis of Selected Asphalt Mixes**

**PURPOSE AND SCOPE:** The purpose of this project is to: 1) Explore the relationship(s) between resilient modulus and rutting as measured by the Asphalt Pavement Analyzer (APA), and (2) Examine the density distribution in Hot Mix Asphalt (HMA) specimens, prepared using the Superpave Gyratory Compactor (SGC).

**ACCOMPLISHMENTS DURING FY 2004:** Completed resilient modulus, rut testing and analysis. Correlated rut to resilient modulus and other factors. Completed Density Gradient testing and analysis. Preparation of Final Report has been completed and reviewed. Publication to be completed by September 30, 2004.

**PROPOSED ACTIVITIES FOR FY 2005:** None

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 101,522</b>	
Programmed Amount for FY 2004	\$ 36,065.	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 36,065.	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** The Oklahoma Transportation Center (OTC) is a research organization made up of researchers employed by The University of Oklahoma (OU), Oklahoma State University (OSU), and Langston University. Research personnel in this organization have expertise and research covering a wide range of transportation-related topics. The purpose of this item is to coordinate and contract on behalf of ODOT, research activities covering a wide range transportation research projects.

**ACCOMPLISHMENTS DURING FY 2004:** Contracted with the OTC for the following projects (titles shortened): Permanent metal Bridge Decking, Impacts of Highway Construction, Timber Pile Repair, Analysis of Basic Pavement Behavior, 24/7 Monitoring of Work Zones, Subsurface Imaging for detecting cavities, A Prioritizing Method for Scour-Critical Culverts, An Alternative Method for Determining Asphalt Content, Development of a Freight Movement Model, Evaluation of the PCC Additive “Ipanex”, Evaluation of Stainless Steel-Clad Reinforcing Steel, Surface Free Energy of Hot Mix Asphalt Mixes.

**PROPOSED ACTIVITIES FOR FY 2005:** Coordination between ODOT and the OTC will continue. Contracts with the OTC for research will be established.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 418,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 418,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 150,000.	(SPR)
	- 0 -	(STATE)

**2161 . . . . . Demonstration of a Non-Destructive Flexural Strength Test for Use During Construction**

**PURPOSE AND SCOPE:** The purpose of this project is to demonstrate an effective non - destructive means of verifying flexural strengths for concrete pavements during construction. Two technological innovations will be used: 1) Germann Instruments “BOND TEST” Direct tensile test equipment, and 2) An innovative concrete maturity system developed in Oklahoma by Nomadics, Inc., Stillwater, Oklahoma.

**ACCOMPLISHMENTS DURING FY 2004:** All innovative test procedures have been performed and a relationship between flexural and direct tensile strengths has been demonstrated. The Final Report has been written and submitted to ODOT’s Planning & Research and Materials Divisions. The report is under review and a final version, incorporating comments from the review, is expected to be written and submitted to ODOT by August 1, 2004.

**PROPOSED ACTIVITIES FOR FY 2005:** None

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 55,000</b>	
Programmed Amount for FY 2004	\$ 55,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 55,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**2167 ..... Effect of Suction and Moisture on Resilient Modulus of Subgrade Soils in Oklahoma**

**PURPOSE AND SCOPE:** The purpose of this project is to generate data and recommendations which will benefit ODOT in design of pavements on unsaturated subgrades. Subgrade moisture plays an important role in the in-service performance of a pavement. Resilient Modulus (Mr ) is an important parameter in pavement design under AASHTO guidelines, which ODOT has implemented.

**ACCOMPLISHMENTS DURING FY 2004:** Completed literature search, Collected and classified soil groups, performed resilient modulus and suction tests.

**PROPOSED ACTIVITIES FOR FY 2005:**

- Task 1: Selection of subgrade soils and sample collection.
- Task 2: Laboratory testing to determine common soils properties.
- Task 3: Data analysis and identification of correlations.
- Task 4: Write Final Report.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 105,242</b>	
Programmed amount for FY 2004	\$ 52,014	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 52,014	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 63,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** This project will use both the large and small oedometer test procedures to predict settlement behavior of compacted Oklahoma soils in embankments. The project activities will also include examining scale effects associated with using oedometer samples and examine fabric-induced scale effects in the field. Recommendations regarding laboratory and settlement analysis of compacted fills will be included.

