LTRC Annual Research Program

Fiscal Year July 1, 2012 - June 30, 2013

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

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FHWA IBRD 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 2012

U.S. Department of Transportation
Federal Highway Administration

Louisiana Division Office

5304 Flanders Drive, Suite A
Baton Rouge, LA 70808
225.757.7600
225.757.7601 (fax)

June 21, 2012

In Reply Refer To:
HDA-LA

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

Subject: FY 2013 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 2013 SPR Part II Work Program. We have reviewed the subject work program and find it to be satisfactory. Please furnish this office with three copies of the final printed work program.

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. Jamie Setze, FHWA at (225)757-7623.

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: 2012.06.21 11:17:54 -05'00'

Mary M. Stringfellow
Program Delivery Team Leader

LOUISIANA TRANSPORTATION RESEARCH CENTER
LTRC

Research, Technology Transfer, Education & Training

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DOTD

May 11, 2012

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

Attention: Ms. Mary Stringfellow

Re: FY 2012-2013 LTRC WORK PROGRAM

Dear Mr. Bolinger:

Enclosed please find the FY 2012-2013 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, 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.

Harold R. Paul, P.E.
Director

Enclosure
cc: Mr. Richard Savoie
Mr. Mark Morvant
Dr. Zhongie Zhang
Mr. Bill King
Mr. Sam Cooper

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	$770,000
Research Support Studies Budget	$1,670,000
Active Studies Budget	$2,242,674
Proposed Studies Budget	$999,676
Pooled Fund Lead State Studies Budget	$250,150
Total SPR Budget	**$5,932,500**

SPR External Collaboration Budget Recap	Total
Pool Funded Studies	$130,000
TRB Correlations	$131,501
NCHRP	$759,441
Total SPR External Collaboration Budget	**$1,020,942**

IBRD Budget Recap	Total
Active Studies Budget	$376,437
Proposed Studies Budget	$0
Total IBRD Budget	**$376,437**

FHWA Funding

LTAP Budget Recap	Total
LTAP	$453,838
LTAP Program Total	$453,838

STP: Technology Transfer Program Budget Recap	Total
Technology Transfer Program and Operations	$1,129,770
Workforce Development Program	$5,860,085
Student Support Programs	$320,000
Total STP Budget	$7,309,855

State Funding

State Budget Recap	Total
Active Studies Budget	$1,473,584
Proposed Studies Budget	$870,863
RFP's	
Total State Budget	**$2,344,447**

Federal Funding

Federal Budget Recap	Total
Active Studies Budget	$10,397
Proposed Studies Budget	$0
Total Federal Budget	**$10,397**

Self-Generated Funding

Self-Generated Budget Recap	Total
Active Studies Budget	$267,000
Proposed Studies Budget	$0
Total Self-Generated Budget	**$267,000**

Other DOTD Sections Funding

Other DOTD Sections Budget Recap	Total
Active Studies Budget	$276,779
Proposed Studies Budget	$54,437
Total Other DOTD Sections Budget	**$331,216**

LTRC ANNUAL RESEARCH PROGRAM

Administrative

FISCAL_YEAR 2012-2013

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	30000720	13-1ADM	$770,000	$770,000	LTRC	Mark Morvant	Program Management		6/30/2013		C-2
					$770,000	**$770,000**	**ADMINISTRATIVE BUDGET TOTALS**						
Project Type: Research Support													
SPR: TT-Fed/TT-Reg	A	RS	30000721	13-1EQM	$230,000	$230,000	LTRC	Mark Morvant	Equipment Management		6/30/2013		C-3
SPR: TT-Fed/TT-Reg	A	RS	30000722	13-1LFT	$180,000	$180,000	LTRC	Mark Morvant	Research Laboratory and Field Test Support		6/30/2013		C-5
SPR: TT-Fed/TT-Reg	A	RS	30000723	13-1NPE	$50,000	$50,000	LTRC	Mark Morvant	New Products Evaluation		6/30/2013		C-6
SPR: TT-Fed/TT-Reg	A	RS	30000725	13-1TA	$280,000	$280,000	LTRC	Mark Morvant	Technical Assistance		6/30/2013		C-7
SPR: TT-Fed/TT-Reg	A	RS	30000726	13-1TRS	$535,000	$535,000	LTRC	Mark Morvant	Technical Research Surveillance		6/30/2013		C-10
SPR: TT-Fed/TT-Reg	A	RS	30000727	13-1TTRI	$395,000	$395,000	LTRC	Mark Morvant	Technology Transfer and Research Implementation		6/30/2013		C-11
					$1,670,000	**$1,670,000**	**RESEARCH SUPPORT BUDGET TOTALS**						

