LTRC Annual Research Program

Fiscal Year July 1, 2014 - June 30, 2015

FHWA Part II SPR Research Program
FAP Number SPR-0010(34)

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FHWA Funded Research Program

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FHWA LTAP Funded Program

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FHWA STP Funded Program

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State Funded Research Program

&

Self Generated Funded Research Program

Conducted by:
Louisiana Department of Transportation and Development
Louisiana Transportation Research Center

In cooperation with
United States Department of Transportation Federal Highway Administration
June 2014

LOUISIANA TRANSPORTATION RESEARCH CENTER
LTRC

Research, Technology Transfer, Education & Training

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

May 5, 2014

Mr. Charles W. Bolinger
Division Administrator
Federal Highway Administration
5304 Flanders Drive, Suite A
Baton Rouge, Louisiana 70808

Attention: Ms. Mary Stringfellow

RE: FY 2014-2015 Louisiana Transportation Research Center Work Program

Dear Mr. Bolinger:

Enclosed please find the FY 2014-2015 Louisiana Transportation Research Center (LTRC) Annual Work Program for your review and approval. You will note that the program is divided into multiple sections reflecting all funding sources.

As delegated by the Secretary, Louisiana Department of Transportation and Development (LADOTD), I, Harold R. Paul, Director, Louisiana Transportation Research Center, of the State of Louisiana, do hereby certify, that the State is in compliance with all requirements of 23 U.S.C. 505 and its implementing regulations with respect to the research, development, and technology transfer program, and contemplate no changes in statutes, regulations, or administrative procedures which would affect such compliance.

If I can provide additional information, please advise.

Sincerely,

Harold R. Paul, P.E.
Director

Enclosure
cc: Ms. Janice Willilams
Mr. Mark Morvant
Mr. Sam Cooper

U.S. Department of Transportation
Federal Highway Administration

FHWA Louisiana Division Office

5304 Flanders Drive, Suite A
Baton Rouge, Louisiana 70808
(225) 757-7600
(225) 757-7601 Fax

June 17, 2014

In Reply Refer To:
HDA-LA

Sherri H. LeBas, P.E.
Secretary
Louisiana Department of Transportation
and Development
Baton Rouge, LA

Subject: FY 2015 SPR Work Program Part II

Attention: Mr. Skip Paul

Dear Ms. LeBas:

This letter is in response to Mr. Skip Paul's letter regarding the review and approval of the FY 2015 SPR Part II Work Program. We have reviewed the subject work program and find it to be satisfactory. Please furnish this office with two copies of the final printed work program and one electronic copy in pdf format.

A separate request from your federal-aid section will be required to process the fiscal documents necessary to obligate the SPR funds.

Should you have any questions regarding this matter, please feel free to contact Mr. Brandon Buckner, FHWA at (225) 757-7622.

Sincerely yours,

Mary M Stringfellow
Digitally signed by Mary M. Stringfellow
DN: cn=Mary M. Stringfellow, o, ou, email=mary.stringfellow@dot.gov, c=US
Date: 2014.06.20 10:03:29 -05'00'

Mary M. Stringfellow
Program Delivery Team Leader

Abbreviations and Acronyms

Funding

SPR	State Planning and Research
NCHRP	National Cooperative Highway Research Program
TRB	Transportation Research Board
IBRD	Innovative Bridge Research Deployment
LTAP	Local Technical Assistance Program
STP	State Transportation Program
NSF	National Science Foundation
TT-Fed	Transportation Trust – Federal
TT-State	Transportation Trust – State

Project Types

ADM	Administrative
RS	Research Support
GT	Geotechnical
P	Pavements
B	Bituminous
SS	Special Studies
C	Concrete
ST	Structures
TT	Technology Transfer
LTAP	Local Technical Assistance Program
PF	Pooled Fund (Louisiana Lead)
PFE	Poole Fund External (Other Lead State)

Project Status

A	Active
P	Proposed
RFP	Request for Proposal

Table of Contents

FHWA SPR Work Program
Part II

FAP Number SPR-0010(34)

FHWA Funding

SPR Research Budget Recap	Total
Administrative Budget	$749,056
Research Support Studies Budget	$1,844,683
Active Studies Budget	$3,215,064
Proposed Studies Budget	$1,717,952
Pooled Fund Lead State Studies Budget	$247,698
Total SPR Budget	**$7,774,453**

SPR External Collaboration Budget Recap	Total
Pool Funded Studies	$125,000
TRB Correlations	$124,926
NCHRP	$759,441
Total SPR External Collaboration Budget	**$1,009,367**

FHWA 100% Award Budget Recap	
Total	
Active Studies Budget	$57,894
Proposed Studies Budget	$20,000
Total FHWA 100% Award Budget	**$77,894**

FHWA Funding

LTAP Budget Recap	Total
LTAP	$557,918
LTAP Program Total	$557,918

STP: Technology Transfer Program Budget Recap	Total
Technology Transfer Program and Operations	$1,249,415
Workforce Development Program	$6,037,311
Student Support Programs	$310,000
Total STP Budget	$7,596,726

State Funding

State Budget Recap	Total
Active Studies Budget	$4,000
Proposed Studies Budget	$0
RFP's	
Total State Budget	**$4,000**

Self-Generated Funding

Self-Generated Budget Recap	Total
Active Studies Budget	$132,052
Proposed Studies Budget	$0
Total Self-Generated Budget	**$132,052**

Other DOTD Sections Funding

Other DOTD Sections Budget Recap	Total
Active Studies Budget	$386,210
Proposed Studies Budget	$0
Total Other DOTD Sections Budget	**$386,210**

LTRC ANNUAL RESEARCH PROGRAM

Administrative

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Administrative													
SPR: TT-Fed/TT-Reg	A	ADM	30000700	12-1AD	$30,000	$47,680	LTRC	Harold 'Skip' Paul	Administration of LSU Partnership with the National Center for Intermodal Transportation for Economic Competitiveness	3/1/2012	12/31/2013		C-2
SPR: TT-Fed/TT-Reg	A	ADM	1000010	15-1PM	$719,056	$719,056	LTRC	Mark Morvant	Program Management	7/1/2014	6/30/2015		C-3
					$749,056	**$766,736**	**ADMINISTRATIVE BUDGET TOTALS**						
Project Type: Research Support													
SPR: TT-Fed/TT-Reg	A	RS	1000011	15-1EQM	$390,832	$390,832	LTRC	Mark Morvant	Equipment Management	7/1/2014	6/30/2015		C-4
SPR: TT-Fed/TT-Reg	A	RS	1000012	15-1LFT	$145,502	$145,502	LTRC	Mark Morvant	Research Laboratory and Field Test Support	7/1/2014	6/30/2015		C-6
SPR: TT-Fed/TT-Reg	A	RS	1000013	15-1NPE	$82,721	$82,721	LTRC	Mark Morvant	New Products Evaluation	7/1/2014	6/30/2015		C-7
SPR: TT-Fed/TT-Reg	A	RS	1000014	15-1SSR	$100,000	$100,000	LTRC	Mark Morvant	DOTD Staff Support for Research	7/1/2014	6/30/2015		C-8
SPR: TT-Fed/TT-Reg	A	RS	1000015	15-1TA	$340,088	$340,088	LTRC	Mark Morvant	Technical Assistance	7/1/2014	6/30/2015		C-9
SPR: TT-Fed/TT-Reg	A	RS	1000016	15-1TRS	$339,222	$339,222	LTRC	Mark Morvant	Technical Research Surveillance	7/1/2014	6/30/2015		C-11
SPR: TT-Fed/TT-Reg	A	RS	1000017	15-1TTRI	$446,318	$446,318	LTRC	Mark Morvant	Technology Transfer and Research Implementation	7/1/2014	6/30/2015		C-12
					$1,844,683	**$1,844,683**	**RESEARCH SUPPORT BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

SPR: TT-Fed/TT-Reg FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Geotechnical													
SPR: TT-Fed/TT-Reg	A	GT	30000480	06-3GT	$63,689	$195,084	LTRC	Gavin Gautreau	Field Evaluation of Roller Integrated Intelligent Compaction Monitoring	11/1/2011	10/31/2013	10/31/2014	C-16
SPR: TT-Fed/TT-Reg	A	GT	30000114	08-3GT	$26,500	$380,951	LTRC	Murad Abu-Farsakh	Support Study to Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	11/1/2007	11/1/2010	12/31/2014	C-18
SPR: TT-Fed/TT-Reg	A	GT	30000111	10-1GERL	$216,500	$523,000	LTRC	Murad Abu-Farsakh	LTRC Support for Geotechnical Research at the Geotechnical Engineering Research Laboratory (GERL)	7/1/2010	6/30/2015		C-19
SPR: TT-Fed/TT-Reg	A	GT	30000661	11-1GT	$107,500	$294,679	LTRC	Murad Abu-Farsakh	In Situ Evaluation of Design Parameters and Procedures for Cementitiously Treated Weak Subgrades using Cyclic Plate Load Tests	3/18/2013	9/17/2015		C-20
SPR: TT-Fed/TT-Reg	A	GT	30000134	11-2GT	$81,600	$489,708	LTRC	Murad Abu-Farsakh	Field Instrumentation and Testing to Study Set-Up Phenomenon of Piles Driven into Louisiana Clayey Soils	12/1/2010	11/30/2014		C-22
SPR: TT-Fed/TT-Reg	A	GT	30000135	11-3GT	$109,200	$596,370	LTRC	Murad Abu-Farsakh	Accelerated Load Testing of Geosynthetic Base Reinforced Pavement Test Sections	12/1/2010	5/31/2012	6/30/2015	C-24
SPR: TT-Fed/TT-Reg	A	GT	30001520	13-6GT	$50,000	$150,000	LSU	Joshua Kent	Development of LADOTD Standards for GPS Elevation Accuracy	10/1/2013	9/30/2014		C-26
SPR: TT-Fed/TT-Reg	A	GT	30001220	13-7GT	$16,666	$50,000	LTRC	Murad Abu-Farsakh	Support Study to ITRS proposal on "An Integrated Computational and Experimental Study of Pile Setup in Soft Clays"	2/18/2013	2/17/2016		C-27
SPR: TT-Fed/TT-Reg	A	GT	30001424	14-1GT	$51,716	$89,992	GeoStellar Engineering, LLC	Ed Tavera	Calibration of Region-Specific Gates Equation for LRFD	1/2/2014	3/1/2015		C-28
SPR: TT-Fed/TT-Reg	A	GT	30001425	14-2GT	$45,000	$50,000	UNO	Malay Ghose Hajra	Testing Protocol for Predicting Pile Behavior within Pre-Bored Soil	11/1/2013	10/31/2014		C-30
					$768,371	**$2,819,784**	**GEOTECHNICAL BUDGET TOTALS**						
Project Type: Pavements													
SPR: TT-Fed/TT-Reg	A	P	30000141	10-1ALF	$550,000	$1,730,000	LTRC	Zhong Wu	Management and Operation of the Pavement Research Facility	7/1/2009	6/30/2015		C-31
SPR: TT-Fed/TT-Reg	A	P	30000164	10-3P	$31,576	$202,265	LTRC	Leticia Santos da Rocha Courville	LED Traffic Signal Lifetime Management System	11/1/2010	7/31/2013	6/30/2015	C-32
SPR: TT-Fed/TT-Reg	A	P	30000610	12-11P	$108,442	$263,502	LTRC	Mark Martinez	Field Validation of Equivalent Modulus for Stabilized Subgrade Layer	5/1/2012	4/30/2014	5/1/2015	C-33
SPR: TT-Fed/TT-Reg	A	P	30000607	12-1P	$36,011	$341,459	LTRC	Kevin Gaspard	Assessment of Pavement Distresses caused by Trees on Rural Highway	2/1/2012	7/1/2014	6/30/2016	C-34
SPR: TT-Fed/TT-Reg	A	P	30000425	12-2P	$56,270	$329,685	LTRC	Kevin Gaspard	Assessment of Environmental, Seasonal and Regional Variations in Pavement Base and Subgrade Properties	9/1/2011	8/31/2013	6/30/2015	C-35
SPR: TT-Fed/TT-Reg	A	P	30000729	12-3P	$34,250	$200,000	LTRC	Zhong Wu	Minimizing Shrinkage Cracking in Cement-Stabilized Bases Through Micro-Cracking	11/1/2012	4/30/2016		C-36
SPR: TT-Fed/TT-Reg	A	P	30000608	12-4P	$102,000	$267,960	LTRC	Zhong Wu	Development of DARWin-ME Design Guideline for Louisiana Pavement Design	2/1/2012	8/1/2013	3/31/2015	C-37
SPR: TT-Fed/TT-Reg	A	P	30000609	12-5P	$43,700	$217,957	LTRC	Zhong Wu	Evaluation of DOTD Aggregate Friction Rating Table by Field Measurements	2/1/2012	2/1/2015		C-38
SPR: TT-Fed/TT-Reg	A	P	30000682	12-7P	$58,400	$363,959	LTRC	Zhong Wu	Roller Compacted Concrete Over Soil Cement Under Accelerated Loading	5/1/2012	4/30/2014	7/31/2015	C-39
					$1,020,649	**$3,916,787**	**PAVEMENTS BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

SPR: TT-Fed/TT-Reg FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Bituminous													
SPR: TT-Fed/TT-Reg	A	B	30000112	10-1EMCRF	$168,200	$345,000	LTRC	Louay Mohammad	Pavement Materials Research Using Special Equipment at the Engineering Materials Characterization Research Facility	7/1/2009	6/30/2015		C-40
SPR: TT-Fed/TT-Reg	A	B	30000221	10-4B	$4,000	$299,433	LTRC	Louay Mohammad	Development of Performance Based Specifications for Louisiana Asphalt Mixtures	4/1/2011	3/31/2014	8/30/2014	C-41
SPR: TT-Fed/TT-Reg	A	B	1000007	12-1B	$114,878	$219,476	LTRC	Louay Mohammad	Evaluation Of Asphalt Mixtures Containing Recycled Asphalt Shingles	4/8/2014	4/7/2016		C-42
SPR: TT-Fed/TT-Reg	A	B	30001080	12-3B	$41,255	$238,645	LSU	William H. Daly	Chemical Characterization of Asphalts Related to their Performance	12/1/2012	11/1/2014		C-43
					$328,333	**$1,102,554**	**BITUMINOUS BUDGET TOTALS**						
Project Type: Structures													
SPR: TT-Fed/TT-Reg	A	ST	30000138	10-5ST	$57,279	$211,919	Wiss, Janney, Elstner Associates, Inc.	Jonathan McGormley	Developing Prestressed Girder Transportation Guidelines	5/2/2011	9/1/2012	6/30/2014	C-44
					$57,279	**$211,919**	**STRUCTURES BUDGET TOTALS**						
Project Type: Special Studies													
SPR: TT-Fed/TT-Reg	A	SS	30000125	10-1PLAN	$93,019	$358,462	LTRC	Chester Wilmot	LTRC Proposal for the Support of Research and Development in Transportation Planning	7/1/2010	6/30/2015		C-45
SPR: TT-Fed/TT-Reg	A	SS	30000140	10-6SS	$20,000	$161,805	LSU	Sherif Ishak	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC (Phase II)	8/20/2010	11/19/2011	11/19/2014	C-46
SPR: TT-Fed/TT-Reg	A	SS	30000604	12-1SS	$23,976	$33,976	LSU	Sherif Ishak	DOTD Support for UTC Project: Traffic Counting using Existing Video Detection Cameras	7/1/2013	6/30/2015		C-48
SPR: TT-Fed/TT-Reg	A	SS	30000605	12-2SS	$14,000	$149,999	LSU	Sherif Ishak	History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards	8/1/2012	1/31/2014	7/31/2014	C-50
SPR: TT-Fed/TT-Reg	A	SS	30000544	12-4SA	$2,000	$41,709	LSU	Helmut Schneider	DOTD Support for UTC Project: Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements to Intersection Sites and Roadway	7/1/2013	12/31/2013	6/30/2014	C-52
SPR: TT-Fed/TT-Reg	A	SS	30000606	12-4SS	$16,424	$51,000	UNO	John Renne	DOTD Support for UTC Project: Development of Minimum State Requirements for Local Growth Policies	7/1/2012	12/31/2013	6/30/2014	C-53
SPR: TT-Fed/TT-Reg	A	SS	30001396	13-2SS	$21,080	$104,885	LTRC	Chester Wilmot	DOTD Support for UTC Project: Travel Time Estimation Using Bluetooth	7/1/2013	6/30/2015		C-55
SPR: TT-Fed/TT-Reg	A	SS	30001140	13-4SS	$50,000	$89,609	LTU	Nazimuddin M Wasiuddin	Highway for Life Demonstration Project: La 511 (70th Street)	1/15/2013	6/14/2015		C-57
SPR: TT-Fed/TT-Reg	A	SS	30001390	14-1SA	$25,880	$51,760	LSU	Helmut Schneider	DOTD Support For UTC Project: Drugged Driving in Louisiana	7/1/2013	6/30/2015		C-59
SPR: TT-Fed/TT-Reg	A	SS	30001394	14-1SS	$20,000	$35,000	LSU	Sherif Ishak	DOTD Support For UTC Project: Development of an Optimal Ramp Metering Control Strategy for I-12	7/1/2013	12/31/2014	6/30/2015	C-60
SPR: TT-Fed/TT-Reg	A	SS	30001395	14-2SS	$20,596	$41,199	LSU	Peter Kelle	DOTD Support For UTC Project: A Simulation Model for Intermodal Freight Transportation in the State of Louisiana	11/1/2013	10/31/2015		C-62

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Special Studies (cont.)													
SPR: TT-Fed/TT-Reg	A	SS	30001506	14-4SS	$135,804	$100,000	LTRC	Chester Wilmot	Feasibility of using Local Public Transit Resources for Evacuations and Other Unscheduled Needs	11/5/2013	2/4/2015		C-64
					$442,779	**$1,219,404**	**C-65**						
C-66													
SPR: TT-Fed/TT-Reg	A	C	30000680	12-4C	$25,000	$149,011	LTRC	Tyson Rupnow	Evaluation of Portland Cement Concrete with Internal Curing Capabilities	5/1/2012	10/30/2013	6/30/2015	C-65
SPR: TT-Fed/TT-Reg	A	C	30001122	13-1C	$27,441	$58,271	LTRC	Patrick Icenogle	Evaluation of MIT-SCAN-T2 for Thickness Quality Control for PCC and HMA Pavements	1/1/2013	12/31/2013	6/30/2015	C-66
SPR: TT-Fed/TT-Reg	A	C	30001502	13-2C	$59,406	$100,718	LTRC	Tyson Rupnow	Laboratory Evaluation of 100% Fly Ash Cementitious Systems	6/25/2013	6/24/2015		C-67
SPR: TT-Fed/TT-Reg	A	C	30001440	14-1C	$75,000	$173,960	LTRC	Tyson Rupnow	Evaluation of Dowel Bar Alignment and Effect on Long Term Performance of Jointed Concrete Pavements	6/5/2013	6/4/2014	6/30/2015	C-68
SPR: TT-Fed/TT-Reg	A	C	30001504	14-3C	$44,427	$200,000	LTRC	Tyson Rupnow	Laboratory Fatigue Evaluation of Continuously Fiber Reinforced Concrete Pavement	9/1/2013	2/28/2015		C-69
SPR: TT-Fed/TT-Reg	A	C	30001663	14-4C	$135,879	$269,183	LTRC	Tyson Rupnow	Evaluation of Bonded Concrete Overlays over Asphalt under Accelerated Loading	4/8/2014	4/7/2016		C-70
					$367,153	**$951,143**	**CONCRETE BUDGET TOTALS**						
Project Type: Other													
SPR: TT-Fed/TT-Reg	A	Other	30000169	11-1AD	$230,500	$2,780,222	UNO	Vijaya Gopu	Administration of LTRC External Funding Programs	1/1/2008	6/30/2009	6/30/2018	C-71
					$230,500	**$2,780,222**	**OTHER BUDGET TOTALS**						
					$3,215,064	**$13,001,813**	**SPR: TT-FED/TT-REG ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

SPR: TT-Fed/TT-Reg FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	PageNo.
Project Type: Geotechnical													
SPR: TT-Fed/TT-Reg	P	GT		13-3GT	$62,000	$200,000	LTRC	Murad Abu-Farsakh	Finite Element Analysis of the Lateral Load Test on Battered Pile Group at I-10 Twin Span Bridge	10/1/2012			C-73
SPR: TT-Fed/TT-Reg	P	GT	30000981	13-5GT	$83,500	$248,915	LTRC	Murad Abu-Farsakh	Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana	6/1/2013			C-75
SPR: TT-Fed/TT-Reg	P	GT		15-1GT	$50,000	$150,000			Geotechnical Information Database - Phase 3	1/1/2015	6/30/2016		C-76
SPR: TT-Fed/TT-Reg	P	GT		15-2GT	$30,000	$30,000			Comparison of Granulated vs. Hydrated Lime for Treatment of In-Situ Soils - Synthesis	7/1/2014	3/31/2015		C-77
					$225,500	**$628,915**	**GEOTECHNICAL BUDGET TOTALS**						
Project Type: Pavements													
SPR: TT-Fed/TT-Reg	P	P	1000009	14-2P	$50,000	$103,287	LTRC	Kevin Gaspard	Assessment of Structural Capacity Indicators from Rolling Wheel Deflectometer Data Collection in Louisiana	7/1/2013			C-79
SPR: TT-Fed/TT-Reg	P	P		15-1P	$11,867	$50,000	LTRC	Kevin Gaspard	Investigation of Portland Cement Concrete Pavement Rubblization over Weak Subgrades	8/4/2014	8/4/2017		C-80
					$61,867	**$153,287**	**PAVEMENTS BUDGET TOTALS**						
Project Type: Bituminous													
SPR: TT-Fed/TT-Reg	P	B		13-1B	$83,632	$300,000	LTRC	Louay Mohammad	Durability and Environmental Performance of Photocatalytic Asphalt Pavements: Field Study	7/1/2014	6/30/2016		C-81
SPR: TT-Fed/TT-Reg	P	B	1000008	14-1B	$157,625	$285,000	LTRC	Louay Mohammad	Effects of Temperature Segregation on the Densification and Mechanistic Properties of Asphalt Mixtures	7/1/2014	6/30/2016		C-82
SPR: TT-Fed/TT-Reg	P	B		14-1SPMT	$50,000	$50,000	LTRC	Louay Mohammad	Center for Sustainable Pavement Materials and Technologies	7/1/2013			C-83
					$291,257	**$635,000**	**BITUMINOUS BUDGET TOTALS**						
Project Type: Structures													
SPR: TT-Fed/TT-Reg	P	ST		13-1ST	$40,000	$75,000			Feasibility for Bridge Monitoring Network for Louisiana Bridges	8/1/2014	7/31/2015		C-85
SPR: TT-Fed/TT-Reg	P	ST	30001123	13-2ST	$50,000	$200,000			Live Load Monitoring of the I-10 Twin Span Bridge	5/1/2014			C-86
SPR: TT-Fed/TT-Reg	P	ST	30001660	14-1ST	$50,000	$250,000			Evaluating Louisiana New Continuity Detail for Girder Bridges	5/1/2014	10/28/2016		C-87
SPR: TT-Fed/TT-Reg	P	ST		14-1TIRE	$30,000	$30,000	LSU		Improvement to Highway Guardrail Assemblies	7/1/2014	6/30/2015		C-88
SPR: TT-Fed/TT-Reg	P	ST	30001661	14-2ST	$50,000	$150,000			Development of A Sustainable UHPC Bridge Decks For Movable Bridges	8/1/2014	7/29/2016		C-89
SPR: TT-Fed/TT-Reg	P	ST		14-2TIRE	$28,389	$28,389	LSU		Hurricane Hazard Mitigation in Traffic Light Support Structures	7/1/2014	6/30/2015		C-90
SPR: TT-Fed/TT-Reg	P	ST		14-3TIRE	$30,000	$30,000	LTU	Arun Jaganathan	A Novel Magnetostriction Based Sensing Technology for Rapid Condition Assessment of Bridge Decks	7/1/2014	6/30/2015		C-91
SPR: TT-Fed/TT-Reg	P	ST		15-1ST	$105,995	$105,995			Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South Louisiana Phase II	10/1/2014	3/31/2017		C-92

LTRC ANNUAL RESEARCH PROGRAM

SPR: TT-Fed/TT-Reg FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	PageNo.
Project Type: Structures													
SPR: TT-Fed/TT-Reg	P	ST		15-2ST	$50,000	$150,000			Material Property Changes of Decayed Timber for Timber Bridges	8/1/2014	7/31/2016		C-94
					$434,384	**$1,019,384**	**STRUCTURES BUDGET TOTALS**						
Project Type: Special Studies													
SPR: TT-Fed/TT-Reg	P	SS	30001501	12-1SA	$100,000	$250,000	LTRC		Louisiana Center for Transportation Safety	7/1/2014			C-95
SPR: TT-Fed/TT-Reg	P	SS	30001662	14-2SA	$91,208	$179,766			Factors Influencing Seatbelt Utilization in Louisiana and Strategies to Improve Usage Rate	5/1/2014			C-96
SPR: TT-Fed/TT-Reg	P	SS		14-3SS	$97,736	$200,000	LTRC	Chester Wilmot	Development of a Mode Choice Model to Estimate Evacuation Transit Demand	7/1/2013			C-97
SPR: TT-Fed/TT-Reg	P	SS		14-4TIRE	$30,000	$30,000	ULL	Xiaoduan Sun	User Sentiment Analysis with Louisiana Social Media Data for Better and Effective Crash Countermeasures	7/1/2014	6/30/2015		C-98
SPR: TT-Fed/TT-Reg	P	SS	1000018	14-5SS	$50,000	$100,000			LTRC Project Management and Tracking System Upgrade	7/1/2014			C-100
SPR: TT-Fed/TT-Reg	P	SS		15-1SA	$70,000	$100,000			Distracted Driving and Associated Crash Risks (Phase 2)	7/1/2014	12/31/2015		C-101
SPR: TT-Fed/TT-Reg	P	SS		15-1SS	$90,000	$100,000			Right-sizing Truck Registration and Overweight Permits Fees	9/1/2014	8/31/2015		C-102
SPR: TT-Fed/TT-Reg	P	SS		15-2SS	$50,000	$75,000			Cost and Time Benefits for using Subsurface Utility Engineering in Louisiana	9/1/2014	8/31/2015		C-103
					$578,944	**$1,034,766**	**CONCRETE BUDGET TOTALS**						
Project Type: Concrete													
SPR: TT-Fed/TT-Reg	P	C		14-5C	$36,000	$70,000	Southern University	Hak-Shul Shin	DOTD Support for UTC Project: Development of Rapid PCC Pavement Repair Materials and Construction Techniques	7/1/2014			C-104
					$36,000	**$70,000**	**CONCRETE BUDGET TOTALS**						
					$1,627,952	**$3,541,352**	**SPR: TT-FED/TT-REG PROPOSED BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

SPR: Pooled Fund: TT-Fed

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	PageNo.
Project Type: Pooled Fund													
SPR: Pooled Fund: TT-Fed	A	PF	30000281	09-1PF	$10,000	$300,000	LTRC	Mark Morvant	Southeast Transportation Consortium	9/1/2009	8/30/2012	8/30/2015	C-106
SPR: Pooled Fund: TT-Fed	A	PF	30000424	12-1PF	$23,617	$683,334	Oklahoma State University	Kelvin Wang	Traffic and Data Preparation for AASHTO MEPDG Analysis and Design	9/1/2011	8/31/2014		C-108
SPR: Pooled Fund: TT-Fed	A	PF	30001420	14-1PF	$20,000	$29,992	The Transtec Group	David Merritt	Best Practices for Achieving and Measuring Pavement Smoothness	1/2/2014	1/1/2015		C-111
SPR: Pooled Fund: TT-Fed	A	PF	30001421	14-2PF	$15,000	$29,999	LSU	Sherif Ishak	Real time Driver Information for Congestion Management	12/1/2013	6/30/2014	11/30/2014	C-112
SPR: Pooled Fund: TT-Fed	A	PF	30001422	14-3PF	$25,000	$30,000	Kentucky Transportation Center	James Brian Gibson	Transportation Funding Sources and Alternatives in the Southeastern States Now and in the Future	1/2/2014	1/1/2015		C-114
SPR: Pooled Fund: TT-Fed	A	PF	30001423	14-4PF	$5,000	$30,000	LSU	Mostafa Elseifi	Mitigation Strategies for Reflective Cracking in Pavements	10/15/2013	10/14/2014		C-116
					$98,617	**$1,103,325**	**SPR: POOLED FUND: TT-FED ACTIVE BUDGET TOTALS**						
Project Type: Pooled Fund													
SPR: Pooled Fund: TT-Fed	P	PF	1000002	14-5PF	$149,081	$275,000	LTRC	Louay Mohammad	Design and Analysis Procedures for Asphalt Mixtures Containing High-RAP Contents and/or RAS	6/1/2014	6/30/2016		C-117
					$149,081	**$275,000**	**SPR: POOLED FUND: TT-FED PROPOSED BUDGET TOTALS**						
					$247,698	**$1,378,325**	**POOLED FUND BUDGET TOTALS**						

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	PageNo.
Project Type: Pooled Fund: External Lead State													
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(099)	$5,000	$40,000			Evaluation of Low Cost Safety Improvements		10/1/2017		C-120
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(114)	$25,000	$190,000			Roadside Safety Research Program	7/1/2008	12/31/2011		C-121
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(159)	$5,000	$40,000			Technology Transfer Concrete Consortium				C-122
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(228)	$10,000	$125,000			Superpave Regional Center				C-123
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(237)	$15,000	$75,000			Transportation Library Connectivity and Development	1/1/2011	12/31/2015		C-124
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(255)	$20,000	$100,000			Highway Safety Manual Implementation				C-125
					$80,000	**$570,000**	**POOLED FUND: EXTERNAL LEAD STATE BUDGET TOTALS**						
Project Type: Pooled Fund: External Lead State													
SPR: Pooled Fund: TT-Fed	P	PFE		TPF-5(XXX)	$10,000	$50,000			Partnership for the Transformation of Traffic Safety Culture				C-126
SPR: Pooled Fund: TT-Fed	P	PFE		TPF-5(XXX)	$35,000	$35,000			Pooled Fund Collaboration Projects				C-127
					$45,000	**$85,000**	**POOLED FUND: EXTERNAL LEAD STATE BUDGET TOTALS**						
					$125,000	**$655,000**	**SPR: POOLED FUND: TT-FED ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

