

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



FY2009

**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, 2008



U.S. Department
of Transportation
**Federal Highway
Administration**

September 25, 2008

300 North Meridian Avenue
Suite 105-S
Oklahoma City, Oklahoma
73107-6560

FY 2009 SPR (Part I) Work Program, and
FY 2009 SPR (Part II) Research Program

Mr. Gary M. Ridley, Director
Oklahoma Department of Transportation
Oklahoma City, OK

Dear Mr. Ridley:

The FHWA has reviewed the Fiscal Year 2009 State Planning and Research (SPR) Part I (Planning) and Part II (Research) work programs and budget for the Oklahoma Department of Transportation (ODOT) as submitted by Ms. Ginger McGovern, Planning and Research Division Engineer, on September 12, 2008. Part I (Planning) also includes the metropolitan planning (PL) program funds previously approved by the FHWA this federal fiscal year as part of the FY 2009 Unified Planning Work Programs (UPWP) and budget for Tulsa, Oklahoma City, and Lawton MPOs, as well as the Fort Smith, Arkansas, Bi-State planning area.

The FY 2009 SPR work program and budget developed by ODOT complies with 23 CFR 420.111, regarding work programs for transportation planning activities by including a description of work to be accomplished and cost estimates for each activity or task. In addition, the work program budget identifies federal, state and local funding sources as required under federal regulation. The work program for planning also includes funding for local technical assistance programs (LTAP) administered by the Center for Local Government Technology at Oklahoma State University.

In addition, the ODOT SPR program complies with Subpart B, 23 CFR 420.207(a) regarding work programs and budgets for statewide Research, Development and Technology (RD&T) transfer program activities. This includes the description of activities to be accomplished in FY 2009, the estimated costs for each eligible activity, and the cost of any cooperative activities, including participation in transportation pooled fund studies, and the National Cooperative Highway Research Program (NCHRP). The research program also includes studies funded under previous work programs pending the release of a final study report. The FHWA encourages ODOT to include in the RD&T program any studies it has funded 100 percent with state or other funds for information purposes.

The ODOT FY 2009 SPR program description for each activity includes: a purpose and scope statement; accomplishments during FY 2008; proposed activities for FY 2009; estimated total cost; and contact information. The estimated total cost provides further details in terms of FY 2008 programmed amount and actual costs, and the estimated cost for each activity in FY 2009.

A closer examination of the FY 2009 work program budget reveals an increase in funding for a number of activities over the previous year. For example, the highway performance monitoring system (HPMS), the statewide long range transportation plan (LRTP), and air quality planning budgets saw increases. These increases are consistent with anticipated development of the statewide LRTP and air quality planning activities in response to the eminent designation of Oklahoma's metropolitan areas under the revised

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national ambient air quality standard (NAAQS) for ozone. Based on our review and our meeting with Ms. Ginger McGovern and Mr. Jay Adams we have determined that the FY 2009 SPR program complies with 23 CFR 420 subpart A and B, and adequately addresses the planning and research needs in Oklahoma.

We hereby approve the FY 2009 SPR work program and budget as submitted. We thank you for your efforts in preparing the planning and research work program and budget. Please contact Mr. Isaac N. Akem, Community Planner, at 405-605-6040 extension 324 if you have any questions or comments regarding this action.

Sincerely Yours,

A handwritten signature in black ink, appearing to read "Elizabeth Romero". The signature is fluid and cursive, with a large initial "E" and "R".

Elizabeth Romero.
Planning and Technical
Services Team Leader

Planning & Research Division

**Planning & Research
Division Engineer**
Ginger McGovern

**Assistant Planning &
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Jay Adams

**Engineering
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Ron Curb

**Pavement
Management**
Bill Dickinson

**Planning &
Program
Coordination**

**GIS
Management**
Ron Maxwell

**Data Collection
Traffic Studies**
Richard Sumpter

OCTOBER 1, 2008

OKLAHOMA DEPARTMENT OF TRANSPORTATION
Financial Summary Sheet
Federal Fiscal Year 2009

Program Period October 1, 2008 through September 30, 2009

SPR Part 1 - Planning

Work Program Number SPRY 0010(45) PL, J/P 01946(51)

A. Estimated Costs

SPR Part 1 - Planning	\$9,248,578.00
Metropolitan Planning (PL)	\$3,235,724.00
Total Estimated Costs	\$12,484,302.00

B. Available Funds

SPR Part 1 Unobligated Balance	\$9,017,000.00
PL Unobligated Balance	\$2,658,253.00
State, Local, LTAP	\$809,697.00
Total Available Funds	\$12,484,950.00

C. Proposed Financing

Type	Federal	Ratio	State	Local	Total
SPR	\$9,016,352.00	80%	\$0.00	\$0.00	\$9,016,352.00
LTAP	\$184,448.00		\$47,778.00	\$0.00	\$232,226.00
PL	\$2,658,253.00	80%	\$0.00	\$577,471.00	\$3,235,724.00
Total Proposed Financing					\$12,484,302.00

SPR Part 2 - Research

Work Program Number SPRY 0010(46) RS, J/P 01946(52)

A. Estimated Costs

SPR Part 2 - Research	\$3,178,861.00
Total Estimated Costs	\$3,178,861.00

B. Available Federal Funds

SPR Part 2 Unobligated Balance	\$3,179,000.00
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C. Proposed Financing

Type	Federal	Ratio	State	Local	Total
SPR	\$3,178,861.00	80%	\$0.00	\$0.00	\$3,178,861.00
Total Proposed Financing					\$3,178,861.00

TOTAL SPR UNOBLIGATED BALANCE:	\$12,196,000.00
TOTAL OTHER FUNDS:	\$3,467,950.00
TOTAL AVAILABLE FUNDING:	\$15,663,950.00
TOTAL SPR PART 1 AND PART 2 ESTIMATED COSTS:	\$15,663,163.00
TOTAL FY2009 POOLED FUND COMMITMENTS	\$363,250.00

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FEDERAL FISCAL YEAR 2009
OKLAHOMA PROJECT SPRY - 0010(045) PL, JP # 01946(51)
Part 1

<u>PROGRAM</u>		<u>SPR</u>	<u>STATE</u>	<u>PL</u>	<u>LOCAL</u>	<u>TOTAL</u>
GIS AND DATA MANAGEMENT						
1101	Continuing Inventory Data Studies	\$667,000.00	\$0.00			\$667,000.00
1102	Highway Performance Monitoring System	\$194,000.00	\$0.00			\$194,000.00
1103	Geographical Information Management System for Transportation	\$341,000.00	\$0.00			\$341,000.00
1105	Crash Location Data Entry Project	\$200,000.00	\$0.00			\$200,000.00
	Total GIS and Data Management	\$1,402,000.00	\$0.00			\$1,402,000.00
MAPPING						
1201	County, City and other Planning Maps	\$272,000.00	\$0.00			\$272,000.00
	Total Mapping	\$272,000.00	\$0.00			\$272,000.00
TRAFFIC AND DATA COLLECTION						
1301	Coverage Count Program	\$855,600.00	\$0.00			\$855,600.00
1302	Permanent Traffic Count Program	\$466,000.00	\$0.00			\$466,000.00
1304	Purchase of Traffic Counting Equipment	\$222,300.00	\$0.00			\$222,300.00
1305	Vehicle Classification Counting Program	\$447,800.00	\$0.00			\$447,800.00
1306	Weigh- in- Motion Program	\$1,166,600.00	\$0.00			\$1,166,600.00
1308	Traffic Monitoring System	\$170,000.00	\$0.00			\$170,000.00
1309	Traffic Analysis and Projections	\$170,000.00	\$0.00			\$170,000.00
1310	Skid Studies Program	\$175,000.00	\$0.00			\$175,000.00
	Total Traffic and Data Collection	\$3,673,300.00	\$0.00			\$3,673,300.00
1403	ODOT Manual Update	\$0.00	\$0.00			\$0.00
LOCAL TECHNICAL ASSISTANCE PROGRAM						
1440	Local Technical Assistance Program	\$155,552.00	\$47,778.00	\$0.00	<i>LTAP Federal</i> \$184,448.00	\$387,778.00
		\$155,552.00	\$47,778.00	\$0.00	\$184,448.00	\$387,778.00
ECONOMIC AND FISCAL STUDIES						
1404	State Highway Safety Plan	\$75,000.00	\$0.00			\$75,000.00
1510	Justification Studies	\$5,000.00	\$0.00			\$5,000.00
1511	Project Reconnaissance Information	\$0.00	\$0.00			\$0.00
	Total Economic and Fiscal Studies	\$80,000.00	\$0.00			\$80,000.00

FEDERAL FISCAL YEAR 2009
OKLAHOMA PROJECT SPRY - 0010(045) PL, JP #01946(51)
Part 1

	<u>PROGRAM</u>	<u>SPR</u>	<u>STATE</u>	<u>PL</u>	<u>LOCAL</u>	<u>TOTAL</u>
SYSTEMS AND PROGRAMS						
1601	Federal-aid Systems Coordination	\$69,000.00	\$0.00			\$69,000.00
1603	Highway Needs Study	\$155,000.00	\$0.00			\$155,000.00
1604	Pavement Management Systems	\$1,571,000.00	\$0.00			\$1,571,000.00
	Total Systems and Programs	\$1,795,000.00	\$0.00			\$1,795,000.00
URBAN TRANSPORTATION PLANNING						
1700	General Urban Transportation Planning Activities	\$33,500.00	\$0.00			\$33,500.00
1701	Oklahoma City Area Regional Transportation Study (OCARTS)	\$20,000.00	\$0.00	\$1,748,371.00	\$350,000.00	\$2,118,371.00
1702	Tulsa Metropolitan Area Transportation Study	\$16,500.00	\$0.00	\$760,619.00	\$190,155.00	\$967,274.00
1703	Lawton Metropolitan Area Transportation Study	\$15,900.00	\$0.00	\$130,172.00	\$32,543.00	\$178,615.00
1709	Ft. Smith Transportation Study	\$6,600.00	\$0.00	\$19,091.00	\$4,773.00	\$30,464.00
1719	Statewide Transportation Improvement Program (STIP)	\$51,000.00	\$0.00			\$51,000.00
	Total Urban Transportation Planning	\$143,500.00	\$0.00	\$2,658,253.00	\$577,471.00	\$3,379,224.00
LONG RANGE PLANNING / PLANNING ACTIVITIES						
1901	OPDES Municipal Separate Storm Sewer System (MS 4) Permits	\$0.00	\$0.00			\$0.00
1902	Statewide Long Range Transportation	\$300,000.00	\$0.00			\$300,000.00
1903	Intelligent Transportation Systems Planning	\$100,000.00	\$0.00			\$100,000.00
1904	Air Quality Transportation Planning	\$915,000.00	\$0.00			\$915,000.00
1905	Freight Planning	\$40,000.00				\$40,000.00
1910	Public Involvement & Visualization Techniques	\$140,000.00	\$0.00			\$140,000.00
1979	Environmental Studies (NEPA Compliance)	\$0.00	\$0.00			\$0.00
1980	Environmental Studies (Environmental Affairs and Specialist Studies)	\$0.00	\$0.00			\$0.00
	Total Long Range Planning / Planning Activities	\$1,495,000.00	\$0.00	\$0.00	\$0.00	\$1,495,000.00
PROJECT TOTALS		\$9,016,352.00	\$47,778.00	\$2,658,253.00	\$761,919.00	\$12,484,302.00
GRAND TOTALS SPRY-0010(045)PL		\$9,016,352.00	\$47,778.00	\$2,658,253.00	\$761,919.00	\$12,484,302.00

PURPOSE AND SCOPE: To collect, record, and compile data on the physical characteristics for all statewide public roads and streets implementing established road inventory procedures and GPS technology. Catalogue cultural features used to update the Department's official County Highway Maps. Generate detailed maps used to conduct inventory meetings with County Commissioners pertaining to roadway modifications. 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 and NHS routes. Develop and maintain Control Section numbers and other unique identification systems for all public roads. Established AVMT to be used to calculate Annual Accident and Fatality Rates.

ACCOMPLISHMENTS DURING FY 2008: The County Road inventory procedures were continued with eight county inventories completed (Atoka, Garvin, Grant, Johnston, McClain, Kay, Ottawa, and updated the Oklahoma Urbanized Area) and two (Canadian and Carter) in progress. Five counties were reassessed and coded (Beckham, Kay, Logan, McClain, and Payne) and one (Johnston) in progress. All County Action Reports were verified and processed. All Highway construction projects pertaining to the Department's Highway, Graphical Roadway Network (NLF), Reference Point, and Open to traffic databases were completed. The following annual publications and reports were completed: 2008 Control Section Map Book, 2007 Oklahoma Statewide Statistics Book, 2008 Certification of County Road Mileage, and 2008 HPMS mileage, and Travel Summary Tables.

PROPOSED ACTIVITIES FOR FY 2009: Continue coding and updating the Department's Central Database files. Incorporate technology advancements in data collecting to insure the process of efficient information. Continue to improve on all procedural inventory operations. Six of the following eleven counties are scheduled to be inventoried: Beaver, Blaine, Bryan, Cimarron, Harper, Kiowa McIntosh, Pontotoc, Seminole, Texas, and Washita. Six of the following fifteen counties are scheduled to be reassessed and coded: Atoka, Beaver, Carter, Canadian, Cimarron, Garvin, Grant, Harper, Kiowa, McIntosh, Ottawa, Pontotoc, Seminole, Texas, and Washita. Continue monitoring all County Action Reports and Highway Construction projects. Implement GIS technology throughout the local road network. Continue collecting HPMS data items. Identify traffic count sites statewide using GPS technology as needed. Compile and publish various state and federal reports including the 2009 Statewide Mileage Table Book, Control Section Map Book, 2008 Oklahoma Statewide Statistics Book, 2009 Certification of County Road Mileage, and 2009 HPMS Mileage and Travel Summary Tables. Keep abreast of the latest technological advances through attendance of seminars, conferences and workshops.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$629,100	SPR
	0	STATE
Estimated Cost for FY 2008	\$631,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$667,000	SPR
	0	STATE

Contact Information	
NAME	Ron Maxwell
TITLE	Acting Transportation Manager II
PHONE	405-521-2727

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, using the FHWA HPMS web site.

ACCOMPLISHMENTS DURING FY 2008: The HPMS submittal was created using adjusted urban/urbanized areas based on the 2000 census and authorized smoothing techniques. Summer help was utilized to review videolog for HPMS sample sections and continue to build a HPMS sample database populated with At-Grade intersection and left/right turn lane information. This database will be used to generate the 2008 submittal. Oklahoma continues to include native linear reference system (LRS) information as part of its submittal. All LRS data required to perform dynamic segmentation has been included. 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. Additional training was conducted to allow data owners to be responsible for their phase of the HPMS submittal process. ODOT continued to review and re-author the online HPMS Console help system. The 2007 HPMS data was made available to anyone having access to the OKDOT computer network through the GRIP Version 3 browser application. The HPMS data was also made available through an Internet web site known as GRIPLite. The web site is open to the public. (<http://192.149.244.31/griplite/>) All data submitted to the FHWA in the 2007 HPMS submittal was formatted as defined by the HPMS field manual. The 2007 submittal was created using both the FHWA supported desktop HPMS software and the web based product. 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 FY 2009: A primary focus will be placed on implementing changes as specified in the final 2010 HPMS Reassessment. We propose to work with a Consultant on functional specifications and the implementation of a new HPMS Console tool. The tool will be used to manage HPMS related processes and to generate a submittal in the new format. GIS Management Branch staff will continue to create /digitize geometry for local roads. This effort will improve our ability to provide more accurate public road mileage information. HPMS data collection needs will be addressed by improving the coordination of all current and future data collection efforts within OKDOT. Data collection needs will also be addressed by improved communication and data sharing between OKDOT and other external entities such as city and county governments, metropolitan planning organizations, Indian tribes and the Oklahoma Turnpike Authority. Data collection needs will be addressed by utilizing videolog obtained by the Pavement Management data collection contract. OKDOT will work with our local FHWA office to address high priority areas. HPMS 2008 data will be made available to anyone having access to the OKDOT computer network by publishing all HPMS 2008 universe and sample data through the Geographical Resource Intranet Portal (GRIP) Version 3 web browser application. The data will also be made available through the Internet application known as GRIPLite which is open to the public. The GIS Management Branch of the Planning and Research Division will conduct HPMS computer based training as provided by the FHWA. The linear referencing system (LRS) component of HPMS will be provided to the FHWA in an ESRI Personal GeoDatabase format. The HPMS 2008 submittal will be delivered to FHWA no later than June 15, 2009. OKDOT will keep abreast of the latest technological advances to include the most recent HPMS Reassessment through attendance of seminars, conferences, workshops and online meetings. Oklahoma will review and/or comment on the new web based HPMS reporting and validation tools made available by FHWA headquarters.