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	30000116	05-1GT	$39,500	$393,176	LTRC	Murad Abu-Farsakh	Field Demonstration of New Bridge Approach Slab Designs and Performance	8/1/2008	8/1/2011	6/30/2013	C-14
SPR: TT-Fed/TT-Reg	A	GT	30000480	06-3GT	$138,000	$264,878	LTRC	Gavin Gautreau	Field Evaluation of Roller Integrated Intelligent Compaction Monitoring	11/1/2011	10/31/2013		C-16
SPR: TT-Fed/TT-Reg	A	GT	30000114	08-3GT	$13,000	$320,951	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	12/31/2012	C-18
SPR: TT-Fed/TT-Reg	A	GT	30000111	10-1GERL	$208,500	$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-20
SPR: TT-Fed/TT-Reg	A	GT	30000099	10-3GT	$4,300	$129,880	LTRC	Khalil Hanifa	Design Values of Resilient Modulus of Stabilized and Non-Stabilized Base	9/1/2010	2/29/2012	12/31/2012	C-21
SPR: TT-Fed/TT-Reg	A	GT	30000134	11-2GT	$67,500	$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	$141,000	$297,579	LTRC	Murad Abu-Farsakh	Accelerated Load Testing of Geosynthetic Base Reinforced Pavement Test Sections	12/1/2010	5/31/2012	12/31/2013	C-24
					$611,800	**$2,419,172**	**GEOTECHNICAL BUDGET TOTALS**						
Project Type: Pavements													
SPR: TT-Fed/TT-Reg	A	P	30000164	10-3P	$38,162	$155,006	LTRC	Leticia Santos da Rocha Courville	LED Traffic Signal Lifetime Management System	11/1/2010	7/31/2013		C-26
SPR: TT-Fed/TT-Reg	A	P	30000160	11-3P	$80,344	$295,789	LTRC	Mark Martinez	The Rideability of a Deflected Bridge Approach Slab (LTRC Project 02-2GT Continuation: Phase II)	4/1/2011	3/31/2013		C-27
SPR: TT-Fed/TT-Reg	A	P	30000610	12-11P	$141,000	$263,502	FHWA	Mark Martinez	Field Validation of Equivalent Modulus for Stabilized Subgrade Layer	5/1/2012	4/30/2014		C-28
SPR: TT-Fed/TT-Reg	A	P	30000607	12-1P	$112,000	$341,459	LTRC	Kevin Gaspard	Assessment of Pavement Distresses caused by Trees on Rural Highway	2/1/2012	7/1/2014		C-29
SPR: TT-Fed/TT-Reg	A	P	30000425	12-2P	$127,000	$262,210	LTRC	Kevin Gaspard	Assessment of Environmental, Seasonal and Regional Variations in Pavement Base and Subgrade Properties	9/1/2011	8/31/2013		C-30
SPR: TT-Fed/TT-Reg	A	P	30000608	12-4P	$92,400	$160,231	LTRC	Zhong Wu	Louisiana Pavement Design	2/1/2012	8/1/2013		C-31
SPR: TT-Fed/TT-Reg	A	P	30000609	12-5P	$80,000	$217,957	LTRC	Zhong Wu	Evaluation of DOTD Aggregate Friction Rating Table by Field Measurements	2/1/2012	2/1/2015		C-32
SPR: TT-Fed/TT-Reg	A	P	30000682	12-7P	$127,000	$363,959	LTRC	Zhong Wu	Roller Compacted Concrete Over Soil Cement Under Accelerated Loading	5/1/2012	4/30/2014		C-33
					$797,906	**$2,060,113**	**PAVEMENTS BUDGET TOTALS**						
Project Type: Bituminous													
SPR: TT-Fed/TT-Reg	A	B	30000117	07-1B	$93,532	$480,980	LTRC	Bill King	Evaluation of Warm Mix Asphalt Technology in Flexible Pavements	3/15/2009	3/15/2011	3/31/2013	C-34
SPR: TT-Fed/TT-Reg	A	B	30000112	10-1EMCRF	$173,400	$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-36