TT-Fed

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Structures													
IBRD: TT-Fed	A	ST	30000129	07-1ST	$57,894	$640,265	LTRC	Murad Abu-Farsakh	Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	11/1/2007	10/31/2010	12/31/2014	D-2
					$57,894	**$640,265**	**STRUCTURES BUDGET TOTALS**						
					$57,894	**$640,265**	**IBRD: TT-FED ACTIVE BUDGET TOTALS**						
Project Type: Geotechnical													
TT-Fed	P	GT	30001503	14-4GT	$20,000	$20,000	LTRC	Murad Abu-Farsakh	Support Study to "Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana"	9/1/2013			D-4
					$20,000	**$20,000**	**GEOTECHNICAL BUDGET TOTALS**						
					$20,000	**$20,000**	**IBRD: TT-FED PROPOSED BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

LTAP: TT-FED/TT-Reg

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: LTAP													
LTAP: TT-Fed/TT-Reg	A	LTAP	1000030	14-LTAP	$557,918	$557,918	LTRC	Marie Walsh	Local Technical Assistance Program (LTAP)		12/31/2015		E-2
					$557,918	**$557,918**	**LTAP BUDGET TOTALS**						
					$557,918	**$557,918**	**LTAP: TT-FED/TT-REG ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

LTAP: TT-FED/TT-Reg

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Technology Transfer and Training													
STP: TT-Fed	A	TT	30000320	08-1TSQ	$377,966	$366,917	LTRC	Sam Cooper	Technology Transfer Program and Operations (LSU)		6/30/2014		F-2
STP: TT-Fed	A	TT	30000241	10-4AD	$10,000	$110,000	LTRC	Mark Morvant	Technology Transfer & Research Implementation Support for Louisiana Universities	1/1/2010	12/31/2013		F-4
STP: TT-Fed	A	TT	1000025	15-1SWD	$1,520,000	$1,520,000	LTRC	Sam Cooper	DOTD Staff Support for Workforce Development		6/30/2015		F-5
STP: TT-Fed	A	TT	1000019	15-1TSQ	$461,949	$461,949	LTRC	Sam Cooper	Technology Transfer Program and Operations (DOTD)		6/30/2015		F-6
STP: TT-Fed	A	TT	1000023	15-1TT	$37,500	$37,500	LTRC	Sam Cooper	Support for Senior Project Courses		6/30/2015		F-8
STP: TT-Fed	A	TT	1000020	15-1WD	$978,849	$978,849	LTRC	Sam Cooper	Workforce Development		6/30/2015		F-9
STP: TT-Fed	A	TT	1000024	15-2TT	$147,000	$147,000	LTRC	Harold 'Skip' Paul	LTRC Student Program		6/30/2015		F-11
STP: TT-Fed	A	TT	1000021	15-COOP	$300,000	$300,000	LTRC	Sam Cooper	LADOTD CO-OP Program		6/30/2015		F-12
STP: TT-Fed	A	TT	1000027	15-PONTIS	$125,000	$125,000	LTRC	Sam Cooper	AASHTO PONTIS Agreement		6/30/2015		F-13
STP: TT-Fed	A	TT	1000022	15-TTRF	$100,000	$100,000	LTRC	Sam Cooper	Technology Transfer Registration Fees		6/30/2015		F-14
STP: TT-Fed	A	TT	1000028	15-WDC	$3,438,462	$3,438,462	LTRC	Samuel B. Cooper	Workforce Development Contracts		6/30/2015		F-15
STP: TT-Fed	A	TT	1000026	15-1WDSC	$100,000	$250,000	LTRC	Harold 'Skip' Paul	Workforce Development Support For Safety Center		6/30/2015		F-18
					$7,596,726	**$7,835,677**	**TECHNOLOGY TRANSFER AND TRAINING BUDGET TOTALS**						
					$7,596,726	**$7,835,677**	**STP: TT-FED ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

State: TT-Reg

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Structures													
State: TT-Reg	A	ST	30001020	13-4ST	$4,000	$60,000	LTRC	Ching Tsai	I-10 Girder Repair Using Post-Tensioned Steel Rods and Carbon Fiber Composite Cables (CFCC)	3/18/2013	3/17/2014		G-2
					$4,000	**$60,000**		**STRUCTURES BUDGET TOTALS**					
					$4,000	**$60,000**		**STATE: TT-REG ACTIVE BUDGET TOTALS**					

LTRC ANNUAL RESEARCH PROGRAM

Self-Generated

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Bituminous													
NCHRP	A	B	30000133	10-1B	$40,000	$600,000	LTRC	Louay Mohammad	Field versus Laboratory Volumetrics and Mechanical Properties	8/1/2009	2/29/2012	6/30/2014	H-2
NCHRP	A	B	30000545	12-4B	$13,000	$103,796	LTRC	Louay Mohammad	Performance of WMA Technologies: Stage II – Long-term Field Performance	4/29/2011	7/28/2016		H-3
NCHRP	A	B	30001505	14-2B	$79,052	$186,407	LTRC	Louay Mohammad	Field Implementation of the Louisiana Interface Shear Strength Test	8/9/2013	8/8/2015		H-4
					$132,052	**$890,203**	**BITUMINOUS BUDGET TOTALS**						
					$132,052	**$890,203**	**SELF-GENERATED ACTIVE BUDGET TOTALS**						
Project Type: Bituminous													
NCHRP	P	B	1000036	14-3B	$100,000	$100,000	LTRC	Louay Mohammad	Hamburg Wheel-Track Test Equipment Requirements and Improvements to AASHTO T 324	7/1/2014	6/30/2015		H-5
					$100,000	**$100,000**	**BITUMINOUS BUDGET TOTALS**						
					$100,000	**$100,000**	**SELF-GENERATED PROPOSED BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

Other DOTD Sections

FISCAL YEAR 2014-2015

Funding	A/P	Project Type	SIO No.	Research No.	FY Budget	Total Cost	Agency	Principal Investigator	Project Title	Start Date	End Date	End Date (Rev)	Page No.
Project Type: Geotechnical													
Emergency Fund	A	GT	30000980	13-9GT	$30,875	$350,785	LSU	Joshua Kent	CORS 911: Continuously Operating Reference Stations for the Bayou Corne Sinkhole	3/18/2013	3/17/2014	9/17/2014	I-2
					$30,875	**$350,785**	**GEOTECHNICAL BUDGET TOTALS**						
Project Type: Special Studies													
Safety	A	SS	30001700	14-3SA	$34,933	$65,000	ULL	Xiaoduan Sun	Developing a Method for Estimating Traffic Volumes on Local Roads in Louisiana	1/2/2014	12/31/2014		I-4
					$34,933	**$65,000**	**SPECIAL STUDIES BUDGET TOTALS**						
Project Type: Technology Transfer and Training													
Safety	A	TT	1000029	14-LRSP	$320,402	$320,402	LTRC	Marie Walsh	Louisiana Local Road Safety Program		12/31/2015		I-5
					$320,402	**$320,402**	**TECHNOLOGY TRANSFER AND TRAINING BUDGET TOTALS**						
					$386,210	**$736,187**	**OTHER DOTD SECTIONS ACTIVE BUDGET TOTALS**						

FHWA

Part II SPR Funded Research Program

ADMINISTRATIVE LINE ITEMS AND RESEARCH SUPPORT STUDIES

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	**Administration of LSU Partnership with the National Center for Intermodal Transportation for Economic Competitiveness**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000700**		Project Start Date:		3/1/2012
Research Project Number:	12-1AD		Completion Date	(original)	12/31/2013
Research Agency:	LTRC		Completion Date	(revised)	12/31/2015
Principal Investigator:	Mr. Harold 'Skip' Paul				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$26,270		**Total**		**$30,000**
	(revised)	$47,680				
Est. Expended to Date		$28,439		Salaries		$30,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$30,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$28,439		Other		

PURPOSE AND SCOPE

The purpose of the project is to provide the Louisiana Department of Transportation and Development (LADOTD) match funding for the Administration of the Louisiana State University (LSU) partnership with the National Center for Intermodal Transportation for Economic Competiveness (NCITEC). The NCITEC is a University Transportation Center funded by US Department of Transportation, Research and Innovative Administration (RITA). The theme of NCITEC is to promote the development of an integrated, economically competitive, efficient, safe, secure, and sustainable national intermodal transportation network by integrating all transportation modes for both freight and passenger mobility. The total UTC funds provided by the NCITEC to LTRC/LSU will be approximately $600,000 which requires a 100% match. LSU and LADOTD have committed to providing the matching funds.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Contracted with the Principal Investigator for five new projects for 1.2 million which constituted the year 2 funding;
-Held Project Review Committee meetings with Principal Investigators;
-Worked with Principal Investigators to ensure the project tasks are being completed in a timely manner;
-Coordinated the UTC Principal Investigators' presentation at the 2013 NCTEC Conference held in November, 2013, at Mississippi State University, Starkville, MS, participated in the conference; and
-Participated in the "Women in Transportation Conference" co-sponsored by NCITEC and held in Denver, CO, in April, 2014.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Provide support for the administration of the UTC;
-Continued contract monitoring of existing projects; and
-Coordinate investigators' presentations at the Regional UTC Conference and CUTC Conference.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Program Management	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000010**		Project Start Date:		7/1/2014
Research Project Number:	15-1PM		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$719,056		**Total**		**$719,056**
	(revised)					
Est. Expended to Date				Salaries		$709,056
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$10,000
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To cover administrative costs of the staff members involved in the planning and supervision of the SPR Program. This item will cover all general expenditures incurred in the management of the SPR Program, including the expense of the Policy Committee and Project Review Committees.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Managed the Louisiana Transportation Research Center's (LTRCs) research program including administrative duties, business activities and financial responsibilities;
-Developed performance strategies for research goals and implementation of research results;
-Participated in Transportation Research Board (TRB) activities;
-Participated in AASHTO RAC Subcommittee and task forces;
-Participated in the Louisiana Department of Transportation and Development (LADTOTD) committees;
-Managed the Southeast Transportation Consortium activities; and
-Administer the University Transportation Center funding.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue to manage and administer the SPR Research Program;
-Implement the LTRC 2013 RPIC results;
-Staff participation in External Peer Exchanges;
-Continued support for Transportation Research Board activities;
-Continued support for regional and national RAC task group activities;
-Continued support for Southeast Transportation Consortium; and
-Continued support for AASHTO RAC activities.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Equipment Management	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000011**		Project Start Date:		7/1/2014
Research Project Number:	15-1EQM		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$390,832		**Total**		**$390,832**
	(revised)					
Est. Expended to Date				Salaries		$312,666
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	$78,166
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To cover costs incurred to provide support for the purchase, fabrication, evaluation, and maintenance of rolling equipment, special equipment, and instrumentation for research projects. To provide for participation in standardized testing programs for laboratory certification (Co-Op, AMRL, CRRL).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Proficiency testing within the AASHTO Materials Reference Library (AMRL);
-Participation in LADOTD State Cooperative Testing Program;
-Comparison LWT testing between PMW and APA Jr. devices;
-Internal angle measuring device for Superpave Gyratory compactor;
-Fixation of BBR malfunctioning issues;
-Fixation of LWT devices;
-General Equipment Calibration and Maintenance;
-Efforts to dispose of old, non-working, neutron probe;
-New neutron probe calibration;
-Upgrade of equipment and software on the United Testing Machine;
-Repair of RST inclinometer reel;
-Vehicle Inspection Reports;
-Friction Tester repairs (ongoing); and
-FWD repairs.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
Maintain AMRL laboratory accreditations: -Perform routine and unscheduled maintenance of LTRC research laboratory and field equipment; -Developed plans, prepared specifications and purchase lab equipment as necessary to maintain state-of-the–art laboratory facilities; -Participate in State Coop and CRRL testing programs; -Safety Training and Reporting Duties; -Calibration of Profiler, FWD, Dynaflect, and Friction Tester; -Calibration of Mobile Imaging System; -Calibration of Profiler, FWD, Dynaflect, and Friction Tester; and -Perform routine and unscheduled maintenance of LTRC research laboratory and field equipment.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Research Laboratory and Field Test Support	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000012**		Project Start Date:		7/1/2014
Research Project Number:	15-1LFT		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$145,502	**Total**		**$145,502**
	(revised)				
Est. Expended to Date			Salaries		$143,502
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$2,000
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The broad objectives of this study are to provide support to the Louisiana Department of Transportation and Development's (LADOTDs) request for investigative studies on new materials and/or techniques in the laboratory and/or field. The effort will be confined to materials and/or techniques considered new or unique and those of the generic type such as admixtures, modified asphalts, etc.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-LA 103 Bayou Courtableu Bridge;
-Array of Projects - Warm Mix Asphalt;
-Array of projects - Load transfer;
-LA 70 Sinkhole; and
-Subgrade assessment of Northline road from DCP readings.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue to respond to request for technical assistance for laboratory, field work, and forensic analysis on the LADOTD projects not related to a formal research project that require a substantial amount of time and laboratory effort.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	**New Products Evaluation**	**Project Status:**	**Ongoing**

Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000013**		Project Start Date:		7/1/2014
Research Project Number:	15-1NPE		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$82,721		**Total**		**$82,721**
	(revised)					
Est. Expended to Date				Salaries		$82,721
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To support evaluation of products for the Louisiana Department of Transportation and Development (LADOTD) New Products Evaluation Committee. To provide general evaluation of new products or technologies not associated with a research project.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Evaluation of JointBond , NPE Offer No. 10.084;
-Evaluation of Reclamite , NPE Offer No. 21.010;
-Evaluation of Forta-FI , NPE Offer No. 15.041;
-Fibers (working on four separate requests);
-Flowable Fill (BASF admixture);
-Evaluation of Ecorphalt NPE Offer No. 15.042;
-Super Slurry Field Evaluation (LA 405);
-SOCHEM, New Product Evaluation Meetings;
-New Product Evaluation Committee Meetings; and
-Soil Stabilization Sub-Committee Meetings.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue managing the necessary evaluations of new projects submitted to the Louisiana Transportation Research Center (LTRC) by the LADOTD New Product Evaluation Committees including on-going evaluations.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	DOTD Staff Support for Research	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000014**		Project Start Date:		7/1/2014
Research Project Number:	15-1SSR		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$100,000	**Total**		**$100,000**
	(revised)				
Est. Expended to Date			Salaries		$100,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

To cover the costs incurred by the Louisiana Department of Transportation and Development (LADOTD) staff participating in the Louisiana Transportation Research Center (LTRC) support committees and advisory panels such as Project Review Committees (PRC), Research Problem Identification Process (RPIC), Technical Advisory Committee TAC), and LTRC Policy Committee. These committees and panels providing technical and policy support for development of the LTRC work program, development and conduct of specific research projects, of the participation of LADOTD staff on strategic planning functions for the research program conducted by LTRC. This funding shall not be used by LTRC/LADOTD employees (i.e. Sections 19 and 33).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

LADOTD staff (non LTRC) participation in Project Review Committees to provide technical direction to research projects.
-Participation in the conduct of 74 on-going projects; and
-Participation in the initiation of 17 new research projects.

Conduct LTRC Policy Committee meetings to provide strategic direction to the research program.
-Participation in two policy committee meetings.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Participate in Project Review Committees to provide technical direction to research projects; and
-Conduct LTRC Policy Committee meetings to provide strategic direction to the research program.

LTRC Annual Research Program
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Title:	Technical Assistance	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000015**		Project Start Date:		7/1/2014
Research Project Number:	15-1TA		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$340,088		**Total**		**$340,088**
	(revised)					
Est. Expended to Date				Salaries		$330,088
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$10,000
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To cover costs incurred in providing laboratory, field testing, and forensic analysis in direct response to departmental inquiries for assistance on the Louisiana Transportation and Development (LADOTD) projects which are not related to formal research studies. To provide assistance to state university requests for laboratory or field testing on research projects not funded by the Louisiana Transportation Research Center (LTRC).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Completion of Evaluation of Rutting Distresses on I-20 near Mound to Delta Scales, LTRC Project Number: 13-01TA-B, State Project No. 451-08-0078;
-Assisting districts in implementing the LWT device in support for the JMF approval process according to the new LADOTD thin lift specifications;
-LWT tests on OGFC roadway cores to verify specifications;
-Test rubber modified binders supplied from several suppliers to verify specifications;
-Evaluation of six Pilot projects for implementation of new 502 Standard Specifications;
  -LA 3235 (SP# H.009491)
  -LA 93 (SP# H.002161)
  -LA 519 (SP# H.009501)
  -US 80 (SP# H.009536)
  -LA 16 (SP# H.002403)
-Joor Road noise mitigation;
-ACR evaluation – I-20;
-Assisted Bridge Design and Contractors in developing a low strength grout for temporary precast detour bridges;
-Large Direct Shear Samples for the District;
-Dynamic Cone Penetrations Tests Evaluations;
  -District 61 (LA 952)
  -District 61 (LA 1148/LA 988
  -District 08 US 165
-Loyola Ramp failures H_003085;
-LA 478, District O8 pavement forensic evaluation;
-Rubblization evaluations;
  -H.003302, I-20
  -I-20 alternate design in Lincoln Parrish
  -US 165_H.010396_ District 05
  -I-10 _H.010601
  -I-10 _H.003014
  -I-10 _H.003003 US 90 Design Build, H_010620
  -Revision to Section 734, Rubblization and Survey of States
-US 165: Millhaven to Renwick St: Subgrade evaluation of Crack and Seat Project;
-LA 1 accident site (friction);
-LA 511 (FWD; sound - Highways for Life project);
-LA 21 District 62, jointed concrete (fwd, profiler);
-LA 440 District 62 (FWD);
-US 190 Morganza Bridge (friction, profiler);
-I-10 (friction, skidabrator);
-I-20 (FWD, profiler); and
-LA 378 District 7 Uretek (profiler).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Respond to requests for laboratory, field work, and forensic analysis on LADOTD projects not related to a formal research project;
-Field testing (Skid, FWD, Profiler, etc.) in support of District requests;
-Respond to requests for laboratory, field work, and analysis for university requests not related to a LTRC formal research project; and
-Provide general assistance to other public entities not related to research.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Technical Research Surveillance	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000016**		Project Start Date:		7/1/2014
Research Project Number:	15-1TRS		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$339,222		**Total**		**$339,222**
	(revised)					
Est. Expended to Date				Salaries		$339,222
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To cover costs incurred in providing Administration of the Louisiana Transportation Research Center (LTRC) Research Project Contracts, preparation of research proposals, participation on LTRC Project Review Committees and participation on LTRC Report Review Committees. To provide laboratory and field assistance to LTRC contract researchers on projects funded by LTRC.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Published 16 final reports;
-Managed research projects with contract budget funds of 6.3 million;
-Initiated 21 new research projects for 1.2 million (not including UTC funds); and
-Project management for 67 on-going research projects.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Provide management of LTRC research project contracts;
-Prepare new research proposals for initiation of new projects in accordance with proposed in-house projects as approved in this Annual Work Program document;
-Participation on LTRC Project Review Committees; and
-Participation on LTRC Report Review Committees.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Technology Transfer and Research Implementation	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000017**		Project Start Date:		7/1/2014
Research Project Number:	15-1TTRI		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$446,318		**Total**		**$446,318**
	(revised)					
Est. Expended to Date				Salaries		$426,318
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$20,000
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To cover costs incurred in providing research implementation activities, technology transfer seminars and participation in external research/training activities (NCHRP, FHWA Panels, TRB Meetings, Technical Conferences, and Research Review Committees).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Implementation of Research Results;
-Ongoing implementation of LTRC 04-6B;
-Conducted binder testing and evaluation to develop Pave M-E input data as part of past research;
-Investigation of effects on OGFC surfaces as a result of freezing precipitation that occurred in early 2014;
-LRI-IRI Roughness Index implementation effort;
-14-1P Investigation of Portland Cement Concrete Pavement Rubblization over Weak -Subgrade assessment of Northline road from DCP readings;
-14-2P Assessment of Structural Capacity Indicators from Rolling Wheel Deflectometer Data Collection in Louisiana;
-Preliminary investigation to conduct RWD testing in District 03;
-Participation and dissemination of research results at conferences;
-Participate and present at SEAUPG Annual Meeting, held in Baton Rouge, Louisiana;
-Participate and present at LAPA Annual Meeting;
-Participate in AAPT Annual Meeting;
-AASHTO/RAC 2013;
-Southeast Geotechnical Engineering Conference 2013;
-Southwest Geotechnical Engineering Conference, 2014;
-2013 Louisiana Public Transportation Conference (New Orleans, LA);
-Gulf Region Intelligent Transportation Society (GRITS) Annual Meeting and Conference, New Orleans, LA;
-AASHTO GIS for Transportation (GIS-T) Symposium (Burlington, VT);
-2013 STGEC Conference;
-2014 LA Transportation Safety Summit (Baton Rouge, LA);
-Participate in National committees;
-NCHRP research advisory panels;
-AASHTO RAC Value of Research task force;
-Binder ETG meeting;
-TRB, Transportation Research Board Annual Meeting;
-Participation in webinars;
-TRID Webinar: Leveraging Search Results with Reference Management Tools;
-T3 Webinar: Using ITS to Increase the Effectiveness of Your Traffic Incident Management (TIM) Program;
-SHRP 2 Webinar: Economic Impact Tools (C03 and C11);
-ESRI Virtual Campus GIS Training (Online);
-T3 Webinar: Educating Students for ITS Careers: Are Universities Meeting the Challenge;
-TRB Webinar: DOT Climate Change Adaptation and Local Resilience Coordination--An Operations Perspective;
-SHRP2 Webinar: Transportation Visioning in Communities (C08) and Capacity Performance Measures (C02);
-TRB Webinar: Lessons Learned from State DOT Activities Addressing Data for Decision Making and Performance Measures;
-SHRP2 Webinar: Roadway Information Data from the SHRP 2 Naturalistic Driving Study Database (S04A and S04B);
-Expert Task Group meetings;
-Asphalt Mixture;
-Asphalt Binder;
-Modeling;
-ProVal workshop;
-Required CPTP and LADOTD training & certification courses; and
-SASHTO 2014 Coordination.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Continue Research Implementation activities; -Begin development of program for 2016 Louisiana Transportation Conference; -Development and hosting of Technology Transfer Seminars; -Participate in external research/training activities: NCHRP/FHWA Panels, TRB Meetings; -Technical Conferences); and -Continue to seek venues for our presentations that effectively communicate the Louisiana Transportation Research Center's (LTRCs) vision.

FHWA

Part II SPR Funded Research Program

CONTINUING RESEARCH

Title:	Field Evaluation of Roller Integrated Intelligent Compaction Monitoring	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000480		Project Start Date:		11/1/2011
Research Project Number:	06-3GT		Completion Date	(original)	10/31/2013
Research Agency:	LTRC		Completion Date	(revised)	10/31/2014
Principal Investigator:	Mr. Gavin Gautreau				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$264,878	**Total**		**$63,689**
	(revised)	$195,084			
Est. Expended to Date		$131,395	Salaries		$63,689
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$87,765	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$87,765	Other		

PURPOSE AND SCOPE

One goal of this technology was to ensure that proper compaction is achieved while reducing project delays. Another goal was to utilize the rollers to shadow the normal data collection process throughout a test section. Results (collected on soil and asphalt) were used to help develop a draft performance specification and proposal to demonstrate the technology on a highway test site. The specification was created and used for a demonstration project on US 90 frontage roads (New Iberia).

An Intelligent Compaction Showcase was held to promote the research and technology. The research is also being shared with SHRP-2 partners for use in their study: Performance Specifications for Rapid Renewal (R07).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Coordinate Activities, Collect Field Data. The contractor has completed the soil work and transferred The measurement pass data from the soil roller. The contractor has nearly completed the asphalt work, and has submitted most of the constructions pass data from the asphalt roller.

Analyze the data the roller manufacturers provided, software or a website to analyze the data. Veda, an analysis software created by IntelligentCompaction.com, will also be utilized to analyze the data to include point measurement data by the Louisiana Transportation Research Center (LTRC) and the District.

Evaluate the results, the soil and asphalt data are being evaluated along with point measurements from LTRC and the District. Based on the data collected to date, preliminary impressions and experiences from the fieldwork have been formed. The evaluation will continue to be shaped based on the incoming data.

LTRC, LADOTD, and Construction stakeholders participated in a National Webinar on Intelligent Compaction to discuss its progress and future.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Provide Implementation Recommendations will be formed once all the data has been analyzed and evaluated; and -Submit a Final Report A final report has been drafted, and will be populated with the data and results.

Title:	**Support Study to Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000114**		Project Start Date:		11/1/2007
Research Project Number:	08-3GT		Completion Date	(original)	11/1/2010
Research Agency:	LTRC		Completion Date	(revised)	12/31/2014
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$88,776		**Total**		**$26,500**
	(revised)	$380,951				
Est. Expended to Date		$354,000		Salaries		$21,500
FY 2013 - 2014 Budget				Equipment	(expendable)	$5,000
FY Funds	(original)	$34,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$34,000		Other		

PURPOSE AND SCOPE

The objective of this research project is to establish a structure health monitoring system of the I-10 Twin Span bridge through instrumentation of the M19 Eastbound pier for use in the short-term and long-term monitoring purposes. This includes instrument selected piles with inclinometers and strain gauges, instrument pile-cap with accelerometers and tiltmeters, and instrument column with water pressure cells. Static lateral load test will be performed by the Louisiana Department of Transportation and Development (LADOTD) immediately after completing the installation of the monitoring system in the Eastbound pier M19. The short-term monitoring will be used to validate the applicability of the FB-MultiPier analysis for predicting the performance of battered pile group system under lateral loading; and to develop (or back-calculated) the p-y multipliers for battered pile groups in similar soil conditions.

The long-term monitoring will be used to evaluate the behavior of pile group structure under dynamic loads caused by selected events (winds, waves, and vessel collision).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Coordinated with the subcontractor (Geocomp)to install the additional superstructure instrumentations: 12 strain gauges on concrete girders, 12 strain gauges on steel girders, and 3 OSMOS extensometers to three steel girders;
-Coordinated with the subcontractor to re-calibrate the OSMOS WIM; and
-Prepared final report on lateral load test and analysis.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Coordinate with Geocomp to prepare the instrumentation report; and
-Finalize the report.

Title:	LTRC Support for Geotechnical Research at the Geotechnical Engineering Research Laboratory (GERL)	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000111**		Project Start Date:		7/1/2010
Research Project Number:	10-1GERL		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$523,000		**Total**		**$216,500**
	(revised)					
Est. Expended to Date		$720,000		Salaries		$158,500
FY 2013 - 2014 Budget				Equipment	(expendable)	$40,000
FY Funds	(original)	$244,000		Equipment	(non-expendable)	
	(revised)			Travel		$18,000
Est. FY Expenditure		$244,000		Other		

PURPOSE AND SCOPE

The objectives of this research are to:

-Perform support studies to meet the beneficiary requirements for geotechnical and geosynthetic testing, technical assistance and research;
-Advance the state-of-the-art in geotechnical and geosynthetic research;
-Provide development, support and training of new and innovative techniques, software and equipment for advancing the performance of the transportation system; and
-Develop problem statements and research proposals.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Provided geotechnical testing support and technical assistance for the Louisiana Department of Transportation and Development (LADOTD);
-Published several technical papers/proceedings/reports on findings of LTRC research projects;
-Developed potential ideas and problem statements for future LTRC research projects;
-Developed research proposal on "Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana"; and
-Maintained and upgraded software's related to CPT application.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Provide geotechnical and geosynthetic testing support and technical assistance for LADOTD;
-Provide support and training for implementation of research results;
-Develop research proposals and problem statements for future activities;
-Publish research findings on technical papers and reports; and
-Maintain CPT software's.

Title:	In Situ Evaluation of Design Parameters and Procedures for Cementitiously Treated Weak Subgrades using Cyclic Plate Load Tests	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000661		Project Start Date:		3/18/2013
Research Project Number:	11-1GT		Completion Date	(original)	9/17/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$294,679	**Total**		**$107,500**
	(revised)				
Est. Expended to Date		$113,000	Salaries		$104,500
FY 2013 - 2014 Budget			Equipment	(expendable)	$3,000
FY Funds	(original)	$90,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$90,000	Other		

PURPOSE AND SCOPE

The purpose of this research study is to evaluate the design parameters and procedures for cementitious treated soft subgrade soil using cyclic plate load tests. This includes evaluating the composite resilient modulus (Mr) of various cementitious (cement, lime, flyash) treated soft subgrade materials for inclusion in the pavement design. A treated subgrade soil has many characteristics that contribute to the performance of the pavement structure. As such, an adequate evaluation of the design parameters of treated subgrade soils is necessary in pavement analysis and design. The resilient modulus is a key input parameter for subgrade soil in both the 1993 AASHTO and the Mechanistic-Empirical Pavement Design Guide (MEPDG). Therefore, the determination and use of the "composite" resilient modulus of cementitious treated soft subgrades can provide a more suitable pavement structure design responsive to site conditions and projected loading is crucial in pavement design process. The work program includes conducting in-box resilient and permanent deformation tests using cyclic plate load tests on sections build inside a steel test box with dimensions of 6.5 ft. (length) × 6.5 ft. (width) × 5.5 ft. (height). Laboratory unconfined compression tests, resilient mod repeated plate load tests will also be conducted on cementitious treated soft subgrade samples. In addition, Dynamic Cone Penetrometer (DCP), Light Falling Weight Deflectometer (LFWD), Geogauge, Portable Seismic Pavement Analyzer (PSPA) tests, and repeated triaxial load tests will be conducted.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Started performing literature review on relevant research topics related to cementitious stabilization/treatment techniques, selection of cementitious material, performance, small-scale laboratory testing, and in-place evaluation of resilient modulus of cementitious treated subgrades;
-Started characterizing the laboratory soil properties for Phase 1 and Phase 2;
-Completed Phase 1 of the unconfined compression strength and repeated load triaxial tests on treated hauled soils to characterize the UCS, resilient modulus and the permanent deformations of three treated hauled soils;
-Started screening the four soil types for Phase 2 to select the moisture contents and evaluate the cementitious ratios needed to treat the in-situ wet subgrade soils to 50 and 100 psi UCS; and
-Started conducting laboratory unconfined compression tests for phase 2.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Continue performing literature review on relevant research topics related to cementitious stabilization/treatment subgrades; -Complete the screening of Phase 2, select the moisture contents and the cementitious ratios to treat in-situ wet subgrade soils to 50 and 100 psi UCS; -Start conducting laboratory repeated load triaxial tests to the resilient modulus and permanent deformations of the treated in-situ wet soils; and -Start modifying the repeated plate load testing facility and purchasing instrumentation needed for phase 2 of research.