**ACCOMPLISHMENTS DURING FY 2004:** Performed literature review, developed and tested large oedometer sampling method, currently collecting oedometer samples, will complete by September, 2004, conducting soil characterization and suction tests, these will also be completed by September.

**PROPOSED ACTIVITIES FOR FY 2005:** The following tasks will be completed during FY2005.

- Conduct small - scale laboratory oedometer tests.
- Conduct large - scale laboratory oedometer tests.
- Analyze data.
- Draft Final Report.
- Submit, modify, and publish Final Report.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 120,000</b>	
Programmed Amount for FY 2004	\$ 52,349	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 52,349	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 62,411	(SPR)
	- 0 -	(STATE)

**2169 ..... Evaluation of Test Methods for Determination of Aggregate Specific Gravity**

**PURPOSE AND SCOPE:** This project will evaluate the *AggPlus* system and the *SSD Detect* system against the AASHTO T - 84 and T - 85 specific gravity test methods currently used by ODOT. The procedures will be evaluated for accuracy, precision, and ease of use. At the completion of the study, a test method for determining the specific gravity and absorption of ODOT aggregates will be recommended.

**ACCOMPLISHMENTS DURING FY 2004:**The effects of the different test methods on specific gravity and absorption have been evaluated. Advantages and disadvantages of test methods were evaluated for use in selecting a standard test method. Testing and analysis was completed for use in selecting a standardized test method.

**PROPOSED ACTIVITIES FOR FY 2005:** Completed. Will distribute final report.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 138,000</b>	
Programmed Amount for FY 2004	\$ 52,349	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 52,349	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**2172 ..... Evaluation of ODOT's Percent Within Limits (PWL) Construction Specifications**

**PURPOSE AND SCOPE:** The Department will implement new "Percent Within Limits" specifications on four highway construction projects during FY 2005. The projects will consist of two Asphalt Concrete (AC) and two Portland Cement Concrete (PCC) roadway construction projects. Three researchers, an AC pavement specialist, a PCC specialist, and a statistician, will evaluate the application of the PWL specifications during construction of the projects. The researchers will observe construction operations and Quality Control (QC) testing during construction and review all construction test records. Analysis of this information will be used to determine if there are any deviations from the PWL specifications regarding actual testing during construction. All aspects of project quality will be analyzed to determine whether or not use of the PWL specifications resulted in an improvement in quality. The above information will be presented in a Final Report, which will include an evaluation of the PWL specifications and will include recommendations and conclusions.

**ACCOMPLISHMENTS DURING FY 2004:** N/A (NEW PROJECT)

**PROPOSED ACTIVITIES FOR FY 2005:** Observe construction operations and QC testing on four construction projects where PWL specifications are used, review QC test records, determine if any deviations from PWL specifications occur, determine if use of PWL specifications results in an improvement in project quality, analyze data collected and produce a Final Report which will include recommendations and conclusions.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 75,000</b>	
Programmed amount for FY 2004:	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004:	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2005:	\$ 75,000	(SPR)
	- 0 -	(STATE)

**2174 ..... Investigation of Patching Materials for Portland Cement Concrete (PCC) Pavements**

**PURPOSE AND SCOPE:** ODOT Maintenance personnel have long had an interest in identifying PCC patch materials which can demonstrate superior performance. This project will identify materials and procedures which can be reliably employed to patch and repair PCC roadways and bridge applications. The project will also evaluate and define the material properties of the most promising materials and make recommendations as to their use. The work will include testing (at least) eight commonly used patch materials with regard to compressive strength, tensile strength, unrestrained length change, partially restrained length change, slump, slump loss with time, bond strength, elasticity, and permeability. A Final Report summarizing the work and results will be submitted and results presented in a seminar for interested ODOT personnel.

**ACCOMPLISHMENTS DURING FY 2004:** A (laboratory) testing program is in progress, which consists of running the tests named above on the commonly used patch materials. Materials and procedures which result in producing superior performing patches will be identified in a Final Report, which will be completed prior to September 30, 2004. Also, information developed during the project activity will be presented in a seminar.