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 (continued)													
SPR: TT-Fed/TT-Reg	A	B	30000221	10-4B	$102,136	$299,433	LTRC	Louay Mohammad	Development of Performance Based Specifications for Louisiana Asphalt Mixtures	4/1/2011	3/31/2014		C-37
SPR: TT-Fed/TT-Reg	A	B	30000167	11-1B	$101,788	$171,788	LTRC	Md. Sharear Kabir	Validity of Multiple Stress Creep Recovery Test for DOTD Asphalt Binder Specification	9/1/2010	6/30/2012	6/30/2013	C-38
SPR: TT-Fed/TT-Reg	A	B	30000220	11-3B	$113,000	$263,975	LTRC	Bill King	Testing and Analysis of LWT and SCB Properties of Asphalitc Concrete Mixtures	4/1/2011	3/31/2013		C-39
					$583,856	**$1,561,176**	**BITUMINOUS BUDGET TOTALS**						
Project Type: Special Studies													
SPR: TT-Fed/TT-Reg	A	SS	30000125	10-1PLAN	$80,000	$358,462	LTRC	Chester Wilmot	LTRC Proposal for the Support of Research and Development in Transportation Planning	7/1/2010	6/30/2015		C-40
SPR: TT-Fed/TT-Reg	A	SS	30000700	12-1AD	$15,450	$30,900	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-41
					$95,450	**$389,362**	**SPECIAL STUDIES BUDGET TOTALS**						
Project Type: Concrete													
SPR: TT-Fed/TT-Reg	A	C	30000680	12-4C	$76,831	$124,096	LTRC	Tyson Rupnow	Evaluation of Portland Cement Concrete with Internal Curing Capabilities	5/1/2012	10/30/2013		C-42
SPR: TT-Fed/TT-Reg	A	C	30000681	12-5C	$76,831	$119,096	LTRC	Tyson Rupnow	Comparison of Conventional and Self-Consolidating Concrete for Drilled Shaft Construction	5/1/2012	10/30/2013		C-43
					$153,662	**$243,192**	**CONCRETE BUDGET TOTALS**						
					$2,242,674	**$6,673,015**	**SPR: TT-FED/TT-REG ACTIVE BUDGET TOTALS**						

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	P	GT	30000661	11-1GT	$88,000	$300,000	LTRC	Murad Abu-Farsakh	In Situ Evaluation of Design Parameters and Procedures for Cementitiously Treated Weak Subgrades using Cyclic Plate Load Tests	7/1/2012			C-46
SPR: TT-Fed/TT-Reg	P	GT		13-1GT	$30,000	$20,000		Murad Abu-Farsakh	Developing p-y Curves for Analysis of Laterally Loaded Piles in Louisiana Soil				C-48
SPR: TT-Fed/TT-Reg	P	GT	30000728	13-2GT	$52,246	$77,839	LTRC	Gavin Gautreau	Implementation of Slag Stabilized Blended Calcium Sulfate (BCS) in a Pavement Structure	7/1/2012	6/30/2013		C-50
SPR: TT-Fed/TT-Reg	P	GT		13-3GT	$20,000	$150,000	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-51
SPR: TT-Fed/TT-Reg	P	GT		13-4GT	$25,000	$25,000	LTRC	Pallavi Bhandari	Upgrading Bridge Scour Program for Hydraulics Department	1/7/2012	1/7/2013		C-53
SPR: TT-Fed/TT-Reg	P	GT		13-5GT	$38,500	$300,000	LTRC	Murad Abu-Farsakh	Bridge Abutments with Geosynthetic Reinforced Soil	12/1/2012			C-54
SPR: TT-Fed/TT-Reg	P	GT		13-7GT	$17,667	$55,000	LTRC	Murad Abu-Farsakh	Support Study to ITRS proposal on "An Integrated Computational and Experimental Study of Pile Setup in Soft Clays"	7/1/2012	6/30/2015		C-55
					$271,413	**$927,839**	**GEOTECHNICAL BUDGET TOTALS**						
Project Type: Pavement													
SPR: TT-Fed/TT-Reg	P	P	30000729	12-3P	$54,000	$200,000	LTRC	Zhong Wu	Minimizing Shrinkage Cracking in Cement-Stabilized Bases Through Micro-Cracking	6/1/2012	12/31/2014		C-57
SPR: TT-Fed/TT-Reg	P	P		12-6P	$10,000	$100,000	LTRC	Patrick Icenogle	User Oriented Pavement Management Interfaces and Applications	10/1/2012			C-58
SPR: TT-Fed/TT-Reg	P	P		13-3P	$10,000	$200,000	LTRC		Nonlinear Resilient Modulus for Typical Unbound Pavement Materials from Inverse Analysis of FWD Testing				C-59
					$74,000	**$500,000**	**PAVEMENTS BUDGET TOTALS**						
Project Type: Bituminous													
SPR: TT-Fed/TT-Reg	P	B		12-1B	$103,000	$205,000			Evaluation Of HMA Mixtures Containing Recycled Asphalt Shingles	7/1/2012	6/30/2014		C-61
SPR: TT-Fed/TT-Reg	P	B		12-2B	$100,000	$275,000			Investigation of the Use of High RAP/RAS Content in Hot Mix Asphalt Mixtures	1/1/2013	1/2/2015		C-62
SPR: TT-Fed/TT-Reg	P	B		13-1B	$52,000	$300,000	LTRC	Louay Mohammad	Durability and Environmental Performance of Photocatalytic Asphalt Pavements: Field study	10/1/2012	9/30/2014		C-64
					$255,000	**$780,000**	**BITUMINOUS BUDGET TOTALS**						
Project Type: Structures													
SPR: TT-Fed/TT-Reg	P	ST		13-1ST	$40,000	$75,000		Walid Alaywan	Feasibility for Bridge Monitoring Network for Louisiana Bridges	12/1/2012			C-65
					$40,000	**$75,000**	**STRUCTURES BUDGET TOTALS**						
Project Type: Special Studies													
SPR: TT-Fed/TT-Reg	P	SS		12-1SA	$25,000	$200,000	LTRC	Marie Walsh	Louisiana Transportation Safety Center	7/1/2012			C-66
SPR: TT-Fed/TT-Reg	P	SS	30000544	12-4SA	$27,805	$41,708	LSU	Pallavi Bhandari	DOTD Support for UTC Project: A Tool for Documenting, Tracking, Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements	7/1/2011			C-67