Title:	**Field Instrumentation and Testing to Study Set-Up Phenomenon of Piles Driven into Louisiana Clayey Soils**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000134**		Project Start Date:		12/1/2010
Research Project Number:	11-2GT		Completion Date	(original)	11/30/2014
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$489,708		**Total**		**$81,600**
	(revised)					
Est. Expended to Date		$301,000		Salaries		$81,600
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$81,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$81,000		Other		

PURPOSE AND SCOPE

Piles driven into saturated cohesive soils usually experience a time-dependent increase in pile capacity, known as pile setup, which contributes to the long-term capacity of the piles. Field observations showed that pile set-up is significant and continues to develop for a long time after installation. An increase in pile capacity of up to 12 times has been reported. The pile set-up phenomenon depends on many factors including the increase in soil strength around the pile during the consolidation process resulting from dissipation of excess pore pressure with time, the effect of thixotropy in disturbed clayey soils during installation, and the aging effect. An accurate estimation and incorporation of pile set-up during design will result in reducing the cost of highway projects. The main objective of this research study is to evaluate the time-dependent increase in pile capacity (or pile setup phenomenon) for piles driven into Louisiana soils through conducting repeated static and dynamic field testing with time on full-scale instrumented piles for the purpose of incorporation the pile setup into the Louisiana Department of Transportation and Development (LADOTD) design practice. This will include investigating the mechanism of pile setup, study the effect of soil type/properties, pile size, and their interaction on pile setup phenomenon, and develop a model and its reliability to estimate the increase in pile capacity with time.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Conducted literature review on relevant research studies related to pile setup phenomenon in clayey soils;
-Analyzed the pile setup data collected at Bayou Teche Bridge,Bayou Zourie Bridge sit and Bayou Boeuf Bridge Extension, US 90;
-Completed testing the two test piles at Bayou Lacassine Bridge site (both static and dynamic load tests)at different time after pile driving for evaluating pile setup;
-Continued analyzing the pile setup data for the two test piles at Bayou Lacassine Bridge site;
-Conducted laboratory tests to evaluate pile setup parameters;
-Collected and started analyzing pile setup data from previous projects for piles with PDA and CAPWAP tests several times after pile installation; and
-Started analyzing the pile capacity measurements to develop a model for estimation pile setup with time.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Continue literature search on experimental and theoretical studies related to pile setup phenomenon in clayey soils; -Continue analyzing the pile setup data at Bayou Lacassine Bridge site; -Continue collecting and analyzing data from previous projects for piles tested several times after installation; -Continue laboratory tests to evaluate pile setup parameter; -Identify new potential sites/bridges for performing field instrumentation pile set-up tests; and -Continue analyzing the pile capacity measurements to develop a model for estimation pile setup with time.

Title:	**Accelerated Load Testing of Geosynthetic Base Reinforced Pavement Test Sections**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000135**		Project Start Date:		12/1/2010
Research Project Number:	11-3GT		Completion Date	(original)	5/31/2012
Research Agency:	LTRC		Completion Date	(revised)	6/30/2015
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$297,579		**Total**		**$109,200**
	(revised)	$596,370				
Est. Expended to Date		$425,500		Salaries		$106,200
FY 2013 - 2014 Budget				Equipment	(expendable)	$3,000
FY Funds	(original)	$94,500		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$94,500		Other		

PURPOSE AND SCOPE

The main objective of this research study is to evaluate the benefits of geosynthetics stabilization and reinforcement of subgrade/base aggregate layer in flexible pavements build on weak subgrades, and the effect of pre-rut of pavement sections prior to the construction to HMA layer on geosynthetics benefits and performance. This will be achieved through conducting accelerated load testing on geosynthetic reinforced unpaved and pavement test sections to be constructed at the ALF site. Different types of geogrids and geotextiles will be considered for base reinforcements. Another objective is to evaluate the design parameters of geosynthetic reinforced flexible pavement in terms of the 1993 AASHTO Pavement Design Guide and possibly the MEPDG that can provide a more suitable pavement structure design responsive to site conditions and projected loading.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Performed literature review on the use of geosynthetic for subgrade stabilization and reinforcement of base aggregate layer in flexible pavements;
-Completed the pre-rut tests for the 6 unpaved test lane sections;
-Conducted in-situ tests to evaluate the base/subgrade properties after completing the pre-rut tests;
-Repaired the rutted base coarse layers and pave the 3" asphalt layer;
-Started the accelerated load testing on the paved test lane sections. Completed 110,000 passes on lanes 3, 4 & 5, and 60,000 passes on lane 6. Currently, we are testing lanes 1 and 2;
-Completed 6 cyclic plate load tests on in-box geosynthetic reinforced test sections; and
-Started conducting laboratory tests to characterize resilient modulus of base and subgrade layers, and dynamic modulus of asphalt layer.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Continue conducting literature review on relevant published works; -Continue performing accelerated load testing on the paved test lane sections; -Complete laboratory resilient and permanent deformation tests to characterize subgrade and base, and dynamic test on asphalt; -Continue conducting cyclic plate load tests on in-box test sections; -Conduct cyclic plate load tests on the test lane sections at ALF; and -Start analyzing the experimental test results.

Title:	**Development of LADOTD Standards for GPS Elevation Accuracy**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001520**		Project Start Date:		10/1/2013
Research Project Number:	13-6GT		Completion Date	(original)	9/30/2014
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Joshua Kent				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$150,000		**Total**		**$50,000**
	(revised)					
Est. Expended to Date		$100,000		Salaries		$50,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$100,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$100,000		Other		

PURPOSE AND SCOPE

We have had several Project Review Committee (PRC) meetings on the project to involve all parties and ensure each of the three groups directly involved convey their needs to the Principal Investigator (C4G). The project will benefit the GIS section by assisting with standards for more accurate GPS data requirements. Secondly, the Pavement Management section will have additional checks on their control sections and receive recommendations on data quality. Finally, recommendations on Geoids, data collection, elipsoids, etc. will benefit the Survey Section, and the entire department.

-Field Survey of Roadway Test Sites;
-Research on Requirements-Based, Standard Operating and Collection Procedures for GNSS Technologies at the Louisiana Department of Transportation and Development (LADOTD); and
-Datum Research: Geoid models used to establish orthometric elevation values will be researched.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Began Collecting Data at some Roadway Test Sites;
-Purchased and Evaluated GPS systems; and
-Drafted Interim Report.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Complete the survey of Roadway Test Sites;
-Develop and finalize the SOP Manual;
-Complete the datum research; and
-Complete and submit the Final Report.

Title:	Support Study to ITRS Proposal on "An Integrated Computational and Experimental Study of Pile Setup in Soft Clays"	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30001220		Project Start Date:		2/18/2013
Research Project Number:	13-7GT		Completion Date	(original)	2/17/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$50,000		**Total**		**$16,666**
	(revised)					
Est. Expended to Date		$24,666		Salaries		$16,666
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$16,666		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$16,666		Other		

PURPOSE AND SCOPE

This support study is setup to provide the additional support fund for the CO/PI: Dr. Murad Abu-Farsakh during the three year duration of the Board of Regents funded proposal on “An Integrated Computational and Experimental Study of Pile Setup in Soft Clays”. The objectives of the research project, as stated in the proposal, to develop via laboratory testing, field instrumentation and testing, and numerical modeling, a fundamental understanding of the physical and scientific mechanisms underlying the pile setup phenomenon; to formulate an analytical model/equation for estimating and predicting pile setup with time, which can be transferred to various private sectors for the design and construction of driven pile foundations; and to establish the plans and mechanisms for transforming the research findings into exploitable, commercially feasible technologies to enhance the economic development in Louisiana and the nation.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Conducted literature review relevant to pile setup in clay soils;
-Ordered the pile setup instrumentations for the Baton Rouge and New Orleans, LA sites;
-Developed an instrumentation plan for the tested piles;
-Conducted in-situ and laboratory tests to characterize the soil type at Baton Rouge, LA site; and
-Started the finite element numerical modeling.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue conducting literature review relevant to pile setup in clay soils;
-Characterize the two field sites through field and laboratory tests;
-Install instrumentation on piles and surrounding soils;
-Start testing piles at Baton Rouge, LA site;
-Continue finite element numerical modeling; and
-Conduct in-situ and laboratory tests to characterize the soil type at New Orleans, LA site.

Title:	**Calibration of Region-Specific Gates Equation for LRFD**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001424**		Project Start Date:		1/2/2014
Research Project Number:	14-1GT		Completion Date	(original)	3/1/2015
Research Agency:	GeoStellar Engineering, LLC		Completion Date	(revised)	
Principal Investigator:	Ed Tavera				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$89,992		**Total**		**$51,716**
	(revised)					
Est. Expended to Date				Salaries		$30,884
FY 2013 - 2014 Budget				Equipment	(expendable)	$800
FY Funds	(original)	$70,103		Equipment	(non-expendable)	
	(revised)	$38,276		Travel		$4,000
Est. FY Expenditure		$38,276		Other		$16,032

PURPOSE AND SCOPE

The Louisiana Department of Transportation and Development (LADOTD) uses a variation of the Federal Highway Administration (FHWA) modified Gates equation to verify the nominal pile bearing resistance, typically on smaller projects where static load tests and dynamic monitoring are not practical. The resistance factor for Load and Resistance Factor Design (LRFD) specified by the current AASHTO Design Guide for the Gates equation is 0.40. However, the worst-case resistance factor used in LADOTD's static pile capacity design methodologies is 0.50 for designs using static equilibrium methods with no field verification. This discrepancy penalizes the target pile capacity needed during field observation if the LADOTD dynamic formula equation is used, which is unreasonable, and has created confusion among designers, consultants, district personnel, and inspectors in Louisiana.

The objectives of this proposed project are to recalibrate the FHWA modified Gates equation and update the associated LRFD resistance factor for pile types and local soil conditions encountered in Louisiana. Improved consistency relative to the current design approaches will be achieved if the updated resistance factor matches or exceeds the worst-case resistance factor used by LADOTD, which will reduce confusion among users. Updating the resistance factor will also serve to increase confidence in the FHWA modified Gates equation, refine the state-of-practice in LRFD, optimize the efficiency of the piles, and reduce project costs; another possibility is that it may identify the need for an alternate pile verification approach for small projects.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS
-Task 1 - Literature Review and Data Collection. The project team has collected pile load test and driving information from the Louisiana Transportation Research Center (LTRC), Louisiana Department of Transportation and Development (LADOTD), Federal Highway Administration (FHWA), and Goble, Rausche, Likins (GRL); -Task 2 - Database Development is also ongoing, and the information collected from the four sources above is being placed into a consistent format for use in the project and eventual uploading to the LADOTD geotechnical database; and -Task 3 - Data Analysis and Assessment.
FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Task 3 - Data Analysis and Assessment; -Task 4 - Benefit-Cost Assessment; and -Task 5 - Prepare Final Report.

Title:	**Testing Protocol for Predicting Pile Behavior within Pre-Bored Soil**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001425**		Project Start Date:		11/1/2013
Research Project Number:	14-2GT		Completion Date	(original)	10/31/2014
Research Agency:	UNO		Completion Date	(revised)	
Principal Investigator:	Dr. Malay Ghose Hajra				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$50,000		**Total**		**$45,000**
	(revised)					
Est. Expended to Date		$5,000		Salaries		$42,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$50,000		Equipment	(non-expendable)	
	(revised)	$5,000		Travel		
Est. FY Expenditure		$5,000		Other		$3,000

PURPOSE AND SCOPE

The objective of this project is to compile the state-of-the-art and best practice results available on the subject of pre-bored piles and develop a research and instrumentation testing plan for field data collection and select multiple pile driving sites representing different soil strengths (e.g., a “hard” site, a “very stiff” site, and a “medium stiff” site). The outcome of the research will include a plan for driving multiple test piles at each site using differently sized predrill holes with no predrilling as control for comparison; and performing monitoring during driving, restrikes, and static load tests using pile dynamic analysis (PDA) as well as strain gauge instrumentation.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Task 1 - Literature Review;
-Task 2 – Survey with States Highway and Other Agencies; and
-Task 3 – Survey with Louisiana Construction Experience.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

The following tasks will be completed in Fiscal Year 2014-2015:
-Task 4 – Investigate Instrumentation Protocol;
-Task 5 – Investigate Site Selection Guideline;
-Task 6 – Develop Specific Guidelines for Future Data Collection; and
-Task 7 – Final Report and Recommendation.

Title:	**Management and Operation of the Pavement Research Facility**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000141**		Project Start Date:		7/1/2009
Research Project Number:	10-1ALF		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$1,730,000		**Total**		**$550,000**
	(revised)					
Est. Expended to Date		$600,000		Salaries		$400,000
FY 2013 - 2014 Budget				Equipment	(expendable)	$50,000
FY Funds	(original)	$500,000		Equipment	(non-expendable)	$100,000
	(revised)	$601,000		Travel		
Est. FY Expenditure		$600,000		Other		

PURPOSE AND SCOPE

The Pavement Research Facility (PRF) is a full scale test facility site designed to test any and all types of pavements using the Australian designed ALF. The purpose of the Louisiana Transportation Research Center's (LTRC's) Pavement Research Facility is to investigate and evaluate economic and practical alternatives to current design and construction practices. The objective of this study is to provide for the management and operation structure of the PRF site in performing full-scale accelerated pavement testing.

A manager and two operators will be funded in this study. The scope of the work includes management of the facility, maintenance and operation, preparations of plans for individual experiments, construction and instrumentation activities and planning.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Construction of RCC test sections;
-Construction of Microcracking test sections; and
-ALF loading of Geo-grid reinforced test sections.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-ALF loading of Geo-grid reinforced test sections; and
-ATLAS loading of RCC test sections.

LTRC Annual Research Program
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Title:	LED Traffic Signal Lifetime Management System	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000164**		Project Start Date:		11/1/2010
Research Project Number:	10-3P		Completion Date	(original)	7/31/2013
Research Agency:	LTRC		Completion Date	(revised)	6/30/2015
Principal Investigator:	Dr. Leticia Santos da Rocha Courville				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$132,144	**Total**		**$31,576**
	(revised)	$202,265			
Est. Expended to Date		$170,689	Salaries		$28,346
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$2,840	Equipment	(non-expendable)	
	(revised)	$39,132	Travel		$1,130
Est. FY Expenditure		$39,132	Other		$2,100

PURPOSE AND SCOPE

The objective of this research is to develop lifetime curves of LED traffic signal modules. A secondary objective is to evaluate the effectiveness and accuracy of two handheld devices used to measure light output as compared to an independent lab.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Lab measurement of luminous intensity;
-In-house measurement of luminous intensity;
-Preliminary analyses of the results;
-First version of the Interim report; and
-To implement modifications on the Interim report based on comments from Project Review Committee (PRC).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-To complete lab and in-house measurements of luminous intensity;
-Final report; and
-To publish the findings.

Title:	**Field Validation of Equivalent Modulus for Stabilized Subgrade Layer**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000610**		Project Start Date:		5/1/2012
Research Project Number:	12-11P		Completion Date	(original)	4/30/2014
Research Agency:	LTRC		Completion Date	(revised)	5/1/2015
Principal Investigator:	Mr. Mark Martinez				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$263,502		**Total**		**$108,442**
	(revised)					
Est. Expended to Date		$155,060		Salaries		$108,442
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$140,202		Equipment	(non-expendable)	
	(revised)	$73,482		Travel		
Est. FY Expenditure		$73,482		Other		

PURPOSE AND SCOPE

The central objective of the research is to validate the newly developed Modulus Analysis Spreadsheet through comparison to field collected data so that current pavement design strategies and policies can be updated and modified in an effort to improve long-term performance and increase benefit-cost ratios on future pavement projects. It is also an objective of this research to develop a subgrade stabilization specification (lime and\or cement) of the Louisiana Department of Transportation and Development (LADOTD) that will allow the Department to take design advantage of the structural improvements that subgrade treatment applications provide.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Task 2: A canvassing of prospective rehabilitation and new construction projects that fit project needs were compiled and a number of projects have been selected for evaluation. DCP, cores, Shelby tubes, FWD and LFWD testing is being conducted according to schedule on said projects;
-Task 3: Empirical data is being compiled and theoretical projections are being developed. Preliminary comparisons have been carried out; and
-Task 4: Preliminary investigation into usage model has begun.
NOTE: Inclement weather has delayed field collection and analysis. Project extension has been requested and approved. Delays have impacted spending (to date only $73K of the projected $140K has been spent - remaining funds to be used over the extension period).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 2: Finish canvassing of prospective rehabilitation and new construction projects that fit project needs were compiled and a number of projects have been selected for evaluation. DCP, cores, Shelby tubes, FWD and LFWD testing is being conducted according to schedule on said projects;
-Task 3: Finish compilation of empirical data and continued projections are being developed. Preliminary comparisons have been carried out;
-Task 4: Finish development of usage model; and
-Task 5: Submit Final Report and Benefit-Cost Analysis.

Title:	**Assessment of Pavement Distresses caused by Trees on Rural Highway**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000607**		Project Start Date:		2/1/2012
Research Project Number:	12-1P		Completion Date	(original)	7/1/2014
Research Agency:	LTRC		Completion Date	(revised)	6/30/2016
Principal Investigator:	Mr. Kevin Gaspard				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$341,459		**Total**		**$36,011**
	(revised)					
Est. Expended to Date		$39,000		Salaries		$36,011
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$72,063		Equipment	(non-expendable)	
	(revised)	$9,000		Travel		
Est. FY Expenditure		$9,000		Other		

PURPOSE AND SCOPE

Pavement surface and foundation distresses due to shrinking and swelling soils are an issue on certain Louisiana Highways which is the focus of this study. Desiccation is a common phenomenon due to diurnal changes in soil moisture content and can be caused by three primary sources (Evaporation, Transpiration, Water Table Fluctuations), hereafter referred to as Evapotranspiration . Expansive clay soils (PI>20) are particularly vulnerable to changes in moisture content; shrinking during the drying cycles (desiccation) and swelling during wetting cycles (recharge). While research has been conducted in these areas, though sometimes sparingly, assessment guidelines for soil characterization, environmental factors, and the stress state of the pavement system coupled with appropriate cost effective mitigation methods for evapotranspiration distresses on Highways will be provided through a comprehensive report and technical assistance to the Districts.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

The site that was targeted for monitoring, LA 494, experienced slope failures in the locations where monitoring was targeted to take place. Due to the slope failures we will journey to District 08 and locate site(s) to begin monitoring.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Locate site(s) to monitor; and
-Install instrumentation and begin monitoring.

Title:	Assessment of Environmental, Seasonal and Regional Variations in Pavement Base and Subgrade Properties	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000425**		Project Start Date:		9/1/2011
Research Project Number:	12-2P		Completion Date	(original)	8/31/2013
Research Agency:	LTRC		Completion Date	(revised)	6/30/2015
Principal Investigator:	Mr. Kevin Gaspard				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$262,210		**Total**		**$56,270**
	(revised)	$329,685				
Est. Expended to Date		$163,000		Salaries		$53,770
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$127,000		Equipment	(non-expendable)	$2,500
	(revised)	$56,000		Travel		
Est. FY Expenditure		$56,000		Other		

PURPOSE AND SCOPE

The purpose of this project is to validate the prediction of seasonal variation strengths in the base course and subgrade, validate MEPDG provided soil properties and strengths, validate soil properties and locations from Soil Unit Maps, link soil unit maps with the Louisiana Department of Transportation and Development (LADOTD) Geotechnical data base, document water table depths, and obtain Level 2 modulus inputs with data from the Falling Weight Deflectometer (FWD) and Dynamic Cone Penetrometer (DCP). A companion study will be conducted through the Southeast Superpave Pool Fund Study to refine the historical climatic model and build new future climatic models to be utilized in the MEPDG.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-The 14 research sites were assessed in September, 2013 and April, 2014;
-The laboratory resilient modulus testing's of four soils at differing moisture contents were completed and compared to the algorthyms in the MEPDG; and
-Field installation of pipes for the neutron probes and Shelby tube sampling for the 14 sites were arranged with the boring crew from the LADOTD Headquarters.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue FWD testing on the 14 sites;
-Install TDR's and suction gauges at four sites;
-Begin full monitoring of sites as neutron probe tubes are installed; and
-Begin laboratory testing of Shelby tube samples.

Title:	**Minimizing Shrinkage Cracking in Cement-Stabilized Bases Through Micro-Cracking**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000729**		Project Start Date:		11/1/2012
Research Project Number:	12-3P		Completion Date	(original)	4/30/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$200,000		**Total**		**$34,250**
	(revised)					
Est. Expended to Date		$130,000		Salaries		$34,250
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$50,000		Equipment	(non-expendable)	
	(revised)	$79,000		Travel		
Est. FY Expenditure		$79,000		Other		

PURPOSE AND SCOPE

Micro-cracking is a construction process used to reduce the severity of shrinkage cracking problems associated with pavements that have cement-treated or stabilized bases. Several research studies have reported that micro-cracking improves the performance of soil cement layers by reducing the crack width, reducing the total length, or both. Through these mechanisms, the micro-cracking process possesses a great potential to reduce the risk of reflective cracking on soil cement pavements in Louisiana.

The main purpose of this study is to document the micro-cracking process in Louisiana and evaluate the effectiveness of using micro-cracking to reduce shrinkage/reflective cracking problems on soil cement pavements through field test sections. Several new cement-stabilized base construction projects will be identified and selected for this study. After placement and satisfactory compaction of cement stabilized layer, it should be moist-cured 2 or 3 three days before and after micro-cracking. In situ deflection tests will performed before and after the micro-cracking to monitor the base strength changes. Reflective cracking of pavements after one year in-service will be collected and compared.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Monitoring of shrinkage cracking of ALF Microcracking test sections; and
a) constructed six test sections at PRF
b) Performed NDT testing (FWD, LFWD, Geogauge)
c) Visual crack-mapping
-Started to select in situ Microcracking test sections.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue monitoring PRF test sections;
-Construct in situ Microcracking testing;
-Perform in situ NDT testing; and
-Analyze the performance data.

Title:	**Development of DARWin-ME Design Guideline for Louisiana Pavement Design**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000608**		Project Start Date:		2/1/2012
Research Project Number:	12-4P		Completion Date	(original)	8/1/2013
Research Agency:	LTRC		Completion Date	(revised)	3/31/2015
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$160,231		**Total**		**$102,000**
	(revised)	$267,960				
Est. Expended to Date		$160,000		Salaries		$102,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$25,500		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$25,500		Other		

PURPOSE AND SCOPE

The objectives of this research study are:
-To conduct a pilot mechanistic-empirical pavement design evaluation using AASHTO Pavement ME based on typical Louisiana traffic, materials and environmental information;
-To assess the short and long-term performance of typical Louisiana pavement structures using Pavement ME's nationally calibrated performance models; and
-To develop implementation guidelines for future adoption of Pavement ME in Louisiana.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Analyzed the performance of flexible, rigid and overlay pavements in Louisiana using Pavement ME;
-Developed Pavement ME Implementation Guidelines; and
-Prepared the Final Report for the study of Phase I.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

The following tasks are proposed for the study of Phase II:
-Task 1. Select additional projects;
-Task 2. Validation of performance data through field evaluation;
-Task 3. Re-evaluate and calibrate Pavement ME models;
-Task 4. Update the Implementation Guidelines and design examples; and
-Task 5. Prepare the Final Report for Phase II.

Title:	**Evaluation of DOTD Aggregate Friction Rating Table by Field Measurements**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000609**		Project Start Date:		2/1/2012
Research Project Number:	12-5P		Completion Date	(original)	2/1/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$217,957		**Total**		**$43,700**
	(revised)					
Est. Expended to Date		$172,000		Salaries		$43,700
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$84,870		Equipment	(non-expendable)	
	(revised)	$97,000		Travel		
Est. FY Expenditure		$97,000		Other		

PURPOSE AND SCOPE

The objective of this research is to evaluate the current Louisiana Department of Transportation and Development (LADOTD) Coarse Aggregate Friction Rating Table and provide recommendation/revision of frictional mix design guidelines based on a new set of laboratory friction measurement devices – dynamic friction tester (DFT) and circular texture meter (CTM).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Continued to perform field friction tests;
-Verified NCAT friction test results; and
-Refined the developed preliminary relationships based on more field test results.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Analyze the test data to evaluate the surface frictional characteristics of typical LADOTD asphalt pavement surfaces;
-Determine the speed gradient of the LWST and DFT measurements;
-Evaluate the correlation between the LWST skid number and the DFT friction number;
-Establish the correlation between the IFI friction number F60 and the skid number of LWST;
-Develop revised aggregate and mix type selection guidelines (or criteria) for LADOTD; and
-Prepare the Final Report.

Title:	**Roller Compacted Concrete Over Soil Cement Under Accelerated Loading**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000682**		Project Start Date:		5/1/2012
Research Project Number:	12-7P		Completion Date	(original)	4/30/2014
Research Agency:	LTRC		Completion Date	(revised)	7/31/2015
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$363,959		**Total**		**$58,400**
	(revised)					
Est. Expended to Date		$295,000		Salaries		$58,400
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$154,000		Equipment	(non-expendable)	
	(revised)	$188,000		Travel		
Est. FY Expenditure		$188,000		Other		

PURPOSE AND SCOPE

The objective of this research is to document the experience of mix design and construction practice of a new RCC-surfaced pavement type for the Louisiana Department of Transportation and Development (LADOTD) and evaluate the structural performance and load carrying capacity of RCC surfacing soil cement base pavements under accelerated pavement testing. Six RCC accelerated pavement testing (APT) sections (each of 71.7-ft long and 13-ft wide) will be constructed for this research study.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Constructed six RCC test sections at ALF;
-Performed lab-testing on RCC mixes; and
-Started accelerated loading of RCC test sections using the ATLAS.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Accelerated loading of RCC test sections using the ATLAS;
-Direct comparison of the RCC pavement performance using instrumentation and NDT test results;
-Determination of RCC pavement lives in terms of 18-kip Equivalent Signal Axle Loads (ESALs);
-Comparison of pavement lives between the RCC and asphalt-surfaced low-volume pavement structures;
-Evaluation of RCC pavements using the Mechanistic-Empirical(M-E) Pavement Design procedure; and
-Development of an RCC thickness design procedure.

Title:	Pavement Materials Research using Special Equipment at the Engineering Materials Characterization Research Facility	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000112		Project Start Date:		7/1/2009
Research Project Number:	10-1EMCRF		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$345,000		**Total**		**$168,200**
	(revised)					
Est. Expended to Date		$345,000		Salaries		$152,200
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$345,000		Equipment	(non-expendable)	$10,000
	(revised)			Travel		$6,000
Est. FY Expenditure		$345,000		Other		

PURPOSE AND SCOPE

The Engineering Materials Characterization and Research Facility (EMCRF), provides a multi-disciplinary expertise and state-of-the-art research capabilities to assess the fundamental engineering properties of materials used in the transportation industry in Louisiana. EMCRF plays an important role in the evaluation of the engineering properties of materials used in the Louisiana Transportation Research Centers (LTRC's) regional pavement testing facility, ALF. In addition, EMCRF provides specialized analytical expertise for on-going as well as newly initiated in-house research projects; develops new software to be used by the Louisiana Department of Transportation and Development (LADOTD) engineers; provides experimental design and analysis; provide training for LADOTD employees for the purpose of adopting newly developed technology and implementation methodology into the daily operations of LADOTD, and assists in-house LTRC investigators to develop thorough research programs.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Participated in the LADOTD Parts five and ten Specification Committee;
-Chaired LADOTD Specification Sections on "Asphalt Tack Coat", "Asphalt Prime Coat", and "Asphalt Curing Membrane";
-Developed and submitted proposals for NCHRP and RITA's University Transportation Centers Program; and
-Participated in several technical assistance Projects.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue participation in the LADOTD Asphaltic Concrete Specification Committee;
-Continue participation in technical assistance projects;
-Develop and submit proposals for external funding; and
-Conduct workshops and seminars.

Title:	Development of Performance Based Specifications for Louisiana Asphalt Mixtures	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000221		Project Start Date:		4/1/2011
Research Project Number:	10-4B		Completion Date	(original)	3/31/2014
Research Agency:	LTRC		Completion Date	(revised)	8/30/2014
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$299,433	**Total**		**$4,000**
	(revised)				
Est. Expended to Date		$295,433	Salaries		$4,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$103,833	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$103,833	Other		

PURPOSE AND SCOPE

The objective of this research study is to develop a framework for the implementation of a Performance Based Specification (PBS) for new and rehabilitated asphalt pavements. Specific objectives of the study include: identifying state-of-the-practice of PBS employed in highway agencies, evaluating the applicability of key PBS principles to Louisiana pavements, developing a tailored PBS for the Louisiana Department of Transportation and Development (LADOTD), and developing a framework of the PBS implementation in Louisiana.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Completed the following tasks:
-Task 1 - Conducting Literature Review;
-Task 2 - Identification of Field Projects and Sample Preparation;
-Task 3 - Conducting Laboratory and Field Experiments;
-Task 4 – Performing Data Analyses; and
-Task 5 – Developing a Prototype PBS.

The following task is in progress:
-Task 6 – Preparation of a Draft Final Report.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 6 – Complete and submit draft Final Report.