1102	Highway Performance Monitoring System (cont)
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ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$82,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$62,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$194,000	SPR
	0	STATE

Contact Information	
NAME	Timothy M Callahan
TITLE	Transportation Manager
PHONE	405-522-1062

PURPOSE AND SCOPE: To design, develop, implement and maintain a Geospatial Information Management System for Transportation (GIMS-T). The system supports transportation related decision making by producing high quality map products and reports generated from Enterprise data. The maps convey specific topics of interest that require customer input and the use of complex GIS software. GIM-T staff also supports GIS projects initiated by other ODOT Divisions. GIS services are offered to ODOT staff and customers outside the Department. An intranet GIS enterprise-wide portal is available to anyone having access to the ODOT network. The web portal is known as the Geographical Resource Intranet Portal (GRIP). An internet application known as GRIP-Lite is also supported and is made available to the general public. The efficient use of resources requires a considerable investment in training for GIMS-T staff. The system utilizes aerial photography, global positioning data and other sources of data. The data provided includes but is not limited to Road Characteristic Inventory, Highway Needs Study Reports, Construction and Transportation Improvement Programs, Projects under Construction, Crashes and Speed Limits, Pontis Bridge Inventory and Rating Systems, Pavement Management International Roughness Indexes and Structural History, Highway Performance Monitoring System (HPMS), Rail Crossing Inventory, Videolog Inventory and Environmental Information.

ACCOMPLISHMENTS DURING FY 2008: Using state-of-the-art GIS software and custom scripts a series of maps known as the 2009-2016 Construction Work Plan and State Transportation Improvement Plan (STIP) maps were begun. The GIS Team continued working with GeoDecisions, in the improvements to GRIP3 including the ability to turn on and off shields and route text, access to the General Highway and City maps and the integration of the Department's VideoLog system providing a map interface to the videolog images and our Linear Referencing System (LRS). The user is not required to know how the images are indexed and/or referenced. By clicking on a point in the map the user begins viewing videolog at the selected point on the highway system. Some navigation and printing capabilities are also supported. The team generated numerous custom maps such as Bridge Vertical Clearance and Posted Load/Design Load maps used for routing oversize/overweight (OS/OW) trucks, a series of maps based on the 2007 Needs Study Report, updates to the Posted Load Bridge Maps, and continued support for the Environmental Division, with detour, wetland maps, and other maps requested by the NEPA Coordinators, Biologists, and others, updates to both the rural and urban functional classification maps. The GIS Team continues to develop a foundation for an Environmental business layer in the GRIP browser application. A routable road network was created that will be sufficient to support the Department's routing needs to include but not limited to the routing and permitting of oversize / overweight trucks. The GIS Team is continuing to develop a pilot to automate the creation of Point to Point mileages between various populated places within the State. The GIS Team continues to provide limited GeoMedia user support on the GMUSERS Schema. The GIS Team is developing a workflow for accurately reproducing the County Maps using features stored within an Oracle Database. The GIS Team received training in the reading and use of U.S. Census Bureau's 2010 Census Data in preparation for the 2010 Census. The GIS Team is developing 2 new themes under the Bridge Business Layer in GRIP-Lite, one for Vertical Clearance and one for Posted Load/Design Load. The GIS Team is working with Bridge Division, assisting them in developing the ability to accurately locate and collect Latitude\Longitude data for their off-system bridges. The Team is working with the Inventory Section in creating a Template within GeoMedia for the digitizing of the Local Road Database. The team is also assisting the Traffic Division by creating maps showing the location of road segments with narrow or no shoulders, along with the crash data associated with those segments, and also supplying them with the tabular data used to create the maps for their use in analysis of the crash data in relation to the roadway shoulder width\type.

1103	Geographical Information Management System for Transportation (cont)
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PROPOSED ACTIVITIES FOR FY 2009:

Continue in the maintenance of the OSOW Truck Routing and Point to Point Mileage LRS and Applications. Continue working with the consultants on the enhancements to the GRIP Family of products, including the continued integration and improvement of the video log, the integration of the OSOW Truck Routing, and Environmental Business Layers into the GRIP Product(s) including themes within the Bridge Business Layer for Vertical Clearance and Posted Load\Design Load. Using GIS software design and create updated County/Urban Functional Classification Atlases. Utilizing GIS techniques and software develop a workflow for the County Action Report System (CARS) which will allow for increased speed, efficiency, and accuracy in the addition/deletion of roads to/from the Certified County Road Mileage Report, to include the digitizing of the Local Road database. In coordination with the OKDOT Environmental Division, continue to identify needs and develop solutions that will enable them to efficiently and accurately perform their mission. Use existing software (RoboHelp) to create an Index of Workflows for the various products and applications created by the GIS Team. Continue to work with the Bridge Division in accurately locating, capturing Latitude\Longitude, and mapping Off System Bridge locations. Continue the major initiative aimed at CADD integration into the GIS environment. Continue to conduct certified training to personnel in the software products required for the GIS Team to continue to provide efficient and high quality GIS products to customers.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$430,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$402,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$341,000	SPR
	0	STATE

Contact Information	
NAME	Ron Maxwell
TITLE	Acting Transportation Manager II
PHONE	405-521-2727

PURPOSE AND SCOPE: ODOT proposes a joint effort with the Department of Public Safety (DPS) to eliminate the backlog of crashes waiting to be processed at both agencies due to limited resources. By partnering together to contract for the data entry of 90,750 crash data records, both agencies will have current information by June 2009. ODOT provides crash data reports to ODOT Engineering Divisions, City Governments, Tribal Governments, City Police, County Governments and DPS. Crash data is used in Safety analysis, law enforcement placement and roadway, traffic, and bridge design. All crash location data is critical to the implementation of the State Highway Safety Plan.

ACCOMPLISHMENTS DURING FY 2008: New Project

PROPOSED ACTIVITIES FOR FY 2009: Implement a joint project to contract the data entry of approximately 90,750 crash records and locations into the DPS and ODOT crash systems database. Verify locational information through GIS mapping and submit current crash data reports to both agencies. Assessment of backlogged and anticipated crashes to be received through June 2009:

- 2007 Crashes (backlog) 26,250 Records
- 2008 Crashes (backlog) 52,000 Records
- 2009 Crashes (anticipated) 37,500 Records

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$0	SPR
	0	STATE
Estimated Cost for FY 2008	\$0	SPR
	0	STATE
Estimated Cost for FY 2009	\$200,000	SPR
	0	STATE

Contact Information	
NAME	Ginger Miller – Traffic Engineering
TITLE	Transportation Manager II
PHONE	405-522-0985

PURPOSE AND SCOPE: The purpose and scope is to produce county and city CADD 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 supporting graphics.

ACCOMPLISHMENTS DURING FY 2008: Five counties and 43 cities were completed using CADD software from the latest available information, aerial photography and digital data. Counties completed were Coal, Cleveland, Garfield, Murray and Tulsa. The Cartographic Design Section continues to review all workflows with particular emphasis placed on implementing changes that will improve accuracy and boost productivity. The Cartographic Design Section has completed improvements on city and county design and fully implemented Microstation Geographics that allows future graphic integration into most GIS databases.

The 43 following incorporated city maps, listed by county, were drafted using CADD software: (Cities formats have been revised so that they are geospatially referenced within the Oklahoma Coordinate System.) Five major municipalities with substantial growth are shown in **bold** letters.

Coal County

Bromide, Centrahoma, Coalgate, Lehigh, Phillips and Tupelo

Cleveland County

Etowah, Lexington, **Moore**, Noble, **Norman** and Slaughterville

Garfield County

Breckenridge, Carrier, Covington, Douglas, Drummond, **Enid**, Fairmont, Garber, Hillsdale, Hunter, Kremlin, Lahoma, N. Enid and Waukomis

Murray County

Davis, Dougherty, Hickory, Scullin and Sulphur

Tulsa County

Bixby, **Broken Arrow**, Collinsville, Glenpool, Jenks, Liberty, Lotsee, Owasso, Sand Springs, Skiatook, Sperry and **Tulsa**

Special map graphics and other supporting graphics were produced as needed for the Planning & Research Division's reports and to facilitate other ODOT SPR projects.

PROPOSED ACTIVITIES FOR FY 2009: The Cartographic Design Section will continue drawing all county and city maps in a geospatially referenced format that will allow future usage compatibility and improved accuracy. Three county maps in progress are: Comanche, Craig and Pushmataha with a goal to complete eight or more counties in the coming year. All maps currently in CADD format will be updated as highway system revisions are completed that affect alignments, interchanges or numbers of lanes. Map design features will be integrated into the Oracle Spatial database to facilitate the use of map features from Cartographic Design to GIS Management Sections needs and for use by other governmental agencies.

1201	County, City and other Planning Maps (continued)
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ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$272,300	SPR
	0	STATE
Estimated Cost for FY 2008	\$261,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$272,000	SPR
	0	STATE

Contact Information	
NAME	Ron Maxwell
TITLE	Acting Transportation Manager II
PHONE	405-521-2727

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 11,700 on the secondary system which 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 2008: Short duration traffic counts were conducted at designated highway locations as well as on county roads and city streets throughout FY 2008. Initiated for the first time this year was the implementation of the Short-Duration Traffic Count Contract, awarded to Roadway Data Systems Corporation, which conducted traffic count data collection and reporting and site location and description verification at the 1300 highway system and off system count locations in Tulsa County. The Oklahoma Traffic Count Information System Web Page was continuously updated throughout the year.

PROPOSED ACTIVITIES FOR FY 2009: Highway system and off system counts will continue to be conducted in FY 2009. The Short Duration Traffic Count Contract will be renewed for a 2nd year for the completion of approximately 2,000 designated highway, county, and city street locations in Oklahoma County. A new contract will be initiated and awarded for the development of enhanced features to the Oklahoma Traffic Count Information System Web Page, which will include incorporation of truck traffic percentages. The contract will also include web page maintenance and support and the collection of latitude/longitude for off-system sites.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$667,100	SPR
	0	STATE
Estimated Cost for FY 2008	\$667,100	SPR
	0	STATE
Estimated Cost for FY 2009	\$855,600	SPR
	0	STATE

Contact Information	
NAME	Richard Sumpter
TITLE	Transportation Manager II
PHONE	405-736-9466

PURPOSE AND SCOPE: To collect hourly traffic data by lane for traffic monitoring design needs. There are 62 Automatic Vehicle Classification (AVC) station locations and 22 Weigh-in-Motion (WIM) station 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 provided for operational support are maintained for all permanent stations through accounts with 16 different electric power companies and 13 different telephone companies.

ACCOMPLISHMENTS DURING FY 2008: The conversion of Automatic Traffic Recorder (ATR) sites to AVC sites which was completed in FY 2007 was followed up in FY 2008 with the effort to convert site electric utilities from AC power to solar power. The objective is to reduce electric utility costs at all sites where solar power can be installed. In conjunction with this effort, the University of Oklahoma's research study entitled "Traffic Data Collection Using Wide Area Wireless, GPRS" which was initiated in FY 2007 to support exploring alternatives to data communication media other than land line telephone, was renewed for a 2nd year in FY 2008 under this item number. The progress made in this year's effort resulted in the successful deployment of digital wireless data communications at 30 of the existing continuous count traffic monitoring stations. Deployments, involving the testing of different wireless service providers, have demonstrated the capability of traffic data transfer to an IP address on the internet to facilitate import into the department's Traffic Operations and Planning Software data base at a significant increased speed as compared to land line telephone data download.

PROPOSED ACTIVITIES FOR FY 2009: Additional traffic monitoring sites to be constructed in FY 2009 are planned to be equipped with solar power to continue the utilities cost reduction effort. Additionally, the wireless communications study conducted by the University of Oklahoma will be renewed for a 3rd year. The scope of this study in FY 2009 will focus on: 1) deployment of digital wireless data communications at the remaining permanent traffic monitoring stations, 2) development of software supporting remote programming and configuration of traffic data recorders, 3) development of software allowing for the addition of multiple analog sensors to the communications terminal unit, 4) development of remote diagnostics for trouble shooting, and 5) development of a power monitoring system for calculating charging rate and power consumption rate to adjust wireless transmission frequency. In the area of traffic monitoring equipment repair and maintenance, additional expenditures are programmed in FY 2009 to support firmware and memory storage enhancements in several of the older data recorders.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$388,400	SPR
	0	STATE
Estimated Cost for FY 2008	\$388,400	SPR
	0	STATE
Estimated Cost for FY 2009	\$466,000	SPR
	0	STATE

Contact Information	
NAME	Richard Sumpter
TITLE	Transportation Manager II
PHONE	405-736-9466

PURPOSE AND SCOPE: To improve the efficiency of the traffic counting operation by systematic replacement of older outdated equipment and stolen or damaged equipment as well as support of increased equipment requirements resulting from expanded operations.

ACCOMPLISHMENTS DURING FY 2008: Equipment purchases executed in FY 2008 continued to support on-going projects in traffic monitoring systems operations in both permanent sites and short-duration count site locations. Specifically, these purchases consisted of 1) traffic counters and traffic count / classifiers for the Permanent Traffic Count Program and the Continuous Count Program, 2) solar panels and accessories for the on-going project for site power conversion, 3) wireless communications terminals for the on-going wireless communications deployment in support of data collection at the permanent traffic monitoring stations. Additionally, GPS units and accessories were purchased in support of updating the site location description data base from which data is transferred to the Oklahoma Traffic Count Information System Web Page. The Road Data Section executed purchases in support of instruments and hardware required to meet data collection requirements under the HPMS program.

PROPOSED ACTIVITIES FOR FY 2009: The proposed construction of new traffic monitoring stations, the conversion to solar power and digital wireless data communications, and the continuing requirement for additional GPS equipment comprises the majority of the expenditure requirement for FY 2009. As older, out-dated data recorders become uneconomically repairable and obsolete, timely replacement becomes vital to maintaining data integrity and continuity of operations in the permanent traffic monitoring stations and particularly the short duration count program which depends on hardware availability and continuous replacement of road tubes and accessories. In FY 2009, the department will experience a significant surge in both solar energy conversion and accelerated deployment of the digital wireless data communication network at the permanent sites.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$208,300	SPR
	0	STATE
Estimated Cost for FY 2008	\$175,400	SPR
	0	STATE
Estimated Cost for FY 2009	\$222,300	SPR
	0	STATE

Contact Information	
NAME	Richard Sumpter
TITLE	Transportation Manager II
PHONE	405-736-9466

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 2008: Vehicle data collection continued at the short term sites in support of the Traffic Analyst's effort in the development of updated annual average truck volumes. During FY 2008, special studies were conducted throughout the year providing timely data for planners and designers in the department's central office divisions as well as for construction and maintenance managers in the eight field divisions. The type and scope of these various special studies and the activities to which the data was provided are as follows:

(A) For the Data Collection Branch	(C) For the Traffic Engineering Division
1 - Turning movements with pedestrian counts	54 - Turning movements with pedestrian counts
10 - (24 hour) Hourly Machine Counts	114 - (24 hour) Hourly Machine Counts
1 - (24 hour) Cumulative Machine Counts	8 - (24 hour) Cumulative Machine Counts
136 - (24 hour) Vehicle Classification Counts	0 - (24 hour) Vehicle Classification Counts
(B) For the Engineering Services Branch	(D) For other Divisions
16 - Turning movements with pedestrian counts	0 - Turning movements with pedestrian counts
260 - (24 hour) Hourly Machine Counts	2 - (24 hour) Hourly Machine Counts
14 - (24 hour) Cumulative Machine Counts	2 - (24 hour) Cumulative Machine Counts
9 - (24 hour) Vehicle Classification Counts	0 - (24 hour) Vehicle Classification Counts
	0 - (24 hour) Vehicle Gap Study

PROPOSED ACTIVITIES FOR FY 2009: The vehicle classification counting program for FY 2009 will be supplemented with the new contract with Roadway Data Systems Corporation (see Item 1301) for collection of multi-lane urban and rural classification data in the Oklahoma City Metro area and the odd year rural classification sites in excess of two lanes. Additional classification counts will be conducted in accordance with the annual cycle of designated highway systems and county and city systems programmed for this year. Data collected from the newly constructed Automatic Vehicle Classification (AVC) permanent sites will provide for enhanced input for updated seasonal, axle, and day-of-week factor development.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$414,500	SPR
	0	STATE
Estimated Cost for FY 2008	\$214,500	SPR
	0	STATE
Estimated Cost for FY 2009	\$447,800	SPR
	0	STATE

Contact Information	
NAME	Richard Sumpter
TITLE	Transportation Manager II
PHONE	405-736-9466

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 and 66 Automatic Vehicle Classification (AVC) sites located throughout the state.