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 (continued)													
SPR: TT-Fed/TT-Reg	P	SS		13-1SS	$70,000	$70,000	LTRC	Chester Wilmot	Testing the Transferability of LTRC's Hurricane Evacuation Demand Models	7/1/2012	6/30/2013		C-68
SPR: TT-Fed/TT-Reg	P	SS		13-2SS	$90,000	$150,000		Ravindra Gudishala	Travel Time Estimation in Urban Areas Using Bluetooth Receivers	7/1/2012	6/30/2014		C-69
SPR: TT-Fed/TT-Reg	P	SS	30000763	13-5SS	$36,000	$54,000	DOTD	Chester Wilmot	DOTD Support for UTC Project: Improving Freight Crash Incident Management	7/2/2012	12/30/2013		C-70
					$248,805	**$515,708**	**SPECIAL STUDIES BUDGET TOTALS**						
Project Type: Concrete													
SPR: TT-Fed/TT-Reg	P	C		12-1C	$21,714	$150,000	LTRC	Tyson Rupnow	Roller Compacted Concrete Field Demonstration in Haynesville Shale Area	7/1/2012			C-71
SPR: TT-Fed/TT-Reg	P	C		12-2C	$29,129	$215,000	LTRC	Tyson Rupnow	High Volume Replacement of Portland Cement in Roller Compacted Concrete	12/3/2012			C-72
SPR: TT-Fed/TT-Reg	P	C		13-1C	$59,615	$76,322	LTRC	Patrick Icenogle	Evaluation of MIT-SCAN-T2 for Thickness Quality Control for PCC and HMA Pavements	7/1/2012	12/31/2013		C-73
					$110,458	**$441,322**	**CONCRETE BUDGET TOTALS**						
					$999,676	**$3,239,869**	**SPR: TT-FED/TT-REG PROPOSED BUDGET TOTALS**						

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: Pooled Fund													
SPR: Pooled Fund: TT-Fed	A	PF	30000281	09-1PF	$10,000	$150,000	LTRC	Mark Morvant	Southeast Transportation Consortium	9/1/2009	8/30/2012		C-75
SPR: Pooled Fund: TT-Fed	A	PF	30000424	12-1PF	$139,700	$366,667	Oklahoma State University	Kelvin Wang	Traffic and Data Preparation for AASHTO MEPDG Analysis and Design	9/1/2011	8/31/2014		C-77
SPR: Pooled Fund: TT-Fed	A	PF	30000540	12-2PF	$26,000	$30,000	Florida International University	Hesham Ali	Asphalt Surface Treatments for Pavement Preservation	6/15/2012	6/14/2013		C-79
SPR: Pooled Fund: TT-Fed	A	PF	30000541	12-3PF	$26,000	$30,000	Georgia Tech Research Corporation	Baabak Ashuri	Best Practices for Determining Value of Research Results	6/1/2012	5/31/2013		C-80
SPR: Pooled Fund: TT-Fed	A	PF	30000543	12-5PF	$22,450	$29,950	Thompson Engineering	Richard Sheffield	STC Synthesis of Research Results for Water Quality Management at Construction Sites	5/1/2012	4/30/2013		C-81
					$224,150	**$606,617**	**SPR: POOLED FUND: TT-FED ACTIVE BUDGET TOTALS**						
SPR: Pooled Fund: TT-Fed	P	PF	30000542	12-4PF	$26,000	$29,962			Regional Implementation of Warm Mix Asphalt	7/1/2012	6/30/2013		C-82
					$26,000	**$29,962**	**SPR: POOLED FUND: TT-FED PROPOSED BUDGET TOTALS**						
					$250,150	**$636,579**	**POOLED FUND BUDGET TOTALS**						