Title:	**Evaluation Of Asphalt Mixtures Containing Recycled Asphalt Shingles**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000007**		Project Start Date:		4/8/2014
Research Project Number:	12-1B		Completion Date	(original)	4/7/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$219,476		**Total**		**$114,878**
	(revised)					
Est. Expended to Date				Salaries		$103,878
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$2,000
Est. FY Expenditure				Other		$9,000

PURPOSE AND SCOPE

The primary objective of this research project is to evaluate the potential use of roofing shingle in asphalt concrete mixtures. The roofing shingles may be blended with asphalt binder through a wet process, in which the ground recycled material is blended with a virgin binder at high temperature prior to mixing with the aggregates. To achieve this objective, this research will measure experimentally the rheological and mechanical properties of asphalt binders and aggregates extracted from three contrasting sources of Recycled Asphalt Shingles (RAS). The ground recycled material will then be blended with virgin asphalt binder at high temperature and at different RAS content levels. The chemical and physical interaction mechanisms taking place in the blending process will be characterized using rheological testing and GPC. Rheological and mechanical characterization of asphalt binders and aggregates extracted from three contrasting sources of RAS will be performed. In addition, the mechanical properties of asphalt/aggregate mixtures with and without RAS will be evaluated at high, intermediate and low temperatures.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Characterize the rheological and mechanical properties of asphalt binders and aggregates extracted from three contrasting sources of RAS;
-Prepare RAS modified asphalt binder blends using a wet process and measure the rheological properties of prepared asphalt blends; and
-Determine the mechanical properties of asphalt/aggregate mixtures with and without RAS.

Title:	Chemical Characterization of Asphalts Related to their Performance	Project Status:	Ongoing

Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	**30001080**		Project Start Date:		12/1/2012
Research Project Number:	12-3B		Completion Date	(original)	11/1/2014
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Mr. William H. Daly				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$238,645	**Total**		**$41,255**
	(revised)				
Est. Expended to Date		$197,451	Salaries		$32,640
FY 2013 - 2014 Budget			Equipment	(expendable)	$615
FY Funds	(original)	$134,512	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$129,652	Other		$8,000

PURPOSE AND SCOPE

The objective of this study is to correlate the molecular structure of asphalt binders of conventional HMA mixtures as well as of mixtures containing high recycled asphalt content with their cracking potential. This project will be sub-divided into two phases including: (I) development of procedures to define the percent content of polymers, asphaltenes and maltenes in polymer modified binders as well as analysis of recyclable asphalts, such as recycled asphalt pavement (RAP), and (II) comparative evaluation of binders for HMA mixtures in which RAP will be incorporated. Cracking potential will be evaluated using the Semi Circular Bend (SCB) test procedure.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Data bases of TRIS, COMPENDEX , ACS Scifinder are being searched periodically;
-Over 60 samples have been analyzed by GPC;
-AASHTO Standardized Test Method Procedure for quantification of polymer content written;
-Several samples containing RAP and RAS were collected by the Louisiana Transportation Research Center (LTRC) or the Louisiana Department of Transportation and Development (LADOTD) Materials Laboratory;
-The asphalt binder from 45 binders has been extracted;
-The asphalt binder from 45 binders has been analyzed using GPC and FTIR;
-Different type data analysis are being done for samples containing RAP and RAS;
-The asphalt binder from 18 blends have been analyzed by GPC and FTIR; and
-Rheological tests on 20 blend samples have been conducted.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue GPC and FTIT analysis of binder extracted from selected mixes containing RAP. The impact of additional modifiers will be assessed;
-Continue to conduct MSDR tests on selected mixes;
-Continue SCB tests on selected mixes;
-Correlate GPC data with rheological data on mixes; and
-Prepare draft of Final Report.

Title:	Developing Prestressed Girder Transportation Guidelines	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000138**		Project Start Date:		5/2/2011
Research Project Number:	10-5ST		Completion Date	(original)	9/1/2012
Research Agency:	Wiss, Janney, Elstner Associates, Inc.		Completion Date	(revised)	6/30/2014
Principal Investigator:	Mr. Jonathan McGormley				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$199,961	**Total**		**$57,279**
	(revised)	$211,919			
Est. Expended to Date		$154,640	Salaries		$35,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$100,000	Equipment	(non-expendable)	
	(revised)	$70,000	Travel		$5,000
Est. FY Expenditure		$48,538	Other		$17,279

PURPOSE AND SCOPE

The purpose of the study is to develop (or review and update) the transportation guidelines for prestressed girders. This will be done by assessing and analyzing the effects of stresses that transported girders are subject to and providing recommendations that would ensure that girders being transported from the plant to the bridge site would not be damaged.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Completed installation of instrumentation on first trial girder and monitor during transport;
-Reviewed collected data and revised the instrumentation plan for the second girder to capture selected behaviors of girder;
-Started creep test to provide material properties for research; and
-Gave a presentation on findings from transportation of first girder.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Prepare second test girder instrumentation plan;
-Install instrumentation for second girder;
-Continue creep study to provide material properties for research;
-Complete second girder test monitoring;
-Continue analyzing data from first girder test. Use results to adjust second girder test program;
-Prepare second interim report after completion and evaluation of second girder test;
-Review existing transportation and design requirements and develop proposed modifications based on results of the two field tests and parametric study;
-Develop and deliver workshop to the Louisiana Department of Transportation and Development (LADOTD) highlighting proposed modifications to transportation and design guidelines for long span precast prestressed girders; and
-Submit a draft Final Report for review by Project Review Committee (PRC).

Title:	LTRC Proposal for the Support of Research and Development in Transportation Planning	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000125		Project Start Date:		7/1/2010
Research Project Number:	10-1PLAN		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$358,462		**Total**		**$93,019**
	(revised)					
Est. Expended to Date		$157,176		Salaries		$93,019
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$442,987		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$220,000		Other		

PURPOSE AND SCOPE

This project provides long-term professional assistance to the Louisiana Department of Transportation and Development (LADOTD) on transportation planning and other matters, has supported the management responsibility of the Special Studies Section of the Louisiana Transportation Research Center (LTRC), and permits teaching of courses in the Department of Civil and Environmental Engineering at Louisiana State University on a case by case basis depending on the work schedule. Such exposure encourages graduate students to participate in the LTRC research program and affords LTRC the opportunity to support the enhancement of higher education. The Principal Investigator (PI) of this project reports to the Director, LTRC. Research is conducted on topics from LTRC's research program, technical assistance requests from LADOTD, and external research solicitations.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Managed Project 13-9SS, "Improving Freight Crash Incident Management";
-Managed project 13-2SS, "Travel Time Estimation Using Bluetooth";
-Managed project 14-4SS, "Identifying Local Transit Resources for Evacuation";
-Taught CE 7640, Transportation Policy and Planning, Fall 2013; and
-Taught CE 7641, Urban Transportation Planning Models, Spring 2014.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue to manage Project 13-2SS, "Travel Time Estimation Using Bluetooth";
-Continue to manage Project 14-4SS, "Identifying Local Transit Resources for Evacuation"; and
-Get support from GOHSEP and OEP in New Orleans, Louisiana to conduct research into developing a mode choice model of evacuation transit demand.

Title:	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC (Phase II)	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000140**		Project Start Date:		8/20/2010
Research Project Number:	10-6SS		Completion Date	(original)	11/19/2011
Research Agency:	LSU		Completion Date	(revised)	11/19/2014
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$87,474	**Total**		**$20,000**
	(revised)	$161,805			
Est. Expended to Date		$5,000	Salaries		$20,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$16,139	Equipment	(non-expendable)	
	(revised)	$16,139	Travel		
Est. FY Expenditure		$16,139	Other		

PURPOSE AND SCOPE

The primary goal of this research project was to establish a state-of-the-art Intelligent Transportation Systems (ITS) Lab at the Louisiana Transportation Research Center (LTRC), where data will be collected, analyzed, and reported as part of the ITS effort in Louisiana. The ITS Lab was established at LTRC in 2012 with the intention to serve as a central repository for traffic data collected in the state of Louisiana. The data can be transformed into useful information that is instrumental to procedures and applications that benefit the Department of Transportation and Development (LADOTD), the local government, and the general public. The lab is a valuable tool to retain, recruit, and inspire interest in the field of advanced traffic management systems for students in Louisiana as well as potential graduate students from outside Louisiana. In the last phase of the ITS Lab development project, the research team developed procedures to collect data in real time from two data sources: (1) the BlueTOAD (Bluetooth Travel-time Origination and Destination); and (2) the 360 detector data. The data is compiled into the SQL server and stored into separate databases. Also, a web interface was built to query and display the traffic information in real time on Google maps. Access to video streaming was also established with LADOTD and video data can now be recorded, whenever needed and permitted for conducting research, in real time from various locations at any multicast video stream available on the ITS backbone which includes cameras from Baton Rouge, New Orleans, North Shore, Lafayette, and Lake Charles.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Connection to the Bluetooth data on I-12 has been established and travel time data has been downloaded from BlueToad website from Jan 2012 to present; and
-LADOTD has migrated from the current data collection system and a new SQL based system will be in effect in April, 2014.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
Real time streaming of data from the following sources will be established: -BlueToad travel time data; -The new SQL server at LADOTD for detector data; -Video feed from LADOTD cameras; -Other intersection data; -Build an interface for the data streaming process; and -Develop an operation and maintenance plan for the ITS Lab.

Title:	**DOTD Support for UTC Project: Traffic Counting using Existing Video Detection Cameras**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000604**		Project Start Date:		7/1/2013
Research Project Number:	12-1SS		Completion Date	(original)	6/30/2015
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$33,976		**Total**		**$23,976**
	(revised)					
Est. Expended to Date		$9,500		Salaries		$23,976
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$20,000		Equipment	(non-expendable)	
	(revised)	$20,000		Travel		
Est. FY Expenditure		$10,000		Other		

PURPOSE AND SCOPE

This study will evaluate the video detection technologies currently adopted by the City of Baton Rouge and the Louisiana Department of Transportation and Development (LADOTD) with the purpose of establishing design guidelines based on the detection needs, functionality, and cost. The study will also develop a mechanism for integrating traffic count data from video cameras at intersections in the Baton Rouge Metropolitan Area into a database that can be used to supplement traffic count information. The main objectives of this research are:

-Conduct a review of similar studies by other researchers with emphasis on the type of video detection technology used and the ability of the system to retrieve, edit, and analyze data as well as how the information is used;
-Make an inventory of the intersections in the Baton Rouge Metropolitan Area where video cameras are installed. Information on the mounting type, technology used, geometric characteristics of the intersection, lighting condition, and turning movements/lanes will be collected to include in the evaluation process;
-Select sample of intersections from the inventory. The sample size will be determined based on the factors outlined in objective 2;
-Collect traffic data from the selected signalized intersections using the video detection system installed on site and another reliable method (inductive loops, video recording, or manual observations) to provide ground truth data;
-Assess the capabilities of the existing video detection systems used to analyze the data and the quality of the data collected under different settings (nighttime, mounting angle, turning movements, etc.);
-Determine the accuracy of the video detection system through a comparison with the ground truth data; and
-Develop design guidelines for the selection of the appropriate video detection system based on detection need, functionality, ease of use, and cost, and make final recommendations.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-TASK 1: This task is 95% complete. The research team conducted a search for studies on the evaluation of video detection systems in other states with the purpose of gaining the state of the art knowledge on the subject matter. Published reports and journal manuscripts were thoroughly reviewed to expand on the preliminary literature search presented in this proposal. Special attention was given to video detection systems currently used in Baton Rouge and their ability to retrieve, edit, and analyze data. It is not 100% complete because the research team continues to search for current studies;

-TASK 2: This task is 95% complete. In this task, the research team compiled an inventory of intersections in the Baton Rouge Metropolitan Area that currently have video detection systems installed, and obtained the names of the manufacturers and the owner agency. Information on the intersections conditions including geometric characteristics, number of lanes, lighting information, mounting system, and turning movements have also been compiled. Obtaining the technical specifications of the two different systems used will make this task 100% complete; and

-TASK 3: This task has an anticipated completion date of end July 2014. It is 60% complete. The research team grouped the intersections with video detection systems based on factors that are believed to influence their traffic counting performance under different traffic conditions. A sample of intersections have been selected, based on the inventory, representing a cross section of the video camera manufacturers and intersection traffic conditions in terms of traffic volume, number of lanes, presence of tuning lanes, lighting condition, number and orientation of cameras, etc. The sample size was determined from statistical procedures.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-TASK 1: Continue literature review on current studies;

-TASK 2: Obtain technical specifications of the two different systems used in Baton Rouge, Louisiana. To be completed by end July, 2014;

-TASK 3: Using the information collected from the inventory, the research team will obtain detailed information on the video detection system(s) in order to identify their main features and the type of traffic data that can be collected. The team will then request approval from the operators of the video detection systems at each intersection to gain access to the system data for a specific time period. This task will be completed by the end of July, 2014;

-TASK 4: From the information collected in the previous tasks, the research team will assess the ability of the existing video detection systems to provide the data needed in this project. Specifically, emphasis will be made on whether the video detection system is capable of gathering traffic count data such as 15-minute counts, individual lane flows, and turning movements continuously over periods in excess of one year. In this task the research team will also conduct traffic counts using video recording for specific number of hours for specific days of the week during day and night times. This task will be completed by the end of July, 2014;

-TASK 5: In this task the research team will assess the capabilities of the existing video detection systems used to analyze the data and the quality of the data collected under different settings (night time, mounting angle, turning movements, etc.). A comparison between the ground truth data collected by appropriate methods such as video recording, inductive loops, or manual counts and the data collected by each video detection system will be conducted to assess the accuracy of each video detection system. This task will be completed by the end of January, 2015;

-TASK 6: In this task, the study team will evaluate the alternative data management systems in terms of cost, ability to integrate information from different sources, whether they can produce the information required with acceptable accuracy for daytime as well as for night-time, and ease of use. Accessibility to data, security in handling data, and the nature and format of information provided to the public from the data will also be included in the evaluation. This task will be completed by the end of April, 2015; and

-TASK 7: Produce Final Report documenting all efforts and make final recommendations. This task is to be completed by end of July, 2015. Draft report will be issued 3 months prior to the deadline.

Title:	**History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000605**		Project Start Date:		8/1/2012
Research Project Number:	12-2SS		Completion Date	(original)	1/31/2014
Research Agency:	LSU		Completion Date	(revised)	7/31/2014
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$149,999		**Total**		**$14,000**
	(revised)					
Est. Expended to Date		$136,000		Salaries		$14,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$52,372		Equipment	(non-expendable)	
	(revised)	$52,372		Travel		
Est. FY Expenditure		$52,372		Other		

PURPOSE AND SCOPE

The research objectives of this study are to:
-Identify national and state road design standards applied in Louisiana over the last 90 years;
-Determine state and federal laws that have a bearing on road design in Louisiana;
-Identify internal directives, policies, and practice applied to road standards in the Louisiana Department of Transportation (LADOTD) over the last 90 years; and
-Develop a document library of files in Access, Excel, or Word format listing the standards in chronological order.

Scope of Work:
The research is restricted to road design standards in force in Louisiana over the last 90 years. The 90-year period is chosen because it is likely to cover the lifespan of most state-controlled roads. Beside formally established standards (both applicable national and state standards), the study is also to report on accepted codes, policies, directives, or agreements in force within the LADOTD during the last 90 years.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-TASK 1: Literature Review: The Literature review is 90% complete. All the possible documents were collected. These documents include road design standards and design policies of different time periods. Necessary information regarding to these documents was collected from Harvey Shaffer, the Road Design Engineer. Final scanning of all the collected documents was done and compiled under appropriate headings (Design Standards, Design Policies and Other Documents);
-TASK 2: Data Assessment: This task is 85% complete. Scanned documents were categorized as Road Design Standards, Design Policies and Other Documents. “Other Documents” consist of the collection of memorandums, Road Design Manual, and some relevant graphs and rough sheets. Every document was carefully analyzed and a summary of all the documents was prepared. Finally the documents were arranged in a chronological order in a tabular format; and
-TASK 3: Prepare and present the Project Review Committee (PRC) with Interim Report: The Interim Report was presented to the PRC members on December 6, 2013.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-TASK 4: Law Review: The legal consultant will review the design documents and develop descriptive listing of pertinent state and federal statutory provisions and regulations, and specific road design standards. As the previous research member of the legal section was unavailable to conduct this task, the project is still looking for a new member. It was supposed to be completed in the previous fiscal year;

-TASK 5: Internal Review: The main objective of this task is to get more information about the history of road design guidelines, state and federal laws, and design policies. An open survey will be conducted among the retired and current road design engineers and administrators. A format of the questionnaire for the survey was prepared. However, it has not been started yet due to the status of the law review task. The possible questionnaire related to legal section still needs to be included in the survey. As soon as the law review starts, it will be executed;

-TASK 6: Establish Appropriate Format to Document the Information: Finally a single PDF file will be prepared for all the scanned documents. The file will include the summary of every task that has been done during the survey along with a summary table for all the scanned documents. A hard copy of the PDF file will also be prepared. A PDF file has already been prepared from all the documents collected till now; and

-TASK 7: Prepare Progress and Final Report: Final report is due July, 2014.

Title:	DOTD Support for UTC Project: Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements to Intersection Sites and Roadway	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000544		Project Start Date:		7/1/2013
Research Project Number:	12-4SA		Completion Date	(original)	12/31/2013
Research Agency:	LSU		Completion Date	(revised)	6/30/2014
Principal Investigator:	Dr. Helmut Schneider				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$41,709	**Total**		**$2,000**
	(revised)				
Est. Expended to Date		$39,757	Salaries		$2,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$11,952	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$9,952	Other		

PURPOSE AND SCOPE

Provide the Louisiana Transportation Research Center (LTRC) staff support for the UTC project "Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements to Intersection Site and Roadway Departures". One of the SHSP emphasis areas is Infrastructure and Operations which is comprised of “intersection crashes” and “roadway departure crashes”. To address intersection safety the Department of Transportation and Development (LADOTD) used extensive data analysis and research to develop an intersection safety improvement program. An interactive electronic tool to identify and document the sites, types and characteristics of the facilities, and the improvements installed, as well as calculate the results in terms of crash reductions associated with the targeted improvements, is needed.

This research would build and populate the tool and train LADOTD personnel on data input methods. It would also result in preliminary analyses. To the extent possible, the crash results at the improved sites would be compared to unimproved sites with the same or similar characteristics to control for potential regression to the mean.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Task 3: Programming and/or Software Preparation;
-Task 4: Data is Gathering and Input; and
-Task 5: Final Report (1 Month).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-LTRC three month review period of Final Report.

Title:	**DOTD Support for UTC Project: Development of Minimum State Requirements for Local Growth Policies**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000606**		Project Start Date:		7/1/2012
Research Project Number:	12-4SS		Completion Date	(original)	12/31/2013
Research Agency:	UNO		Completion Date	(revised)	6/30/2014
Principal Investigator:	Dr. John Renne				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$51,000		**Total**		**$16,424**
	(revised)					
Est. Expended to Date		$34,576		Salaries		$11,836
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$46,000		Equipment	(non-expendable)	
	(revised)			Travel		$778
Est. FY Expenditure		$32,055		Other		$3,810

PURPOSE AND SCOPE

The proposed research entails the development of minimum requirements for local growth management policies for use in Louisiana. This study will be a mixed methods approach that includes both quantitative and qualitative methods of data collection and analysis.
The major goals of this project include:
-Conduct a literature review;
-Conduct a survey to identify current state-of-practice and legal framework in Louisiana;
-Conduct a socioeconomic and demographic analysis of population trends obtained from last US census data at the Parish level across the State of Louisiana;
-Conduct a statewide poll of opinions and issues related to growth management and policies;
-Hold meetings with stakeholder agencies;
-Develop a list of growth management policies or guidelines for managing growth for both rural and urban transportation networks;
-Demonstrate the effectiveness of the guidelines by modeling consequences of one or more policies or guidelines developed;
-Develop Return on Investment analysis for implementation of guidelines;
-Develop draft Growth Management Guidelines for Louisiana;
-Hold meetings with stakeholder agencies to present findings, solicit comments, and establish a consensus-building approach; and
-Develop final report documenting entire research effort and outlining potential policy approaches for local, regional, and state governments to implement growth management.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS
-Two surveys were deployed to the general public and to government employees. Results were analyzed and a report documenting findings was developed; -Five stakeholder focus groups were held (September/October 2013) around the state, bringing together a diverse range of professionals involved in transportation to discuss growth management, policy priorities, and related activities to date. A report was developed summarizing the findings of these meetings; -A preliminary list of Growth Management guidelines was developed; -An interim report documenting the results of tasks 1-6 was developed; -Professor Reid Ewing, a national expert on land use and transportation, was engaged to assist in the completion of tasks 7 and 8 which call for the development of scenario modeling and ROI analysis of potential impacts and costs of the implementation of select policies; and -A second series of stakeholder meetings was held around the state (April, 2014) to review the draft list of guidelines and solicit feedback and additional ideas, as well as specific stakeholders who would need to be involved, actions needed to implement, and the relative level of priority of each guideline.
FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Completion of scenario modeling and ROI analysis (Tasks 7 and 8); -Integration of stakeholder meeting findings into draft guidelines for growth management document; and -Development of final growth management blueprint and final research report.

Title:	DOTD Support for UTC Project: Travel Time Estimation Using Bluetooth	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001396**		Project Start Date:		7/1/2013
Research Project Number:	13-2SS		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$104,885		**Total**		**$21,080**
	(revised)					
Est. Expended to Date		$64,000		Salaries		$21,080
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$105,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$64,000		Other		

PURPOSE AND SCOPE

The overall objective of this study is to develop procedures to measure travel time in an urban area. Baton Rouge, Louisiana has been taken as the test case on which to develop and test the procedures in this study. Specific objectives of the study are:
-To obtain an overall measure of congestion of an urban area;
-To determine the trend in congestion in an urban area;
-To determine locations of high congestion (hotspots) in an urban area;
-Purchase and deploy Bluetooth signal detection devices to measure congestion at areas of high congestion;
-Use data from INREX to compare the accuracy of the data obtained from Bluetooth devices and to compare the comparative cost between the two methods; and
-Compute congestion indices.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Overall measure of congestion can be obtained free of charge from annual publication of the Urban Mobility Report from TTI;
-Trend in congestion can be derived by comparing consecutive publications of the Urban Mobility Report;
-A method that uses information published in Google Maps has been developed to identify areas of high congestion (hotspots). It has been verified that the method works reliably by comparing results from this method and data from Bluetooth devices on I-12 in Baton Rouge, Louisiana;
-10 Bluetooth signal detection devices have been purchased and tested; and
-Sites have been chosen on Airline Highway, Baton Rouge, Louisiana to deploy the Bluetooth devices.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Deploy Bluetooth devices on Airline Highway, Baton Rouge, Louisiana and simultaneously, deploy traffic counters to measure the traffic at the detection sites; -Deploy Bluetooth devices on I-10 at selected sites; -Analyze Bluetooth data to derive travel times; -Acquire INREX data at selected sites; -Compare Bluetooth data with that of INREX and compare costs; and -Prepare Final Report.

Title:	Highway for Life Demonstration Project: La 511 (70th Street)	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001140**		Project Start Date:		1/15/2013
Research Project Number:	13-4SS		Completion Date	(original)	6/14/2015
Research Agency:	LTU		Completion Date	(revised)	
Principal Investigator:	Nazimuddin M Wasiuddin				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$89,609		**Total**		**$50,000**
	(revised)					
Est. Expended to Date		$25,019		Salaries		$50,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$36,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$25,019		Other		

PURPOSE AND SCOPE

The objective of this project is to determine user satisfaction with the new innovations installed in the LA 511 road project sponsored by the Federal Highway Administration (FHWA) Highways for Life program. The researchers will work with the local homeowners associations and businesses along the project to survey those most affected by the improvements to LA 511. The surveys would be used to assess users' before and after satisfaction with LA 511, based on factors such as pavement condition, roadway congestion, safety, traffic noise and disruption due to construction. Surveys would be constructed on a five-point Likert Scale with a performance goal of 4 or higher as suggested in the HFL goal. The Louisiana Department of Transportation and Development (LADOTD) will also use Facebook and twitter to obtain user feedback for the public and increase participation in the survey.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

The researchers are evaluating the user satisfaction with the existing facility. The researchers are working with the local homeowners associations and businesses along the project and surveyed those most affected by the improvements to LA 511. The Pre-construction surveys are used to assess users' satisfaction with LA 511 before construction, based on factors including pavement condition, roadway congestion, safety, traffic noise and disruption due to construction. The surveys were constructed on a five-point Likert scale with a performance goal of 4 or higher as suggested in the HfL goal.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-The researchers will examine and review the project details including the Hfl program, Hfl proposal, project construction proposal, project cost estimates, bid alternates, project safety, traffic, and pavement condition history; -The researchers will submit an interim report to the Project Review Committee (PRC) for review and approval. The interim report will summarize the project history, details, initial customer satisfaction survey, project schedule and data needs; -The researchers will visit the construction site periodically to document progress of implementation of Hfl innovations; -The researchers will analyze pre-and post-construction data for safety, congestion, smoothness, noise, speed of construction and user satisfaction; and -The researchers will assist LADOTD plans to highlight the FHWA Highways for LIFE program and the features of LADOTD application in various venues. The researchers will participate and document technology transfer event presenting project results and pavement condition history.

Title:	DOTD Support For UTC Project: Drugged Driving in Louisiana	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001390**		Project Start Date:		7/1/2013
Research Project Number:	14-1SA		Completion Date	(original)	6/30/2015
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Helmut Schneider				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$51,760	**Total**		**$25,880**
	(revised)				
Est. Expended to Date		$25,880	Salaries		$15,520
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$25,880	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$25,880	Other		$10,360

PURPOSE AND SCOPE

The purpose of this project is to provide highway safety stakeholders, law enforcement and prosecutors with information to guide strategies to reduce drug impaired driving through detection, enforcement actions, and more successful prosecution; identifying training and other resource needs for law enforcement and prosecutors; provide initial baseline information of the drugged driving contribution to the impaired driving in Louisiana to inform public health community, enforcement community and other stakeholders that make strategic decisions regarding resource allocation; identify opportunities to collect significant data needed for adequate characterization of drug impaired driving; and provide best practices from other states and jurisdictions that can be related to Louisiana's situation.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

The following tasks were completed fully or partially as indicated by the percentage in parentheses:
-Task 1 - Literature review (80%);
-Task 4 - Data collection (30%);
-Task 5 - Data preparation (10%); and
-Task 6 - Data Analysis (10%).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

To be accomplished in Fiscal Year 2014-2015 are Tasks 1, 2, 3 and 4. Those tasks include editing the literature review, preparing instruments to conduct structured interviews, conducting interviews, and data collection. The research team will be working to establish a survey instrument that will help assess the legal and implementation issues related to drug driving legislation. The next step will involve conducting interviews from a list of individuals representing different sectors of the community. Their collective expertise will enable the group to have a better understanding of the advantages and roadblocks that may be involved with enacting this type of legislation. The data collection will continuously be collected and analyzed throughout the fiscal year.

Title:	**DOTD Support For UTC Project: Development of an Optimal Ramp Metering Control Strategy for I-12**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001394**		Project Start Date:		7/1/2013
Research Project Number:	14-1SS		Completion Date	(original)	12/31/2014
Research Agency:	LSU		Completion Date	(revised)	6/30/2015
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$35,000		**Total**		**$20,000**
	(revised)					
Est. Expended to Date		$5,000		Salaries		$20,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$17,498		Equipment	(non-expendable)	
	(revised)	$17,498		Travel		
Est. FY Expenditure		$15,000		Other		

PURPOSE AND SCOPE

A recent evaluation of the effectiveness of the existing ramp metering strategy on I-12 concluded that the fixed time operation of the control system had not been effective in reducing congestion along the corridor and recommended that the feasibility of a dynamic time ramp metering operation be investigated and applied to the study area if applicable. Dynamic time ramp metering operation involves a system where the signals change every few seconds in response to freeway conditions. The purpose of this study is to investigate the most effective algorithm for the I-12 ramp meters. A traffic simulation tool will be used to model the existing traffic conditions on the affected I-12 corridor, using collected traffic data that was used for the evaluation studies. The various algorithms will be tested to find the most effective one that is capable of increasing traffic throughput, improve travel time reliability and reduce delays on the mainline.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Review the state of the practice of the different ramp metering strategies and applications in other metropolitan areas in order to learn from similar experiences and identify points of strengths and weaknesses of the various strategies. This includes identification of the ramp metering strategies that were proved to be effective to improving traffic conditions in similar study areas as I-12;
-Identify and collect the geometric and traffic data required to simulate the I-12 corridor under the selected ramp metering strategies;
-Select a microscopic simulation platform and build the simulation network for the study corridor; and
-Calibrate the selected simulation model with the collected data to replicate the actual traffic conditions on the study corridor.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Determine the required simulation scenarios and runs for the selected ramp metering strategies with all ramp meters turned off serving as the base case; -Establish an evaluation criterion to assess the tested ramp metering strategies. Based on this criteria, some performance measures will be measured from the output of the simulation runs; such as, travel time, delay, and throughput on the mainline. Using these performance measures, a comparative analysis will be conducted between the tested strategies; -The selected strategy based on the comparative analysis will be recommended for implementation on I-12 corridor to be tested for a short period of time (to be determined by the research team and DOTD). Based on this, a comparative analysis will be conducted to determine if the results from the field are consistent with the simulation results; and -Prepare the final report to document the entire research effort and obtained results.

Title:	**DOTD Support For UTC Project: A Simulation Model for Intermodal Freight Transportation in the State of Louisiana**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001395**		Project Start Date:		11/1/2013
Research Project Number:	14-2SS		Completion Date	(original)	10/31/2015
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Peter Kelle				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$41,199		**Total**		**$20,596**
	(revised)					
Est. Expended to Date				Salaries		$18,302
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$20,603		Equipment	(non-expendable)	
	(revised)			Travel		$2,294
Est. FY Expenditure		$20,603		Other		

PURPOSE AND SCOPE

The new Moving Ahead for Progress in the 21st Century Act (MAP-21) asks all state DOTs to evaluate and improve the operation and maintenance of their freight networks. Because of the high complexity and high variability involved in transportation flows, it is technically difficult to use analytical models to evaluate intermodal freight networks and identify improvement areas. Therefore, a simulation model is proposed to include the links and nodes of all three surface modes and the connections between different modes. In the literature and practice, the capacity and volume/speed relationships are only well defined for some infrastructure in a single mode, such as highway links, dams and ports, or rail links. There are no simulation models that incorporate the capacity at intermodal connections and the nonlinear dwelling time vs. volume relationships at connections though most freight flow time is spent at the connection nodes between modes or within modes (e.g., classification yards or ports). Those intermodal connection points are often bottlenecks for the capacity of the overall freight network. The freight transportation network is an integrated system with various impacts on the society. In addition to mobility, the intermodal simulation model should also incorporate other transportation performance metrics such as reliability, safety and security, environmental impact, economic development, etc. The proposed simulation model is expected to incorporate performance metrics that will be identified by an ongoing project of “Development of Performance Measurement for Freight Transportation” funded by the National Center for Intermodal Transportation for Economic Competitiveness (NCITEC) and Louisiana Department of Transportation and Development (LADOTD).