ACCOMPLISHMENTS DURING FY 2008: The new Traffic Monitoring System (TMS) Operations and Maintenance Contract became active in FY 2008 and with it provided enhanced services and expertise particularly in the area of data collection and systems validation. The TMS site operational rate experienced a marked increase. Additionally, improved systems diagnostics and trend analysis provided by contract data systems experts have resulted in a much needed systems approach towards operations and maintenance support as evident in the detailed construction and renovation project coordination executed during this period. The scope of work accomplished during FY 2008 includes:

- 1) Data Collection and systems validation of 86 permanent sites
- 2) Classification video data collection and analysis
- 3) Construction of three (3) new AVC sites
- 4) Renovation of fourteen (14) existing sites (6 WIM and 8 AVC)
- 5) Scheduled maintenance and calibration for 20 WIM sites and 64 AVC sites

PROPOSED ACTIVITIES FOR FY 2009: The 2nd year renewal of the Traffic Monitoring System Operations and Maintenance Contract will commence with new construction projects identified and planned during FY 2008. Several of these new projects were submitted by the Traffic Analyst as necessary to emphasize specific functional classifications of roadways which require additional continuous count sites at specific locations for improved accuracy in computing seasonal, axle, and day-of-week factors for short-duration site AADT development. The on-going conversion to solar power for permanent stations continues to indicate improvement in the site operational rates. The testing and deployment of digital wireless data communications demonstrates an efficient streamlining of the data collection process. Classification video data collection and analysis has become beneficial in evaluating the accuracy of motorcycle counts. The scope of work to be accomplished in FY 2009 is as follows:

- 1) Increase the continuous count site inventory to 90 permanent sites
- 2) Continue and expand classification data collection and analysis
- 3) Continue solar power conversion and wireless communications deployment
- 4) Execute scheduled maintenance for up to 90 sites
- 5) Complete site renovations at 12 permanent sites

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$1,144,800	SPR
	0	STATE
Estimated Cost for FY 2008	\$1,144,800	SPR
	0	STATE
Estimated Cost for FY 2009	\$1,166,600	SPR
	0	STATE

Contact Information	
NAME	Richard Sumpter
TITLE	Transportation Manager II
PHONE	405-736-9466

1308**Traffic Monitoring System**

PURPOSE AND SCOPE: The Oklahoma Traffic Monitoring System (TMS) is a comprehensive statewide traffic data gathering, editing and reporting system created to fulfill the requirements of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The purpose of TMS is to computerize traffic estimation and reporting, including data from public and private non - state government entities.

ACCOMPLISHMENTS DURING FY 2008: Annual processing was completed for the traffic year 2007 and the data was checked for accuracy. The annual publication of the 2007 AADT map was completed.

PROPOSED ACTIVITIES FOR FY 2009: Revise and restructure the existing traffic count programs, including adding more vehicle classification sites and initiate a plan to estimate annual truck traffic statewide. 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 2007 Oklahoma Traffic Characteristics Report. Continue gathering data and prepare for the production of the Annual Average Daily Traffic Map.

ESTIMATED TOTAL COST	Continuing	Fund
Programmed Amount for FY 2008	\$161,700	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$150,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$170,000	SPR
	\$0	STATE

Contacts	PROGRAM MANAGER	PROJECT MANAGER
NAME	Daryl G. Johnson, P.E.	Mike Woodhams
TITLE	Professional Engineer	Transportation Manager
PHONE	405-522-6376	405-522-3793

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 Annual Average Daily Traffic (AADT), percent of trucks of the DHV, and the percent of heavy trucks of the AADT are prepared for each request of design traffic information.

ACCOMPLISHMENTS DURING FY 2008: 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 58 requests for design traffic were completed. Several consultant traffic analyses were overseen and edited.

PROPOSED ACTIVITIES FOR FY 2009: 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. Remain informed of technological advances through attendance of seminars, conferences and workshops.

ESTIMATED TOTAL COST	Continuing	Fund
Programmed Amount for FY 2008	\$161,700	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$150,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$170,000	SPR
	\$0	STATE

Contacts	PROJECT ENGINEER	PROJECT MANAGER
NAME	Daryl G. Johnson, P.E.	Paul T. Hagar
TITLE	Professional Engineer	Transportation Manager
PHONE	405-522-6376	405-522-6713

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 special testing conducted as required.

ACCOMPLISHMENTS DURING FY 2008: The annual test cycle for FY 2008 encompassed pavement friction testing of highways in Divisions 4 and 8, which include the metro areas of Oklahoma City and Tulsa. The new Pavement Friction (Skid) Testing System purchased in FY 2007 was in its 2nd year of use in this year's test cycle and again experienced increased productivity in test miles. This year's testing cycle totaled 7,100 miles. The new system's software provides for efficient and streamlined reporting. Highway mileage with less than adequate skid resistance registers an average of approximately 8 percent.

PROPOSED ACTIVITIES FOR FY 2009: The annual test cycle for FY 2009 is planned for the highways in Divisions 1, 2 & 3 and is scheduled to be completed by this spring. This cycle's testing encompasses all state, federal and interstate highways totaling approximately 10,460 miles. In addition during FY 2009, the Pavement Friction Testing System Truck & Trailer will undergo formal calibration at the Central Field Test and Evaluation Center, Texas Transportation Institute (operated by FHWA) in College Station Texas.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$153,600	SPR
	0	STATE
Estimated Cost for FY 2008	\$150,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$175,000	SPR
	0	STATE

Contact Information	
NAME	Richard Sumpter
TITLE	Transportation Manager II
PHONE	405-736-9466

1403**ODOT Manual Update**

PURPOSE AND SCOPE: To revise and update the various Manuals used by ODOT according to Department, AASHTO, FHWA, and other appropriate Agencies' design criteria, policies, and procedures

ACCOMPLISHMENTS DURING FY 2008: Led and took part in Specifications Committee reviews. Started developing ODOT construction manual as a pilot project partly funded by FHWA. Construction manual fund was transferred back to FHWA. Continued participation in Specifications Committee JP# 23659(04) to review consultant's work.

PROPOSED ACTIVITIES FOR FY 2009: End of Project.

ESTIMATED TOTAL COST	Amount	Fund	Job Piece No.
Programmed Amount for FY 2008	\$3,000	SPR	23659(04)
	0	STATE	
Estimated Cost for FY 2008	\$3,000	SPR	23659(04)
	0	STATE	
Estimated Cost for FY 2009	\$0	SPR	
	0	STATE	

Contact Information	
NAME	Siv Sundaram, P.E.
TITLE	Asst. Div. Engineer – Environmental Programs
PHONE	405-522-3791

PURPOSE AND SCOPE: To coordinate implementation, evaluation, and documentation of Oklahoma's Strategic Highway Safety Plan (SHSP) with the assistance of a consultant, and to address SHSP emphasis areas in the development of Oklahoma's Statewide Transportation Improvement Program and Statewide Long Range Transportation Plan.

ACCOMPLISHMENTS DURING FY 2008: Initiated implementation of SHSP. Established Emphasis Area champions from ODOT Planning, ODOT Traffic Engineering, and the Oklahoma Department of Public Safety.

PROPOSED ACTIVITIES FOR FY 2009: Develop strategies and actions to implement the SHSP. Track SHSP progress through use of OnTrack software. Work closely with Traffic Engineering Division and other ODOT divisions as needed. Continue partnerships with Oklahoma Department of Public Safety, FHWA, FMCSA, and other traffic safety groups and agencies.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$20,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$10,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$75,000	SPR
	0	STATE

Contact Information	
NAME	Linda Koenig
TITLE	Transportation Manager
PHONE	405-522-0171

PURPOSE AND SCOPE: The Local Technical Assistance Program (LTAP) is a training program contracted through Oklahoma State University's Center for Local Government Technology to provide technical training and assistance to Oklahoma's 77 county's 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, DVDs 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; and (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 2008: Conducted ten training sessions of the Roads Scholar Program's subjects statewide. Over a thousand county personnel were trained through attendance at the Roads Scholar and other training programs. Continued to publish and distribute to county commissioners various newsletters, papers technical literature and video materials through the LTAP Library and coordinated with ODOT's Research Library. Developed and conducted new training courses as requested by the LTAP Advisory Board and counties, with emphasis on Safety. Continue to develop hands on training through cooperation efforts with industry. LTAP has successfully implemented a Welder's Certification Program. Hands on demonstrations with maintenance equipment sponsored and furnished by national companies were successfully held. LTAP offices continued to serve as the American Public Works Association State Chapter office. Newsletters were published and various literature, tapes, DVD, etc., were distributed.

PROPOSED ACTIVITIES FOR FY 2009: The LTAP Program will continue its positive interaction with the county personnel with the goal of increasing attendance at training sessions throughout the state. Conduct sessions of the Roads Scholar Program and other training programs. Continue to publish and distribute to county commissioners various newsletters, papers technical literature and video materials through the LTAP Library and coordinate with ODOT's Technical Library. Develop and conduct new training courses as requested by the LTAP Advisory Board and counties, with emphasis on Safety. Continue to develop hands on training through cooperative efforts with industry.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$70,000	SPR
	\$47,750.00	STATE
	\$277,247.81	FHWA
Estimated Cost for FY 2008	\$70,000	SPR
	\$47,750.00	STATE
	\$232,799.81	FHWA
Estimated Cost for FY 2009	\$155,552	SPR
	\$47,778	STATE
	\$184,448	FHWA

Contact Information	
NAME	Gary Wallis
TITLE	Program Manager
PHONE	405-521-3385

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 purpose of determining the economic and engineering feasibility of such proposals.

ACCOMPLISHMENTS DURING FY 2008: Reviewed consultant studies as needed.

PROPOSED ACTIVITIES FOR FY 2009: Consultant studies will be overseen as needed. Keep informed of technological advances through attendance of seminars, conferences and workshops.

ESTIMATED TOTAL COST	CONTINUING	Fund
Programmed Amount for FY 2008	\$5,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$2,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$5,000	SPR
	\$0	STATE

Contact Information	
NAME	Daryl G. Johnson, P.E.
TITLE	Professional Engineer III
PHONE	405-522-6376

1511	Project Reconnaissance Information
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PURPOSE AND SCOPE: To implement the new “18 Month Ahead of Schedule Program” authorized by the Director, the study team has developed a list of Project Reconnaissance Data needed to get these projects underway in a more timely fashion. This includes coordination between multi-disciplinary divisions within ODOT to gather preliminary data for project development.

ACCOMPLISHMENTS DURING FY 2008: Revisited the 18 Month Ahead checklists to refine it based on the experience of the Load Posted Bridge data collection. Worked with Project Management to incorporate the list into the scoping process for all projects in the 8 Year Construction Work Plan and develop a Project Initiation/NEPA Checklist. Incorporate any resulting changes to the scoping process in the Environmental Procedures Manual.

PROPOSED ACTIVITIES FOR FY 2009: This project will be continued by the Environmental Programs Division.

ESTIMATED TOTAL COST CONTINUING	Amount	Fund	Job No.	Piece
Programmed Amount for FY 2008	\$5,000	SPR		
	0	STATE		
Estimated Cost for FY 2008	\$5,000	SPR		
	0	STATE		
Estimated Cost for FY 2009	\$0	SPR		
	0	STATE		

Contact Information	
NAME	Siv Sundaram, P.E.
TITLE	Asst. Div. Engineer – Environmental Programs
PHONE	405-522-3791

PURPOSE AND SCOPE: To be responsible for the coordination of the State and United States Highway System, Federal-aid Highway System (includes the Interstate System and National Highway System) and the Functional Classification System. To prepare and coordinate any highway and classification revisions pertaining to these systems. To record, maintain, research, and provide any documents and historical data relating and pertaining to these systems. To communicate, inform and coordinate with city, county, state and federal officials pertaining to these systems.

ACCOMPLISHMENTS DURING FY 2008: Three revisions to the State Highway System: the relocation of US 77 in Norman and Pauls Valley, and the realignment of US 64 south of Haskell in Muskogee County. Completion of 15 county collector and 10 urban for a total of 25 necessary revisions to the Functional Classification System. Completed and sent request to FHWA for proposed reclassification of North McClain, Northeast Grady, and Southeast Canadian Counties for SH 4, SH 9, SH 37 and US 62 to become a principal arterial or a minor arterial with other upgrades of local roads in the area (presently waiting FHWA approval). Reviewed the Functional Classification System of 57 counties for improper routing and made corrections. All 77 counties of the Functional Classification System have been reviewed, resulting in finding 55 improper routing that need correction. Three of the many highway history questions this office received, required an intensive research. The *Oklahoma's Memorial Highways & Bridges* book, except for maps, has been updated for 2007.

PROPOSED ACTIVITIES FOR FY 2009: Make highway revision for the removal of SH 92 in Canadian County. Make approximately 4 to 6 other highway revisions that would be necessary within the State. Do necessary on-site reviews of revisions. The Functional Classification Systems has 55 county collector routes and 26 urban routes that need to be revised for improper routing or connection. Update and publish the *Highway Functional Classification within the State of Oklahoma* booklet and the *Oklahoma's Memorial Highways & Bridges* book 2008.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$152,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$97,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$69,000	SPR
	0	STATE

Contact Information	
NAME	Ron Maxwell
TITLE	Acting Transportation Manager II
PHONE	405-521-2727

PURPOSE AND SCOPE: To estimate the current and future needs of the state highway system using up-to-date software and techniques. To publish a Needs Study and Sufficiency Rating 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 Highway Construction 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. To maintain a database indicating sufficiency ratings for roadways and bridges along with recommended improvements and costs.

ACCOMPLISHMENTS DURING FY 2008: Assembled Top 25 Priority List of critical highways by Commission District. Published and distributed the 2007 Needs Study and Sufficiency Rating Report, Volumes I & II and the Needs Study Top 25 Highway Construction Priority List. Continued conversion of mainframe programs to Windows-based programs.

PROPOSED ACTIVITIES FOR FY 2009: Update the Sufficiency Rating Manual and Field Division Guide. Revise the Needs Study Procedure Manual to correspond with the new Window-based programs. Update the state highway subsections, inventory, and improvement data for the Sufficiency file prior to field collection of pertinent data. Update geometric data contained in the Deficiency file. Begin field data collection. Begin revisions of the Needs Study Report, Volumes 1 & 2. Review, revise, and publish the State Highway Removal Report. Continue conversion of mainframe programs to Windows-based programs.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$75,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$75,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$155,000	SPR
		STATE

Contact Information	
NAME	Wayne Barber
TITLE	Transportation Manager
PHONE	(405) 522-6705

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 2008: Integrated bridge data into ODOT's pavement management system and produced a preliminary analysis. Provided pavement condition data to field divisions for selection of Pavement Preservation Projects (3P). Provided project level reports to Pavement Design/Project Management. Provided recommendations to field divisions on cost-effective methods to manage pavements. Provided technical support for the Intranet Analysis Tool and the video log software. Completed a round of condition data collection and began a new round. Started collecting NHS routes and non-NHS routes including HPMS in Divisions 4 and 8. Started implementing web-based version of video log and coordinated integration with GRIP. Kept informed of the latest technological advances and practices by attending the Southeast Pavement Management Conference.

PROPOSED ACTIVITIES FOR FY 2009: Perform PMS analysis of non-toll Interstate System in Oklahoma. Continue refinement of PMS procedures by updating performance curves, treatment costs, and triggers. Perform PMS analysis of non-toll highway system in Oklahoma. Provide updated pavement condition data for 3P selection process. Provide technical support for the video log software. Keep informed of the latest technological advances and practices through seminars, conferences, and workshops. Collect pavement condition data on the following:

- Non-NHS routes in Divisions 1, 2, 3, 5, 6, and 7
 - HPMS non-highway sample sections in those divisions
 - NHS (only primary direction) for HPMS Reassessment
- Proposed contract for new FWD data collection on NHS system.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$885,600	SPR
	0	STATE
Estimated Cost for FY 2008	\$885,600	SPR
	0	STATE
Estimated Cost for FY 2009	\$1,571,000	SPR
		STATE

Contact Information	
NAME	William Dickinson
TITLE	Acting Branch Manager
PHONE	(405) 522-1448

1700	General Urban Transportation Planning Activities
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PURPOSE AND SCOPE: This item includes managing staff members in Planning & Program Coordination 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 the SPR Report. 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 of the latest technological advances and federal regulations in transportation planning, ITS, etc. through seminars, workshops and reading materials.

ACCOMPLISHMENTS DURING FY 2008: 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 Planning & Program Coordination functions was provided. Coordination with and among local, state and federal officials was continued. Developed technical brochures on Transit and Highway operations for the State Legislature to disseminate information for legislative policies and laws. Monitored federal and state legislation and regulations affecting the Department.

PROPOSED ACTIVITIES FOR FY 2009: Coordination with appropriate ODOT staff members, Field Divisions and local, state and federal officials will be continued. Special attention will be focused on the statewide and urban planning sections in the federal transportation bill, SAFETEA-LU, and its effects on statewide and urban transportation planning. Dissemination of pertinent planning data and information will be accomplished on request. Technical assistance will be provided on request concerning transportation planning and the SAFETEA-LU legislation. Professional enrichment of Planning & Program Coordination members will be pursued through attendance at workshops, seminars and conferences.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$33,500	SPR
	0	STATE
Estimated Cost for FY 2008	\$33,500	SPR
	0	STATE
Estimated Cost for FY 2009	\$33,500	SPR
	0	STATE

Contact Information	
NAME	Linda Koenig
TITLE	Transportation Manager I
PHONE	405-522-0171

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 existing federal regulations and SAFETEA-LU provisions and all applicable transportation planning regulations and requirements for the Oklahoma City urbanized area.