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: Pooled Fund: External Lead State													
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(159)	$5,000	$25,000	LTRC		Technology Transfer Concrete Consortium				C-84
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(228)	$20,000	$60,000			Superpave Regional Center				C-86
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-87
SPR: Pooled Fund: TT-Fed	A	PFE		TPF-5(255)	$20,000	$80,000			Highway Safety Manual Implementation				C-88
					$60,000	**$240,000**	**POOLED FUND: EXTERNAL LEAD STATE BUDGET TOTALS**						
Project Type: Pooled Fund: External Lead State													
SPR: Pooled Fund: TT-Fed	P	PFE			$70,000	$70,000			Pooled Fund Collaboration Projects				C-90
					$70,000	**$70,000**	**POOLED FUND: EXTERNAL LEAD STATE BUDGET TOTALS**						
					$130,000	**$310,000**	**SPR: POOLED FUND: TT-FED ACTIVE BUDGET TOTALS**						

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	$153,073	$565,550	LTRC	Murad Abu-Farsakh	Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	11/1/2007	10/31/2010	7/31/2012	D-2
IBRD: TT-Fed	A	ST	30000131	07-4ST	$108,364	$459,981	LSU	George Z. Voyiadjis	Integral Abutment Bridge for Louisiana's Soft and Stiff Soils	10/1/2007	8/31/2011	4/30/2013	D-4
IBRD: TT-Fed	A	ST	30000132	08-2ST	$80,000	$199,999	LSU	Steve C.S. Cai	Monitoring Bridge Scour Using Fiber Optic Sensors	1/1/2009	7/1/2011	12/30/2012	D-6
IBRD: TT-Fed	A	ST	30000204	10-1ST	$35,000	$446,318	LTU	Aziz Saber	Monitoring System for Bridges Subject to Heavy Loads	3/15/2010	3/31/2012	9/30/2012	D-8
					$376,437	**$1,671,848**	**STRUCTURES BUDGET TOTALS**						
					$376,437	**$1,671,848**	**IBRD: TT-FED ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

LTAP: TT-Fed/TT-Reg

FISCAL YEAR 2012-2013

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		12-LTAP	$453,838	$453,838	LTRC	Marie Walsh	Local Technical Assistance Program (LTAP)		12/31/2014		E-2
					$453,838	**$453,838**	**LTAP BUDGET TOTALS**						
					$453,838	**$453,838**	**LTAP: TT-FED/TT-REG ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

STP: TT-Fed

FISCAL YEAR 2012-2013

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	$351,746	$351,746	LTRC	Sam Cooper	Technology Transfer Program and Operations (LSU)		6/30/2013		F-2
STP: TT-Fed	A	TT	30000241	10-4AD	$20,000	$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		13-1TSQ	$493,524	$493,524	LTRC	Sam Cooper	Technology Transfer Program and Operations (DOTD)		6/30/2013		F-6
STP: TT-Fed	A	TT		13-1TT	$37,500	$37,500	LTRC	Sam Cooper	Support for Senior Project Courses		6/30/2013		F-8
STP: TT-Fed	A	TT		13-1WD	$1,069,820	$1,069,820	LTRC	Sam Cooper	Workforce Development		6/30/2013		F-9
STP: TT-Fed	A	TT		13-2TT	$147,000	$147,000	LTRC	Harold 'Skip' Paul	LTRC Student Program		6/30/2013		F-11
STP: TT-Fed	A	TT		13-COOP	$300,000	$300,000	LTRC	Sam Cooper	LADOTD CO-OP Program		6/30/2013		F-12
STP: TT-Fed	A	TT		13-TTRF	$100,000	$100,000	LTRC	Sam Cooper	Technology Transfer Registration Fees		6/30/2013		F-13
STP: TT-Fed	A	TT		13-WDC	$4,790,265	$4,790,265	LTRC	Sam Cooper	Workforce Development Contracts		6/30/2013		F-14
					$7,309,855	**$7,399,855**	**TECHNOLOGY TRANSFER AND TRAINING BUDGET TOTALS**						
					$7,309,855	**$7,399,855**	**STP: TT-FED ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