The objectives of this proposed project are to:

-Develop a comprehensive simulation model for an intermodal freight network that considers the dynamics at the connections between transportation modes; and

-Conduct what-if analysis of the performance of the Louisiana freight network under different scenarios and evaluate the benefits of selected network improvement initiatives.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Task 1: Summarization of Existing Intermodal Freight Transportation Simulation:
A literature review will be conducted to summarize the existing freight transportation simulation models for a single transportation infrastructure, a single-mode network, or an intermodal network. The review will specifically focus on data availability, models representing each major intermodal freight infrastructure, and simulation platforms;

-Task 2: Development of the Simulation Framework and Selection of the Simulation Platform:
A framework for an intermodal freight network simulation will be developed including all major network components, the connections of the components, the embedded relationships in each component, the variability that will be included in the model, input data, output data (including performance metrics), etc. The simulation model will incorporate the freight demand data from Freight Analysis Framework Version 3 and the Intermodal Surface Network data that the research team has collected from ORNL through collaboration in previous projects. Other data sources will be identified in this task, especially state-level data from LADOTD. A simulation package will be selected by considering its modeling capability, speed, and animation quality; and

-Task 3: Development of the Simulation Model:
Following the framework defined in Task 2, this task will program a simulation model for the intermodal freight network in the State of Louisiana. The simulation model will incorporate the ways to calculate system-level performance metrics for intermodal freight networks. The model is expected to have the capability of allowing users to change settings, input data, and define scenarios.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 4: Validation of the Simulation Model:
The simulation model will be validated based on historical traffic data in the State of Louisiana. LADOTD is expected to provide feedbacks to validate the simulation model. Changes, if necessary, will be made to the simulation model based on the suggestions from LADOTD; and

-Task 5: Analysis of Various Scenarios on the Simulation Model:
A selected number of scenarios, such as different traffic demand patterns and various freight improvement projects, will be identified based on suggests from LADOTD and run on the simulation model. The developed simulation model and findings of what-if analysis will be widely disseminated in the academic community and to practitioners.

Title:	**Feasibility of using Local Public Transit Resources for Evacuations and Other Unscheduled Needs**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001506**		Project Start Date:		11/5/2013
Research Project Number:	14-4SS		Completion Date	(original)	2/4/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$100,000		**Total**		**$135,804**
	(revised)					
Est. Expended to Date		$54,024		Salaries		$135,804
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$122,084		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$70,000		Other		

PURPOSE AND SCOPE

Establish an inventory of local transit resources normally used for human services and special needs transportation with a view to calling upon these resources when an emergency arises and evacuation services are required. The inventory must be in GIS form so that queries and results can be displayed graphically. A secondary objective is to estimate the demand for such services during an emergency.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-A review of laws or procedures that pertain to the use of local transit resources during an emergency has been completed;
-Some information has been collected on possible compensation and incentives that can be applied to encourage participation by private local transit providers, but more remains to be done;
-Data has been collected on local transit providers and demographic information on the 20 coastal parishes making up the study area of this project;
-Some information has been collected on school and university enrollment, and disability numbers in the study area;
-ArcGIS Online has been established at the Louisiana State University and data has been downloaded to the GIS. Initial queries have been conducted; and
-Preparatory work has been done to estimate demand for local transit services during an emergency.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Conduct survey among local transit providers in study area;
-Develop query system in GIS more fully; and
-Complete demand estimation procedure and develop a computer program to conduct the calculations.

Title:	**Evaluation of Portland Cement Concrete with Internal Curing Capabilities**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000680**		Project Start Date:		5/1/2012
Research Project Number:	12-4C		Completion Date	(original)	10/30/2013
Research Agency:	LTRC		Completion Date	(revised)	6/30/2015
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$124,096		**Total**		**$25,000**
	(revised)	$149,011				
Est. Expended to Date		$116,445		Salaries		$25,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$40,523		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$43,545		Other		

PURPOSE AND SCOPE

Proper curing is a key to durable and sustainable concrete structures. When a concrete mixture is designed, delivered, poured, and consolidated, curing is the last and the most critical part for a quality final product. Insufficient curing of concrete will cause cracking in the concrete and in turn leads to a non-durable and sustainable concrete structure. Current Louisiana specification requires all concrete decks to be water cured for 10 days, based on the field experience this is a very expensive operation and the most difficult one to enforce and monitor. Therefore, there is a great need to develop a new concrete mix that has the self-curing capability, which will reduce the time demand for water curing, minimize or eliminate cracks in the concrete deck, and help achieve durability and sustainability in concrete structures.
The objective of this research is to investigate internally cured concrete produced for bridge structures in Louisiana's environment to improve or guarantee the quality of concrete structures. This research will investigate the use of differing percentages of lightweight aggregate for internal curing benefits as well as other internal curing agents such as super-absorbent polymer additives.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Developed and tested all mix designs;
-Analyzed laboratory data;
-Awaiting results for ring shrinkage; and
-Started final report.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Finish ring shrinkage testing; and
-Publish final report.

Title:	**Evaluation of MIT-SCAN-T2 for Thickness Quality Control for PCC and HMA Pavements**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001122**		Project Start Date:		1/1/2013
Research Project Number:	13-1C		Completion Date	(original)	12/31/2013
Research Agency:	LTRC		Completion Date	(revised)	6/30/2015
Principal Investigator:	Mr. Patrick Icenogle				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$58,271		**Total**		**$27,441**
	(revised)					
Est. Expended to Date		$30,830		Salaries		$25,441
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$36,163		Equipment	(non-expendable)	
	(revised)	$8,479		Travel		$2,000
Est. FY Expenditure		$8,722		Other		

PURPOSE AND SCOPE

The purpose of this project is to evaluate the non-destructive thickness measurements of the MIT-SCAN-T2 for asphalt and concrete pavements.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

The ruggedness study has been completed as well as comparisons for the ALF RCC project. A delay has been realized while awaiting suitable PCC field construction projects.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Complete all field testing.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Laboratory Evaluation of 100% Fly Ash Cementitious Systems	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30001502		Project Start Date:		6/25/2013
Research Project Number:	13-2C		Completion Date	(original)	6/24/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$100,718	**Total**		**$59,406**
	(revised)				
Est. Expended to Date		$41,312	Salaries		$59,406
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$41,312	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$41,312	Other		

PURPOSE AND SCOPE

The purpose of this project is to evaluate 100% Fly Ash Cementitious Systems containing Ekkomax and determine the main effects for a wide variety of response variables including slump, set time, and strength.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Nearly half of the laboratory test matrix has been completed.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Complete laboratory testing; and
-Prepare and publish final report.

Title:	**Evaluation of Dowel Bar Alignment and Effect on Long Term Performance of Jointed Concrete Pavements**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001440**		Project Start Date:		6/5/2013
Research Project Number:	14-1C		Completion Date	(original)	6/4/2014
Research Agency:	LTRC		Completion Date	(revised)	6/30/2015
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$98,960		**Total**		**$75,000**
	(revised)	$173,960				
Est. Expended to Date		$99,000		Salaries		$72,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$28,286		Equipment	(non-expendable)	
	(revised)	$28,286		Travel		$3,000
Est. FY Expenditure		$29,000		Other		

PURPOSE AND SCOPE

The purpose of this project is to evaluate the effect of misaligned dowels on jointed concrete pavement performance. At least 5 sections of pavement in the following ages shall be tested: 0-10 years, 10-20 years, and 20+ years.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

A total 1f 18 projects were tested and at least 5 were tested in each age category.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

15-30 pavements in the 15+ age category have been identified to be tested statewide to create a more robust understanding of the effect of dowel alignment on jointed concrete pavement performance.

Title:	Laboratory Fatigue Evaluation of Continuously Fiber Reinforced Concrete Pavement	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30001504		Project Start Date:		9/1/2013
Research Project Number:	14-3C		Completion Date	(original)	2/28/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$200,000	**Total**		**$44,427**
	(revised)				
Est. Expended to Date		$46,985	Salaries		$44,427
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$47,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$46,985	Other		

PURPOSE AND SCOPE

In traditional Jointed Plain Concrete Pavement (JCPC), the joint is where the majority of problems first arise with faulting and spalling, and joint sealant failure leading to increased IRI and a deteriorated pavement structure. Common fixes for this include partial and full depth repair of the joints as well as concrete and asphalt overlays. Other remediation may include DBR and diamond grinding to improve load transfer and improve ride quality. CRCP has a distinct advantage over JPCP in that there are no joints to maintain. The main disadvantage of CRCP is the cost of all the steel reinforcement. This project aims to look at the feasibility of producing concrete for pavements with fiber reinforcement that will compare to CRCP, but at a much lower associated first construction cost.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Initial testing for 13 mixtures has been completed.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Complete a combination of fiber types and dosage rates testing; and
-Prepare final report.

Title:	**Evaluation of Bonded Concrete Overlays over Asphalt under Accelerated Loading**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001663**		Project Start Date:		4/8/2014
Research Project Number:	14-4C		Completion Date	(original)	4/7/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$269,183	**Total**		**$135,879**
	(revised)				
Est. Expended to Date		$75,000	Salaries		$23,331
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$112,548

PURPOSE AND SCOPE

This project will investigate concrete overlays of various thicknesses under accelerated loading. Thicknesses to be investigated include 2 inch, 4 inch, and 6 inches. The base course will be identical under all three sections and includes a 3 inch dense graded HMA over crushed stone. The sections will be loaded progressively until failure to show performance and identify, based on ESALS or load to failure, locations to implement the selected design thicknesses across the State.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Developed sections; and
-Constructed sections.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Start testing sections.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Administration of LTRC External Funding Programs	Project Status:	Ongoing
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000169		Project Start Date:		1/1/2008
Research Project Number:	11-1AD		Completion Date	(original)	6/30/2009
Research Agency:	UNO		Completion Date	(revised)	6/30/2018
Principal Investigator:	Dr. Vijaya Gopu				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$211,428	**Total**		**$230,500**
	(revised)	$2,780,222			
Est. Expended to Date		$215,804	Salaries		$220,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$264,013	Equipment	(non-expendable)	
	(revised)		Travel		$10,500
Est. FY Expenditure		$215,804	Other		

PURPOSE AND SCOPE

To cover administrative costs handled under contract to support the LTRC research, Development and Technology Transfer expansion funding programs

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Collaborated in submission of a UTC-Tier I proposals to RITA;
-Coordinated the funding and submission of UTC (Yr.2) projects with LTRC matching;
-Coordinated TIRE Research Program;
-Coordinated the repair and rehabilitation of Morganza Spillway bent repair project;
-Coordinated and conducted inspection of timber bridges in Louisiana, Georgia, Alabama and North Carolina;
-Served on several NSF Proposal Review Panels and Site Visit Teams of NEES Equipment Sites; and
-Presented technical papers related to the timber bridge study at an international timber bridge conference, and delivered a keynote lecture at a Wind Engineering Conference.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Continue coordination of UTC (Year 1 and Year 2) project efforts;
-Continue coordination of TIRE program;
-Coordinate the establishment of a state-wide Master of Engineering degree program;
-Coordinate a NHI instructor training program for potential instructors;
-Hold LTRC Town Hall meetings on a few campuses across the state; and
-Seek external funds from federal agencies by establishing collaborative teams.

FHWA

Part II SPR Funded Research Program

PROPOSED RESEARCH

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	**Finite Element Analysis of the Lateral Load Test on Battered Pile Group at I-10 Twin Span Bridge**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		10/1/2012
Research Project Number:	13-3GT		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$200,000		**Total**		**$62,000**
	(revised)					
Est. Expended to Date				Salaries		$56,000
FY 2013 - 2014 Budget				Equipment	(expendable)	$6,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

A unique full-scale lateral load test was conducted at M19 pier of the new I-10 Twin Span Bridge over Lake Pontchartrain to assess the current methodology used in the design and analysis of batter pile group foundations and to evaluate their performance under lateral loading. Measurements obtained from instrumentations (inclination and strains) can provide valuable information for use in the analysis of lateral behavior of battered pile foundations and for back-calculating the soils' p-y curves. Two approaches can be used to analyze the lateral behavior of piles: simplified p-y methods and continuum-based FE methods. The simplified methods are based on the theory of subgrade reaction, in which soils surrounding piles are simplified as a set of linear or nonlinear springs resenting the soils' resistances(assumed p-y curves) to lateral movement of piles. With the development of computer software's, such as LPile and FB-MultiPier, this approach has been widely used for design of laterally loaded piles. However, the p-y method cannot describe the three dimensional nature of the problem, pile geometry, different boundary conditions, continuum behavior of soil, soil-structure interface effect and soil-pore water pressure interaction. The continuum-based FE analysis is desirable for a better understanding of the problem. The continuum-based methods treat the soils surrounding piles as elastic or elasto-plastic continuums using constitutive models that can describe the actual behavior of soils under any loading. The results of the lateral load test at M19 pier was analyzed using the FB-MultiPier software and using high order polynomial curve fitting to the measured rotations from IPI sensors. The FB-MultiPier analyses gave much higher conservative values, with the measured lateral deformations and micro strains were about 50% and 60% of the values predicted using the FB-MultiPier values, respectively. Although, the high order polynomial curve fitting has good agreement with the measured lateral deformation profiles and the measured moments from strain gauges, there is a possibility of accumulation of errors in deriving the soil resistance and hence the back-calculated p-y curves resulting from triple differentiation of the inclination polynomial function and effect of soil layering. In order to better understand the behavior of batter pile group foundations subjected to lateral loading, we propose to develop a three-dimensional finite element model to analyze the lateral load test that was conducted at M19 pier. The finite element technique is a powerful tool that can simulate the behavior of complex soil-structure interaction problems. The piles and foundation (pile cap) will be simulated as beam elements. The surrounding soils will be treated as a continuum media (instead of springs) representing the actual soil properties and their behavior will be described using the elasto-plastic anisotropic modified cam clay model. The soil-pile interaction will be also simulated using Mohr Coulomb frictional criteria. The finite element model will be first calibrated using the results of full-scale test at M19 pier. Once the model is calibrated, it will then be used to conduct a comprehensive finite element parametric study to evaluate the effect of different variables and parameters on the lateral performance of batter pile group foundations. The results from parametric study (calculated soil resistances, p, and displacements, y) will be used to develop p-y curve models that represent the different soil type and conditions in Louisiana for implementing in the FB-MultiPier program for future analysis and design of batter pile group foundations.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Start literature review on the finite element numerical modeling of the lateral behavior of single and group of piles;
-Start developing the finite element model to analyze the lateral load test on M19 pier of I-10 Twin Span Bridge; and
-Start evaluating the constitutive models and corresponding.

Title:	Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000981		Project Start Date:		6/1/2013
Research Project Number:	13-5GT		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$248,915		**Total**		**$83,500**
	(revised)					
Est. Expended to Date				Salaries		$71,500
FY 2013 - 2014 Budget				Equipment	(expendable)	$12,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

Traditional bridge construction can be slow, expensive, and complex. Researchers at the Federal Highway Administration (FHWA) recognized that bridges could be built better, faster, and for less money. In 2010, the FHWA introduced an initiative "Every Day Counts" (EDC) to promote technologies that speed up the design and construction of highway projects such as bridge abutments, while at the same time reducing their costs. One promising technology is to use Geosynthetic Reinforced Soil (GRS) in the Integrated Bridge Systems (IBS). The use of GRS can also help in eliminating/minimizing the roadway and bridge "bump" problem. The purpose of this research study is to apply the GRS technology in the design and construction of bridge abutments in Louisiana and evaluate the performance of GRS abutments during construction and under service loads. The project will include instrumenting and monitoring selected GRS bridge abutment at Maree Michel Bridge.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Conduct literature search relevant to geosynthetic reinforced soil and its application for bridge abutments;
-Prepare an instrumentation plan for monitoring the GRS bridge abutment at the selected Maree Michel Bridge GRS abutment; and
-Install the instruments in the GRS abutment at critical locations to obtain reliable and meaningful important measurements.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Geotechnical Information Database - Phase 3	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		1/1/2015
Research Project Number:	15-1GT		Completion Date	(original)	6/30/2016
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$150,000		**Total**		**$50,000**
	(revised)					
Est. Expended to Date				Salaries		$50,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

This proposed project is a continuation of the Geotechnical Information Database previous phases. This project ranked number one in the Research Problem Identification Committees (RPIC) and the Research Advisory Committee (RAC).

This project is a follow up study to LTRC Project 10-2GT, which focused on deep boring information. During the research other needs were also realized, but not covered under the current scope. Near the end of 10-2GT a wish list was created by HQ Geotechnical Design which would also benefit the Districts. Additional information to be incorporated into the database would include test pile information, links to Materials Manager laboratory data from soil surveys, and Dynamic Cone Penetrometer (DCP) data.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Rather than let this data fall through the cracks, digitize the information and add it to the existing system. This would require some programming effort, but the basic system is already in place. Additional templates could be made to print and analyze the data for use in design; and
-Having the data in a digital format will allow analysis and access by people across the department for design and other purposes. The information is valuable, and should be stored and shared digitally, vs. in a single computer, so it is accessible for design and district use.

Title:	Comparison of Granulated vs. Hydrated Lime for Treatment of In-Situ Soils - Synthesis	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:			Project Start Date:		7/1/2014
Research Project Number:	15-2GT		Completion Date	(original)	3/31/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$30,000	**Total**		**$30,000**
	(revised)				
Est. Expended to Date			Salaries		$30,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

Problem Statement:
Lime treatment is usually utilized in construction for either to reduce plasticity and/or moisture content. The specification, under Section 304 of the "Louisiana Standard Specifications for Roads and Bridges", allows the use of granulated (quick) lime or hydrated lime interchangeably. However, due to the varying reaction rates, each may perform differently depending on application and materials. Little guidance is available in the Specification or the Embankment Application manual as to what are the best applications for each.

Research Proposed:
Conduct a synthesis on the topic. Begin with a literature search to determine if past research has already sufficiently covered this topic. If no sufficient past research is found, test soils with varied plasticity and moisture contents to determine how they react with both granulated lime and hydrated lime for PI reduction, drying, moisture needs and compaction characteristics. Preferably, use soils in undisturbed, wet condition to mimic real life applications, pulverization, and reactivity. Using prepared soil would not properly demonstrate how the lime would react in-situ. Also, perform long term testing of the materials to determine how the soil/lime characteristics (PI, shrinkage, etc.) change over prolonged effects of seasonal fluctuations of moisture from rainfall, water table, etc., to determine which type of lime gives the best "bang for the buck."

Potential Implementation and Benefits:
Designate the appropriate uses of these two types of lime and include guidance in the specification for proper methods to ensure the best results are achieved on construction projects.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

The project is proposed, and has not begun.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
The objective of this project is to designate the appropriate uses of granulated lime and hydrated lime and include guidance in the specification for proper methods to ensure the best results are achieved on construction projects. The research is anticipated to encompass, at a minimum, the following tasks: -TASK 1 - Literature Review; -TASK 2 – Survey with States Highway and Other Agencies; -TASK 3 – Survey with Louisiana Construction Experience; -TASK 4 – Develop Lab Testing Program; -TASK 5 – Conduct Lab Testing; -TASK 6 – Develop Specific Guidelines for Lime Treatment; -TASK 7 – Develop Field Verification Plan for Implementation; -TASK 8 – Conduct Cost Benefit Analysis; and -TASK 9 – Final Report and Recommendation.

Title:	Assessment of Structural Capacity Indicators from Rolling Wheel Deflectometer Data Collection in Louisiana	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	1000009		Project Start Date:		7/1/2013
Research Project Number:	14-2P		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Kevin Gaspard				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$103,287	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$50,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

In 2009, the Louisiana Department of Transportation and Development (LADOTD) conducted a comprehensive testing program of the RWD in District 05. Measurements were used to assess the repeatability of RWD measurements, the effect of truck speeds, and to study the relationship between RWD and Falling Weight Deflectometer (FWD) deflection measurements and pavement conditions. Based on the results of the experimental program, four structural capacity indicators were developed. The objective of this follow-up project is twofold. First, this project will evaluate the aforementioned structural capacity indicators in predicting pavement structural deficiency based on RWD measurements and recently collected PMS data. Based on this evaluation, the research team will introduce modifications to improve prediction of pavement structural deficiency. Second, this project will develop a methodology to integrate the most promising structural capacity indicators into the Louisiana Pavement Management System (PMS) via the recently-developed TCBA software developed in LTRC Project 10-4P. In addition, this project will assess the cost-effectiveness of RWD testing in identifying and repairing structurally-deficient sections prior to reaching very poor conditions. It is envisioned that an updated treatment selection strategies will be developed for structural-deficient pavements and based on the recommended structural capacity indicators. Further, a flagging system may be incorporated into the current PMS to indicate that functional treatment methods are not to be used for structurally-identified pavement sections.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

This project was divided into seven tasks. It is anticipated that the first four tasks will be completed. The first four tasks are, conduct a comprehensive literature review, assess the accuracy of the four structural capacity indicators, propose modifications to the PMS system, and develop structural indices for the back calculated moduli and In-place structural numbers.

Title:	**Investigation of Portland Cement Concrete Pavement Rubblization over Weak Subgrades**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		8/4/2014
Research Project Number:	15-1P		Completion Date	(original)	8/4/2017
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Kevin Gaspard				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$50,000		**Total**		**$11,867**
	(revised)					
Est. Expended to Date				Salaries		$11,867
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The proposed research will consist of a detailed investigation of the two projects where failures occurred during rubblization, constructing test sections at ALF, constructing field test sections, determining the pavement fracturing guidelines utilized by other State agencies, apply those methods to projects previously evaluated by the Louisiana Transportation Research Center (LTRC), document the historical performance of rubblized and break/seat projects in Louisiana by data mining the PMS database, and the development of pavement fracturing guidelines for Louisiana.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Conduct a literature review;
-Investigate sites were rubblization issues have occurred; and
-Design test sections for ALF and identify potential field test sections.

Title:	Durability and Environmental Performance of Photocatalytic Asphalt Pavements: Field study	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:			Project Start Date:		7/1/2014
Research Project Number:	13-1B		Completion Date	(original)	6/30/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$300,000	**Total**		**$83,632**
	(revised)				
Est. Expended to Date			Salaries		$67,632
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$16,000

PURPOSE AND SCOPE

Integrating Nano Titanium Dioxide in asphalt pavements can create a new generation of photocatalytic pavements that are capable of reducing pollution from traffic and purifying the ambient air. Laboratory studies as well as preliminary field results are showing that TiO2 can be used to abate pollutants from traffic emissions including NOx, SO2 and VOC. This study proposes to quantify the durability of photocatalytic titanium dioxide (TiO2) pavement under accelerated pavement testing conditions and to model the photocatalytic reaction and the effects of operating and environmental conditions on the pollutants removal efficiency. The environmental impacts of the by-products of the technology using life cycle assessment will be quantified. The objectives of this research are (1) validate the effectiveness of photocatalytic compounds in the field; (2) determine the influence of environmental and operating conditions on photocatalytic efficiency; (3) assess the durability of the TIO2 layer in the field and its influence on the pavement skid resistance; and (4) quantify the environmental impacts of by-products.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 1-Construction of a photocatalytic Asphalt test section in the Alf Facility and a control section;
-Task 2-Instrument the field site with environmental monitoring equipment;
-Task 3-Determining the photocatalytic degradation efficiency based on NOx reduction and nitrate accumulation;
-Task 4-Skid resistance testing of the photocatalytic pavement;
-Task 5-Accelerated loading testing of the photocatalytic pavement;
-Task 6-Determining the photocatalytic degradation efficiency based on NOx reduction and nitrate accumulation after accelerated loading; and
-Task 7-Quantification of the environmental impacts of the technology and LCA.

Title:	**Effects of Temperature Segregation on the Densification and Mechanistic Properties of Asphalt Mixtures**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000008**		Project Start Date:		7/1/2014
Research Project Number:	14-1B		Completion Date	(original)	6/30/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$285,000		**Total**		**$157,625**
	(revised)					
Est. Expended to Date				Salaries		$115,625
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$2,000
Est. FY Expenditure				Other		$40,000

PURPOSE AND SCOPE

Segregation in asphalt mixtures is a non-uniform distribution of coarse and fine aggregates all through its mass, i.e., concentration of coarse materials in some area and fine materials in others. Coarse materials tend to cool more rapidly than fine materials, causing temperature segregation, i.e. temperature differentials. Excessive temperature differentials cause variation in the density levels of pavements during construction. These variations in pavement temperature lead to inconsistent compaction levels. A lack of density in the cooler areas of the pavement can cause premature deterioration of those pavement areas such as moisture damage, fatigue cracking, rutting, raveling, pothole, etc. The objective of this study is to determine the effects of temperature segregation on densification and mechanistic properties of asphalt mixtures in Louisiana. Asphalt paving projects across the State will be selected for mat temperature scanning for a reliable analysis on various contributing factors to the temperature segregation. Three test sections from each project will be identified. Cores across the mat from each test section will be secured for density measurements and mechanistic properties from tests such as the Hamburg type loaded wheel tracking and semi-circular bending.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Conduct Literature Review;
-Develop an Experiment Design and Identify Field Projects;
-Conduct Temperature Measurement for Selected Field Projects;
-Secure Cores from Selected Field Projects;
-Perform Density and Mechanistic Tests; and
-Conduct Preliminary Data Analysis.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Center for Sustainable Pavement Materials and Technologies	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2013
Research Project Number:	14-1SPMT		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$50,000		**Total**		**$50,000**
	(revised)					
Est. Expended to Date				Salaries		$50,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The transportation infrastructure in Louisiana includes 60,925 miles of streets, roads, and highways, as well as more than 13,426 bridges. Annually, freight transportation in this system carries over 360 million tons of goods valued at approximately 96 billion dollars; 49% of these goods are transported by trucks. The State economy relies completely on our ability to move goods, fuel, and people freely and inexpensively to every corner of our State. Therefore, efficient operation of the highway network is critical for the viability of the State economy and its growth and productivity. The inadequacy of many of the existing roads and the escalating costs of materials and energy provide a great motivation for exploring new innovative techniques and methods for design, building, and preserving roads that ensure its sustainability. In recent years, many state agencies and the Federal Highway Administration (FHWA) have emphasized the importance of pavement sustainability and recycling. The recent increase in energy prices and the gradual depletion of natural resources have also pressed the need to conserve energy in highway construction activities and to adopt methodologies that would be beneficial to the environment, to the users, and to the industry. Using recycled materials and sustainable methodologies will not only reduce help to overcome the current rapid escalation of the costs for building with new virgin highway materials, but it will also maximize the usage of our existing pavement assets in our rehabilitation strategies. In addition, by incorporating sustainable and recyclable materials and technologies into transportation infrastructure, those structures will have a significant impact on the viability and longevity of our society. The use of sustainable and recycled materials will reduce the amount of materials to be quarried, processed, and transported and protect the environment and scarce natural resources. In addition, energy consumption and greenhouse gas emission are also reduced as a result of the use of sustainable alternatives. Therefore, the proposed center will focus on conducting research into the concepts of sustainable material development and how it can be applied to the practice of pavement design, engineering, and construction.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Establishment of the Center for Sustainable Pavement Materials and Technologies; -Develop proposals for external funding for the center; -Conduct research relevant to the Center theme and LADOTD needs; and -Develop and promote effective Sustainable Pavement Technologies for managing and preserving the infrastructure.

Title:	**Feasibility for Bridge Monitoring Network for Louisiana Bridges**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		8/1/2014
Research Project Number:	13-1ST		Completion Date	(original)	7/31/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$75,000	**Total**		**$40,000**
	(revised)				
Est. Expended to Date			Salaries		$30,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$3,000
FY Funds	(original)		Equipment	(non-expendable)	$2,000
	(revised)		Travel		$2,000
Est. FY Expenditure			Other		$3,000

PURPOSE AND SCOPE

The purpose of this project is to perform a feasibility analysis for establishing a bridge monitoring network in Louisiana.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 1 - Perform a literature search regarding bridge monitoring networks established in other states;
-Task 2 - Assess the capacity and performance of those networks and select one;
-Task 3 - Determine what is needed to establish a network similar to the selected one in Task 2; and
-Task 4 - Submit a final report documenting findings and offering recommendations.

Title:	Live Load Monitoring of the I-10 Twin Span Bridge	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001123**		Project Start Date:		5/1/2014
Research Project Number:	13-2ST		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$200,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$30,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$3,000
FY Funds	(original)		Equipment	(non-expendable)	$5,000
	(revised)		Travel		$2,000
Est. FY Expenditure			Other		$10,000

PURPOSE AND SCOPE

The proposed work is a continuation of a previous work done on the I-10 Twin Span Bridge where DOTD, through its contractor Geocomp Corporation, has installed a comprehensive health monitoring system at Pier M19 of the eastbound lanes on the I-10 Twin Span Bridge. The system is instrumented from deck to piles to capture bridge response to live load.

The objective of this of this project is to: (1) validate the performance of the monitoring system and the OSMOS WIM, (2) develop a data interface tool to easily produce data downloads in table and graphical formats, and (3) determine the effects of traffic loads on instrumented components of the structure.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Task 1: Conduct literature and product review of health monitoring system components to develop an understanding of the monitoring system installed on the I-10 Twin Span Bridge.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 2: Assess the current data collection, storage and reporting capabilities and limitations of the health monitoring system including the synchronization of the OSMOS WIM with other instrumentation components;
-Task 3: Perform visual traffic count spot checks to validate WIM response data with actual traffic data; and
-Task 4: Prepare and submit an interim report documenting results of Tasks 1, 2 and 3.