ACCOMPLISHMENTS DURING FY 2008: MPO is in the process of implementing strategies that resulted from completion of the Congestion Management Process, as required by SAFETEA-LU, for the OCARTS area. MPO continued to work with ODEQ on monitoring CO and Ozone levels. Financially assisted in the development of the statewide air quality model, State Implementation Plan (SIP), to maintain compliance with Federal Clean Air Act Provisions and National Ambient Air Quality Standards (NAAQS). Participated in development of 8-Hour Ozone Flex Program with the Oklahoma Department of Environmental Quality and United States Environmental Protection Agency to maintain compliance with Federal Clean Air Act provisions and enhance public awareness of the dangers and implications of attainment and non-attainment of the 8 hour air quality standards in the Oklahoma City metropolitan area. The Clean Air Committee promoted an extensive public education campaign “A Let’s Clear the Air @” and “A Get Your Own Square of Clean Air @”. Continued coordinating services with COTPA for transportation of the Elderly and Disabled. MPO created a Bicycle and Pedestrian Advisory Committee to address the needs of those two groups in the OCARTS area. MPO prepared the FY 2009-2012 OCARTS Area Transportation Improvement Program (TIP). The FY 2009 UPWP was prepared and approved by FHWA & FTA. The FY 2009 Agreement was executed. Federal process review was completed for ACOG transportation planning process. ACOG - ODOT certification process completed. Assisted ACOG staff with obtaining new software for updating the OCARTS. Assisted ACOG staff in preparation of the 2035 OCARTS Long-Range Transportation Plan and attended public involvement efforts associated with the 2035 Plan. Participated in the development of MPO, State, and FHWA procedures for use of In-Kind funds by MPOs.

PROPOSED ACTIVITIES FOR FY 2009: Continue efforts for preparation for the 2035 OCARTS Long-Range Transportation Plan. Review of demographic areas in the OCARTS area for assessing high growth areas in the Oklahoma City metropolitan area. Continue development and refinement of the transit model for OCARTS. Participate in the ongoing process to implement strategies recommended in the COTPA Fixed Guideway study. Continue coordination with collection and assessment of socioeconomic data and transportation data. Continue coordination with air quality efforts in implementation of the 8-Hour Ozone Flex Program and implementation of ozone control measures relating to transportation sources. Continue Program Coordination and Local Technical Assistance for OCARTS area. Begin work on updating the Regional Travel Demand Model. Maintain staff training and dissemination of planning documents. Continue management of the planning process and updating of socioeconomic and traffic data for the Oklahoma City area.

1701	Oklahoma City Area Regional Transportation Study (OCARTS) (cont.)
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ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$20,000	SPR
	0	STATE
	\$1,141,808	PL Funds
	\$0	Local
	\$200,000	In-Kind
Estimated Cost for FY 2008	\$20,000	SPR
	0	STATE
	\$1,005,839	PL Funds
	\$149,200	Local
	\$200,000	In-Kind
Estimated Cost for FY 2009	\$20,000	SPR
	0	STATE
	\$1,748,371	PL Funds
	\$150,000	Local
	\$200,000	In-Kind

Contact Information	
NAME	Jay Adams
TITLE	Transportation Manager III
PHONE	405-521-2175

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 existing federal regulations and SAFETEA-LU provisions and all applicable transportation planning regulations and requirements for the Tulsa urbanized area.

ACCOMPLISHMENTS DURING FY 2008: Continued development of the Regional Transportation Plan, Connections 2035. Preparation and finalization of the FY 2009 UPWP was completed. The FY 2009 Agreement was executed and authorization to expend federal funds effective July 1, 2008 through June 30, 2009 was granted by FHWA. The Transportation Improvement Program (TIP) for FFY 2008-2011 was developed, maintained and amended as necessary. Applications for FFY 2011 STP-UZA program were reviewed and selected for funding. Continued the coordination of the Ozone Alert, Clean Cities and Green Traveler Alternative programs. Reviewed and analyzed the Congestion Management Process and implemented modified system. Assisted in the planning, funding and development of the Bicycle/Pedestrian Trail system as well as developed a pedestrian master plan for the region.

PROPOSED ACTIVITIES FOR FY 2009: Data collection and monitoring of social, economic, environmental and transportation system data; Simulation and Forecasting of land use, travel demand for the Destination 2030 Plan and mobile emissions models; Long Range Planning including major streets and highways, comprehensive and regional transportation plans and coordination; Short Range Planning including the Congestion Management Process, ITS, Safety Management and special studies; Program implementation of the TIP, Urbanized Area Surface Transportation Program and project coordination and monitoring; Alternative Transportation planning including Pedestrian and Bicycle, Public Transit, Human Services Transportation and Passenger Rail; Transportation Effects of air quality, ozone reduction and environmental programs; Public education planning of the PPP, nondiscrimination compliance plan and conducting broad-based public involvement activities; Program administration and implementation of the FY 2009 UPWP and MTTA Program.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$25,000	SPR
	0	STATE
	\$764,755	PL Funds
	\$152,951	Local Funds
Estimated Cost for FY 2008	\$25,000	SPR
	0	STATE
	\$757,052	PL Funds
	\$189,263	Local Funds
Estimated Cost for FY 2009	\$16,500	SPR
	0	STATE
	\$760,619	PL Funds
	\$190.155	Local

Contact Information	
NAME	Dawn Borelli
TITLE	Transportation Manager I
PHONE	405-521-6433

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 existing federal regulations and SAFETEA-LU provisions and all applicable transportation planning regulations and requirements for the Lawton urbanized area.

ACCOMPLISHMENTS DURING FY 2008: Transportation Planning for the Lawton Metropolitan Area was carried out as described in the FY 08 Unified Planning Work Program. During FY 08 a number of other essential transportation projects were completed including the adoption of the following documents: FY 09 UPWP, 2030 Long Range Transportation Plan, Audit of the finances, FFY 09-12 TIP, and the Bicycle & Pedestrian Plan. The LMPO website was maintained and updated by staff and they developed and implemented the Air Quality Education and Public Information Campaign.

PROPOSED ACTIVITIES FOR FY 2009: Management and monitoring of the transportation planning process – compliance with administrative, financial and legal requirements for maintaining a continuous, cooperative and comprehensive process. Monitor changes in demographic characteristics and land use to ensure transportation projections are compatible with current patterns. Undertake planning activities leading to the development and implementation of the short-range (5) year elements of the 25 year Long Range Transportation Plan. Develop policies and plans regarding transportation areas such as air quality, reducing congestion and preserving street network capacity. Develop policies and plans regarding transportation areas such as air quality, freight planning, bicycle and pedestrian safety and education, reducing congestion and preserving street network capacity.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$15,000	SPR
	0	STATE
	\$233,168	PL Funds
	\$35,000	Local
Estimated Cost for FY 2008	\$ 15,000	SPR
	0	STATE
	\$222,966	PL Funds
	\$34,471	Local
Estimated Cost for FY 2009	\$15,900	SPR
	0	STATE
	\$130,172*	PL Funds
	\$32,543	Local

Contact Information	
NAME	Julie Sanders
TITLE	Transportation Manager I
PHONE	405-521-2705

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 existing federal regulations and SAFETEA-LU and all applicable transportation planning regulations and requirements for the Fort Smith urbanized area.

ACCOMPLISHMENTS DURING FY 2008: Tasks listed in the FY 08 UPWP were completed. General administrative functions and coordination among the local, state, and federal agencies were continued. The MPO website was updated to allow non-English speakers to access documents. Researched GIS software for demographic and graphics. Published Annual Listing of Obligated Projects. Developed concept and agenda for Freight Summit scheduled for FY 09. Updated Safety Plan and Transit Plan. Continued to gather information to support MPO boundary expansion.

PROPOSED ACTIVITIES FOR FY 2009: 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 area. Organize and facilitate the Freight Summit. Initiate the provisions of the 2035 LRTP. Continue staff education, training and attendance at workshops and seminars. Continue work on the development of the area transit plan.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$6,000	SPR
	0	STATE
	\$22,000	PL Funds
	\$5,000	Local
Estimated Cost for FY 2008	\$ 6,000	SPR
	0	STATE
	\$18,954	PL Funds
	\$4,739	Local
Estimated Cost for FY 2009	\$6,600	SPR
	0	STATE
	\$19,091	PL Funds
	\$4,773	Local

Contact Information	
NAME	Julie Sanders
TITLE	Transportation Manager I
PHONE	405-521-2705

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

ACCOMPLISHMENTS DURING FY 2008: Began development of the SAFETEA-LU compliant FFY 2009-2012 Statewide Transportation Improvement Program (STIP) for approval and implementation. Maintained and amended the FFY 2007 – 2010 STIP as the proposed FFY 2008 – 2011 was not developed due to unforeseen funding issues. Maintained the STIP through the following amendment process:

All amendments to the FFY 2007-2010 STIP and TIPs were in accordance with the federally approved *STIP and TIP Amendment Procedures*. 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 and SAFETEA-LU, regarding publication of project amendments.

Revised the *Procedures for Developing and Amending the STIP and TIP* in coordination with the Federal Highway Administration, Federal Transit Administration, ACOG, INCOG, LMPO and Bi-STATE.

PROPOSED ACTIVITIES FOR FY 2009: Attain federal approval of the FFY 2009 - 2012 Statewide Transportation Improvement Program for implementation. Maintain the FFY 2009 portion of the STIP based upon the revision of the ODOT 8 Year Construction Work Plan. Continue to comply with the procedures for consultation with non-metropolitan local officials. Review the TELUS information management system for probable use in the State and MPO transportation planning process.

ESTIMATED TOTAL COST	Continuing	Fund
Programmed Amount for FY 2008	\$65,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$65,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$51,000	SPR
	0	STATE

Contact Information	
NAME	Dawn Borelli
TITLE	Transportation Manager I
PHONE	405-521-6433

1901	Oklahoma Pollutant Discharge Elimination System (OPDES) Municipal Separate Storm Sewer System (MS 4) Permits
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PURPOSE AND SCOPE: The United States Environmental Protection Agency (EPA) has promulgated regulations in 40 CFR 122 requiring DOT's to obtain a permit for their separate storm sewer systems. ODOT is required under this regulation to obtain a permit for its storm water runoff system within the boundaries of regulated cities of Oklahoma. ODOT selected the option to be a co-permittee with the City of Oklahoma City and Tulsa in obtaining an OPDES Phase I permit and is required to be permitted under Phase II of the same regulation. ODOT requires assistance to develop and implement the Storm water Program required under this permit to cover ODOT under Phase II.

ACCOMPLISHMENTS DURING FY 2008: Continued development of Phase II permit and program. Reviewed and coordinated consultant work. The consultant was hired in FY 2006 to develop ODOT's MS4 Storm water program within urbanized areas as required by the MS4 permits issued by Department of Environmental Quality. The benefit of this project will help ODOT maintain compliance with the MS4 permit through implementation of program mandates in the permit and included in ODOT's Storm Water Management Plan. This project will be completed by the Environmental Programs Division of ODOT.

PROPOSED ACTIVITIES FOR FY 2009: End of Program for SPR.

ESTIMATED TOTAL COST CONTINUING	Amount	Fund	Job No.	Piece
Programmed Amount for FY 2008	\$835,000	SPR		
	0	STATE		
Estimated Cost for FY 2008	\$835,000	SPR		
	0	STATE		
Estimated Cost for FY 2009	\$0	SPR		
	0	STATE		

Contact Information	
NAME	Dawn Sullivan, P.E.
TITLE	Div. Engineer – Environmental Programs Div.
PHONE	405-521-2927

1902**Statewide Long Range Transportation**

PURPOSE AND SCOPE: To update the Statewide Intermodal Transportation Plan (SITP) and other associated statewide planning activities in accordance with the provisions of SAFETEA-LU. To conduct and/or participate in the development of plans relating to Transportation Improvement Corridors and other corridors identified in the SITP.

ACCOMPLISHMENTS DURING FY 2008: Developed and initiated consultant contract for the 2010-2035 Statewide Intermodal Transportation Plan (SITP). Began the process of gathering preliminary data for use in developing the 2010-2035 SITP. Initiated Engineering and Feasibility Study for SH 51 urban corridor in the City of Stillwater.

PROPOSED ACTIVITIES FOR FY 2009: Continue development of the 2010-2035 Statewide Intermodal Transportation Plan. Continue to monitor transportation, legislative and demographic trends relative to SAFETEA-LU. Initiate, participate and/or complete corridor studies on Transportation Improvement Corridors or other corridors in the State. Continue to attend conferences and training courses related to Statewide and Corridor planning and grant applications.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$200,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$50,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$300,000	SPR
	0	STATE

Contact Information

NAME	Linda Koenig
TITLE	Transportation Manager I
PHONE	405-522-0171

1903**Intelligent Transportation Systems Planning**

PURPOSE AND SCOPE: Incorporate Intelligent Transportation Systems (ITS) into the transportation planning process in compliance with the provisions of the transportation bill 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 and Regional Architectures and related ITS standards.

ACCOMPLISHMENTS DURING FY 2008: Assisted with ITS and CVISN contracts and administration.

PROPOSED ACTIVITIES FOR FY 2009: Continue to process ITS funded contracts/invoices for the systems analysis, design, and deployment of Oklahoma's CVISN Program plan projects. Update the Statewide ITS Plan and Architecture. Assist MPOs and individual cities in maintenance of their regional ITS and architecture. Coordinate ITS and other technology based transportation research contracts and activities.

ESTIMATED TOTAL COST	CONTINUING	Fund
Programmed Amount for FY 2008	\$10,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$100,000	SPR
	\$0	STATE

Contact Information	
NAME	Ron F. Curb, P.E., CPM
TITLE	Engineering Manager
PHONE	405-522-3795

1904	Air Quality Transportation Planning
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PURPOSE AND SCOPE: Monitor and participate in air quality transportation planning developments relating to requirements of the Clean Air Act Amendments and SAFETEA-LU. Represent the Department in air quality nonattainment and transportation conformity developments and actions, if necessary. Analyze and comment on air quality nonattainment and transportation regulations and law. Maintain information flow to and from decision-makers regarding air quality/transportation issues, developments, regulations and laws. Develop staff personnel to participate in air quality/transportation planning. Enable the Department to be a progressive participant in reducing the impacts of transportation-related pollution.

ACCOMPLISHMENTS DURING FY 2008: 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 and implementation of 8-Hour Ozone Flex Agreements for the Oklahoma City and Tulsa Metropolitan areas.

Other accomplishments: Researched and developed resource materials on air quality and transportation issues; and reviewed and commented on MPO air quality education programs. Coordinated the planning process for air quality modelling funding and actions between the States, MPOs, ODOT, and the ODEQ; monitored air quality regulations on new ozone and particulate matter standards proposed by the Environmental Protection Agency (EPA) for NAAQS. Attended conferences on air quality planning and regulations.

PROPOSED ACTIVITIES FOR FY 2009: Maintain participation in the 8-Hour Ozone Flex Agreements for the Oklahoma City and Tulsa Metropolitan Planning Organizations with ODEQ and EPA to help maintain air quality attainment status if high ozone readings persist through the next fiscal year. 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 through possible 8-hour ozone flex agreements with ODEQ and EPA. Provide data for air quality modelling 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.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$12,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$10,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$915,000	SPR
	0	STATE

Contact Information	
NAME	Jay Adams
TITLE	Transportation Manager III
PHONE	405-521-2175

PURPOSE AND SCOPE: To coordinate freight planning and freight analysis with the Statewide Intermodal Transportation Plan, Statewide Transportation Improvement Program (STIP), and project development processes.

ACCOMPLISHMENTS DURING FY 2008: New Item

PROPOSED ACTIVITIES FOR FY 2009: Establish a framework and schedule for ongoing freight data collection and analysis. Involve private sector freight stakeholders, of various modes, in the freight planning process. Establish a framework for interagency, intergovernmental and intermodal cooperation and coordination. Identify gaps between existing freight system conditions and capabilities and projected freight transportation needs for the State. Collaborate with the Statewide Intermodal Transportation Plan and STIP process in addressing freight solutions on the designated transportation improvement corridors identified in the Statewide Plan. Identify and explore funding strategies for freight projects. Coordinate with Engineering Services Branch (Research Section) on implementing a freight component for travel demand models applicable in the State.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$40,000	SPR
	\$0	STATE

Contact Information	
NAME	Julie Sanders
TITLE	Transportation Manager I
PHONE	405-521-2705

PURPOSE AND SCOPE: To provide visual aides for the Public Involvement for Statewide Transportation Improvement Plan (STIP) and NEPA Process. Section 6001of SAFETEA-LU specifically states that the State shall employ visualization techniques to describe plans for the public comment in the development of STIP. In addition, the visualization techniques will be useful in the Public Involvement required under 23 CFR 771.111 for Environmental Impact Procedures, 40 CFR 1500-1508 for implementation of NEPA, 36 CFR 800 for the Section 106 of National Historic Preservation Act, and Section 4(f) of the Department of Transportation Act.

ACCOMPLISHMENTS DURING FY 2008: No activity. The position was not filled.

PROPOSED ACTIVITIES FOR FY 2009: Provide visualization of proposed projects for the STIP. Provide visualization of existing and proposed conditions for presentation to public and other agencies at public and stakeholders meetings for planning purposes. Provide for public involvement for environmental, planning and construction projects. If unable to fill a position, then hire consultants to provide visualizations for public involvement and meetings.