**PROPOSED ACTIVITIES FOR FY 2005:** None

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 38,500</b>	
Programmed Amount for FY 2004	\$ 38,500.	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 38,500.	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**2175 . . . . . Investigation into the Use of Portland Cement Concrete (PCC) with Fiber Additives for Bridge Decks in the State of Oklahoma**

**PURPOSE AND SCOPE:** Fiber additives can produce desirable properties in PCC bridge decks and overlays. The addition of fibers to PCC mixes has been reported to improve crack control, increase impact capability, reduce permeability, increase shatter resistance, increase abrasion resistance and improve flexural capacity. The project will evaluate concrete containing several different types of fibers with regard to their ability to resist cracking, impact capability, permeability, shatter resistance, abrasion resistance and flexural capacity. A Final Report will be written summarizing project findings and their potential application to ODOT bridge decks.

**ACCOMPLISHMENTS DURING FY 2004:** Various PCC mixes containing fibers have been made and tested for the properties named above. Testing and analysis will be completed by the end of July, 2004. The Final Report will be written submitted to ODOT for review, and the final version published prior to September 30, 2004.

**PROPOSED ACTIVITIES FOR FY 2005:** None

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 49,300</b>	
Programmed Amount for FY 2004	\$ 49,300.	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 49,300	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**2176 ..... Investigation of Methods to Reduce or Eliminate End Region Corrosion of Prestressed Concrete Bridge Girders**

**PURPOSE AND SCOPE:** ODOT has experienced problems with corrosion in the end region of several prestressed concrete bridge girders. Prestressing strands will not corrode or rust unless they are exposed to moisture and oxygen. The purpose of this project is to determine if surface treatments applied to the end region of prestressed concrete bridge girders can prevent moisture from reaching the prestressing strands and decrease the amount of corrosion that occurs. This may be accomplished by several means. Waterproofing materials may be applied to the concrete to decrease its permeability, or physical barriers may be applied to the outside of the girder to cover the strand and end region. This study will compare the effects of silane waterproofing, at least two types of epoxy, an elastomeric compound and grouting. A Final Report detailing the research activity and its results will be published.

**ACCOMPLISHMENTS DURING FY 2004:** Samples of actual (cutoff) girders have been prepared and corrosion tests are underway at the University of Oklahoma's Fears Lab. When tests are completed, results will be summarized in a Final Report, which will include conclusions and recommendations regarding measures to protect strands from corrosion.

**PROPOSED ACTIVITIES FOR FY 2005:** None

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 31,225</b>	
Programmed Amount for FY 2004	\$ 31,225	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 31,225	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**2177 . . Determination of Dynamic Modulus Master Curves for Oklahoma Hot Mix Asphalt (HMA) Mixtures**

**PURPOSE AND SCOPE:** The currently used “1993 NCHRP HMA Design Guide for Asphalt Mixtures” assigns asphalt mixtures an “A” coefficient based on resilient modulus. The 2002 Design Guide uses the elastic properties of dynamic modulus and Poisson’s ratio as the materials characterization parameters for asphalt mixtures (ASTM 3496 - 7). Detailed analysis is required to arrive at these properties. Time, and other constraints, often make it difficult or impossible to do the detailed analysis.

The purpose of this research is to develop a procedure where ODOT can approach Level One reliability for HMA design using master curves from which the design parameters can be obtained without performing detailed dynamic modulus testing for each mix in a pavement system.

**ACCOMPLISHMENTS DURING FY 2004:** The literature review, equipment purchase and setup, and preliminary mixture evaluations have been completed. Work has begun on development of the test matrix and evaluation of sample size.

**PROPOSED ACTIVITIES FOR FY 2005:** All tests in the matrix will be carried out. Resulting data will be analyzed and summarized in a Final Report, which will include the curves, conclusions and recommendations.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 136,767</b>	
Programmed Amount for FY 2004	\$ 59,922	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 59,922	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 86,000	(SPR)
	- 0 -	(STATE)

**2178 . . . . . Evaluation of Cold, In-Place Recycling for Rehabilitation of Transverse Cracking on US412**

**PURPOSE AND SCOPE:** Successful rehabilitation of transverse cracked Hot Mix Asphalt (HMA) has been a challenge for state DOT's. HMA overlays generally permit the return of reflective cracks, despite various crack filling measures. The reflective cracks eventually become as severe as the cracks existing prior to the overlay placement.