Title:	**Evaluating Louisiana New Continuity Detail for Girder Bridges**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001660**		Project Start Date:		5/1/2014
Research Project Number:	14-1ST		Completion Date	(original)	10/28/2016
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$250,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$35,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$5,000
FY Funds	(original)		Equipment	(non-expendable)	$5,000
	(revised)		Travel		$1,000
Est. FY Expenditure			Other		$4,000

PURPOSE AND SCOPE

The main objective of the proposed research is to evaluate the field performance of a continuity detail that will be included in the new Louisiana Bridge Design and Evaluation Manual (BDEM). The new detail is different from the standard continuity detail in the current Bridge Design manual (BDM).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Task 1 - Review of Link Slab (LS)Design and Detailing; and
-Task 2 - Developing a detailed instrumentation Plan.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 3 - Approval of instrumentation plan;
-Task 4 - Development of a data management software tool; and
-Task 5 - Monitor and inspect the installation of instrumentation.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Improvement to Highway Guardrail Assemblies	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2014
Research Project Number:	14-1TIRE		Completion Date	(original)	6/30/2015
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$30,000	**Total**		**$30,000**
	(revised)				
Est. Expended to Date			Salaries		$24,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$4,000
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$2,000
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The overall goal of this study is to improve the performance and level of green highway guardrail assemblies. This work will be focused on two goals. Goal 1 will be achieved by developing a composite block out for decommissioned CCA-related wood and Goal 2 will be about improving the connection between wood posts and block outs.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Proposal is pending award.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Determination of the properties of the raw Materials (Spend Guardrails Posts/Block outs);
-Production and Testing of Molded Guardrail Block outs;
-Finite Element Analyses and optimization; and
-Final Report.

Title:	**Development of A Sustainable UHPC Bridge Decks For Movable Bridges**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001661**		Project Start Date:		8/1/2014
Research Project Number:	14-2ST		Completion Date	(original)	7/29/2016
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$150,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$30,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$5,000
FY Funds	(original)		Equipment	(non-expendable)	$5,000
	(revised)		Travel		$3,000
Est. FY Expenditure			Other		$7,000

PURPOSE AND SCOPE

The objective of this study is to develop a lighter deck system for movable bridges that are to be constructed or the rehabilitation list. The new system should be more durable and offer a better noise performance than current systems. The proposed system will utilize Ultra High Performance Concrete (UHPC) in a composite construction that utilizes the high durability of UHPC while offering a smooth ride for vehicles crossing the bridge.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 1 - Conduct an in-depth literature search regarding the performance of different types of bridge decking used in movable bridges;
-Task 2 - Present Findings from the literature search to the Project Review Committee (PRC). The PRC will decide on the use of cast-in place or precast panels for the deck; and
-Task 3 - Deck design with ultra-high-performance concrete (UHPC) materials. A lab model will be designed with UHPC materials. The use of conventional reinforcing and prestressing steel will be investigated.

Title:	**Hurricane Hazard Mitigation in Traffic Light Support Structures**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2014
Research Project Number:	14-2TIRE		Completion Date	(original)	6/30/2015
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$28,389		**Total**		**$28,389**
	(revised)					
Est. Expended to Date				Salaries		$26,889
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$1,500
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The main objective of the proposed research project is to improve sustainability and resiliency of the traffic infrastructure, and to develop novel innovative technologies for building safe, economic, and sustainable support structures under wind and other types of dynamic loading.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Proposal is pending award.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Literature Search and Numerical Modeling;
-Structural Optimization and Analysis of Numerical Results;
-Recommendation on Damping Enhancements; and
-Final Report.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	A Novel Magnetostriction Based Sensing Technology for Rapid Condition Assessment of Bridge Decks	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:			Project Start Date:		7/1/2014
Research Project Number:	14-3TIRE		Completion Date	(original)	6/30/2015
Research Agency:	LTU		Completion Date	(revised)	
Principal Investigator:	Dr. Arun Jaganathan				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$30,000	**Total**		**$30,000**
	(revised)				
Est. Expended to Date			Salaries		$27,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$3,000
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The objective of this study is to investigate and develop a novel non-contact methodology to generate ultrasonic stress waves on bridge decks as an alternative/complementary to the traditional contact PZT by leveraging on the recent advancements in magnetostrictive sensing.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Proposal is pending award.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Numerical Modeling of Ultrasonic Waves on Bridge Deck;
-Experimental Demonstration of Contact-free Ultrasound Generation on Concrete Slab Embedded with Nickel Strips;
-Demonstration of a Sensor Application to Detect Defects on Concrete Slab Embedded with Nickel Strips (Approach 1);
-Casting and Characterization of Magnetoresticitve Cement Pellets;
-Demonstration of a Sensor Application to Detect Defects on Concrete Slab Embedded with Nickel Strips (Approach 2); and
-Final Report.

Title:	**Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South Louisiana Phase II**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		10/1/2014
Research Project Number:	15-1ST		Completion Date	(original)	3/31/2017
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$105,995	**Total**		**$105,995**
	(revised)				
Est. Expended to Date			Salaries		$85,995
FY 2013 - 2014 Budget			Equipment	(expendable)	$10,000
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$5,000
Est. FY Expenditure			Other		$5,000

PURPOSE AND SCOPE

The recently completed Louisiana Department of Transportation and Development (LADOTD) Storm Surge and Wave Atlas contains significant hydraulic information that will be useful in analyzing storm surge and wave forces on existing and designing new coastal bridges. However, the solution files, from the Level III met/ocean analyses, which were used in the development of the Atlas, contain additional information, that when properly analyzed can provide additional useful information. The purpose of this proposal is to outline the information that can be extracted and analyzed, along with the cost to provide the information in a GIS database.

The current Atlas contains surge and wave information with a 1% chance of occurrence each year (100-year return interval). This information is useful for computing wave loads on bridge superstructures, bridge scour at many bridges, etc. There are, however, many issues encountered by LADOTD engineers that require other frequency met/ocean information (e.g. 10-, 25-, 50-year return interval values). The information needed to produce these values exists in the Level III analysis solution files. While a reasonable effort is required to extract and analyze this data, it is only a fraction of that required if one were starting from scratch.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Task 1. 10-year Surge/Wave GIS; -Task 2. 25-year Surge/Wave GIS; -Task 3. 50-year Surge/Wave GIS; -Task 4. Maximum Met/Ocean Parameters from Original Path Storms (with rms or maximum astronomical tide values); -Task 5. Maximum Met/Ocean Parameters from All Hindcasted Storms (Original Path + Shifted Path Storms with rms or maximum astronomical tide values); -Task 6. Develop Visual Basic Program to Evaluate AASHTO Surge/Wave Loads; -Task 7. PDF pop-up with Bridge and Surge/Wave Loading Information for Bridges where all Spans are analyzed; -Task 8. Training workshop; and -Task 9. Draft Final Report.

Title:	**Material Property Changes of Decayed Timber for Timber Bridges**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		8/1/2014
Research Project Number:	15-2ST		Completion Date	(original)	7/31/2016
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$150,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$40,000
FY 2013 - 2014 Budget			Equipment	(expendable)	$3,000
FY Funds	(original)		Equipment	(non-expendable)	$5,000
	(revised)		Travel		$1,000
Est. FY Expenditure			Other		$1,000

PURPOSE AND SCOPE

The purpose of this study is to determine the material property changes of decayed timber for timber bridges. A DOTD-sponsored study performed over 18 years ago lead to recommendations to be used with the allowable stress design (ASD) method. To support load resistant factor design (LRFD) and load resistant factor rating (LRFR), there is a need to develop factored resistant stresses by applying reliability concept.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Task 1- Perform a literature search for the purpose of assessing test design methods; and
-Task 2- Contact other states that have significant number of timber bridges to learn about their practice in timber bridge design and rating using reliable factor.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Louisiana Center for Transportation Safety	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30001501**		Project Start Date:		7/1/2014
Research Project Number:	12-1SA		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$250,000		**Total**		**$100,000**
	(revised)					
Est. Expended to Date				Salaries		$96,500
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$2,000
Est. FY Expenditure				Other		$1,500

PURPOSE AND SCOPE

The Louisiana Center for Transportation Safety (LCTS) will provide a structure for Louisiana's research universities to collaborate on safety related projects and leverage resources. This project provides support from SPR Research funds to manage safety research projects and provide technical assistance for implementation of research findings. The LCTS will provide enhanced technical assistance to federal, state and local transportation agencies and will work to meet other state and regional needs. An expanded training and education program which includes the new multi-disciplinary highway safety professional curriculum being developed by the Transportation Research Board (TRB) will be made available to transportation professionals on a national basis. The Louisiana Department of Transportation and Development (LADOTD), Louisiana Transportation Research Center (LTRC) and the Transportation Training and Education Center (TTEC) in Baton Rouge, Louisiana will serve as the nucleus for these activities.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Staff the LCTS;
-Develop Strategic Plan for the LCTS; and
-Develop a Business Plan for the LCTS.

Title:	Factors Influencing Seatbelt Utilization in Louisiana and Strategies to Improve Usage Rate	Project Status:	Proposed

Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	**30001662**		Project Start Date:		5/1/2014
Research Project Number:	14-2SA		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$179,766	**Total**		**$91,208**
	(revised)				
Est. Expended to Date			Salaries		$71,208
FY 2013 - 2014 Budget			Equipment	(expendable)	$2,000
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$18,000

PURPOSE AND SCOPE

Despite a considerable increase in seat belt use since 1996, Louisiana still lags behind the average belt use in the United States. For instance, in 1996 Louisiana ranked 28th with respect to belt use among the 50 states and the District of Columbia while in 2012 it ranked 41st. The overall goal of this project is to identify factors that affect belt use in Louisiana and that can be used to develop strategies leading to a significant increase in belt use rates. Past studies have revealed key demographic factors that are associated with belt use rates. These include gender, race, age, vehicle type, seat belt laws, fines and socio-demographic factors. Prior research also has shown that enforcement with accompanied media messages are the most effective means of increasing belt use. This project concentrates on the group of unbelted occupants in Louisiana to determine additional factors that can be used for effective strategies to increase belt use in Louisiana. To this end a comprehensive analysis of Louisiana data and programs related to belt use will be conducted. Based on the outcome of the data analysis, additional data will be collected using an attitudinal survey and additional socio-economic factors focused on the high risk groups of the likely non-belted population. Best practices in states with high use rates will also be reviewed to identify strategies that could most likely work in Louisiana. One of the primary contributions of this research is to demonstrate how the combined knowledge of geographic, demographic, socio-economic factors and attitudinal factors can be used for more effective enforcement and media deployment.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Conduct and complete the Literature Review (Task 1), Data Collection (Task 2), and Interim Report (Task 3); and
-Begin the Data Analysis To Identify Targeted Groups (Task 4) and the Demographic Characteristics Analysis (Task 5).

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Development of a Mode Choice Model to Estimate Evacuation Transit Demand	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:			Project Start Date:		7/1/2013
Research Project Number:	14-3SS		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$200,000	**Total**		**$97,736**
	(revised)				
Est. Expended to Date			Salaries		$93,700
FY 2013 - 2014 Budget			Equipment	(expendable)	$276
FY Funds	(original)		Equipment	(non-expendable)	$1,000
	(revised)		Travel		$2,760
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The purpose of the study is to develop a model that predicts the mode choice of persons evacuating from a hurricane.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Visited New Orleans, Louisiana Office of Emergency Preparedness and obtained commitment that they would support the research we planned. Aaron Miller was named as the person who would provide assistance, ostensibly as a representative on the Project Review Committee (PRC).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Get a representative from GOHSEP and New Orleans Office of Emergency Preparedness to serve on the PRC of this project;
-Determine whether suitable data exists to estimate a model of evacuation mode choice; and
-If suitable data does not exist, conduct a survey to collect data in New Orleans, Louisiana.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	User Sentiment Analysis with Louisiana Social Media Data for Better and Effective Crash Countermeasures	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:			Project Start Date:		7/1/2014
Research Project Number:	14-4TIRE		Completion Date	(original)	6/30/2015
Research Agency:	ULL		Completion Date	(revised)	
Principal Investigator:	Dr. Xiaoduan Sun				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$30,000	**Total**		**$30,000**
	(revised)				
Est. Expended to Date			Salaries		$30,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

It is important to understand general public sentimental feelings towards and their understanding of safety improvement policy, strategies and crash countermeasures. Gauging public opinions and reactions through various surveys have been a common practice in transportation engineering. As communication technology advances, social media has merged as an effective survey method. Social media mining has two major advantages over conventional attitudinal survey methods; it can easily reach large audience and reflect true behavior of participants because of the anonymity. It is known that self-imposed censor is common in responding to conversational attitudinal surveys. With well-designed framework, it is possible to gain insight of people's mind on various transportation issues.

Recent years have witnessed a surge of interest in effective computational methods, ranging from opinion mining, to subjectivity detection, to sentiment analysis. These methods usually focus on the identification of public opinions, feelings, sentiments, assessments, beliefs, and conjectures in natural language. The sentiment analysis classifies subjective text as positive, negative or neutral. Social media resources like Facebook and Twitter generate immense amounts of textual data on various topics. The location-based data extraction on particular interests (like a newly added traffic law) or the countermeasures (like child restraint usage, safety-belt usage, street lighting or red light camera) can help the policy makers to see the user sentiment on those items. This study is aimed to explore this new survey method for the benefits of roadway safety improvement. Particularly, the research is to propose using Louisiana-based social media data to investigate the user opinions and sentiments towards safety improvement actions such as crash countermeasures.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Task 1: Information review; -Task 2: Data Collection; -Task 3: Lexicon Development and Sentiment Analysis; -Task 4: Matrix Development; and -Task 5: Final Report.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	LTRC Project Management and Tracking System Upgrade	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000018**		Project Start Date:		7/1/2014
Research Project Number:	14-5SS		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$100,000		**Total**		**$50,000**
	(revised)					
Est. Expended to Date				Salaries		$50,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The objective of this research is to update and complete the existing Louisiana Transportation Research Center (LTRC) Project Management and Tracking System. The existing system originally was developed with an in-house staff programmer. Features and applications in the system were continually being added and implemented as time and work priority allowed. This project will complete the implementation of the current applications, add additional features to increase user reliability and help screens, beta test the system, and provide one year of maintenance for system review and troubleshooting implementation.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

To be determined based on project proposal development and initiation.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Distracted Driving and Associated Crash Risks (Phase 2)	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2014
Research Project Number:	15-1SA		Completion Date	(original)	12/31/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$100,000	**Total**		**$70,000**
	(revised)				
Est. Expended to Date			Salaries		$70,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

This proposed project is a follow-up study to LTRC Project 13-1SA (DOTD Support for UTC: Distracted Driving and Associated Crash Risks). The scope of the project is still in development, but potential topics include:
-Relating the simulator findings to crash risk;
-Expanding the pool of test participants;
-Expanding the driving environment;
-Developing a Distraction Index from several surrogate measures of distraction that can accurately predict the crash risk of several secondary tasks; and
-Utilizing naturalistic driving data to validating the simulator results from Phase 1.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

To be determined.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Right-sizing Truck Registration and Overweight Permits Fees	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		9/1/2014
Research Project Number:	15-1SS		Completion Date	(original)	8/31/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$100,000	**Total**		**$90,000**
	(revised)				
Est. Expended to Date			Salaries		$80,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$10,000

PURPOSE AND SCOPE

Truck registration and overweight permit fees may not accurately reflect the user impacts on highway infrastructure. If industry subsidies are desirable from a public policy perspective, then they should be accomplished in an overt manner rather than via artificially low user fees. The goals of this projects are: (1) determine the appropriate annual registration fees for trucks, including agriculture and timber haulers, based on the impacts on road and bridge infrastructure; (2) determine the appropriate single trip and harvest season overweight permit fees based on the impacts on road and bridge infrastructure; and (3) identify tax credits that the legislature could offer industry to offset the increased registration fees/overweight permit fees. Results of this project will be presented to the Joint Transportation Committee for potential legislative action to adjust registration and permit fees potentially to be offset by tax credits or after appropriate mechanisms.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

To be determined.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Cost and Time Benefits for using Subsurface Utility Engineering in Louisiana	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		9/1/2014
Research Project Number:	15-2SS		Completion Date	(original)	8/31/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$75,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$45,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$5,000

PURPOSE AND SCOPE

Most major road construction projects managed by the Louisiana Department of Transportation and Development (LADOTD) have utilities that must either be relocated or at least accounted for during construction. The standard method for locating the underground utilities is to have the utility company or LA One Call mark them. There are a few problems with this method: (1) The accuracy required for design and construction is not met due to out of date plans or inferior technology; (2) utilities not accounted (e.g. non-member of One Call, knowledge of their existence has been lost, etc.); and (3) only Subsurface Utility Engineering (SUE) providers have the ability to locate exactly where a utility line is (X, Y, and Z) through nondestructive vacuum excavation.

There has been an abundance of research on the benefits of SUE services, but it benefitted other states. This proposed research project would evaluate the use of SUE in Louisiana. Purdue university conducted a research project for the Federal Highway Administration (FHWA) and the research that is being proposed should be very similar. Records research should be conducted for all major projects that LADOTD has used SUE services on to determine how much was spent on SUE services vs. the amount of money saved. It should include interviews with Project Managers, the LADOTD Utility Section, the utility companies and the contractors. A thorough records research should include looking at the original amounts for time and cost estimated before SUE services vs. after SUE services along with confirmation from all parties discussing the potential hazards that would have presented themselves if SUE had not been.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

To be determined.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	DOTD Support for UTC Project: Development of Rapid PCC Pavement Repair Materials and Construction Techniques	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2014
Research Project Number:	14-5C		Completion Date	(original)	
Research Agency:	Southern University		Completion Date	(revised)	
Principal Investigator:	Mr. Hak-Shul Shin				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$70,000	**Total**		**$36,000**
	(revised)				
Est. Expended to Date			Salaries		$32,500
FY 2013 - 2014 Budget			Equipment	(expendable)	$3,500
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

A need exists for a more crack resistant rapid repair material. Current materials and methods produce rapid patches that tend to exhibit moderate to severe cracking, sometimes within weeks after placement. This method tends to lead to repairing patches much earlier than intended. Several methods exist that may decrease the severity of cracking and lend to longer more durable concrete patches including the use of internal curing, addition of fibers and recycled materials, and the use of roller compacted concrete.
The research is restricted to the materials and techniques applicable for PCC pavement patching. This research will investigate new materials and techniques that can enhance the PCC pavement patching in short-term and mid-term performance.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Develop research plan and start work including literature review and laboratory Phase I.

FHWA

Part II SPR Funded Research Program

POOLED FUND
LOUISIANA
LEAD STATE RESEARCH

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Southeast Transportation Consortium	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000281**		Project Start Date:		9/1/2009
Research Project Number:	09-1PF		Completion Date	(original)	8/30/2012
Research Agency:	LTRC		Completion Date	(revised)	8/30/2015
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$150,000		**Total**		**$10,000**
	(revised)	$300,000				
Est. Expended to Date		$17,520		Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$10,000		Equipment	(non-expendable)	
	(revised)			Travel		$10,000
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

Southeast Transportation Consortium's (STCs) objectives are to pool financial, professional, and academic resources to coordinate research and develop improved methods of addressing common problems in the planning, design, construction, maintenance, management, and operation of transportation systems in participating states. The program is intended to supplement ongoing state, federal, and university research activities and other national programs such as the National Cooperative Highway Research Program. It is intended to reduce duplication of research and provide means for better communication of on-going research activities in the state research programs. The cooperative and collaborative objectives of the STC program are to develop synergy and provide for a more efficient use of resources.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Managed STC pooled fund consortium;
-Presented update at the regional conference calls and Annual TRB meeting;
-Completed STC Synthesis Projects;
-Best Practices for Determining Value of Research Results; and
- Asphalt Surface Treatments for Pavement Preservation
- Water Quality Management at Construction Sites
- Regional Implementation of Warm Mix Asphalt

-Initiated STC Synthesis Projects.
- 4-1PF- Best Practices for Achieving and Measuring Pavement Smoothness
- 14-2PF Real-Time Driver Information for Congestion Management
- 14-3PF- Transportation Funding Alternatives Now and in the Future
- 14-4 PF Reflective Cracking Mitigation Strategies for Cracked Pavements

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Present status of activities at the Annual Research Advisory Committee Meeting; -Complete and publish final results of on-going synthesis studies; -Initiate RFP's, and contracts for the four new synthesis projects; -Hold kickoff meetings for synthesis projects; and -Plan and hold STC annual meeting for 2014.

Title:	**Traffic and Data Preparation for AASHTO MEPDG Analysis and Design**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000424**		Project Start Date:		9/1/2011
Research Project Number:	12-1PF		Completion Date	(original)	8/31/2014
Research Agency:	Oklahoma State University		Completion Date	(revised)	
Principal Investigator:	Dr. Kelvin Wang				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$366,667		**Total**		**$23,617**
	(revised)	$683,334				
Est. Expended to Date		$660,000		Salaries		$23,617
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$224,617		Equipment	(non-expendable)	
	(revised)	$201,000		Travel		
Est. FY Expenditure		$201,000		Other		

PURPOSE AND SCOPE

Background:
The Mechanistic Empirical Pavement Design Guide (MEPDG) is a significant advancement in pavement design, but requires significantly more inputs from designers. Many data sets need to be pre-processed before their use in the MEPDG procedure, such as Weigh-In-Motion (WIM) traffic data. Under contract with the Federal Highway Administration (FHWA) and the Office of Pavement Technology, and co-sponsored by the Arkansas Highway Department, the University of Arkansas recently developed a software program called Prep-ME with comprehensive database features to store and process climate, traffic and materials data and to: (1) identify all the required inputs and analysis parameters; (2) develop algorithms and procedures to locate the available data sets, pre-process raw data, check data quality, and import the traffic and other data sets to the designed database tables, including conducting quality checks on both weight and classification WIM data based on LTPP and FHWA methods; (3) implement database algorithms for uploading, data checking, and generating the required data files for the MEPDG software; and, (4) develop a user friendly software interface, Prep-ME, to generate the required input files for the MEPDG software.
Objectives:
The objective of the Prep-ME software is to assist state DOTs in the data preparation and improve the management and workflow of the MEPDG input data to make the MEPDG software more accessible. Additionally, it can be used as a critical tool for calibrating and implementing the MEPDG as well.
Scope of Work:
In order to make Prep-ME full production software assist states use the MEPDG, the software and services need to be expanded to:
-Recognize the differences in loading patterns or traffic groups and estimate the full axle load spectrum data occurring under different conditions based on large amounts of WIM data, such as the LTPP data;
-Develop advanced algorithms to examine raw WIM data for quality and conduct data repair operations to salvage usable information in WIM data for MEPDG and other purposes. A portable version of quality checks for traffic data can be available to the field data collection crew;
-Add more functions based on the consensus of participating states;
-Customize Prep-ME for participating states;
-Prepare and conduct training for the personnel of participating states; and
-Provide participating states technical support throughout the three year period.

-Summary: Tasks 1, 2, and 3 are completed (100%). Tasks 4, 5, and 6 are to be nearly complete by June, 2014;
-Task 1: Improve Efficiency of Prep-ME: This task is primarily to improve the speed of execution of the numerical engines in Prep-ME, and functions of the raw data import/update and user's data interpolation. The team has completed this task; and
-Task 2: Improve Functionality of Prep-ME: The research team completed 100% of this Task by June, 2014. This task is to add core functionality to the Prep-ME software. During the six-month period from January to June, 2014, the team has completed the following tasks:

- Developed Soil Map module: By inputting the latitude and longitude of a design location, associated Soil Map image will be loaded into the software interface with an extinctive marking demonstrating the design location. Users can manually input of the "Map Char" on the soil map to the Prep-ME software interface. A soil report with all the required soil parameters in Pavement ME Design will be generated for users to view. Users can also import the soil parameters in a text file report;
- Added new clustering method for Kentucky - "KYTC Method". The KYTC method implements the "aggregate class" concept to generate Level 2 traffic inputs for Pavement ME Design in Kentucky;
- Developed Material Module for users to retrieve dynamic modulus (E*) data for HMA and coefficient of thermal expansion (CTE) for PCC: E* and CTE are the most sensitive material parameters in Pavement ME Design. Many states have conducted extensive material testing for these two parameters. The most recent Prep-ME software is able to retrieve the material inputs that can be imported into Pavement ME Design based on state customized retrieving parameters;
- Completed the interface and coding for Classification Data Check module: similar to the module of Weight Data Check module, manually accept and reject function, replacement operations (copy and paste), sampling operations (daily sampling and monthly sampling) are fully working in the new version of Prep-ME, which allows users to better utilize existing classification traffic data for Pavement ME Design.-The above tasks were completed in April, 2014. The following tasks are completed100% by June, 2014:
- Complete FWD module: this module allow users to import raw FWD data in F25 data format, manually input layer structure data for the FWD testing pavement section, and generate report that can be used by pavement designers to perform back-calculation analysis using third-party back-calculation software. With back-calculation modulus, users can manually input these values to Prep-ME interface, subsequently XML file based on Pavement ME Design data format can be generated for Pavement ME rehabilitation or overlay design; and
- Finish loading group method developed in the LTPP TPF-5(004): five loading groups have been developed in TPF-5(004). Prep-ME will apply their definitions into Prep-ME.
- Task 3: 3.1: Redesign the Graphical User Interface (GUI);
- 3.2: Database Storage In these six months, the OSU team has added several new interfaces for the new functionalities: (1) Soil Map Module; (2) KYTC clustering method; (3) material module for E* and CTE; (4) classification data check module; (5) FWD module; and (6) LTPP TPF-5(004) loading group method. Accordingly, the database tables are added into the database. The final version of Prep-ME is delivered in June, 2014 with all the new GUIs for Phase II of this pooled fund study;
- Task 4: Stability and Testing of Prep-ME: The OSU team interacts with individual states on regular basis to address their questions and feedback via emails and phone calls. Software bugs and many improvements have been made in the new version of Prep-ME software. In addition, the OSU team has been rigorously testing the software internally;
- Task 5: Report Documentation of Prep-ME: The team submitted the draft final report for this project by the end of April 2014. The team has completed and delivered a final version of Prep-ME with all new GUIs for Phase II of this pooled fund study in June, 2014. In addition, a new version of User's Manual will be developed and distributed to the participating states along with the new Prep-ME software before August, 2014; and
- Task 6: Education and Training: During the half-year, (1) a TRB workshop on Prep-ME software was conducted in the 2014 TRB conference in January. 2014 in Washington D.C.; (2) A FHWA talking traffic webinar focusing on Prep-ME demonstration and implementation by participating states was held in February, 2014 with more than 50 participants nationwide; (3) From April 7 to April 8, a one-and-a-half-day on-site training is provided for KYTC pavement engineers and planning staff in Frankfort, Kentucky; (4)A half day Prep-ME workshop is scheduled at the 2014 North American Travel Monitoring Exposition and Conference (NATMEC) in Chicago in June, 2014.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Task 4: Stability and Testing of Prep; -Task 5: Report Documentation of Prep; and -Task 6: Education and Training.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	**Best Practices for Achieving and Measuring Pavement Smoothness**	**Project Status:**	**Ongoing**

Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30001420**		Project Start Date:		1/2/2014
Research Project Number:	14-1PF		Completion Date	(original)	1/1/2015
Research Agency:	The Transtec Group		Completion Date	(revised)	
Principal Investigator:	Mr. David Merritt				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$29,992		**Total**		**$20,000**
	(revised)					
Est. Expended to Date		$10,000		Salaries		$18,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$15,000		Equipment	(non-expendable)	
	(revised)	$10,000		Travel		$2,000
Est. FY Expenditure		$10,000		Other		

PURPOSE AND SCOPE

Many new specifications now require all mainline paving meet surface tolerance using the International Roughness Index (IRI) for quality control requirements. Including surface tolerance requirements in specifications allows for an additional payment incentive or penalty based on the contractor's performance. Some contractors struggled to meet 100% payment with the new IRI specifications without excessive grinding. Each state has its own method of IRI collection and specifications for construction acceptance. This synthesis will summarize existing practices for achieving the desired IRI during asphalt and concrete paving. The goals of this synthesis are to document:
-Ongoing and completed research in this area;
-States' technologies and practices for IRI collection and processing;
-States' criteria for smoothness;
-Educational and training best practices for DOT and contractor personnel; and
-Best construction techniques for achieving required smoothness.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Kickoff meeting was completed with Pooled Fund study panel;
-Survey was developed for submission to AASHTO SOM members to fill out regarding their current pavement smoothness measurement practices;
-Process of compiling current state specifications was begun; and
-Literature search for relevant research and literature was begun.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Finish compiling state specifications and standard practices, including practices for profiler certification;
-Compile lessons learned from states who have transitioned from PRI to IRI;
-Compile general best practices for asphalt and concrete pavement construction to achieve smoothness specifications;
-Finish Pavement Smoothness Synthesis, State-of-The-Practice report; and
-Present findings to STC Members at Annual Meeting.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Real time Driver Information for Congestion Management	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30001421**		Project Start Date:		12/1/2013
Research Project Number:	14-2PF		Completion Date	(original)	6/30/2014
Research Agency:	LSU		Completion Date	(revised)	11/30/2014
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$29,999	**Total**		**$15,000**
	(revised)				
Est. Expended to Date		$7,500	Salaries		$15,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$15,000	Equipment	(non-expendable)	
	(revised)	$15,000	Travel		
Est. FY Expenditure		$15,000	Other		

PURPOSE AND SCOPE

State DOTs have programs to provide information to drivers on current travel conditions. These programs typically rely on a network of point sensors, like inductive loops or side fire radar, and closed circuit television cameras to detect congestion and incidents on roads. Information is then typically disseminated to drivers through a variety of means, including variable message signs, highway advisory radio, websites, 511, and commercial media outlets. While DOTs have had these programs in place for a number of years, they are primarily concentrated on major urban freeways, and data are often limited on arterials or rural roads. Furthermore, significant shifts in technology are occurring that may fundamentally alter the manner in which traveler information is generated and delivered to drivers. The goals of the synthesis project are to better understand:
-The capabilities and limitations of emerging technologies;
-The current state of research in this area; and
-The ultimate potential of these technologies to mitigate congestion by changing driver decisions.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-The research team identified and compiled a list of most of the possible sources of information required for the literature review. This task is 95% complete;
-The literature review is being conducted on the recent and ongoing research efforts in the area of real time traffic data collection and information dissemination systems deployed in major metropolitan areas. This task is 40% complete;
-The state of practice is also being reviewed in order to identify and select some case studies to be reviewed in more details. This task is 20% complete; and
-The research team identified the benefits of the reviewed studies up till this time on congestion management. This task is 20% complete.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Continue identifying any other sources of information for the literature review; -Continue doing the literature review; -Continue reviewing the state of practice in order to identify some case studies to be reviewed thoroughly; -Continue identifying the benefits of the real time information on congestion management; and -Prepare the final report to compile the information gathered in the entire study.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Transportation Funding Sources and Alternatives in the Southeastern States Now and in the Future	Project Status:	Ongoing
Funding Source:	SPR: Pooled Fund: TT-Fed	Budget Category:	FHWA

SIO:	30001422		Project Start Date:		1/2/2014
Research Project Number:	14-3PF		Completion Date	(original)	1/1/2015
Research Agency:	Kentucky Transportation Center		Completion Date	(revised)	
Principal Investigator:	Dr. James Brian Gibson				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$30,000	**Total**		**$25,000**
	(revised)				
Est. Expended to Date			Salaries		$23,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$30,000	Equipment	(non-expendable)	
	(revised)		Travel		$2,000
Est. FY Expenditure		$5,000	Other		

PURPOSE AND SCOPE

According to AASHTO, the majority of surface transportation funding in the U.S. is derived from public sources at the federal, state, and local levels. Upwards of $200 billion per year is invested in surface transportation, most of which is revenue from various taxes and fees. Taxes on motor fuel are a significant source, as are vehicle taxes and fees, sales taxes and property taxes. Other sources of funding may include appropriations from general funds, tolls, and fares. Notably, of the approximately $187 billion available to transportation annually, the vast majority is provided not by the federal government, but instead by state and local governments.