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$3,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$0	SPR
	0	STATE
Estimated Cost for FY 2009	\$140,000	SPR
	0	STATE

Contact Information	
NAME	Craig Moody
TITLE	Transportation Manager II
PHONE	405-522-1465

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 ODOT's construction program as well as local government projects funded with federal funds and special projects such as enhancement project and safe routes to school projects, including necessary reevaluation and consultation with FHWA regarding existing environmental clearances. It also includes coordination with the Department's public involvement specialist, Planning & Research environmental specialists, other ODOT Divisions, the interested public, stakeholders, elected officials, FHWA, NEPA service providers, and others as necessary to ensure compliance with NEPA in the development of ODOT's work plan. Major issues considered in the NEPA process include, historic and archaeological resources, endangered species and other habitat concerns, hazardous materials, wetlands, farmland, noise, air quality, and social and economic impacts, especially any disproportionate impacts to minorities and low income communities. The input of appropriate federal and state agencies, Native American tribes, and other entities is solicited, necessary environmental studies are requested or contracted, plans for public involvement developed when necessary, and findings presented. Preparation of documents is accomplished in-house and by consultants retained for this purpose. 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, final documents are provide to FHWA for execution of appropriate concurrences, FONSI's and ROD's.

ACCOMPLISHMENTS DURING FY2008: Continued to improve communication with FHWA and other federal/state agencies to streamline NEPA process and improve compliance. Participated 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. NEPA studies will be funded with other funding sources

PROPOSED ACTIVITIES FOR FY2009: End of Project

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$150,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$150,000	SPR
	0	STATE
Estimated Cost for FY 2009	\$0	SPR
	0	STATE

Contact Information	
NAME	Siv Sundaram, P.E.
TITLE	Assistant Division Engineer
PHONE	405-522-3791

1980	Environmental Studies (Environmental Affairs and Specialist Studies)
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PURPOSE AND SCOPE: This includes detailed studies required to ensure ODOT compliance with all applicable state and federal laws and regulations protecting all aspects of the human and natural environment. A principal focus is providing studies and reviews to support NEPA documents assembled under Item 1979 and consultation on FHWA's behalf with a variety of state and federal resource protection agencies and Tribes. Environmental specialists also provide assessments and reviews as needed for long-range planning and corridor studies, mitigation of impacts identified during NEPA review, ongoing coordination with regulatory agencies and other ODOT Divisions to ensure implementation of special environmental protection measures during construction, maintenance, and operation, and provide expert interpretations to ODOT and FHWA regarding current and proposed legislation/regulation protecting the environment. Special environmental reviews are also undertaken for other ODOT traffic, construction, maintenance, and enhancement activities. In addition to undertaking in-house studies, environmental specialists review, approve, and submit consulted studies to appropriate resource agencies. Expertise is maintained in wetland biology, plant ecology, endangered species protection, Corps permitting requirements, archaeology, architectural history, tribal coordination and cultural anthropology, historic preservation policy, environmental health and hazardous waste issues, noise evaluation and mitigation, social and economic impacts, and general NEPA policy. As needed, additional expertise is retained through consultant contracts.

ACCOMPLISHMENTS DURING 2008: Continued Interagency Cooperative funding agreement with USFWS to retain dedicated reviewers for ODOT projects and expedite review processes. Continue working toward establishment of wetland and hardwood forest banks. 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. The interagency agreement with University of Oklahoma and all Specialist Studies will be funded with other funding sources

PROPOSED ACTIVITIES FOR 2008: End of Project

ESTIMATED TOTAL COST	Amount	Fund
Programmed Amount for FY 2008	\$150,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$150,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

Contact Information	
NAME	Siv Sundaram, P.E.
TITLE	Assistant Division Engineer
PHONE	405-522-3791

FEDERAL FISCAL YEAR 2009
OKLAHOMA PROJECT SPRY -0010(046) RS, JP # 01946(52)
Part 2

<u>PROGRAM</u>	<u>SPR</u>	<u>STATE</u>	<u>LOCAL</u>	<u>TOTAL</u>
2100 Transportation Research Board	\$5,000.00	\$0.00		\$5,000.00
2102 Research Library Services	\$140,000.00	\$0.00		\$140,000.00
2115 Long Term Pavement Performance	\$10,000.00	\$0.00		\$10,000.00
2120 Technical Assistance - Special Studies	\$270,000.00	\$0.00		\$270,000.00
2130 General Research Activity	\$1,015,250.00	\$0.00		\$1,015,250.00
2700 Experimental Product and Evaluation Program	\$10,000.00	\$0.00		\$10,000.00
Total General Activities	\$1,450,250.00	\$0.00	\$0.00	\$1,450,250.00
2156 Roadside Vegetation Management	\$188,336.00	\$0.00		\$188,336.00
2157 Herbicide Research Program	\$66,000.00	\$0.00		\$66,000.00
2160 Oklahoma Transportation Center	\$500,000.00	\$0.00		\$500,000.00
2172 Evaluation of ODOT's Percent Within Limits (PWL) Construction Specifications	\$0.00	\$0.00		\$0.00
2177 Determination of Dynamic Modulus Master Curves for Oklahoma Hot Mix Asphalt (HMA) Mixtures	\$0.00	\$0.00		\$0.00
2178 Evaluation of Cold, In-Place Recycling for Rehabilitation of Transverse Cracking on US 412	\$0.00	\$0.00		\$0.00
2182 Task Order Contract for Specified Research Items	\$0.00	\$0.00		\$0.00
2184 Creation of an ODOT Specification for Patching or Overlay of Bridge Decks	\$0.00	\$0.00		\$0.00
2185 Engineering Properties of Stabilized Subgrade Soils for Implementation of AASHTO 2002 Pavement Design Guide	\$0.00	\$0.00		\$0.00
2186 Rating Precast Prestressed Concrete Bridges for Shear	\$0.00	\$0.00		\$0.00
2187 Investigation of Automating Turning Movement Studies Using New Sensor Technology	\$0.00	\$0.00		\$0.00
2188 Vegetative Rehabilitation of Highway Cut Slopes	\$52,500.00	\$0.00		\$52,500.00
2190 A Real-Time Scour Risk Identification and Information Management System	\$0.00	\$0.00		\$0.00
2191 Degradation of Major Streams in Oklahoma	\$0.00	\$0.00		\$0.00
2193 Degradation Stabilizing Methodology for Selected Broken-Back and Drop Box Culverts in Okla. Phase II	\$0.00	\$0.00		\$0.00
2194 Degradation in Selected Tributaries of Washita River in Oklahoma for Transportation Planning	\$40,000.00	\$0.00		\$40,000.00
2195 Evaluation and Field Verification of Strength and Structural Improvement of Chemically Stabilized Subgrade Soil	\$0.00	\$0.00		\$0.00
2196 Stability and Permeability of Proposed Aggregate Bases in Oklahoma	\$85,843.00	\$0.00		\$85,843.00
2197 Longitudinal Joint Density and Permeability in Asphalt Concrete	\$0.00	\$0.00		\$0.00
2199 Optimizing Concrete Mix Designs to Produce Cost Effective Paving Mixes	\$0.00	\$0.00		\$0.00
2200 Instrumented Pavement Construction	\$121,548.00	\$0.00		\$121,548.00
2202 GIS Layer for Transportation and Economic Statistics	\$0.00	\$0.00		\$0.00
2204 Advanced Voice and Multimedia Communications System for the ODOT ITS Network	\$0.00	\$0.00		\$0.00
2206 Development of an Improved System for Contract Time Determination – Phase II	\$0.00	\$0.00		\$0.00
2207 Validation and Refinement of Chemical Stabilization Procedures for Pavement Subgrade Soils in Oklahoma	\$106,850.00	\$0.00		\$106,850.00
2208 Development and Implementation of MEPDG for Rigid Pavements	\$91,487.00	\$0.00		\$91,487.00
2209 Development of a Flexible Pavement Database for Local Calibration of MEPDG	\$67,547.00	\$0.00		\$67,547.00
2210 Calcium-Based Stabilizer Induced Heave in Oklahoma Sulfate-Bearing Soils	\$102,050.00	\$0.00		\$102,050.00
2211 Modeling of 85th Percentile Speed for Rural Highways for Enhanced Traffic Safety	\$47,691.00	\$0.00		\$47,691.00
2212 Roadway Weather Information System and Automatic Vehicle Location (AVL) Coordination	\$55,000.00	\$0.00		\$55,000.00
2213 Quantifying the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool	\$92,854.00	\$0.00		\$92,854.00
2214 Use of MSE Technology to Stabilize Highway Embankments and Slopes in Oklahoma	\$40,000.00	\$0.00		\$40,000.00
2215 Tube Suction Test for Evaluating Durability of Cementitiously Stabilized Soils	\$45,705.00	\$0.00		\$45,705.00
2216 Auto-Collision Avoidance System at Intersections	\$25,200.00	\$0.00		\$25,200.00
Total Projects	\$1,728,611.00	\$0.00	\$0.00	\$1,728,611.00
Total SPRY-0010(046)RS	\$3,178,861.00	\$0.00	\$0.00	\$3,178,861.00
Grand Total	\$3,178,861.00	\$0.00	\$0.00	\$3,178,861.00

**FEDERAL FISCAL YEAR 2009
POOLED FUND COMMITMENTS**

Project Number	Contact	POOLED FUND PROJECTS	Project From	Period To	Estimated ODOT Total Project Cost	FFY 2008	FFY 2009	FFY 2010	FFY 2011
TPF-5(063)	Jerry Anderson	Improving the Quality of Pavement Profiler Measurement (Completed)	2003	2009	\$82,000.00	\$20,400.00	\$0.00	\$0.00	\$0.00
TPF-5(068)	Bob Rusch	Long Term Maintenance of Load and Resistance Factor Design Specifications		CONTINUING	\$60,000.00	\$0.00	\$20,000.00	\$20,000.00	\$20,000.00
TPF-5(124)	Danny Gierhart	NCAT Track (Completed)	2006	2008	\$900,000.00	\$300,000.00	\$0.00	\$0.00	\$0.00
TPF-5(??)	Danny Gierhart	NCAT Track 2009	2009	2011	\$420,000.00	\$0.00	\$140,000.00	\$140,000.00	\$140,000.00
TPF-5(117)	Kenny Seward	Development of Performance Properties of Ternary Mixes	2006	2011	\$75,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
TPF-5(099)	Faria Emamian	Evaluation of Low Cost Safety Improvements (Completed)	2005	2008	\$90,000.00	\$30,000.00	\$0.00	\$0.00	\$0.00
TPF-5(109)	Ron Curb	TRB: Core Program Services for a Highway Research, Development, and Technology Program	2007	CONTINUING	\$128,250.00	\$128,250.00	\$128,250.00	\$128,250.00	\$128,250.00
TPF-5(051)	Bob Rusch	Construction of Crack-Free Concrete Bridge Decks	2003	2010	\$100,000.00	\$20,000.00	\$0.00	\$20,000.00	\$0.00
TPF-5(046)	Steve Sawyer	Transportation Curriculum Coordination Council Training Management & Dev.	2003	2009	\$80,000.00	\$20,000.00	\$20,000.00	\$0.00	\$0.00
TPF-5(017)	Rudy Brocklesby	WASHTO-X Technology Transfer Initiative	2008	CONTINUING	\$30,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$0.00
TPF-5(145)	Kevin Bloss	Western Maintenance Partnership (1)	2007	2009	\$15,000.00	\$5,000.00	\$5,000.00	\$0.00	\$0.00
TPF-5(159)	Kenny Seward	Technology Transfer Concrete Consortium	2008	2012	\$25,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
TPF-5(184)	Alex Calvillo	Investment of Highway Asset Inventory and Data Collection Methods	2009	2012	\$15,000.00	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00
1209	Kenny Seward	Implementation of Concrete Pavement Mix Design & Analysis (MDA) Track of Pavement Road Map	2009	2012	\$45,000.00	\$0.00	\$15,000.00	\$15,000.00	\$15,000.00

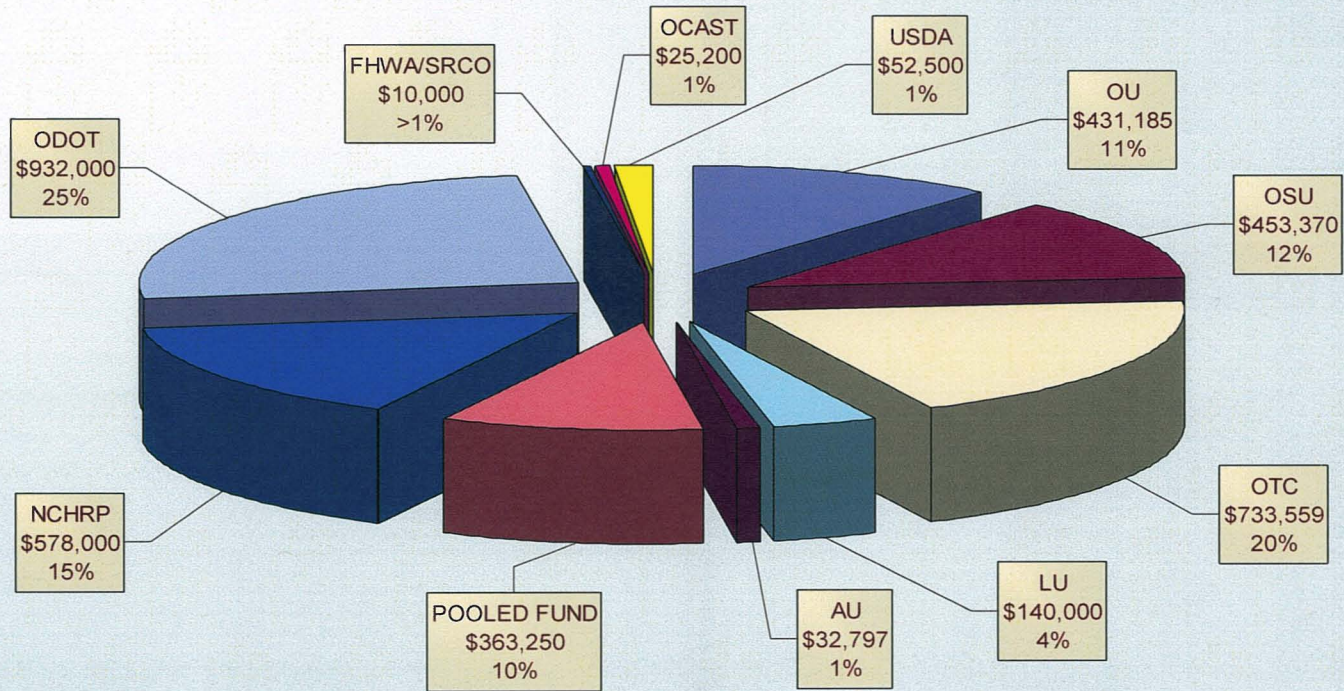
Total FY2009 Pool Funds \$363,250.00

Number	Contact	POOLED FUND PROJECTS - PAID	From	To	Project Cost	2008	2009	2010	2011
TPF-5(408)	Ginger McGovern	NCHRP (2)	2008	CONTINUING	\$578,000.00	\$571,239.00	\$578,000.00	\$578,000.00	\$578,000.00

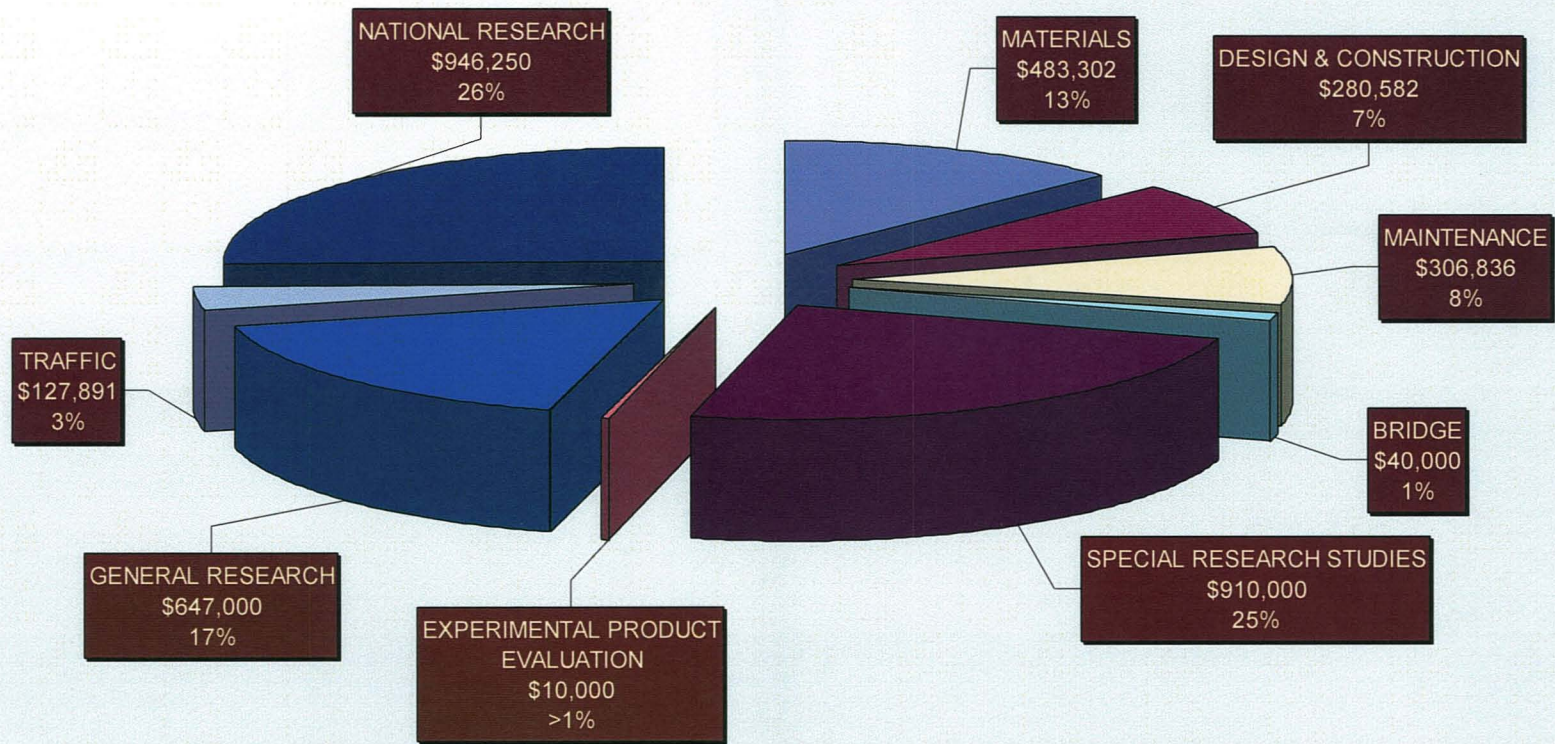
Notes:

- (1) JP 24732(04) Western Maintenance Partnership is a 3 Year Commitment - First year funds taken out in FFY 2007
- (2) NCHRP Paid with prior funds

RESEARCH by ORGANIZATION FY2009
TOTAL = \$3,751,861



RESEARCH by CATEGORY FY2009
TOTAL = \$3,751,861



*National Research includes NCHRP, Pooled Fund supported studies and TRB travel.
*Special Research includes OTC, research library services and technical assistance.