Cold, In - Place Recycling (CIR) has been shown to be a cost effective procedure for rehabilitation as reported by other state DOT's, including some from states surrounding Oklahoma.

Two rehabilitation projects on US 412 in Beaver County will be used to evaluate the CIR process, applied with slurry crack injection as a rehabilitation technique for transverse cracking.

**ACCOMPLISHMENTS DURING FY 2004:** The literature review, existing roadway surveys, and preliminary mixture evaluations have been completed. Both construction projects are expected to be done during the summer of 2004, so data collection and sampling regarding construction activity will be done in FY 2004.

**PROPOSED ACTIVITIES FOR FY 2005:** Laboratory tests on samples, surveys of completed construction projects and periodic monitoring and testing of the completed projects to determine actual field performance.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 123,377</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 40,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 75,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** The purpose of this project is to develop a standardized test for strand bond. This work builds upon prior work where several different tests were evaluated on the basis of each test’s ability to produce repeatable and reproducible results.

The scope of the work will include performing and evaluating two different tests, The North American Strand Producers (NASP) Bond Test and the Moustafa Bond Test. Researchers in Indiana and Arkansas will perform and evaluate the same tests. Work (and funding) in those states will be independent of the work done under this project. Results from all Oklahoma, Indiana and Arkansas tests will be compared when the “blind tests” have been completed by all three researchers.

**ACCOMPLISHMENTS DURING FY 2004: NA**

**PROPOSED ACTIVITIES FOR FY 2005:** Literature search, testing and reporting as described above. The project is scheduled to be completed in FY 2005.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 58,000</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 58,000	(SPR)
	- 0 -	(STATE)

**2181 ..... Resilient Modulus of Asphalt and its Correlation With Asphalt Pavement Analyzer Rut**

**PURPOSE AND SCOPE:** The purpose of this project is to conduct resilient modulus and Asphalt Pavement Analyzer (APA) rut tests on selected asphalt mixes and cores from completed projects. The investigation will determine if the resilient modulus values can be correlated with the APA rut values. At least three new mixes that are commonly used by ODOT will be used in the study. Field cores from the sites that have used either these or similar mixes will be obtained and tested for both APA rut and resilient modulus. A comparison between the two properties of laboratory compacted and field compacted specimens will be made.

**ACCOMPLISHMENTS DURING FY 2004:** NA

**PROPOSED ACTIVITIES FOR FY 2005:** Selection of three new mixes will be done in cooperation with ODOT. Coring sites will also be selected in cooperation with ODOT, with the intention of selecting two sites for each mix type. Resilient modulus testing, of both the cores and laboratory - compacted samples, will be conducted at the Broce Laboratory. APA Rut tests will also be conducted at the Broce Lab.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 104,000</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 60,000.	(SPR)
	- 0 -	(STATE)

**2182 ..... Evaluation of Concrete Bridge Deck Overlays Using the Bond Test**

**PURPOSE AND SCOPE:** The purpose of this study is to examine concrete bridge decks that have been built since 2000 to gain an understanding of why some recent overlays perform well and why others experience early bond problems. This study will involve the collection of extensive data on concrete bridge deck overlays to identify any variables that may be causing poor bond between the new and old concrete.

**ACCOMPLISHMENTS DURING FY 2004:** N/A

**PROPOSED ACTIVITIES FOR FY 2005:** A bond test will be performed on bridges to provide an assessment of the bond between the new and old concrete, or the quality of the new and old concrete. Collect extensive data on bridge deck overlays that have been built since 2000. Evaluate data and develop a correlation between overlay performance and bond test data.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 58,000</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 58,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** This project will evaluate the effectiveness of the Department’s anti - litter campaign. The work will include surveying test sites, located in various areas of the state, for litter. Surveys will catalog litter both by type and amount (physical count). The sites will be surveyed before and after the Department’s anti - litter campaign. The percent reduction of litter will be documented and reported on in a Final Report, which will be given to ODOT. The report will include conclusions and recommendations.