As traditional sources of transportation revenue continue to decline in adequacy to fund surface transportation, in most states the gas tax rate remains constant. In addition, state gas tax revenues have fallen dramatically relative to the rising cost of asphalt, concrete, labor and other transportation costs. Proposals to raise the gas tax are common; however, very few of these measures have been passed by state legislatures in recent years. Other proposals include vehicle miles traveled (VMT) tax, public/private partnerships, and increased use of tolling. The goal of this synthesis is to:

-Summarize relevant research related to projected transportation revenues and needs;
-Identify the funding sources that each state in the southeast uses to fund its transportation system;
-Determine what changes to funding levels and practices have been proposed, and
-Identify which practices have been or are anticipated to be successful in the southeastern states.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Work has begun on the project; specifically the literature review and data collection processes are in their initial phases. As of yet, no funds have been officially expended, but will be in process in subsequent billing cycles.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
Project will be continued including the following steps: -Identification of proposed funding changes; -Data analysis for future revenue projections; -Consultations with the project review team; and -Review of draft, and final draft before presentation.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Mitigation Strategies for Reflective Cracking in Pavements	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30001423**		Project Start Date:		10/15/2013
Research Project Number:	14-4PF		Completion Date	(original)	10/14/2014
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Mostafa Elseifi				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$30,000	**Total**		**$5,000**
	(revised)				
Est. Expended to Date		$25,000	Salaries		$5,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$20,000	Equipment	(non-expendable)	
	(revised)	$25,000	Travel		
Est. FY Expenditure		$25,000	Other		

PURPOSE AND SCOPE

The primary objective of this study is to conduct an in-depth literature review of research projects on reflective cracking and a survey of the practices of the southeastern states with regard to the types of cracking mitigation strategy used, selection criteria for the different strategies, construction methods employed to implement the strategies, experiences with the strategies and constructed systems, benefit/cost analysis performed, and guidelines for selecting appropriate strategies and constructing the chosen treatment system.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-A survey questionnaire was prepared, distributed, and posted on the web. 35 responses were obtained to date;
-Studies are regularly collected, organized, and synthesized as part of the proposed research activities; and
-A meeting with the Project Review Committee (PRC) was held to report on the progress of the project. A presentation was made during the meeting.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

This project is expected to be completed on time on October 14, 2014. The following activities will be completed:
-Analysis of the survey responses will be conducted and compiled as part of the final report; and
-The synthesis and final report will be completed and submitted to the PRC for review.

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Design and Analysis Procedures for Asphalt Mixtures Containing High-RAP Contents and/or RAS	Project Status:	Proposed

Funding Source:	SPR: Pooled Fund: TT-Fed	Budget Category:	FHWA

SIO:	1000002		Project Start Date:		6/1/2014
Research Project Number:	14-5PF		Completion Date	(original)	6/30/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$275,000	**Total**		**$149,081**
	(revised)				
Est. Expended to Date			Salaries		$122,081
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$2,000
Est. FY Expenditure			Other		$25,000

PURPOSE AND SCOPE

Despite recent advancements in the design of asphalt mixtures containing Reclaimed Asphalt Pavement (RAP), many states are still cautious in their regulations to avoid durability problems related to the recycling process. In many states, RAP is currently not allowed in highest-class asphalt mixtures and in polymer-modified asphalt products. In addition, high percentages of RAP exceeding 25% are not commonly used in practice. On the other hand, many state agencies are taking a more aggressive approach by considering increasing the allowable percentages of RAP in asphalt mixture to take full advantage of this promising technology. For instance, up to 50% RAP has been used in some asphalt mixtures, which produced an acceptable level of performance. In addition, reclaimed asphalt shingles (RAS), defined by The American Association of State Highways and Transportation Officials (AASHTO) MP 15-09 “Standard Specification for use of Reclaimed Asphalt Shingles as an Additive in Hot-Mix Asphalt (HMA)” as “any type of waste roofing asphalt shingles that have been processed into a recyclable product,” have become another promising candidate of recycling, also because of the high compatibility with paving asphalt mixtures. However, to ensure successful use of RAP and/or RAS, confidences in the mixture design procedure require addressing many concerns related to the interaction between virgin and recycled materials and durability of the produced mixture. Current AASHTO recommendations make it difficult to design asphalt mixtures with high-RAP and/or RAS contents. Modifications to the current specifications are needed to assure agencies that satisfactory performance will result from the use of high-RAP and/or RAS content asphalt mixes. The objectives of this study are to 1) establish mechanistic test criteria for asphalt mixtures (warm and hot) containing high-RAP content and/or reclaimed asphalt shingles (RAS); and 2) propose asphalt mixture specifications that incorporate the mechanistic test criteria as tested on plant produced specimen and/or roadway cores based on the results of the study.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Conduct a thorough literature review; -Develop a laboratory and field experiments; and -Conduct laboratory experiment.

FHWA

Part II SPR Funded Research Program

POOLED FUND EXTERNAL LEAD STATE RESEARCH

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Evaluation of Low Cost Safety Improvements	Project Status:	Ongoing
Funding Source:	SPR: Pooled Fund: TT-Fed	Budget Category:	FHWA

SIO:			Project Start Date:		11/1/2012
Research Project Number:	TPF-5(099)		Completion Date	(original)	10/1/2017
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$40,000	**Total**		**$5,000**
	(revised)				
Est. Expended to Date		$10,000	Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$10,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$5,000	Other		$5,000

PURPOSE AND SCOPE

FHWA has initiated the Low Cost Safety Improvements Pooled Funds Study to encompass safety-effectiveness evaluations of priority strategies from the NCHRP Report 500. The goal of the proposed research is to develop reliable estimates of the safety effectiveness of safety improvements identified as strategies in the NCHRP Report 500 Guidebooks through scientifically rigorous “Before”-”After” (B/A) evaluations of sites within the U.S. where these strategies are being implemented. The data for the study will be gathered from those states that implement the strategies throughout the US. The methodology utilized will typically be an Empirical Bayes evaluation or other appropriate method, using B/A data to help determine their effectiveness in reducing the number and severity of crashes. The data will be collected, and evaluation studies performed, as the strategies are implemented over the course of several years. LADOTD is committing to the project already underway.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Information is posted on FHWA website http://www.pooledfund.org/browse/

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Information is posted on FHWA website http://www.pooledfund.org/browse/

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Roadside Safety Research Program	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2008
Research Project Number:	TPF-5(114)		Completion Date	(original)	12/31/2011
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$190,000	**Total**		**$25,000**
	(revised)				
Est. Expended to Date		$165,000	Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$25,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$25,000	Other		$25,000

PURPOSE AND SCOPE

Background: In 2005, a consortium of states joined together to pool resources to identify common research needs addressing the design, analysis, testing and evaluation of crashworthy structures including bridge rails, guardrails, transitions, median barriers , break away support structures, etc. Together, they developed about $1 million in research funding over a three year period to fund 14 projects that are in various stages of completion. Texas Transportation Institute (TTI) is under contract to conduct the research for these projects. This research has provided cost effective and timely information to participating states. This solicitation invites other states to join the Roadside Safety Committee and to participate in developing research projects for the FFY09 and FFY10 program.
Objectives: This solicitation achieves the original objective to continue the cooperative approach to developing research proposals on roadside safety through FFY2010, thus realizing cost efficiency in projects and consensus on various priorities and approaches.
Scope of Work: The research projects that are currently under contract with TTI will be paid for with existing funding commitments. This solicitation is for new roadside safety research projects that will be identified and approved by the Roadside Safety Committee. The specific scopes of work are identified in problem statements or proposals that are developed by individual member states. The Committee then ranks and selects the projects that are funded and the work is carried out by Texas Transportation Institute. Member states may also develop and fund research projects that are not selected by the Roadside Safety pooled fund states to take advantage of the reduced overhead costs offered under the agreement.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

The results of all research conducted under this pooled fund program and a description of ongoing and new projects can be found at the Roadside Safety website located at : http://ttiresearch.tamu.edu/l-bullard/

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

The results of all research conducted under this pooled fund program and a description of ongoing and new projects can be found at the Roadside Safety website located at : http://ttiresearch.tamu.edu/l-bullard/

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Technology Transfer Concrete Consortium	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2012
Research Project Number:	TPF-5(159)		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$25,000	**Total**		**$5,000**
	(revised)	$40,000			
Est. Expended to Date		$35,000	Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$5,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$5,000	Other		$5,000

PURPOSE AND SCOPE

Background: Increasingly, state departments of transportation (DOTs) are challenged to design and build longer life concrete pavements that result in a higher level of user satisfaction for the public. One of the strategies for achieving longer life pavements is to use innovative materials and construction optimization technologies and practices. In order to foster new technologies and practices, experts from state DOTs, Federal Highway Administration (FHWA), academia and industry must collaborate to identify and examine new concrete pavement research initiatives. The purpose of this pooled fund project is to identify, support, facilitate and fund concrete research and technology transfer initiatives.
Objectives: The proposed project is for the establishment of a pooled fund for state representatives to continue the collaborative effort begun in TPF-5(066) Materials and Construction Optimization. The TTCC will be open to any state desiring to be a part of new developments in concrete paving leading to the implementation of new technologies which will lead to longer life pavements through the use of the innovative testing, construction optimization technologies and practices, and technology transfer.
Scope of Work: It is envisioned this partnership will be part of the Track Team for the CP Road Map Mix Design and Analysis Track. The Track Team will include state representatives along with FHWA representatives, industry representatives (from ACPA, ACPA chapters, and material suppliers), consultants, and academic representatives. This pooled fund will be the opportunity for all states interested in the Mix Design and Analysis Track to become part of that endeavor.
TTCC will begin by meeting in conjunction with MCC, twice a year, as the MCO has done in the past. It may be advantageous for MCC in the future to consider melding itself into, and becoming part of the TTCC.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Accomplishments may be found at study website: http://www.cptechcenter.org/t2/ttcc_ncc_meeting.cfm

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Proposed Activities may be found at study website: http://www.cptechcenter.org/t2/ttcc_ncc_meeting.cfm

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Superpave Regional Center	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		
Research Project Number:	TPF-5(228)		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$125,000		**Total**		**$10,000**
	(revised)					
Est. Expended to Date		$96,224		Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$25,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$25,000		Other		$10,000

PURPOSE AND SCOPE

Objectives of the Center are:
-Conduct training in regard to Superpave binders, mix design, and performance testing, and provide training on special topics as requested by participating agencies;
-Perform research, both cooperatively and agency-specific, sponsored by members of the pooled-fund;
-Perform precision and bias testing for asphalt-related performance test equipment;
-Conduct noise studies in an effort to develop quieter pavements;
-Perform forensic evaluations on materials or projects that have experienced premature distress;
-Prepare and give presentations and reports of research activities at local, state, and national meetings when invited;
-Prepare research articles of regional and national interest;
-Support agency personnel who attend regional and national meetings for the purpose of technology transfer or participation in special committees or task force groups; and
-Work in close association with the Southeastern Asphalt User/Producer Group to promote technology transfer from research to implementation.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Accomplishments may be found at http://www.pooledfund.org/Details/Study/456

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Proposed activities may be found at http://www.pooledfund.org/Details/Study/456

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Transportation Library Connectivity and Development	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		1/1/2011
Research Project Number:	TPF-5(237)		Completion Date	(original)	12/31/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$75,000	**Total**		**$15,000**
	(revised)				
Est. Expended to Date		$60,000	Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$15,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$15,000	Other		$15,000

PURPOSE AND SCOPE

The Transportation Library Connectivity Pooled Fund Study is a grassroots effort by librarians and information professionals in 22 state departments of transportation, two university transportation centers and a metropolitan transportation authority.
Since 2005 members have been pooling their talents, energy and resources to develop better ways to serve practitioners in transportation agencies. A full-time consultant provides technical assistance to member libraries and carries out a ten-point annual work plan aimed at improving information access throughout the transportation community.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Details may be found at http://www.pooledfund.org/Details/Study/466

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Details may be found at http://www.pooledfund.org/Details/Study/466

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Highway Safety Manual Implementation	Project Status:	Ongoing
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		10/19/2011
Research Project Number:	TPF-5(255)		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$100,000	**Total**		**$20,000**
	(revised)				
Est. Expended to Date		$80,000	Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$20,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$20,000	Other		$20,000

PURPOSE AND SCOPE

The objectives of the study are (1) to advance ongoing efforts by lead states to implement the HSM, and (2) to expand implementation to all states. This study would be coordinated with other ongoing and planned implementation activities sponsored by AASHTO, FHWA, and TRB, including NCHRP Project 17-50 "Lead States Initiative for Implementing the Highway Safety Manual" It will also be coordinated with projects that develop content for future editions of the HSM including NCHRP Project 17-45 "Enhanced Safety Prediction Methodology and Analysis Tool for Freeways and Interchanges" NCHRP Project 17-54 "Consideration of Roadside Features in the Highway Safety Manual" and Transportation Pooled-Fund Study TPF-5(099) "Evaluation of Low Cost Safety Improvements."

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Details may be found at http://www.pooledfund.org/Details/Study/484

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Details may be found at http://www.pooledfund.org/Details/Study/484

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	**Partnership for the Transformation of Traffic Safety Culture**	**Project Status:**	**Proposed**
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:		Project Start Date:		
Research Project Number:	TPF-5(XXX)	Completion Date	(original)	
Research Agency:		Completion Date	(revised)	
Principal Investigator:				

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$50,000	**Total**		**$10,000**
	(revised)				
Est. Expended to Date			Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$10,000

PURPOSE AND SCOPE

This program is a cooperative effort of participating state DOTs and other (traditional and non-traditional) organizations with a vested interest in traffic safety. This long-term partnership will support an evolving and integrated project portfolio developed and revised each year by the partners, and complimentary to other related research activities, such as NCHRP 17-69: A Strategic Approach to transforming Traffic Safety Culture to reduce Deaths and Injuries. Together, these projects will accelerate the development and delivery of tools and services to transform the national, state, and community level traffic safety culture. The goal of this transformation is to support the Toward Zero Deaths (TZD) vision with sustainable traffic safety solutions.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Details may be found at http://www.pooledfund.org/Details/Solicitation/1368

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Details may be found at http://www.pooledfund.org/Details/Solicitation/1368

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Pooled Fund Collaboration Projects	Project Status:	Proposed
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		
Research Project Number:	TPF-5(XXX)		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$35,000		**Total**		**$35,000**
	(revised)					
Est. Expended to Date				Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		$35,000

PURPOSE AND SCOPE

The Transportation Pooled Fund (TPF) Program allows federal, state, and local agencies and other organizations to combine resources to support transportation research studies. The objective of this work program item is to provide SPR funding for LADOTD to participate in upcoming pooled fund projects in which LTRC is not the lead state

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Select and fund research pooled fund projects that would provide benefits to the Louisiana transportation network.

FHWA

Grant Funded Research Program

CONTINUING RESEARCH

Title:	**Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain**	**Project Status:**	**Ongoing**
Funding Source:	**IBRD: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000129**		Project Start Date:		11/1/2007
Research Project Number:	07-1ST		Completion Date	(original)	10/31/2010
Research Agency:	LTRC		Completion Date	(revised)	12/31/2014
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$449,925		**Total**		**$57,894**
	(revised)	$640,265				
Est. Expended to Date		$582,371		Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	$57,894
FY Funds	(original)	$128,873		Equipment	(non-expendable)	
	(revised)	$70,979		Travel		
Est. FY Expenditure		$70,979		Other		

PURPOSE AND SCOPE

The objective of this research project is to establish a structure health monitoring system of the I-10 Twin Span bridge through instrumentation of the M19 Eastbound pier for use in the short-term and long-term monitoring purposes. This includes instrument selected piles with inclinometers and strain gauges, instrument pile-cap with accelerometers and tiltmeters, and instrument column with water pressure cells. Static lateral load test will be performed by the Louisiana Department of Transportation and Development (LADOTD) immediately after completing the installation of the monitoring system in the Eastbound pier M19. The short-term monitoring will be used to validate the applicability of the FB-MultiPier analysis for predicting the performance of battered pile group system under lateral loading, and to develop (or back-calculated) the p-y multipliers for battered pile groups in similar soil conditions.

The long-term monitoring will be used to evaluate the behavior of pile group structure under dynamic loads caused by selected events (winds, waves, and vessel collision).

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Coordinated with the subcontractor (Geocomp)to install the additional superstructure instrumentations: 12 strain gauges on concrete girders, 12 strain gauges on steel girders, and 3 OSMOS extensometers to three steel girders;
-Coordinated with the subcontractor to re-calibrate the OSMOS WIM; and
-Prepared Final Report on lateral load test and analysis.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Coordinate with Geocomp to prepare the instrumentation report; and
-Finalize the report.

FHWA

Grant Funded Research Program

PROPOSED RESEARCH

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	Support Study to "Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana"	Project Status:	Proposed
Funding Source:	TT-Fed	Budget Category:	FHWA

SIO:	30001503	Project Start Date:		9/1/2013
Research Project Number:	14-4GT	Completion Date	(original)	
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh			

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$20,000	**Total**		**$20,000**
	(revised)				
Est. Expended to Date			Salaries		$20,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

This is a support study to LTRC Project Number 13-5GT to cover the Federal Highway Administration (FHWA) contribution to the GRS instrumentation.

Traditional bridge construction can be slow, expensive, and complex. Researchers at the FHWA recognized that bridges could be built better, faster, and for less money. In 2010, the FHWA introduced an initiative "Every Day Counts" (EDC) to promote technologies that speed up the design and construction of highway projects such as bridge abutments, while at the same time reducing their costs. One promising technology is to use Geosynthetic Reinforced Soil (GRS) in the Integrated Bridge Systems (IBS). The use of GRS can also help in eliminating/minimizing the roadway and bridge "bump" problem. The purpose of this research study is to apply the GRS technology in the design and construction of bridge abutments in Louisiana and evaluate the performance of GRS abutments during construction and under service loads. The project will include instrumenting and monitoring selected GRS bridge abutment at Maree Michel Bridge.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Conduct literature search relevant to geosynthetic reinforced soil and its application for bridge abutments;
-Prepare an instrumentation plan for monitoring the GRS bridge abutment at the selected Maree Michel Bridge GRS abutment; and
-Install the instruments in the GRS abutment at critical locations to obtain reliable and meaningful important measurements.

FHWA

LTAP Funded Program

Title:	**Local Technical Assistance Program (LTAP)**	**Project Status:**	**Ongoing**
Funding Source:	**LTAP: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**1000030**		Project Start Date:		1/1/2013
Research Project Number:	14-LTAP		Completion Date	(original)	12/31/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Marie Walsh				

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$557,918	**Total**		**$557,918**
	(revised)				
Est. Expended to Date			Salaries		$238,621
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$23,313
Est. FY Expenditure			Other		$295,984

PURPOSE AND SCOPE

To provide cost effective transfer of technology and workforce development opportunities to Louisiana's parish and municipality public transportation and public works agencies through training, technical assistance and information dissemination.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Coordinated local public agency (LPA) related activities with new DOTD program manager, and Federal Highway Administration Louisiana Division office. Implemented three modules of new training program and delivered all classes statewide at multiple locations;
-Implemented data collection and entry phase of local transportation Asset Management initiative and prepared draft final report documenting effort;
-Supported local road projects and local agency participation in the regional coalitions being established statewide in Louisiana including organizational efforts for new Capital Area Regional Safety Coalition;
-Supported professional development of local engineers through planning and participation in two statewide conferences of the Louisiana Parish Engineers and Supervisors Association; 2 leadership development sessions for the Deep South ITE Chapters; as well as serving as Board members and chairs of Education Committees for state associations;
-Participated in planning and on-site host activities for the 2014 National Association of County Engineers (NACE) which was hosted by the Louisiana Parish Engineers and Supervisors Association in Baton Rouge, Louisiana in April, 2014;
-Continued to provide traditional work program of transportation and safety related training to local public agencies; and
-Presented 76 classes or workshops:

- 4 Worker Safety Classes;
- 9 Highway Safety Classes;
- 42 Infrastructure Management Classes; and
- 21 Workforce Development Classes.
- 9281 hours of training
- 1991 program participants

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Complete development and implementation of final LPA training module and develop certification and tracking program;
-Implement project to develop local road safety plans for priority parishes; and
-Link roadway characteristic data being collected by DOTD to local safety and pavement preservation initiatives.

FHWA

STP Funded

Technology Transfer
and
Education Program

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Technology Transfer Program and Operations (LSU)	Project Status:	Ongoing
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000320**		Project Start Date:		7/1/2013
Research Project Number:	08-1TSQ		Completion Date	(original)	6/30/2014
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				Estimated 2014-2015 Budget		
Total Cost	(original)	$366,917		**Total**		**$377,966**
	(revised)					
Est. Expended to Date				Salaries		$336,966
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	$15,000
	(revised)			Travel		$6,000
Est. FY Expenditure				Other		$20,000

PURPOSE AND SCOPE

The objectives of this study are to:
-Disseminate information on new technologies and methodologies to Louisiana Department of Transportation and Development (LADOTD) and other transportation-oriented agencies;
-Improve communications on technical, transportation-related issues between the department and other agencies;
-Encourage implementation of new procedures and technologies; and
-Disseminate information on transportation subjects to appropriate managers and engineers in the department.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Assisted in registration for LTRC Seminar Series - Intelligent Compaction – New Iberia, LA;
-Assisted in registration for RAC 2013 Annual Meeting – Baton Rouge, LA;
-Assisted in registration for 2013 National Transportation Training Directors Conference – Boston, MA;
-Attended and chaired vendor booth for SASHTO 2013 – Charlotte, NC;
-Developed and maintained website for SASHTO 2014 – New Orleans, LA;
-Published 2 Tech Todays;
-Published 2013 Annual Report;
-Set up online registration for 14 NHI/other, 9 LTAP training classes;
-Photographed all LTRC events;
-Filmed and produced Twin Span Instrumentation video;
-Filmed and produced State of DOTD (fall) and State of DOTD (spring); and
-Filmed and produced Vibrating Roller Demo (New Iberia, LA).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Chair publications committee for SASHTO 2014 – New Orleans, LA; -Sponsorship coordinator for SASHTO 2014; -Assist on all SASHTO committees; -Continue development of all SASHTO publications, website, and registration and e-commerce capabilities; -Assist in registration for the 2014 National Transportation Training Directors Conference – Muscle Shoals, AL.; -Develop and maintain website for Louisiana Transportation Conference 2016; -Continue maintenance of LTRC website; -Edit and distribute project capsules, technical summaries, final reports and technical assistance reports; -Create content and publish Tech Today (2); -Photograph all LTRC events; and -Video all LTRC events.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Technology Transfer & Research Implementation Support for Louisiana Universities	Project Status:	Ongoing
Funding Source:	STP: TT-Fed	Budget Category:	FHWA

SIO:	30000241		Project Start Date:		1/1/2010
Research Project Number:	10-4AD		Completion Date	(original)	12/31/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$110,000	**Total**		**$10,000**
	(revised)				
Est. Expended to Date		$21,407	Salaries		
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)	$10,000	Equipment	(non-expendable)	
	(revised)		Travel		$10,000
Est. FY Expenditure		$9,415	Other		

PURPOSE AND SCOPE

The purpose of the project is to provide travel funds to university research principal investigators for dissemination of research results at various technology transfer events. This project provides a mechanism to fund technology transfer travel for university faculty to deliver research results to state and national audiences such as Transportation Research Board (TRB) Annual Meeting, Louisiana Transportation Conference (LTC), Louisiana Transportation Research Center (LTRC) Seminar Series and Louisiana Department of Transportation and Development (LADOTD) Implementation meetings and training. Travel funds are dispersed on a case by case basis as it applies to providing a benefit to Louisiana.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

This project provided support for travel for dissemination of research results of the following papers/presentations developed from LTRC research projects:

-10-4P -Development of Cost-Effective Pavement Treatment Selection and Treatment Performance Models: TRB 2014;
-12-3TIRE - Modeling the Effect of Gusty Hurricane Wind Forces on Driving Behavior and Vehicle Performance: TRB 2014;
-09-4ST - Shape Memory Polymer-Based Self-Healing Sealant for Expansion Joint: TRB 2014;
-13-2P - A Comprehensive Study on Pavement Edge Line Implementation;
-08-2ST - Monitoring of Bridge Scour Using Fiber Optic Sensors; and
-13-1SA - Distracting Driving and Associated Crash Risks.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue to provide support technology transfer travel for university faculty to deliver research results to state and national audiences.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	DOTD Staff Support for Workforce Development	Project Status:	Ongoing
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000025**		Project Start Date:		7/1/2014
Research Project Number:	15-1SWD		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$1,520,000	**Total**		**$1,520,000**
	(revised)				
Est. Expended to Date			Salaries		$1,520,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The purpose of this study is to provide for the strategic planning, program development and delivery management of the workforce development programs for the Louisiana Department of Transportation and Development (LADOTD) personnel by non-LTRC employees. This project will not be utilized by LTRC Section 19 or Section 33.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Course development and delivery of LPA training, LADOTD employee structured training, Human Resource training, maintenance related training, and meetings involvements related to LADOTD's Transportation Training Curriculum council.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Technology Transfer Program and Operations (DOTD)	Project Status:	Ongoing
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000019**		Project Start Date:		7/1/2014
Research Project Number:	15-1TSQ		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$461,949	**Total**		**$461,949**
	(revised)				
Est. Expended to Date			Salaries		$461,949
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The objectives of this study are to:
-Disseminate information on new technologies and methodologies to the Louisiana Department of Transportation and Development (LADOTD) and other transportation-oriented agencies;
-Improve communications on technical, transportation-related issues between the department and other agencies;
-Encourage implementation of new procedures and technologies; and
-Disseminate information on transportation subjects to appropriate managers and engineers in the department.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Assisted in registration for LTRC Seminar Series - Intelligent Compaction – New Iberia, LA;
-Assisted in registration for RAC 2013 Annual Meeting – Baton Rouge, LA;
-Assisted in registration for 2013 National Transportation Training Directors Conference – Boston, MA;
-Attended and chaired vendor booth for SASHTO 2013 – Charlotte, NC;
-Developed and maintained website for SASHTO 2014 – New Orleans, LA;
-Published 2 Tech Todays;
-Published 2013 Annual Report;
-Set up online registration for 14 NHI/other, 9 LTAP training classes;
-Photographed all LTRC events;
-Filmed and produced Twin Span Instrumentation video;
-Filmed and produced State of DOTD (fall) and State of DOTD (spring); and
-Filmed and produced Vibrating Roller Demo (New Iberia).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Chair publications committee for SASHTO 2014 – New Orleans, LA; -Sponsorship coordinator for SASHTO 2014; -Assist on all SASHTO committees; -Continue development of all SASHTO publications, website, and registration and e-commerce capabilities -Assist in registration for the 2014 National Transportation Training Directors Conference – Muscle Shoals, AL; -Develop and maintain website for Louisiana Transportation Conference 2016; -Continue maintenance of LTRC website; -Edit and distribute project capsules, technical summaries, final reports and technical assistance reports; -Create content and publish Tech Today (2); -Photograph all LTRC events; and -Video all LTRC events.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Support for Senior Project Courses	Project Status:	Ongoing
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000023**		Project Start Date:		7/1/2014
Research Project Number:	15-1TT		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$37,500		**Total**		**$37,500**
	(revised)					
Est. Expended to Date				Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		$37,500

PURPOSE AND SCOPE

To provide support for senior project engineering courses up to a maximum of $7,500 / university / year.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Two universities participated in this program this reporting period:
-Louisiana Tech University; and
-University of Louisiana at Lafayette;

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue to provide support for senior project engineering courses.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Workforce Development	Project Status:	Ongoing
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000020**		Project Start Date:		7/1/2014
Research Project Number:	15-1WD		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$978,849	**Total**		**$978,849**
	(revised)				
Est. Expended to Date			Salaries		$968,849
FY 2013 - 2014 Budget			Equipment	(expendable)	$10,000
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The purpose of this study is to provide for the strategic planning, program development and delivery management of the workforce development programs for the Louisiana Department of Transportation and Development (LADOTD) personnel. The scope of this study also includes the development, delivery and administration of the Louisiana Transportation Research Center's (LTRCs) transportation outreach program.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Transferred Computer Training Programs to LEO/LSO;
-Transferred Structured Training Programs to LEO/LSO and created tracking system;
-Implemented 60 Structured Training Programs;
-Implemented PPM 59 Revision;
-Implemented revised Asphaltic Concrete Plant Certification Matrix;
-Completed LTRC Training Laboratory;
-Scheduled, registered, and subscribed students for leadership, management, supervisory, computer training, NHI, CADD/GIS and other specialty courses;
-Implemented 7 training courses, 2 Pavia web-based courses, revision of Biannual EEO course to web-based;
-Completed 6 training videos, including Site Manager videos for LPA/LTAP and Materials Test Procedure how-to videos; and
-139 Recertification tests given, 168 specialty tests given, 268 certifications awarded (includes recertification's).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Implement Structured Training Program tracking in LEO/LSO and train users; -Continue to revise and implement remaining Structured Training Programs; -Continue to meet with principal customers to prioritize needs to develop training courses; -Continue to meet with principal customers to prioritize needs to develop training courses, performance evaluations, and safe operating checklists; -Continue to develop Construction, Materials, and Maintenance courses; and -Continue to develop web-based courses where appropriate.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	LTRC Student Program	Project Status:	Ongoing
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000024**		Project Start Date:		7/1/2014
Research Project Number:	15-2TT		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Harold 'Skip' Paul				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$147,000		**Total**		**$147,000**
	(revised)					
Est. Expended to Date				Salaries		$147,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

To pay for salaries for undergraduate students employed to provide support to various Louisiana Transportation Center (LTRC) projects.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Thirty (30) undergraduate students were employed by LTRC to provide support in fulfilling necessary job tasks on various LTRC projects.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue to pay for salaries for undergraduate students employed to provide support to various LTRC projects.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	**LADOTD CO-OP Program**	**Project Status:**	**Ongoing**

Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000021**	Project Start Date:		7/1/2014
Research Project Number:	15-COOP	Completion Date	(original)	6/30/2015
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper			

BUDGET STATUS

Total Budget			**Estimated 2014-2015 Budget**		
Total Cost	(original)	$300,000	**Total**		**$300,000**
	(revised)				
Est. Expended to Date			Salaries		$300,000
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The Louisiana Department of Transportation and Development (LADOTD) CO-OP program is a cooperative endeavor between the LADOTD and Louisiana Universities, providing practical experience to junior and senior level undergraduates through part-time employment in public transportation engineering work. This program is intended to enhance the educational process by providing opportunities for participants to explore their interest in transportation engineering through practical experience. This program also provides opportunities for LADOTD to evaluate participants of this program as potential employees.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-26 students participated in CO-OP at various LADOTD sections throughout Louisiana; and
-3 CO-OP students were hired by LADOTD upon graduation.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Place CO-OP approximately 30 students in various LADOTD Sections across the state;
-Continue end of semester presentations; and
-Retain students in CO-OP.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	**AASHTO PONTIS Agreement**	**Project Status:**	**Ongoing**
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000027**		Project Start Date:		7/1/2014
Research Project Number:	15-PONTIS		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$125,000		**Total**		**$125,000**
	(revised)					
Est. Expended to Date				Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		$125,000

PURPOSE AND SCOPE

AASHTO PONTIS Agreement

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

AASHTO PONTIS Agreement

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

AASHTO PONTIS Agreement

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	**Technology Transfer Registration Fees**	**Project Status:**	**Ongoing**
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000022**		Project Start Date:		7/1/2014
Research Project Number:	15-TTRF		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$100,000		**Total**		**$100,000**
	(revised)					
Est. Expended to Date				Salaries		
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		$100,000

PURPOSE AND SCOPE

To provide cost effective transfer of technology and workforce development opportunities to Louisiana's parish and municipality public transportation and public works agencies through training, technical assistance and information dissemination.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Provided cost effective transfer of technology and workforce development opportunities to Louisiana's parish and municipality public transportation and public works agencies through training, technical assistance and information dissemination.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue to provide cost effective transfer of technology and workforce development opportunities to Louisiana's parish and municipality public transportation and public works agencies through training, technical assistance and information dissemination.