2100**Transportation Research Board**

PURPOSE AND SCOPE: Beginning with FFY08, this project will only cover travel expenses and time for ODOT personnel to attend the annual TRB meeting. The TRB subscription costs are covered under a pooled fund study.

ACCOMPLISHMENTS DURING FY 2008: Attended TRB annual meeting.

PROPOSED ACTIVITIES FOR FY 2009: Attend TRB annual meeting.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$5,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$5,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$5,000	SPR
	\$0	STATE

	PROGRAM MANAGER
NAME	Ginger McGovern, P.E.
TITLE	Planning & Research Division Engineer
PHONE	405-522-1447

PURPOSE AND SCOPE: Provide the Oklahoma Department of Transportation (ODOT) 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 and Oklahoma Transportation Center's university 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 the needed information. The Transportation Research Information Services (TRIS) database will be accessed by ODOT and the Research In Progress (RIP) database will be maintained by ODOT respectively. Additional services are aimed at providing ODOT with editing and publishing capabilities to assist the Planning & Research Division in generating and distributing reports and publications. 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. Contract with the University to provide information, services and updates to ODOT and the state universities.

ACCOMPLISHMENTS DURING FY 2008: Continued service expansion to update national and state database administration and information. Maintained Software and application capabilities to enhance services and accessibility to library by ODOT personnel. Enhanced methods were used to inform personnel of WASHTO-X video conferences. Produced monthly reports.

PROPOSED ACTIVITIES FOR FY 2009: Contract with Langston University to provide transportation information, services and updates to ODOT and other state universities. Access the TRIS database and maintain the RIP database. Develop procedures to enhance services and accessibility to Transportation Library resources by ODOT and Oklahoma Transportation Center's university personnel. Inform all transportation professionals of WASHTO-X video conferences. Maintain software and application capabilities to enhance services and accessibility to library by ODOT and local university personnel.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$254,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$224,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$140,000	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Wilson B. Brewer, Jr.	Rudy Brockelsby
TITLE	Assist. Dir. for Research, LU	Transportation Manager
PHONE	405-521-1379	405-990-0258

2115**Long Term Pavement Performance (LTPP)**

PURPOSE AND SCOPE: The purpose of this project is to maintain LTPP test sites, markings and current status, report maintenance to Southern Region Coordination 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 2008: SRCO met with ODOT to discuss further LTPP testing and monitoring; discussed maintenance and/or rehabilitation plans for targeted test sites; provided a list of the current Oklahoma "in-study" and "out-of-study" test locations. Discussed further LTPP participation in a SPS-5 comparison study with Texas DOT.

PROPOSED ACTIVITIES FOR FY 2009: Program scheduled to end in FY2009. Request of reports for specific locations.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$20,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$2,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$10,000	SPR
	\$0	STATE

	PROGRAM MANAGER	FIELD RESEARCH
NAME	Bryan K. Hurst	Bryan W. Cooper
TITLE	Transportation Manager	Transportation Specialist
PHONE	405-522-3794	405-736-9475

PURPOSE AND SCOPE: Provide ongoing technical support, or special investigations, to the Department when a full-scale research project is not warranted or when a quick turnaround is required.

ACCOMPLISHMENTS DURING FY 2008: Provided support for the Department with assistance and equipment in special investigations and other activities when needed. Performed Storm Drain Inspection investigations of I-40 at Weatherford and US-62 W. of Chickasha. Coring operations on US-412 east of Enid. Began research for the project entitled "Development of Liquidated Damages for the Oklahoma Department of Transportation. Produced monthly reports.

PROPOSED ACTIVITIES FOR FY 2009: 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. Purchase, calibrate and test new equipment for analysis of documentation of bridge deck conditions. Continue project operations and projections for the mentioned research project; produce and distribute Final Report.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$75,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$40,350	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$270,000	SPR
	\$0	STATE

	PROGRAM MANAGER	FIELD RESEARCH
NAME	Bryan K. Hurst	Bryan W. Cooper
TITLE	Transportation Manager	Transportation Specialist
PHONE	405-522-3794	405-736-9475

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 work program 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 2008: Attended meetings, wrote work plans, reviewed reports, discussed proposed work with researchers and ODOT personnel, as described above. Contracted for Langston University services in the areas of library, asphalt training and future research services study. Contracted for 5 OU/OTC agreements and 1 additional OSU research project. Reviewed 4 additional research project problem statement proposals for possible FY-09 funding. Setup Langston University research and training services under Item 2102.

PROPOSED ACTIVITIES FOR FY 2009: Continue work on general research for ODOT. Generate new OTC and SPR research agreements and supplemental agreements for FY-09.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$50,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$48,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$1,015,250	SPR
	\$0	STATE

	PROGRAM MANAGER	RESEARCH CONTRACT MANAGER
NAME	Ron F. Curb, P.E., CPM	Bryan Hurst
TITLE	Engineering Manager	Transportation Specialist
PHONE	405-522-3795	405-522-3794

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.

ACCOMPLISHMENTS DURING FY 2008: Began Annual Certified Pesticide Applicator Training for all ODOT field divisions and maintained Pesticide Applicator Training Records for ODOT Certified Pesticide Applicators. Provided consultation to ODOT field personnel as requested and produced monthly activity reports. Conducted Sprayer Equipment inspection and calibration workshops. Assisted ODOT in maintaining and producing an updated Approved Herbicide and Adjuvants List. Assisted ODOT in Statewide Herbicide Contract review. Conducted and produced an Annual ODOT Herbicide Program Survey and Divisional Report. Produced Annual Roadside Vegetation Management Herbicide Technologies Report and Annual Equipment Report. Began 4th Edition of the Roadside Vegetation Management Guidelines. Began the production of Sprayer Equipment Assessment Guide. Begin preliminary meeting and scheduling with ODOT P&R Division personnel for the fiscal year 2009.

PROPOSED ACTIVITIES FOR FY 2009: Continue and produce updated reports for the selected activities as mentioned above as well as completing 4th Edition of the RVM Guidelines and conducting the annual Roadside Vegetation Management Implementation Tour.

ESTIMATED TOTAL COST	CONTINUING \$560,000 (3 Years)	FUND
Programmed Amount for FY 2008 (Year 2 of 3)	\$182,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$177,000	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 3 of 3)	\$188,336	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Dennis L. Martin, Ph.D.	Bryan K. Hurst
TITLE	Turfgrass Extension Specialist, OSU	Transportation Manager
PHONE	405-744-5419	405-522-3794

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

ACCOMPLISHMENTS DURING FY 2008: Began the evaluation of new and generic herbicide formulations for integration into the ODOT Roadside Vegetation Management Programs. Implemented findings in winter CEU Training Workshops. Produced Annual Report. Began the evaluation of adjuvants and recommended herbicides for tank mix compatibility and implemented findings into Approved Herbicides and Adjuvants List (AHAL). Produced monthly reports. Executed the summer Roadside Research Van Tour and began Final Report to ODOT.

PROPOSED ACTIVITIES FOR FY 2009: Continue selected activities mentioned above, as well as, complete field experiments; complete data collection and analysis, and update the Annual Report. Implement new findings in winter CEU Training Workshops. Produce Annual Report on Product Compatibility. Execute the summer Roadside Research Bus Tour and produce Final Report to ODOT.

ESTIMATED TOTAL COST	CONTINUING \$215,000 (3 Years)	FUND
Programmed Amount for FY 2008 (Year 2 of 3)	\$70,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$63,450	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 3 of 3)	\$66,000	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Dennis L. Martin, Ph.D.	Bryan K. Hurst
TITLE	Turfgrass Extension Specialist, OSU	Transportation Manager
PHONE	405-744-5419	405-522-3794

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 (LU). Research personnel in this organization have expertise and experience covering a wide range of transportation-related topics. The purpose of this item is to coordinate and contract research activities covering various topics on behalf of ODOT and to provide matching funds to the OTC.

ACCOMPLISHMENTS DURING FY 2008: Participated in board meetings. Participated in project selections for OTC research by coordinating expert review and proposal rating and approval.

PROPOSED ACTIVITIES FOR FY 2009: Continue support of OTC. A mix of transportation research projects will be completed. Also, the OTC plans to conduct training for ODOT employees on subjects related to the research projects through Research Day at ODOT.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$505,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$500,000	SPR
	\$0	STATE

	OTC EXECUTIVE DIRECTOR	ODOT CONTACT
NAME	Tony Dark, P.E.	Ginger McGovern, P.E.
TITLE	Executive Director, OTC	Planning & Research Division Engineer
PHONE	918-527-3275	405-522-1447

RESEARCH PROGRAM MANAGER
Ron F. Curb, P.E., CPM
Engineering Manager
405-521-3795

2172	Evaluation of ODOT's Percent Within Limits (PWL) Construction Specifications
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PURPOSE AND SCOPE: The Department will implement new "Percent Within Limits" (PWL) specifications on four highway construction projects during FY2007. These projects will consist of two asphalt concrete (AC) and two Portland Cement Concrete (PCC) roadway construction projects. Three researchers, an AC specialist, a PCC specialist, and a statistician will evaluate the application of the PWL specifications during the 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 the project will be analyzed to determine whether 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 2008: Distributed Final Report for PCC.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR, PCC	RESEARCH CONTRACT MANAGER
NAME	Bruce Russell, Ph.D., P.E.	Bryan K. Hurst
TITLE	Associate Professor, OSU	Transportation Manager
PHONE	405-744-9301	405-522-3794

	PRINCIPAL INVESTIGATOR, AC
NAME	Dr. Steve Cross, Ph.D., P.E.
TITLE	Associate Professor, OSU
PHONE	405-744-7200

2177	Determination of Dynamic Modulus Master Curves for Oklahoma Hot Mix Asphalt (HMA) Mixtures
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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 makes it difficult or impossible to do the detailed analysis. The purpose of this research project 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 2008: Distributed Final Report.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Dr. Steve Cross	Bryan K. Hurst
TITLE	Associate Professor, OSU	Transportation Manager
PHONE	405-744-7200	405-522-3794

2178	Evaluation of Cold, In-Place Recycling for Rehabilitation of Transverse Cracking on US 412
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PURPOSE AND SCOPE: Successful rehabilitation of transverse cracked Hot Mix Asphalt (HMA) pavement 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 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 2008: Distributed Final Report.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Dr. Steve Cross	Bryan K. Hurst
TITLE	Associate Professor, OSU	Transportation Manager
PHONE	405-744-7200	405-522-3794

2182	Task Order Contract for Specified Research Items
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PURPOSE AND SCOPE: The purpose of this project is to allow ODOT to (quickly) contract, to have research performed on items specified by the Department. Items specified for research under this project typically are construction, design, or materials problems, which require specialized expertise or equipment. This project was previously listed under the title "Evaluation of Concrete Bridge Deck Overlays Using the Bond Test".

ACCOMPLISHMENTS DURING FY 2008: Completed investigating failures of latex - modified concrete bridge overlays and ODOT PCC mixes using two types of pull - off test equipment and Air Void Analyzer (AVA). Currently investigating testing problems on a pilot project for Percent Within Limits (PWL) specifications. Complete investigations described above and any others as specified by ODOT. Produced a summary of the project documentation/application in an electronic format and additional deliverables as described in the original agreement.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$25,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$25,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Steve Trost, Ph.D., P.E.	Bryan K. Hurst
TITLE	Director, Res. & Dev. Strategic Solutions International, LLC	Transportation Manager
PHONE	405-412-7879	405-522-3794

2184	Creation of an ODOT Specification for Patching or Overlay of Bridge Decks
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PURPOSE AND SCOPE: This project builds upon the 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 demonstrating good performance under the previous project, materials identified by ODOT Maintenance personnel for showing good field performance, and other (new) materials recommended by ODOT personnel. The materials will be tested for chemical, electric 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 this project will be used to write a specification (or modify existing specifications) for patching and overlaying bridge decks.

ACCOMPLISHMENTS DURING FY 2008: Phase III is continuing and scheduled to be completed in FFY2008. A Final Report, with conclusions and recommendations, will be written and submitted to ODOT when the research work is completed.

PROPOSED ACTIVITIES FOR FY 2009: Submit and distribute Final Report.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$65,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$55,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Chris Ramseyer, Ph.D., P.E.	Bryan K. Hurst
TITLE	Associate Professor, O.U.	Transportation Manager
PHONE	405-325-1415	405-522-3794

2185	Engineering Properties of Stabilized Subgrade Soils for the Implementation of the AASHTO 2002 Pavement Design Guide
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PURPOSE AND SCOPE: This project will determine engineering properties of cementitiously stabilized common subgrade soils in Oklahoma for design of roadway pavements in accordance with the AASHTO 2002 Pavement Design Guide (PDG). These properties include resilient modulus, modulus of elasticity, moisture susceptibility and permeability. A computerized database of this information will be developed based on laboratory test results. No such database is currently available, making implementation of the new AASHTO PDG problematic for use in Oklahoma. The following tasks will be included in this study. Determine moisture - density relationships for common subgrade soils mixed with lime, cement kiln dust, and class C fly ash, using different percentages of each additive. Determine the resilient modulus (Mr) of stabilized specimens, Determine the Modulus of elasticity of specimens already tested for Mr. Determine the moisture susceptibility of stabilized specimens. Conduct suction tests on selective specimens. Develop statistical models based on the laboratory data. Develop a database based on the laboratory tests. Propose modifications to current ODOT specifications for implementation of AASHTO 2002 PDG for cementitiously stabilized subgrade soils.

ACCOMPLISHMENTS DURING FY 2008: Performed literature search, selected soils and additives, continued laboratory testing. Completed development of database for selected stabilized subgrade soils to be used to develop statistical or regression models correlating design inputs with other properties. With ODOT participation, modifications to current stabilized subgrade soils specifications will be implemented into the new AASHTO 2002 design guide.

PROPOSED ACTIVITIES FOR FY 2009: Prepare and distribute Final Report.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$95,700	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$90,775	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Musharraf Zaman, Ph.D.	Bryan K. Hurst
TITLE	Associate Dean for Research, OU	Transportation Manager
PHONE	405-325-2626	405-522-3794

PURPOSE AND SCOPE: This project will investigate shearing capacity of several types of existing precast prestressed concrete beams designed according to the AASHTO Standard Specifications prior to the 1979 Interim. Oklahoma was one of the earliest states to make the change to the Load and Resistance Factor Design (LRFD Specification for highway bridge design. However, before the LRFD was applied in design practice, AASHTO Standard Specifications differing in various ways from the LRFD had been applied to the design. Since the AASHTO Standard Specifications have been evolving with time, and many bridges built according to earlier specifications are still in use, there is a need for rating these bridges in accordance with the current AASHTO manual. Studying shearing capacity is important because shear failure is catastrophic in nature, and concrete has a considerably lower strength in tension than in compression. This project will focus on the load carrying capacity in shear of Type II beams designed prior to 1979. The ODOT bridge plans will provide design information on selected bridges to the investigator. Beams in these bridges will be studied using hand calculation. An entire bridge system will be studied using numerical modeling. Laboratory testing will be conducted on a Type II beam. Type III and IV beams will also be analyzed, primarily using hand calculation.

ACCOMPLISHMENTS DURING FY 2008: Completed lab testing of Type II beam.