State: TT-Reg

FISCAL YEAR 2012-2013

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													
State: TT-Reg	A	GT	30000201	10-2GT	$20,000	$200,000	Dataforensics, LLC	Scott Deaton	Geotechnical Information Database – Phase 2	3/10/2011	9/9/2012		G-2
					$20,000	**$200,000**		**GEOTECHNICAL BUDGET TOTALS**					
Project Type: Pavements													
State: TT-Reg	A	P	30000141	10-1ALF	$460,000	$1,730,000	LTRC	Zhong Wu	Management and Operation of the Pavement Research Facility	7/1/2009	6/30/2015		G-3
State: TT-Reg	A	P	30000166	10-4P	$86,664	$267,395	ULL	Mohammad Jamal Khattak	Development of Cost-Effective Pavement Treatment Selection and Treatment Performance Models	9/1/2010	6/30/2013		G-4
State: TT-Reg	A	P	30000159	11-1P	$130,319	$219,774	Nichols Consulting Engineers	Margot Yapp	LaDOTD Pavement Management System (PMS) for Project Level Applications	5/23/2011	5/22/2013		G-6
					$676,983	**$2,217,169**		**PAVEMENTS BUDGET TOTALS**					
Project Type: Bituminous													
State: TT-Reg	A	B	30000142	10-6B	$29,220	$270,438	LSU	William H. Daly	Implementation of GPC Characterization of Asphalt Binders at Louisiana Materials Laboratory	6/1/2010	12/1/2011	7/31/2012	G-8
State: TT-Reg	A	B	30000163	11-2B	$2,000	$105,000	LTU	Nazimuddin M Wasiuddin	Evaluation of Dynamic Shear Rheometer Tests for Emulsions	9/15/2010	7/14/2012	11/14/2012	G-9
					$31,220	**$375,438**		**BITUMINOUS BUDGET TOTALS**					
Project Type: Structures													
State: TT-Reg	A	ST	30000118	10-4ST	$150,000	$309,117	Ocean Engineering Associates, Inc.	D. Max Sheppard	Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South	5/2/2011	10/1/2013		G-10
State: TT-Reg	A	ST	30000138	10-5ST	$119,961	$199,961	Wiss, Janney, Elstner Associates, Inc.	Jonathan McGormley	Developing Prestressed Girder Transportation Guidelines	5/2/2011	9/1/2012		G-13
State: TT-Reg	A	ST	30000546	12-1ST	$34,235	$61,553	LSU	Ayman Okeil	Data Collection and Evaluation of Continuity Detail for John James Audubon Bridge #2	1/3/2012	1/2/2014		G-14
					$304,196	**$570,631**		**STRUCTURES BUDGET TOTALS**					
Project Type: Special Studies													
State: TT-Reg	A	SS	30000149	08-3SS	$18,087	$178,087	ULL	Xiaoduan Sun	Developing Louisiana Crash Reduction Factors	11/1/2009	10/31/2011	8/31/2012	G-15
State: TT-Reg	A	SS	30000203	10-3SS	$50,000	$130,000	Cambridge Systematics	Susan Herbel	Automated Enforcement and Highway Safety	6/1/2011	5/31/2013		G-16
State: TT-Reg	A	SS	30000202	10-4SS	$16,307	$99,396	GEC, Inc.	Thomas Swanson	Truck Facility Access Design Guidelines	4/25/2011	4/24/2013		G-17
State: TT-Reg	A	SS	30000240	10-5SS	$51,000	$100,000	LSU	Helmut Schneider	Developing Inexpensive Crash Countermeasures for Louisiana Local Roads	1/17/2011	1/16/2013		G-18
State: TT-Reg	A	SS	30000140	10-6SS	$30,000	$124,178	LSU	Sherif Ishak	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC (Phase II)	8/20/2010	11/19/2011	8/19/2013	G-20
State: TT-Reg	A	SS	30000177	11-2SS	$23,849	$99,999	LSU	Sherif Ishak	Measuring Effectiveness of Ramp Metering Strategies on I-12	4/1/2011	3/31/2013		G-21
					$189,243	**$731,660**		**SPECIAL STUDIES BUDGET TOTALS**					

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: Other													
State: TT-Reg	A	Other	30000169	11-1AD	$251,942	$1,088,594	LTRC	Vijaya Gopu	Research Expansion Program	11/1/2006	11/1/2009	6/30/2012	G-23
					$251,942	**$1,088,594**		**OTHER BUDGET TOTALS**					
					$1,473,584	**$5,183,492**		**STATE: TT-REG ACTIVE BUDGET TOTALS**					