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	**Workforce Development Contracts**	**Project Status:**	**Ongoing**
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000028**		Project Start Date:		7/1/2014
Research Project Number:	15-WDC		Completion Date	(original)	6/30/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:	Mr. Samuel B. Cooper				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$3,438,462		**Total**		**$3,438,462**
	(revised)					
Est. Expended to Date				Salaries		$873,595
FY 2013 - 2014 Budget				Equipment	(expendable)	$44,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$25,000
Est. FY Expenditure				Other		$2,495,867

PURPOSE AND SCOPE

The purpose of this study is to provide contractual services through federal, university and private sector suppliers for continuing education, professional development, technical skills, software, leadership, management, supervisory training. The scope of this project also includes providing individual registration fees for Louisiana Department of Transportation and Development (LADOTD) employees to attend workshops, courses and conferences to enhance their professional and technical development.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-2013 National Research Advisory Committee/TRB State Representative Meeting (LTRC - Section 19)July 2013 – Baton Rouge Hilton – Baton Rouge, LA - 110 participants;
-Secretary's Legal Process Mapping Workshop (LA DOTD Office of the Secretary) September, 2013 – Crown Plaza Hotel – Baton Rouge, LA. Sent out RFP and negotiated hotel for meeting space -10 Participants;
-Statewide Transportation Plan Update (LA DOTD Office of Transportation Planning) October 2014 – Baton Rouge Marriott – Baton Rouge, LA. Sent out RFP and negotiated hotel for meeting space - 70 participants;
-Secretary LeBas' Executive Retreat (LA DOTD Office of the Secretary)October 2013 - TTEC Facility – Baton Rouge, LA - 15 participants;
-2013 National Transportation Training Directors (NTTD) Conference September/October 2013 – Park Plaza Hotel – Boston, MA - 80 participants;
-Sustainable Pavement Technical Working Group (LTRC – Section 19)November 2013 – TTEC Facility – Baton Rouge, LA Negotiated overnight hotel accommodations room agreement - 50 participants;
-Statewide Transportation Plan Update (LA DOTD Office of Transportation Planning) January 2014 – Baton Rouge Marriott – Baton Rouge, LA. Sent out RFP and negotiated hotel for meeting space - 70 participants;
-Transportation Safety Conference (LA DOTD Highway Safety Section)March 2014 – Crown Plaza Hotel - Baton Rouge, LA Sent out RFP and negotiated hotel for meeting space and overnight accommodations - 300+ participants;
-Dynamic Shear Rheometer Workshop (LTRC, Section 19) February 2014 – TTEC Facility – Baton Rouge, LA. Assisted with hotel accommodations and meal planning. - 45 Participants;
-Secured hotel contract for overnight hotel accommodations for the 2016 Louisiana Transportation Conference February/March 2016 – Baton Rouge Hilton – Baton Rouge, LA - 75 overnight rooms;
-We are still in the process of switching from analog to digital. The only rooms we have done anything with is the auditorium and conference room. We are now sending digital video to the 2 projectors. we have interfaced the analog cameras to the digital video input of the Video conferencing equipment in room 100. We have made changes to the Crestron programming to fully incorporate the local video conferencing equipment instead of using the end of life equipment in room 123;
-Worked with District 5 and 8 to switch all analog video to digital;
-Rebuilding Crestron interface(ipad control) to be more user friendly;
-Made FE prep class available on Mediasite;
-Delivered 9 classes of the "Foundations of Leadership Development" course to 132 DOTD team members as of April 23, 2014;
-Delivered 16 classes of the "Emotional Intelligence" course to 192 DOTD team members as of April 23, 2014;
-Developed "Organizational Culture" & "Transformational Leadership" courses for the Leadership Development Institute;
-Delivered 4 Pilot classes of the "Organizational Culture" course to 61 DOTD team members as of April 23, 2013;
-Member of TRB Committee ABG30;
-Member of TRB Committee ABG20;
-Member of TRAC and RIDES Advisory Board;
-Vice President of National Transportation Training Directors ;
-Co-author of chapter entitled "Learning through immersive virtual environment: An organization context." Published in Keengwe, J., & Kungu, K. (Eds.), Cross Cultural Online Learning in Higher Education and Corporate Training;
-FHWA Grant awarded in the amount of: $78,960. Implementation and evaluation of TRAC and RIDES Programs in Schools in the State of Louisiana. Federally funded grant. 8/1/2013-12/31/2013; and
-Participant in NCHRP Project 20-07(340), National Training: Challenges and Opportunities.

Other Courses Conducted:
- Highway Safety Manual(May 2014): 40 participants ;
- ISATe (May 2014): 32 participants;
- PE Review: 58 participants;
- NE Roundabouts: 64 participants;
- Dataforensics: 25 participants;
- Future SYNC Executive Leadership: 13 participants;
- PAC Environmental Awareness: 11 participants;
- Deighton and Associates: 8 participants;
- NHI Workshops (Fiscal Year): 264 participants in 10 classes;
- Individual Registrations: 332 Employees in 98 events;
- LSU CADD: 290 participants in 29 classes;
- UNO: 1165 participants in 96 classes;
- Foundations of Leadership Dev.(9 classes): 132 participants;
- Emotional Intelligence (16 classes): 192 participants;
- Emotional Intelligence (FY 13-14, 4 scheduled): 60 participants (projected);
- Organizational Culture (4 Pilot classes): 61 participants;
- Organizational Culture (FY 12-14, 3 scheduled): 50 participants(projected); and
- Transformational Leadership (2 Pilots scheduled): 35 participants (projected).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES
-Conduct SASHTO 2014, August 2014 – New Orleans Sheraton – New Orleans, LA Approximately 1,100 participants and 90 vendors; -Conduct 5-Day National Transportation Training Directors conference in Alabama for approximately 75 participants and 10 vendors; -Secured hotel contract for meeting space and overnight hotel accommodations for the 2016 Louisiana Transportation Conference February/March 2016 – Belle of Baton Rouge Hotel - Baton Rouge, LA, 250 overnight rooms; -Secured contract for meeting space for the 2016 Louisiana Transportation Conference, February/March 2016 – Baton Rouge River Center - Baton Rouge, LA, Approximately 1300 participants; -Continue with digital upgrade to all rooms (as funds are available I plan to switch all analog video switches to digital); -After we get a good working control pad, we will implement in each room. (if the interface works well on android and apple devices, I plan to replace near end of life Crestron control screens); -Installation of surveillance cameras in and outside of TTEC; -Add Auditorium CODEC to list of outside call video equipment; -Work with districts interested in upgrades to interface new equipment; -Attend AV design or programming class; -Continue to offer “Foundations of Leadership Development” classes (at least 1 a month at TTEC) to all DOTD personnel needing leadership development training; -Continue to offer “Emotional Intelligence” classes to all DOTD personnel needing leadership development training (at least 1 a month at TTEC); -Deploy “Organizational Culture” course to all DOTD personnel needing leadership development training; -Develop method of meaningful evaluation of the program; -Pilot test “Transformational Leadership” course; and -Market Leadership Development Program (Create Website or Webpage).

LTRC Annual Research Program
Fiscal Year 2013-2014

Title:	Workforce Development Support For Safety Center	Project Status:	Proposed
Funding Source:	**STP: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**1000026**		Project Start Date:		7/1/2014
Research Project Number:	15-1WDSC		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Harold 'Skip' Paul				

BUDGET STATUS

Total Budget			Estimated 2014-2015 Budget		
Total Cost	(original)	$250,000	**Total**		**$100,000**
	(revised)				
Est. Expended to Date			Salaries		$96,500
FY 2013 - 2014 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$2,000
Est. FY Expenditure			Other		$1,500

PURPOSE AND SCOPE

The purpose of this study is to provide for the strategic planning, program development, and delivery management of the workforce development programs for the Louisiana Center for Transportation Safety which provides a structure for Louisiana's research universities to collaborate on safety related projects and leverage resources. An expanded training and education program which includes the new multi-disciplinary highway safety professional curriculum being developed by the Transportation Research Board will be made available to transportation professionals on a national basis. The Louisiana Department of Transportation and Development (LADOTD), Louisiana Transportation Research Center (LTRC) and the Transportation Training and Education Center (TTEC) in Baton Rouge, Louisiana will serve as the nucleus for these activities.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Delivery of the new multi-disciplinary highway safety professional curriculum being developed by the Transportation Research Board once it becomes available. Provide Strategic planning, program development and delivery of workforce development programs.

State Funded Research Program

CONTINUING RESEARCH

Title:	**I-10 Girder Repair Using Post-Tensioned Steel Rods and Carbon Fiber Composite Cables (CFCC)**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30001020**		Project Start Date:		3/18/2013
Research Project Number:	13-4ST		Completion Date	(original)	3/17/2014
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Ching Tsai				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$60,000		**Total**		**$4,000**
	(revised)					
Est. Expended to Date		$46,000		Salaries		$4,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$14,000		Equipment	(non-expendable)	
	(revised)	$1,000		Travel		
Est. FY Expenditure		$1,000		Other		

PURPOSE AND SCOPE

Due to the corrosive environment of the subject bridge, there is a concern of continuing deterioration of the bridge girders and to be installed reinforcing steel bars and carbon fiber composite cables (CFCCs). Continuous monitoring for the followings throughout the life time of this bridge is desirable.
The scope of this research is to continuously monitor the stress changes in all external reinforcement to ensure the safety of the bridge structure. This monitoring effort will provide the Louisiana Department of Transportation and Development (LADOTD) on decision making on the future operation of the bridge. In addition, since both the traditional steel reinforcement and CFCC will be used, comparisons of the long-term performance of the two materials will be made.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Review instrumentation plan for the project;
-Field construction monitoring; and
-Post-tensioning work oversight.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Data review;
-Data analysis; and
-Report preparation.

LTRC Annual Research Program

Fiscal Year 2014-2015

2013 RPIC PROBLEM STATEMENTS

FINAL RANKING	PROBLEM STATEMENT TITLE
1	Geotechnical Database - Phase 3
2	Evaluating Louisiana New Continuity Detail for Girder Bridges
3	Development of a Sustainable UHPC Bridge Deck for Movable Bridges
4	Cost and Time Benefits for using Subsurface Utility Engineering Before Road Construction
5	Investigation into the Feasability of Continuously Reinforced Concrete Pavement (CRCP) Reinforced with Fibers Instead of Steel Rebar
6	Region-Specific Gates Equation Calibration for LRFD
7	A Simulation Model for Intermodal Freight Transportation in the State of Louisiana
8	Investigation of PCC Pavement Rubblization Over Weak Subgrades
9	Factors influencing Seatbelt and Occupant Protection Utilization in Louisiana and Strategies to Improve Usage Rate
10	Material Property Changes of Decayed Timber for Timber Bridges
11	Right-sizing Truck Registration and Overweight Permits Fees
12	Predicting Driven Pile Behavior Within Prebored Soil
13	Implementation of Concrete Maturity
14	Automated Material Delivery, Tracking, and Long-Term Monitoring
15	Remote Monitoring of Instrumented Bridges in Louisiana
16	Comparison of Granulated vs. Hydrated Lime for Treatment of In-Situ Soils
17	Effects of Temperature Segregation on the Volumetric and Mechanistic Properties of Asphalt Mixtures
18	Identify All Local Public Transit Resources for Evacuations and Other Needs
19	Evaluation Non-destructive Quality Control Tools for Joint Construction in Jointed Concrete Pavements
20	Emergency Power Supply Systems Applied to Signalized Intersections
21	Mitigating Damage of Shale Gas Exploration and Mining Efforts
22	Quantifying the LaDOTD Roadway Safety Investment Impact on Crash Reduction
23	Development of New Mechanical Test to Evaluate Moisture Sensitivity of Asphalt Mixtures
24	Infrastructure Damage Cost Recovery Associated with Oil and Gas Explloration and Production.
25	Increased Cleanliness and Reduction of Maintenance Costs for Structures
26	Study the Safety Effects of Access Management Techniques for Driveway Density, Driveway-Related Design Factors and Effects of Median Treatments on Roadways in the State of Louisiana
27	Project Risk versus increased Railroad Protective Liability Insurance
28	Drugged Driving in Louisiana: Quantification of its Impact on Impaired Driving crashes and deaths and the Legal, Enforcement and Public Health Implications and Potential Strategies
29	Consistency of Crumb Rubber Asphalt Cement and Asphalt Mixtures

30	Development of a New Travel Time Reliability Measure as an Indicator of Level of Service
31	Development of a Test Bed for Connected Vehicles using LSU Driving Simulator

Self Generated Funded Research Program

CONTINUING RESEARCH

Title:	**Field versus Laboratory Volumetrics and Mechanical Properties**	**Project Status:**	**Ongoing**
Funding Source:	**NCHRP**	**Budget Category:**	**Self-Generated**

SIO:	**30000133**		Project Start Date:		8/1/2009
Research Project Number:	10-1B		Completion Date	(original)	2/29/2012
Research Agency:	LTRC		Completion Date	(revised)	6/30/2014
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$500,000		**Total**		**$40,000**
	(revised)	$600,000				
Est. Expended to Date		$560,000		Salaries		$30,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$110,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$110,000		Other		$10,000

PURPOSE AND SCOPE

The objectives of this study are (1.) quantify sources and causes of variability in the measurements of volumetric and mechanical properties of dense-graded asphalt mixtures for three types of specimens that may be encountered in QA and mix design activities (laboratory mixed and compacted [LL], plant mixed and laboratory compacted [PL], and plant mixed and field compacted [PF]), and (2.) develop a recommended practice for state DOTs to incorporate these results in specifications and criteria for (a) quality assurance; (b) mix design and verification or validation, and (c) structural design and forensic studies.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Performed The Following Task:
-Task 4. Conduct Laboratory Experiments approved in Task 3; and
-Task 5. Based on the results of Tasks 2 and 4, prepare a recommended practice for state agencies that discusses the cause and magnitude of variability in measured volumetric and mechanical properties with the three specimen types of interest and provides guidance on incorporating these results into specifications and criteria for mix design verification or validation, quality control and acceptance, and structural design and forensic studies.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue work on the Following Tasks:
-Task 4. Conduct Laboratory Experiments approved in Task 3;
-Task 5. Based on the results of Tasks 2 and 4, prepare a recommended practice for state agencies that discusses the cause and magnitude of variability in measured volumetric and mechanical properties with the three specimen types of interest and provides guidance on incorporating these results into specifications and criteria for mix design verification or validation, quality control and acceptance, and structural design and forensic studies; and
-Task 6: Prepare draft final report that will summarizes findings, draws conclusions, documents results, and presents recommended procedures to test the proposed limits with independently generated data sets.

Title:	**Performance of WMA Technologies: Stage II – Long-term Field Performance**	**Project Status:**	**Ongoing**
Funding Source:	**NCHRP**	**Budget Category:**	**Self-Generated**

SIO:	**30000545**		Project Start Date:		4/29/2011
Research Project Number:	12-4B		Completion Date	(original)	7/28/2016
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$103,796		**Total**		**$13,000**
	(revised)					
Est. Expended to Date		$90,785		Salaries		$13,000
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$27,629		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$27,629		Other		

PURPOSE AND SCOPE

The objectives of this research are to:
-Identify the material and engineering properties of WMA pavements that are significant determinants of their long-term field performance; and
-Recommend best practices for the use of WMA technologies.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

Completed the following tasks:
-Task 1: Conduct of the survey and literature review;
-Task 2: Preparation of Phase I interim report;
-Task 3: Conduct of field characterization of the WMA projects;
-Task 4: Conduct of laboratory characterization of the WMA projects; and
-Task 5: Preparation of Phase II interim report.

The following task s are in progress:
-Task 6: Conduct of statistical analyses and performance modeling of Phase II.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Continue to perform the following tasks:
-Task 6: Conduct of statistical analyses and performance modeling of Phase II.

Title:	**Field Implementation of the Louisiana Interface Shear Strength Test**	**Project Status:**	**Ongoing**
Funding Source:	**NCHRP**	**Budget Category:**	**Self-Generated**

SIO:	**30001505**		Project Start Date:		8/9/2013
Research Project Number:	14-2B		Completion Date	(original)	8/8/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$186,407		**Total**		**$79,052**
	(revised)					
Est. Expended to Date		$20,000		Salaries		$53,552
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$20,000		Equipment	(non-expendable)	
	(revised)			Travel		$2,500
Est. FY Expenditure		$20,000		Other		$23,000

PURPOSE AND SCOPE

The objective of this research is to evaluate the test method developed in NCHRP Project 9-40 in actual field projects to augment their potential implementation. These measurements will be used to validate the proposed test method and criteria, and to relate observed tack coat field performance to the outcomes of these tests. To achieve this objective, field projects will be selected across the US to represent different climatic and traffic conditions and will be monitored for a period of twelve months.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Completed Task 1: Develop the experimental plan; and
-Conducting Task 2: conduct of the approved experimental plan of Task 1.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

The following tasks will be performed:
-Task 2: Continue the conduct of the approved experimental plan of Task 1; and
-Task 3: Monitor field performance.

Self Generated Funded Research Program

PROPOSED RESEARCH

LTRC Annual Research Program
Fiscal Year 2014-2015

Title:	**Hamburg Wheel-Track Test Equipment Requirements and Improvements to AASHTO T 324**	**Project Status:**	**Proposed**

Funding Source:	**NCHRP**	**Budget Category:**	**Self-Generated**

SIO:	**1000036**	Project Start Date:		7/1/2014
Research Project Number:	14-3B	Completion Date	(original)	6/30/2015
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad			

BUDGET STATUS

Total Budget		
Total Cost	(original)	$100,000
	(revised)	
Est. Expended to Date		
FY 2013 - 2014 Budget		
FY Funds	(original)	
	(revised)	
Est. FY Expenditure		

Estimated 2014-2015 Budget		
Total		**$100,000**
Salaries		$93,000
Equipment	(expendable)	
Equipment	(non-expendable)	
Travel		$7,000
Other		

PURPOSE AND SCOPE

The objectives of this research are to (1) document the capabilities of available commercial Hamburg test equipment, (2) determine Hamburg test equipment capabilities, components, or design features that ensure proper testing and accurate, reproducible results, and (3) provide proposed revisions with commentary to AASHTO T 324 to enable the use of a performance type specification for Hamburg test equipment.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

Task 1. Document the available Hamburg test equipment capabilities, specifications, and similarities and differences among the different U.S. vendors.
Task 2. Conduct an engineering desk analysis to: a) identify how AASHTO T 324 must be conducted, what needs to be measured, and the necessary accuracy and resolution of the measurements; b) evaluate the capability of the available Hamburg equipment to accurately measure, control, and maintain required test conditions (e.g., wheel load throughout the load cycle, chamber and test specimen temperature, rut depth at intervals along the loaded wheel path, etc.); and c) determine minimum equipment capabilities, components, or design features needed to ensure proper testing and accurate, reproducible results.
Task 3. Based on the results of Task 2, propose revisions to AASHTO T 324 to incorporate those Hamburg test equipment capabilities, components, or design features that ensure proper testing and accurate, reproducible results in the form of a performance type specification.
Task 4. Provide a research framework for a future laboratory evaluation of critical Hamburg test equipment and specimen preparation requirements and their impacts on test results and acceptance criteria.
Task 5. Prepare a final report that documents results, summarizes findings, draws conclusions, and presents (a) the proposed revisions to AASHTO T 324 and (b) the research framework.

Other
DOTD Funded Projects

Title:	**CORS 911: Continuously Operating Reference Stations for the Bayou Corne Sinkhole**	**Project Status:**	**Ongoing**
Funding Source:	**Emergency Fund**	**Budget Category:**	**Other DOTD Sections**

SIO:	**30000980**		Project Start Date:		3/18/2013
Research Project Number:	13-9GT		Completion Date	(original)	3/17/2014
Research Agency:	LSU		Completion Date	(revised)	9/17/2014
Principal Investigator:	Dr. Joshua Kent				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$350,785		**Total**		**$30,875**
	(revised)					
Est. Expended to Date		$320,000		Salaries		$30,875
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$83,404		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$83,404		Other		

PURPOSE AND SCOPE

The fundamental objective of this project is to provide long-term monitoring of portions of HWY-70 potentially vulnerable to the Assumption Parish sinkhole. The project includes fabrication, deployment, and maintenance of five (5) continuously operating reference stations (CORS) of GPS receivers and antennae designed to actively monitor and measure surface motions of the route and its bridges. If monitoring reveals movement, implementation of remedial actions may be warranted. However, no implementation activity is currently anticipated.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Part I Principal Investigator: The CORS911 project provides real-time, 24/7 measurements along LA Hwy 70 near the Bayou Corne Sinkhole. Four stations have been installed and are currently collecting data;
-CORS 1 - Located in the right-of-way of Hwy70 at Bayou Corne, CORS1 was installed on Monday, April 1, 2013. Integrity monitors and reporting tools are active;
-CORS 2 - Located in the southern right-of-way of Hwy70 at Texas Brine, CORS2 was installed on Tuesday, July 17, 2013. Integrity monitors and reporting tools are active;
-CORS 3 – Located in the south right-of-way of Hwy70 at the Grand Bayou bridge, CORS3 was installed on Monday, April 8, 2013. Integrity monitors and reporting tools are active;
-CORS 4 – Located in the north right-of-way of Hwy70 at the Bayou Choupique bridge, CORS4 was installed on Tuesday, April 9, 2013. Integrity monitors and reporting tools are active;
-As of this report, locations for CORS5 are under review and pending installation; and
-CORS 5 – Preliminary site study and servitude research initiated on January 6, 2013. C4G has acquired all necessary components to fabricate CORS2. Fabrication of the sentinel is underway;

ACTIVITY
-Reports from the active CORS sites are published daily and provided online (ftp://mimir.lsu.edu|anonymous:user@mimir.lsu.edu:2123). Daily reports cover the previous 24-hour, 72-hour, and 168-hour time periods. Credentials for securely accessing CORS911 sites via web site were distributed on 4/29/13. (http://loki.lsu.edu/trimblepivotweb);
-Email notification systems were established in Late October, 2013. Email alert and warning thresholds were coordinated with LADOTD monitoring and geotechnical advisory group;
-Robust geodetic analysis and post-processing is pending the hire of a geodesist;
-The project has installed four CORS along LA 70 to assist with the monitoring of the highway. Efforts are also being coordinated with the Emergency Operations Center (EOC) staff at the LADOTD Headquarters regarding the alert thresholds, email notifications, and a website outlining all monitoring efforts by the LADOTD; and
-The EOC are also planning discussions regarding proposals for bypass and detour alternatives. A fifth CORS would likely be located near this path to assist and triangulate the measurements more accurately.

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Project is scheduled to end in Fiscal year 2013-2014, but may be extended based on the continuing problem of the sinkhole.

Title:	**Developing a Method for Estimating Traffic Volumes on Local Roads in Louisiana**	**Project Status:**	**Ongoing**
Funding Source:	**Safety**	**Budget Category:**	**Other DOTD Sections**

SIO:	**30001700**		Project Start Date:		1/2/2014
Research Project Number:	14-3SA		Completion Date	(original)	12/31/2014
Research Agency:	ULL		Completion Date	(revised)	
Principal Investigator:	Dr. Xiaoduan Sun				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$65,000		**Total**		**$34,933**
	(revised)					
Est. Expended to Date		$8,000		Salaries		$14,933
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)	$30,000		Equipment	(non-expendable)	
	(revised)			Travel		$500
Est. FY Expenditure		$30,000		Other		$19,500

PURPOSE AND SCOPE

The goal of this project is to develop a methodology for estimating AADT on all Louisiana local roadways with an emphasis on local rural roadways.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Information Review;
-Documenting Louisiana roadways with an without AADT counts; and
-Developing an AADT estimation method for local rural roads (30%).

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Complete the development of an AADT estimation method for local rural roads;
-Model validation; and
-Submit final report.

Title:	**Louisiana Local Road Safety Program**	**Project Status:**	**Ongoing**
Funding Source:	**Safety**	**Budget Category:**	**Other DOTD Sections**

SIO:	**1000029**		Project Start Date:		1/1/2013
Research Project Number:	14-LRSP		Completion Date	(original)	12/31/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Marie Walsh				

BUDGET STATUS

Total Budget				**Estimated 2014-2015 Budget**		
Total Cost	(original)	$320,402		**Total**		**$320,402**
	(revised)					
Est. Expended to Date				Salaries		$200,202
FY 2013 - 2014 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$8,687
Est. FY Expenditure				Other		$111,513

PURPOSE AND SCOPE

To work in cooperation with LADOTD's Highway Safety Office to implement and manage the Local Road Safety Program (LRSP) in addition to providing support to other statewide road safety initiatives at both the state and local levels.

FISCAL YEAR 2013 - 2014 ACCOMPLISHMENTS

-Coordinated local public agency (LPA) related activities with new DOTD program manager, and Federal Highway Administration Louisiana Division office. Implemented three modules of new training program and delivered all classes statewide at multiple locations;
-Implemented data collection and entry phase of local transportation Asset Management initiative and prepared draft final report documenting effort;
-Supported local road projects and local agency participation in the regional coalitions being established statewide in Louisiana including organizational efforts for new Capital Area Regional Safety Coalition;
-Supported professional development of local engineers through planning and participation in two statewide conferences of the Louisiana Parish Engineers and Supervisors Association; 2 leadership development sessions for the Deep South ITE Chapters; as well as serving as Board members and chairs of Education Committees for state associations;
-Participated in planning and on-site host activities for the 2014 National Association of County Engineers (NACE) which was hosted by the Louisiana Parish Engineers and Supervisors Association in Baton Rouge, Louisiana in April, 2014.
-Continued to provide traditional work program of transportation and safety related training to local public agencies; and
-Presented 76 classes or workshops:

- 4 Worker Safety Classes
- 9 Highway Safety Classes
- 42 Infrastructure Management Classes
- 21 Workforce Development Classes
- 9281 hours of training
- 1991 program participants

FISCAL YEAR 2014-2015 PROPOSED ACTIVITIES

-Complete development and implementation of final LPA training module and develop certification and tracking program;
-Implement project to develop local road safety plans for priority parishes; and
-Link roadway characteristic data being collected by DOTD to local safety and pavement preservation initiatives.