PROPOSED ACTIVITIES FOR FY 2009: Prepare and distribute Final Report.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$13,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$11,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Jinsong Pei, Ph.D.	Bryan K. Hurst
TITLE	Assistant Professor	Transportation Manager
PHONE	405-325-4272	405-522-3794

PROJECT SPONSOR
Walt Peters, P.E.
Assistant Bridge Engineer
405-521-2606

2187	Investigation of Automating Turning Movement Studies Using New Sensor Technology
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PURPOSE AND SCOPE: To investigate the feasibility and accuracy of automating intersection turning movement studies utilizing a new portable segmented axle sensor technology. This will include the development of software capable of simulating traffic patterns through a stop sign controlled intersection and performing analysis of the vehicle movements.

ACCOMPLISHMENTS DURING FY 2008: None

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	CONTINUING	Fund
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	SUBJECT MATTER EXPERT
NAME	Sridhar Radhakrishnan, Ph.D	Daryl G. Johnson, P.E.
TITLE	Associate Professor, OU	Professional Engineer III
PHONE	405-325-1867	405-522-6719

PURPOSE AND SCOPE: The purpose of this project is to develop improved vegetation specifications to be used on relatively steep slopes. Areas of moderate to severe erosion are occurring on highway rights of way in Eastern Oklahoma. Silt resulting from this erosion is filling ditch bottoms causing drainage problems. The answer to these recurring problems is to vegetate the erosive areas so that the soil remains on the slope and out of the drainage system. This is intended to be a five-year research project during which time, soil amendments, plant species, planting methods, planting dates, planting rates, mulches, mulch rates and application methods which demonstrate the most success will be identified. These will then be incorporated into improved vegetation specifications

ACCOMPLISHMENTS DURING FY 2008: Maintained monthly photo records for US-59 slopes. Executed Hydro-seeding and mulching of SH-128 slope location and began monthly photo record maintenance. Generated ODOT mowing procedures for the duration of the project for both US-59 and SH-128 slope locations. Conducted project panel meetings as needed.

PROPOSED ACTIVITIES FOR FY 2009: Re-Hydro-seed and mulch SH-128 slope in Spring of 2009 due to loss of Fall 2007 materials during Spring 2008 rain events. Maintain monthly photo records for both US-59 and SH-128 slopes. Monitor ODOT mowing procedures for US-59 slopes. Conduct project panel member meetings as needed.

ESTIMATED TOTAL COST	CONTINUING \$257,500 (5 Years)	FUND
Programmed Amount for FY 2008 (Year 2 of 5)	\$60,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$57,500	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 3 of 5)	\$52,500	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Randy King	Bryan K. Hurst
TITLE	USDA/NRCS Project Manager	Transportation Manager
PHONE	479-675-5182	405-522-3794
		PROJECT SPONSOR
		Vincent G. "Butch" Reidenbach, Ph.D., P.E.
		Geotechnical Engineer
		405-522-4998

2190	A Real-Time Scour Risk Identification and Information Management System
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PURPOSE AND SCOPE: Develop design requirements and evaluate the effectiveness of a real-time scour risk identification system that can be used as a countermeasure for scour-critical bridges. Identify elevated risk conditions. Document agency responses to the elevated conditions in a real-time GIS database.

ACCOMPLISHMENTS DURING FY 2008: Phase III: Developed and incorporated watershed models for remaining scour-critical bridges. Monitored and evaluated the system performance and operational status/statistics. Refined the system interface, database, and functionality requirements.

PROPOSED ACTIVITIES FOR FY 2009: Prepare system documentation for operations and train personnel on its use and operation. Produce a summary of the project application in an electronic format.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008 (Year 3)	\$150,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$150,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Baxter E. Vieux, Ph. D., P.E.	Bryan K. Hurst
TITLE	Director, CNHDR; Professor, OU	Transportation Manager
PHONE	405-325-3600 or 4217	405-522-3794

PROJECT SPONSOR
Leslie Lewis, P.E., CFM
Bridge Hydraulics Engineer, ODOT
405-521-6500

PURPOSE AND SCOPE: Conduct a research investigation as follows:

- Collect flowline data from the ODOT files on five major streams in Oklahoma
- Locate ODOT bridges on Excel platform to manage the database
- Analyze the available flowline data at all bridges
- Prepare the longitudinal profiles of flowline with time along the five streams
- Identify deficiency in flowline data collection and suggest improvements on the data collection
- Prepare a final report incorporating database analyzed and newly generated information from tasks above

ACCOMPLISHMENTS DURING FY 2008: Prepared and distributed Final Report.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Avdhesh K. Tyagi, Ph. D., P.E.	Bryan K. Hurst
TITLE	Director, OK. Infrastr. Consortium, OSU	Transportation Manager
PHONE	405-744-9307	405-522-3794

PROJECT SPONSOR
Leslie Lewis, P.E., CFM
Bridge Hydraulics Engineer, ODOT
405-521-6500

2193	Degradation Stabilizing Methodology for Selected Broken-Back and Drop Box Culverts in Okla. Phase II
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PURPOSE AND SCOPE: Develop a methodology to analyze drop box culverts in Oklahoma such that the energy is dissipated within the culverts or just downstream in order to minimize downstream scour.

ACCOMPLISHMENTS DURING FY 2008: Located and placed each culvert on an ArcGIS managed database platform. Evaluated energy dissipation in existing drop box culverts and determined modifications to minimize scour. Computed the efficiency of energy dissipation data. Prepared Final Report and produced additional deliverables as stated in the original agreement.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$91,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$74,854	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Avdhesh K. Tyagi, Ph. D., P.E.	Bryan K. Hurst
TITLE	Director, Oklahoma Infrastructure Consortium, OSU	Transportation Manager
PHONE	405-744-9307	405-522-3794

PROJECT SPONSOR
Leslie Lewis, P.E., CFM
Bridge Hydraulics Engineer
405-521-6500

2194	Degradation in Selected Tributaries of Washita River in Oklahoma for Transportation Planning
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PURPOSE AND SCOPE: To research ODOT files and digital flowline data for the preparation of longitudinal profiles of flowline for the Salt Fork Creek, Wildhorse Creek and Rush Creek tributaries of the Washita River in Oklahoma. Culverts and bridge structures will be located along these creeks, as well as, other pertinent information to obtain degradation criteria for replacement or rehabilitation. Digital data will include ArcGIS and Excel files.

ACCOMPLISHMENTS DURING FY 2008: New project. (Amended for FY2008 SPR added in July 2008) Collected data from ODOT to begin analysis work. Began locating structures and creeks. Began initial development of database to perform analysis.

PROPOSED ACTIVITIES FOR FY 2009: Collect and review flowline data from the ODOT files on three Tributaries of the Washita River. Locate ODOT bridges and culverts on Excel platform to manage the database. Analyze the available flowline data at all ODOT bridges and culverts. Prepare longitudinal profiles of flowline with time along three tributaries of the Washita River. Produce monthly project progress reports. Prepare and distribute a final report incorporating database, analyzed and new information generated.

ESTIMATED TOTAL COST	NEW 89,807 (2 Years)	FUND
Programmed Amount for FY 2008 (Year 1 of 2)	\$50,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$50,000	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 2 of 2)	\$40,000	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Avdhesh K. Tyagi, Ph. D., P.E.	Bryan K. Hurst
TITLE	Dir. Ok. Infrastructure Consortium, OSU	Transportation Manager
PHONE	405-744-9307	405-522-3794
		PROJECT SPONSOR
		Robert "Bob" Rusch, P.E.
		Bridge Division Engineer
		405-521-2606

2195	Evaluation and Field Verification of Strength and Structural Improvement of Chemically Stabilized Subgrade Soil
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PURPOSE AND SCOPE: Develop relationships between chemically stabilized subgrade soil strength and structural numbers and refine input values for soil improvements to be used in the AASHTO pavement design equations.

ACCOMPLISHMENTS DURING FY 2008: Continued collection of Representative Soil Samples for processing and testing. Collected Field Mixed Subgrade Soil Samples for curing and testing and comparison to assess differences in Laboratory vs. Field conditions. Field Tested Stabilized Subgrade Soil Layers. Performed Comparative Studies between Laboratory Results and Field Testing Procedures. Produced Final Report, as well as, additional deliverables as stated in the original agreement.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING \$250,000 (2 Years)	FUND
Programmed Amount for FY 2008 (Year 2 of 2)	\$118,300	SPR
	\$0	STATE
Estimated Cost for FY 2008 (Year 2 of 2)	\$118,110	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	Co-PRINCIPAL INVESTIGATOR
NAME	Donald R. Snethen, Ph.D., P.E.	Amy B. Cerato, Ph.D.
TITLE	Professor	Assistant Professor, OU
PHONE	405-744-6328	405-325-5625
	Co-PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Gerald A. Miller, Ph.D., P.E.	Bryan K. Hurst
TITLE	Professor, OU	Transportation Manager
PHONE	405-325-4253	405-522-3794

2196	Stability and Permeability of Proposed Aggregate Bases in Oklahoma
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PURPOSE AND SCOPE: Assess the permeability of unbound aggregates that are widely used as pavement bases in Oklahoma. Laboratory results will be used to develop statistical models. Field samples will be tested for comparison. The models will be available to the pavement designers to facilitate implementation of the new AASHTO 2002 pavement design guide.

ACCOMPLISHMENTS DURING FY 2008: Collected and tested field samples to compare with lab results. Completed field construction and testing. Continued laboratory testing and regression analysis and statistical models. Developed regression correlations between k and Mr values. Selected the appropriate gradation(s) that provide a desired aggregate base with adequate permeability and acceptable stability. Produced monthly reports.

PROPOSED ACTIVITIES FOR FY 2009: Set up additional field construction and testing. Continue laboratory testing and regression analysis and statistical models. Continue monthly project reporting and initiate quarterly meetings. Prepare and distribute Final Report and additional deliverables as stated in the original agreement.

ESTIMATED TOTAL COST	CONTINUING \$315,000 (3 Years)	FUND
Programmed Amount for FY 2008 (Year 2 of 3)	\$80,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$80,000	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 3 of 3)	\$85,843	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Musharraf Zaman, Ph.D., P.E.	Bryan K. Hurst
TITLE	Associate Dean for Research, OU	Transportation Manager
PHONE	405-325-2626	405-522-3794

2197	Longitudinal Joint Density and Permeability in Asphalt Concrete
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PURPOSE AND SCOPE: Perform field investigation and laboratory analysis of test data to facilitate the development of a test method and/or specification for the control of longitudinal joint density and permeability of asphalt pavements.

ACCOMPLISHMENTS DURING FY 2008: Identified pavement locations for testing. Performed field sampling and testing, as well as, laboratory testing and data analysis.

PROPOSED ACTIVITIES FOR FY 2009: Complete and produce Final Report and additional agreement deliverables.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$60,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$54,000	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Dr. Steve Cross	Bryan K. Hurst
TITLE	Associate Professor, OSU	Transportation Manager
PHONE	405-744-7200	405-522-3794
		PROJECT SPONSOR
		Danny Gierhart, P.E.
		Bituminous Engineer
		405-522-4986

2199	Optimizing Concrete Mix Designs to Produce Cost Effective Paving Mixes
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PURPOSE AND SCOPE: Determine best methods of manipulating aggregate gradations in order to optimize the designs of concrete mix which are cost effective.

ACCOMPLISHMENTS DURING FY 2008: Continued manipulation of aggregate gradations and optimizing concrete mix designs; final project operations are in progress.

PROPOSED ACTIVITIES FOR FY 2009: Produce and distribute Final Report.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Chris Ramseyer, Ph.D., P.E.	Bryan K. Hurst
TITLE	Associate Professor, O.U.	Transportation Manager
PHONE	405-325-1415	405-522-3794

PURPOSE AND SCOPE: Conduct instrumented pavement research to collect and analyze mechanistic-empirical pavement design data on I-35 in McClain County, Oklahoma in an accelerated manner. Field Division 3 will construct an 800' flexible pavement test section. The National Center for Asphalt Technology (NCAT) will purchase equipment and install pavement monitoring instrumentation of test section. The University of Oklahoma (OU) will conduct monitoring and modeling of the test section over a five year period.

ACCOMPLISHMENTS DURING FY 2008: Installed and calibrated monitoring instrumentation in conjunction with construction of flexible pavement test section. Collected data and completed setup of modeling algorithms. All other instrumentation installation procedures completed. Conducted Falling Weight Deflectometer (FWD) and Dynamic Cone Penetration (DCP) field testing. Collected bulk samples and loose asphalt mixes. Extracted pavement block samples and cores from the project site for laboratory testing. Began collecting and downloading field data. Produced monthly project reports.

PROPOSED ACTIVITIES FOR FY 2009: Continue to monitor site instrumentation for accuracy and/or failure. Continue collecting and downloading field data. Continue data analysis and modeling efforts. Conduct continued Falling Weight Deflectometer (FWD) field testing. Continue collecting and downloading field data. Produce monthly project reports.

ESTIMATED TOTAL COST	CONTINUING \$619,000 (5 Years)	FUND
Programmed Amount for FY 2008 (Year 2 of 5)	\$169,000	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$158,207	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 3 of 5)	\$121,548	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Musharraf Zaman, Ph.D., P.E.	Bryan K. Hurst
TITLE	Associate Dean for Research, OU	Transportation Manager
PHONE	405-325-2626	405-522-3794
	Co-PRINCIPAL INVESTIGATOR	Co-PRINCIPAL INVESTIGATOR
NAME	K. K. Muraleetharan, Ph.D.	Dr. David H. Timm, P.E.
TITLE	Professor, OU	Assistant Professor, Auburn U.
PHONE	405-325-4247	334-844-6282 (Harbert Engr. Ctr.)

PURPOSE AND SCOPE: This research activity will involve obtaining and reviewing the current GIS base map and transportation information from ODOT and converting it to an ArcGIS system. Economic and census information will be obtained from the Oklahoma Department of Commerce, Oklahoma State University and the Census Bureau. In addition, hydrologic information will be gathered from the Oklahoma Water Resources Board. A spatial data overlay related to transportation, population, demographics, hydrologic and other socioeconomic factors will be created for use with the ODOT base map. Transportation related spatial statistics will be generated. Composite maps for long range planning needs will be created. A final report will be prepared and submitted along with the related data in a Geomedia Pro compatible format.

ACCOMPLISHMENTS DURING FY 2008: Prepared Final Report for work completed in FY 2007 and transfer data.

PROPOSED ACTIVITIES FOR FY 2009: End of Project

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Avdhesh K. Tyagi, Ph. D.	Bryan K. Hurst
TITLE	Dir. OK. Infrastr. Consort. Prof., OSU	Transportation Manager
PHONE	405-744-9307	405-522-3794

2204	Advanced Voice and Multimedia Communications System for the ODOT ITS Network
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PURPOSE AND SCOPE: Research and develop a versatile voice, text and video communications capability for the ODOT ITS Network console operators and provide an in-depth study of future extensions of these capabilities for additional media types, as well as central control and routing of voice and other data traffic between emergency responder agencies from both state and local levels.

ACCOMPLISHMENTS DURING FY 2008: Continued integration, testing and deployment of new functionality within existing ITS console software. Documenting and providing user instructions is under way.

PROPOSED ACTIVITIES FOR FY 2009: Prepare and distribute Final Report. End of Project.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Monte P. Tull, Ph.D.	Bryan K. Hurst
TITLE	Associate Professor, OU	Transportation Manager
PHONE	405-325-4278	405-522-3794

PROJECT SPONSOR
Alan R. Stevenson, P.E.
Engineering Manager, ITS
405-521-6460

2206	Development of an Improved System for Contract Time Determination – Phase II
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PURPOSE AND SCOPE: Phase I of this research was funded by the Oklahoma Turnpike Authority in close collaboration with the Oklahoma Department of Transportation and the Federal Highway Administration. A draft report was submitted for review by all three organizations in June of 2007. The tasks were to review the contract time determination procedures currently in use by ODOT and other DOTs, develop modules or templates that represent different types of highway construction projects performed by ODOT contractors, determine the controlling items and their interrelationships for each type of ODOT construction project module/template, estimate reasonable production rates for each controlling items or activities and determine various factors affecting the production rate of each construction activity and to develop a manual system for contract time determination for ODOT highway projects.

Phase II research and development tasks will determine the effectiveness of the ODOT software currently in use, which is Microsoft Project, and use it to calculate project time and develop a computer system for ODOT personnel to use when estimating contract time for highway construction projects. Phase II work will validate the developed computer system with previously completed ODOT highway projects. A user manual will be developed and used to train ODOT personnel in the use of the new system in August of 2007. A final report will be produced to include findings, output and conclusions. The report will include a program flowchart, computer program, program manual, software verification process / results and computer software source codes.

ACCOMPLISHMENTS DURING FY 2008: Completed research project and documenting the findings in the Final Report formats.

PROPOSED ACTIVITIES FOR FY 2009: Prepare and distribute Final Report. End of Project.