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													
State: TT-Reg	P	GT	30000731	12-1TIRE	$30,000	$30,000	UNO	Malay Ghose Hajra	Comparitive Evaluation of Pile Set Up and Axial Capacity of Driven Piles Installed Using Impact Hammer versus Vibratory Pile Driving Equipment	7/1/2012	6/30/2013		G-26
State: TT-Reg	P	GT		13-6GT	$100,000	$150,000			Development of LADOTD Standards for GPS Elevation Accuracy	8/31/2012	3/1/2014		G-27
					$130,000	**$180,000**		**GEOTECHNICAL BUDGET TOTALS**					
Project Type: Pavements													
State: TT-Reg	P	P		13-1P	$50,000	$200,000			Impact of DOTD's IRI Based Acceptance Specs on the Rideability of Louisiana Highways	1/1/2013	12/31/2014		G-29
					$50,000	**$200,000**		**PAVEMENTS BUDGET TOTALS**					
Project Type: Bituminous													
State: TT-Reg	P	B	30000732	12-2TIRE	$30,000	$30,000	LTU	Nazimuddin M Wasiuddin	A Novel Dewetting and Spreading Based Moisture Susceptibility Test Method for Hot and Warm Mix Asphalt	7/1/2012	6/30/2013		G-30
State: TT-Reg	P	B		12-3B	$50,000	$200,000			Chemical Characterization of Asphalts Related to their Performance				G-31
					$80,000	**$230,000**		**BITUMINOUS BUDGET TOTALS**					
Project Type: Structures													
State: TT-Reg	P	ST	30000724	12-3ST	$18,000	$30,000	UNO	Vijaya Gopu	Morganza Floodway Bridge Bent Repair using Carbon Fiber Reinforced Polymers (CFRP)	6/1/2012	5/30/2014		G-32
State: TT-Reg	P	ST		13-2ST	$75,000	$200,000			Live Load Monitoring of the I-10 Twin Span Bridge	12/1/2012			G-34
					$93,000	**$230,000**		**STRUCTURES BUDGET TOTALS**					
Project Type: Special Studies													
State: TT-Reg	P	SS	30000604	12-1SS	$25,420	$33,976	LSU	Sherif Ishak	Traffic Counting using Existing Video Detection Cameras	7/1/2011			G-35
State: TT-Reg	P	SS	30000605	12-2SS	$18,100	$150,000			History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards	7/1/2012			G-36
State: TT-Reg	P	SS	30000603	12-3SA	$17,657	$25,500	LSU	Brian Wolshon	Calibration of the Louisiana Highway Safety Manua l(Phase 1)	7/1/2012			G-37
State: TT-Reg	P	SS	30000733	12-3TIRE	$30,000	$30,000	LSU	Sherif Ishak	Modeling the Effect of Gusty Hurricane Wind Force on Vehicles Using LSU Driving Simulator	7/1/2012	6/30/2013		G-38
State: TT-Reg	P	SS	30000606	12-4SS	$17,000	$50,999	UNO	John Renne	DOTD Support for UTC Project: Development of Minimum State Requirements for Local Growth Policies	7/1/2012			G-39
State: TT-Reg	P	SS	30000760	13-1SA	$31,754	$34,234	LSU	Sherif Ishak	Distracted Driving and Associated Crash Risks	7/1/2012	7/1/2013		G-40

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 (continued)													
State: TT-Reg	P	SS	30000761	13-2SA	$8,500	$64,004	ULL	Xiaoduan Sun	DOTD Support for UTC Project: Developing a Highway Safety Fundamentals Course	7/1/2012	6/30/2013		G-42
State: TT-Reg	P	SS	30000762	13-3SS	$22,100	$22,100	LSU		DOTD Support for UTC Project: Development of Performance Measurement for Freight Management	7/1/2012	6/30/2013		G-43
State: TT-Reg	P	SS		13-4SS	$20,000	$75,000			User Satisfaction with LA 511 Innovations Sponsored by Highways for Life Program	8/1/2012	7/30/2015		G-44
State: TT-Reg	P	SS	30000764	13-6SS	$18,000	$25,500	LSU	Jared Llorens	DOTD Support for UTC Project: Economic Impact Analysis of Short Line Railroads in the State of Louisiana	7/1/2012	12/31/2013		G-45
State: TT-Reg	P	SS	30000765	13-7SS	$8,999	$86,733	UNO	James Amdal	Use of Containers to Carry Bulk and Breakbulk Commodities and its Impact on Gulf Region Ports and International Trade	7/1/2012			G-47
State: TT-Reg	P	SS	30000766	13-8SS	$11,333	$34,000	UNO	Asaf Ashar	DOTD Support for the UTC Project: The Impact of Modifying Jones Act on the US and Louisiana	7/1/2012	12/31/2013		G-49
State: TT-Reg	P	SS	30000840	13-9SS	$200,000	$200,000	LTRC	Chester Wilmot	Investigation Into the Impact of Privatizing Civil Engineering Operations in Louisiana DOTD	7/1/2012	1/31/2013		G-51
					$428,863	**$832,046**		**SPECIAL STUDIES BUDGET TOTALS**					
Project Type: Concrete													
State: TT-Reg	P	C	30000660	12-3C	$35,000	$35,000			Investigation of Best Practices for Maintenance of Concrete Bridge Railings	7/1/2012	6/30/2013		G-53
State: TT-Reg	P	C	30000734	12-4TIRE	$30,000	$30,000	ULL	Chris Carroll	Preliminary Analysis of Polymer Concrete Used for Bridge Deck Joint Repairs	7/1/2012	6/30/2013		G-54
					$65,000	**$65,000**		**CONCRETE BUDGET TOTALS**					
Project Type: Other													
State: TT-Reg	P	Other		13-1MATT	$24,000	$48,000	S.C. Shah	S.C. Shah	Feasibility of Reducing Source Approval Sampling and Support for the Implementation of a Pavement Design Manual	12/1/2012	11/30/2013		G-55
					$24,000	**$48,000**		**OTHER BUDGET TOTALS**					
					$870,863	**$1,785,046**		**STATE: TT-REG PROPOSED BUDGET TOTALS**					