**ACCOMPLISHMENTS DURING FY 2004:** NA - New Project.

**PROPOSED ACTIVITIES FOR FY 2005:** Activities described in “Purpose and Scope” above.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 350,000</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ - 0 -	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** This project builds upon work done under a previous research project on patching materials (SPR Item Number 2174, “Patching Materials for PCC Pavements”), where commonly used patching materials were evaluated with regard to their performance. This project will consider patching materials identified as having good performance under the previous project, materials identified by ODOT Maintenance personnel as having good performance, and other (new) materials recommended by ODOT personnel. The materials will be tested for chemical, electrical and permeability compatibility with existing deck material, drying shrinkage, thermal expansion, creep and modulus of elasticity. Those showing superior performance will be identified, along with patching procedures which have proven to produce patches with good performance in the field. Information gathered under the project will be used to write a specification (or possibly modify existing specifications) for patching and overlaying bridge decks. A Final Report, with conclusions and recommendations, will be written and submitted to ODOT when the research work is completed.

**ACCOMPLISHMENTS DURING FY 2004:** NA - New project

**PROPOSED ACTIVITIES FOR FY 2005:** Complete the literature search, obtain samples of patching and overlay materials, and begin testing as described above.

<b>ESTIMATED TOTAL COST:</b>	<b>\$ 285,000</b>	
Programmed Amount for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ - 0 -	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 108,000	(SPR)
	- 0 -	(STATE)

**PURPOSE AND SCOPE:** The Local Technical Assistance Program (LTAP) is a training program contracted by Oklahoma State University’s Center for Local Government Technology to provide technical maintenance training and assistance to Oklahoma’s county personnel in the areas of road and bridge construction, repair and maintenance and other transportation-related issues. This is accomplished by 1) conducting workshops, seminars and other training opportunities, 2) providing on-site technical assistance, 3) maintaining a lending library for publications, videotapes and other technology resource documents, 4) providing information on new and existing technology, 5) coordinating with faculty and staff at OSU and ODOT to provide technical expertise and support, 6) publishing a quarterly newsletter and 7) maintaining a database of rural, local and state transportation officials and other resources in Oklahoma and nationwide.

**ACCOMPLISHMENTS DURING FY 2004:** The LTAP Program continued a positive relationship with Circuit Engineering District #7 in Clinton (part of the Association of County Commissioners of Oklahoma) resulting in increased participation of county personnel from the western part of the state in the Roads Scholar Program. Twenty four (24) Roads Scholar classes and six (6) County Welding Training classes were conducted with 850 and 74 county personnel attending respectively. The first Oklahoma LTAP Web Site has been developed and was posted in November, 2004. LTAP office continues to serve as the American Public Works Association State Chapter office and assisted with the April 2004 regional meeting. Newsletters were published and various literature and video tapes of new ideas and procedures were distributed.

**PROPOSED ACTIVITIES FOR FY 2005:** Conduct at least four training sessions of all the nine Roads Scholar Program subjects statewide. Continue to publish and distribute to county commissioners various newsletters, papers, technical literature and video through the LTAP Library and coordinate with ODOT’s Technical Library. Develop and conduct new training courses as requested by the LTAP Advisory Board.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 164,000	(SPR)
	- 0 -	(STATE)
	127,500	(FHWA)
 Estimated Cost for FY 2004	 \$ 27,000	 (SPR)
	- 0 -	(STATE)
	290,000	(FHWA)
 Estimated Cost for FY 2005	 \$ 27,000	 (SPR)
	- 0 -	(STATE)
	280,000	(FHWA)

**PURPOSE AND SCOPE:** This project was established to provide ODOT with a mechanism that provides for the use, monitoring and implementation of highway and bridge construction and maintenance products that do not meet current ODOT standards or specifications.

**ACCOMPLISHMENTS DURING FY 2004:** Maintained database of new products where manufacturer provided literature or made a presentation during the last five years. Met with company representatives presenting new products. Provided information on products to applicable ODOT Divisions. Evaluated new products as required.

**PROPOSED ACTIVITIES FOR FY 2005:** Continue maintaining database on products submitted to ODOT. Meet with vendors representatives, circulate product literature and conduct product evaluations as required.

<b>ESTIMATED TOTAL COST:</b>	<b>CONTINUING</b>	
Programmed Amount for FY 2004	\$ 100,000	(SPR)
	- 0 -	(STATE)
Estimated cost for FY 2004	\$ 50,000	(SPR)
	- 0 -	(STATE)
Estimated Cost for FY 2005	\$ 71,000	(SPR)
	- 0 -	(STATE)