ESTIMATED TOTAL COST	ENDING	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$0	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Dr. Hyung Seok (David) Jeong	Bryan K. Hurst
TITLE	Assistant Professor, OSU	Transportation Manager
PHONE	405-744-7073	405-522-3794
	Co-PRINCIPAL INVESTIGATOR	PROJECT SPONSOR
NAME	Dr. Garold D. Oberlender, P.E.	Phil Loafman / Brian Schmitt, P.E.
TITLE	Professor, OSU	Program Manager / Office Engineer
PHONE	405-744-5260	405-522-1959 / 405-521-2625

2207	Validation and Refinement of Chemical Stabilization Procedures for Pavement Subgrade Soils in Oklahoma
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PURPOSE AND SCOPE: The goal of this research project is to assist the state in validating and improving the recommendations of OHD L-50 "Soil Stabilization Mix Design Procedure." The proposed research will primarily focus on AASHTO Soil Group Classifications falling under the fine-grained soil category (i.e. A-4 to A-7). It is expected that the results of testing on fine-grained soils may be intuitively extended to address variability found in fines of the A-2 soil class. Granular soils in the A-1 category and fine sandy soils of the A-3 category are not included in this proposal. In addition to the exclusions mentioned above, soils containing appreciable levels of sulfate will be excluded as these soils are not recommended for stabilization using calcium-based chemical additives. Note: a current research project at OU, funded through OTC, is focused on determining threshold levels of soluble sulfates that cause adverse behavior in chemically treated Oklahoma soils. Soils used in the currently proposed research will be subjected to soluble sulfate testing and current research on sulfate soils will help to guide the selection of suitable soil candidates for the proposed research.

ACCOMPLISHMENTS DURING FY 2008: Examined the variability of surficial geologic materials using available published information. Collected four AASHTO M145 classification soil samples. Index tests performed on all four soils. Collected and identified an AASHTO A-7-6 Heiden Clay soil. Analyzed preliminary UCS results with and without lime and performed various index tests. Identified and collected three sources each of Fly Ash and CKD and one source of lime and the chemical analysis sheets of both. Completed Standard Proctor, Sieve and Hydrometer on AASHTO A-7-6 Heiden Clay Soil. Calibrated the Harvard Miniature (HM) test to the Standard Proctor using the miniature hammer for making unconfined compression test cylinders for three soils. Obtained source stabilizers from around the state. Completed HM tests in triplicate for Heiden Clay for both Lime and Fly Ash stabilized. Produced monthly project progress reports.

PROPOSED ACTIVITIES FOR FY 2009: Quantify change in plasticity of stabilized soil using Atterberg Limit tests. Determine unconfined compressive strength of raw and treated soils using the recommended ODOT additive quantities. Determine whether the additive met the required strength limits as defined in the ASTM D4609 and OHD L-50. Use linear shrinkage and conductivity tests to determine protocols related to strength gain. Begin Final Report.

ESTIMATED TOTAL COST		\$208,850 (2 Years)	FUND
Programmed Amount for FY 2008		\$107,000	SPR
		\$0	STATE
Estimated Cost for FY 2008		\$102,000	SPR
		\$0	STATE
Estimated Cost for FY 2009		\$106,850	SPR
		\$0	STATE
PRINCIPAL INVESTIGATOR		RESEARCH CONTRACT MANAGER	
NAME	Amy B. Cerato, Ph.D.	Bryan K. Hurst	
TITLE	Assistant Professor, OU	Transportation Manager	
PHONE	405-325-5625	405-522-3794	
Co-PRINCIPAL INVESTIGATOR		Co-PRINCIPAL INVESTIGATOR	
NAME	Gerald A. Miller, Ph.D., P.E.	Donald R. Snethen, Ph.D., P.E.	
TITLE	Professor, OU	Professor, OSU	
PHONE	405-325-4253	405-744-6328	

2208	Development and Implementation of a Mechanistic and Empirical Pavement Design Guide (MEPDG) for Rigid Pavements
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PURPOSE AND SCOPE: To utilize representative materials, construction methods and weather values and realistic material inputs that are typical of those used in ODOT to improve the MEPDG in an effort to improve the economy, durability and performance of rigid pavements in Oklahoma. Furthermore, results from this research study will produce several new tools that will assist ODOT to design and specify a high quality and economical concrete pavement.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Begin characterizing representative concrete pavement mixtures used in the state of Oklahoma and produce an annual report summarizing the progress. Increase the quantity of weather sites in Oklahoma that provide environmental inputs for the MEPDG and produce an annual report summarizing the results.

ESTIMATED TOTAL COST	NEW \$255,698 (3 Years)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 1 of 3)	\$91,487	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Tyler Ley, Ph. D., P.E.	Bryan K. Hurst
TITLE	Assist. Prof. Civil & Envir. Engr., OSU	Transportation Manager
PHONE	405-744-9307	405-522-3794

PROJECT SPONSOR
Jeff Dean, P.E.
Engineering Manager II
405-522-0988

2209	Development of a Flexible Pavement Database for Local Calibration of MEPDG
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PURPOSE AND SCOPE: To develop a flexible pavement database and to populate this database with data required for calibration of the new Mechanistic Empirical Pavement Design Guide (MEPDG) design criteria. Results from this project are expected to provide pavement design professionals with appropriate tools and a better understanding of how the new MEPDG will allow for optimization of materials, evaluate and incorporate new materials into designs, and evaluate the impacts of anticipated heavier loads and new axle configurations on pavement performance in Oklahoma.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Perform regression analysis from an existing OU database to determine input parameters for resilient modulus on soils and granular base. Utilize laboratory data to determine the MEPDG input parameters for stabilized soils. Design SMA Mixtures made from high quality aggregates from Oklahoma and evaluate the performance properties of each mixture by testing for dynamic modulus and Hamburg and APA rut resistance.

ESTIMATED TOTAL COST	NEW \$126,244 (2 Years)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 1 of 2)	\$67,547	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Stephen Cross, Ph. D., P.E.	Bryan K. Hurst
TITLE	Prof. Civil & Envir. Engr., OSU	Transportation Manager
PHONE	405-744-7200	405-522-3794

PROJECT SPONSOR
Jeff Dean, P.E.
Engineering Manager II
405-522-0988

2210	Calcium-Based Stabilizer Induced Heave in Oklahoma Sulfate-Bearing Soils
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PURPOSE AND SCOPE: To reveal the physical, mineralogical, electrical and chemical characteristics of Oklahoma soils that is vulnerable to adverse sulfate reactions due to calcium-based stabilizers and to develop a methodology for assessing this threat. To evaluate ODOT's current method of soil-sulfate testing to determine the most accurate and repeatable soil sulfate test methodology possible.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Formulate and validate an improved soil sulfate test methodology to be used by ODOT. Identify soils containing sulfates and obtain sufficient samples to add to the testing program and database. Conduct basic index property and physical property tests, and electrical and chemical properties of test soils. Conduct free swell tests with and without calcium-based stabilizer. Produce monthly project progress reports.

ESTIMATED TOTAL COST	NEW \$203,810 (2 Years)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 1 of 2)	\$102,050	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
NAME	Amy B. Cerato, Ph.D.	Bryan K. Hurst
TITLE	Assistant Professor, OU	Transportation Manager
PHONE	405-325-5625	405-522-3794
	Co-PRINCIPAL INVESTIGATOR	FIELD RESEARCH
NAME	Gerald A. Miller, Ph.D., P.E.	Bryan W. Cooper
TITLE	Professor, OU	Transportation Specialist
PHONE	405-325-4253	405-736-9475
	Co-PRINCIPAL INVESTIGATOR	PROJECT SPONSOR
NAME	Donald R. Snethen, Ph.D., P.E.	Vincent G. "Butch" Reidenbach, Ph.D., P.E.
TITLE	Professor, OSU	Geotechnical Engineer
PHONE	405-744-6328	405-522-4998

2211	Modeling of 85TH Percentile Speed for Rural Highways for Enhanced Traffic Safety
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PURPOSE AND SCOPE: To develop a Neural Network (NN) model based on appropriate pavement, traffic and environmental data such as pavement width, type and width of shoulder, topography, weather, roadside development, and accident experience as an effective tool for the Oklahoma Department of Transportation (ODOT) in determining the 85th percentile speed on two-lane rural highways in Oklahoma. With this research, the model is expected to be useful in enhancing traffic safety and reducing accidents and fatalities resulting from improper posting of speed limits on rural highways in the state of Oklahoma.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Begin selection of model parameters. Begin updating of previous data from an earlier study. Scaling of input data. Conduct Principal Component Analysis (PCA). Begin development of Improved NN Model. Evaluate probabilities that are valuable in assessing system behavior. Refine NN Model using revised analyzed data. Organize a workshop for NN Model introduction to ODOT, FHWA and the industry. Produce monthly project progress reports.

ESTIMATED TOTAL COST	NEW \$96,192 (2 Years)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 1 of 2)	\$47,691	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
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	PROJECT CONSULTANT	PROJECT SPONSOR
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2212	Roadway Weather Information System and Automatic Vehicle Location (AVL) Coordination
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PURPOSE AND SCOPE: To develop an intelligent winter weather vehicle monitoring system that integrates automatic vehicle location (AVL) information from relevant vehicles with information regarding where and which chemicals have been recently applied. This information will also be integrated with weather sensor data from ODOT pavement and bridge sensors as well as other weather information including data from the Oklahoma Mesonet. This information will allow for improved monitoring of road conditions across the state and improved coordination and deployment of relevant vehicles. By maximizing the application of winter weather techniques (including the application of chemicals) to areas in which conditions pose the highest risk of accidents, traveler safety can be improved while at the same time, the destructive impacts of these techniques can be applied less frequently to pavement and bridges in areas in which conditions pose a lower risk.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Begin the development of an intelligent winter weather vehicle monitoring system that integrates automatic vehicle location (AVL) information. Begin integrating data from ODOT Begin integrating data from individual municipalities in the State of Oklahoma if possible.

ESTIMATED TOTAL COST	NEW \$55,000 (1 Year)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$55,000	SPR
	\$0	STATE

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2213	Quantifying the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool
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PURPOSE AND SCOPE: To build on research done in Australia and New Zealand (Austroads 2005) by conducting a long-term study of various methods to restore pavement skid resistance by retexturing the existing surface with either a surface treatment, chemical treatment, or a mechanical process and furnish ODOT with the technical engineering data for each treatment coupled with an economic analysis of the costs and benefits associated with each treatment. This will furnish ODOT pavement managers the required information to make rational engineering decisions based on physical and financial data for the use of potential pavement preservation tools, evaluated under the same conditions over the same period by an impartial investigator. Researchers expect to produce a guidebook for use by ODOT pavement managers that represents a pavement preservation “toolbox” of available tools to restore both skid resistance and pavement macrotexture. The cost index and life cycle cost analyses will furnish ODOT personnel with the financial information to enable them to make an informed business decision as to the value added by each alternative in the trial. This project will produce a product that potentially can achieve an immediate impact on the safety of Oklahoma roads and highways.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Perform literature review. Collect unpublished commercial research data. Establish test sections, develop field testing protocol, and complete pretreatment characterization of the existing pavement surface. Begin laboratory characterization of aggregates. Construct surface treatment on test sections. Collect construction cost and time data. Initiate monthly friction and pavement macrotexture field test protocol. Analyze and report field test data. Develop, complete, and report economic and life cycle cost analysis. Prepare and submit Final Report.

ESTIMATED TOTAL COST		NEW	FUND
		\$92,854 (1 Year)	
Programmed Amount for FY 2008		\$0	SPR
		\$0	STATE
Estimated Cost for FY 2008		\$0	SPR
		\$0	STATE
Estimated Cost for FY 2009		\$92,854	SPR
		\$0	STATE
PRINCIPAL INVESTIGATOR		RESEARCH CONTRACT MANAGER	
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2214	Use of MSE Technology to Stabilize Highway Embankments and Slopes in Oklahoma
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PURPOSE AND SCOPE: To determine a moisture reduction factor (MRF) to account for the influence of soil moisture content on pullout resistance of soil-geotextile interfaces in reinforced soil. This study will be part of a long-term research that is aimed at developing a better understanding of the mechanics of unsaturated soil-reinforcement interfaces involving marginal soils. The outcome of this study will help to develop reliable procedures to account for the loss of soil-reinforcement interface strength due to wetting, in order to achieve a safer design and disseminate them into the current state of practice.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Perform a series of pullout tests in a carefully monitored and controlled indoor laboratory environment to obtain an accurate distribution of positive and negative pore water pressure, pore air pressure and moisture content in soils from current failed slopes. Use a high-strength polypropylene (PP) multifilament woven geotextile for the reinforcement material. The soil-reinforcement interface properties under suction controlled conditions will also be measured using a custom-made direct shear device. Design a reinforced soil slope for the repair of the failure site using the FHWA method (Holtz et al. 1997, Elias et al. 2001) with interface strength coefficient from OMC-2% test results representing recommended field conditions. Compare the slope safety factors from the two analysis cases to quantify the influence of moisture content on the slope stability. Conveyed to ODOT engineers the difference in reinforcement quantities between the two designs to carry out a cost-benefit analysis between added reinforcement (i.e. OMC+2% case) vs. providing additional drainage measures (i.e. OMC-2% case) to achieve comparable factors of safety against slope failure. Produce monthly project progress reports. Prepare and submit Final Report.

ESTIMATED TOTAL COST		NEW	FUND
		\$40,000 (1 Year)	
Programmed Amount for FY 2008		\$0	SPR
		\$0	STATE
Estimated Cost for FY 2008		\$0	SPR
		\$0	STATE
Estimated Cost for FY 2009		\$40,000	SPR
		\$0	STATE
PRINCIPAL INVESTIGATOR		RESEARCH CONTRACT MANAGER	
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2215	Tube Suction Test for Evaluating Durability of Cementitiously Stabilized Soils
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PURPOSE AND SCOPE: Changes in climatic conditions, namely freeze-thaw and wet-dry, have been recognized by pavement engineers as a major factor in poor pavement performance. Strength and stability of subgrade soil, which supports the pavement structure, is a key factor in pavement performance. A more time-efficient, inexpensive and non-abrasive method, called Tube Suction Test (TST), will be used in the proposed study to evaluate durability of selected stabilized soils that are frequently encountered in Oklahoma. A test protocol for the assessment of durability using the TST will be developed in this study and verified by comparing results with the current test methods, namely wet-dry (ASTM D 559), freeze-thaw (ASTMD560), vacuum saturation (ASTM C 593), and unconfined compressive strength. The results from this study will be useful in modifying the current ODOT procedure, Soil Stabilization Mix Design Procedure (OHD L-50), for the selection of additive percent. Assessment of durability using the TST will be time-efficient, non-abrasive, and inexpensive, making it attractive to design engineers and industry.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Collection of common Oklahoma soil samples and additives. Laboratory testing for soil classification, moisture density, conventional freeze-thaw, conventional wet-dry, vacuum saturation and tube suction tests. Development of TST protocol. monthly project progress reporting.

ESTIMATED TOTAL COST	NEW \$94,390 (2 Years)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2009 (Year 1 of 2)	\$45,705	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
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2216	Auto-Collision Avoidance System at Intersections
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PURPOSE AND SCOPE: To reduce collisions at intersections by designing a prototype system that will provide real-time forewarning to drivers who are in danger of a collision as they approach an intersection. This system assists existing passive intersection control devices by implementing better methods for attracting all approaching drivers' attention. The warning system will gather the attention of approaching motorists in a timely fashion, so they will have time to react to the impending danger. This innovative system provides better effectiveness in reducing collisions compared to the existing intersection control devices, because it makes the intersection active and aware of its surroundings and enables it to convey this knowledge to approaching drivers in real-time. Reduction in traffic accidents will be effective in alleviating property damage and loss of life and health due to these collisions at intersections.

ACCOMPLISHMENTS DURING FY 2008: New project.

PROPOSED ACTIVITIES FOR FY 2009: Begin Field Deployment and Verification onto an intersection selected by ODOT; Collect measurements to evaluate acceptance of no less than 80% accuracy; Begin Field Data Collection and Analysis by recording vehicle positions and times of detections reported by all sensor nodes; Record the prediction entrance and exit times of vehicles which will be correlated with the digital video to determine accuracy of the system; Perform System Hardware/Software Modification Hardware as problems are encountered in the system field tests; produce monthly project progress reports.

ESTIMATED TOTAL COST	NEW \$25,200 (2 Year)	FUND
Programmed Amount for FY 2008	\$0	SPR
	\$0	STATE
Estimated Cost for FY 2008	\$25,200	SPR
	\$0	STATE
Estimated Cost for FY 2009	\$25,200	SPR
	\$0	STATE

	PRINCIPAL INVESTIGATOR	RESEARCH CONTRACT MANAGER
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2700**Experimental Product and Evaluation Program**

PURPOSE AND SCOPE: This project was established to provide ODOT with a means of providing for the (experimental) use, monitoring, evaluation and implementation of products for highway and bridge construction where the products do not meet current ODOT standards and specifications.

ACCOMPLISHMENTS DURING FY 2008: Maintained records of new products where manufacturers provided literature or made presentations. Met with company representatives who were presenting new products. Provided information on products to applicable ODOT divisions.

PROPOSED ACTIVITIES FOR FY 2009: Continue maintaining records on products submitted to ODOT. Meet with vendor representations. Circulate product literature and provide information to applicable ODOT Division personnel. Conduct product evaluations as necessary.

ESTIMATED TOTAL COST	CONTINUING	FUND
Programmed Amount for FY 2008	\$20,000	SPR
	0	STATE
Estimated Cost for FY 2008	\$0	SPR
	0	STATE
Estimated Cost for FY 2009	\$10,000	SPR
		STATE

	PROGRAM MANAGER	FIELD RESEARCH
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