LTRC ANNUAL RESEARCH PROGRAM

100% Federal

FISCAL YEAR 2012-2013

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													
NSF	A	SS	30000148	09-2SS	$10,397	$50,050	LTRC	Chester Wilmot	Enhancing Calibrated Peer Review for Improved Engineering Communication Education	9/1/2008	9/1/2011	8/31/2012	H-2
					$10,397	**$50,050**		**SPECIAL STUDIES BUDGET TOTALS**					
					$10,397	**$50,050**		**NSF ACTIVE BUDGET TOTALS**					

LTRC ANNUAL RESEARCH PROGRAM

Self-Generated

FISCAL YEAR 2012-2013

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													
LOOP	A	SS	30000200	11-3SS	$52,000	$136,247	C-K Associates	Tre Wharton	LOOP Environmental Monitoring: 2011-2013 Beach Elevation, Beach Vegetation, Land Loss and Habitat Changes Surveys	4/12/2011	4/11/2014		I-2
					$52,000	**$136,247**	**SPECIAL STUDIES BUDGET TOTALS**						
Project Type: Bituminous													
NCHRP	A	B	30000133	10-1B	$104,000	$500,000	LTRC	Louay Mohammad	Field versus Laboratory Volumetrics and Mechanical Properties	8/1/2009	2/29/2012		I-3
NCHRP	A	B	30000260	11-4B	$70,000	$154,037	LTRC	Louay Mohammad	Modulus Based Construction Specification of Earthwork and Unbound Aggregate	10/7/2010	4/6/2013		I-4
NCHRP	A	B	30000545	12-4B	$41,000	$103,796	LTRC	Louay Mohammad	Performance of WMA Technologies: Stage II – Long-term Field Performance	4/29/2011	7/28/2016		I-5
					$215,000	**$757,833**	**BITUMINOUS BUDGET TOTALS**						
					$267,000	**$894,080**	**SELF-GENERATED ACTIVE BUDGET TOTALS**						

LTRC ANNUAL RESEARCH PROGRAM

Other DOTD Sections

FISCAL YEAR 2012-2013

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													
Safety	A	TT		12-LRSP	$276,779	$276,779	LTRC	Marie Walsh	Louisiana Local Road Safety Program		12/31/2014		J-2
					$276,779	**$276,779**	**TECHNOLOGY TRANSFER AND TRAINING BUDGET TOTALS**						
					$276,779	**$276,779**	**OTHER DOTD SECTIONS ACTIVE BUDGET TOTALS**						
Project Type: Pavements													
Safety	P	P	30000730	13-2P	$54,437	$54,437	ULL	Xiaoduan Sun	Investigating Safety Impact of Pavement Markings and other Roadside Safety Features	7/1/2012	6/30/2013		J-4
					$54,437	**$54,437**	**PAVEMENTS BUDGET TOTALS**						
					$54,437	**$54,437**	**OTHER DOTD SECTIONS PROPOSED BUDGET TOTALS**						

FHWA

Part II SPR Funded Research Program

ADMINISTRATIVE LINE ITEMS AND RESEARCH SUPPORT STUDIES

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:	**30000720**		Project Start Date:		7/1/2012
Research Project Number:	13-1ADM		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$770,000		**Total**		**$770,000**
	(revised)					
Est. Expended to Date				Salaries		$770,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
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 2011 - 2012 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 the Louisiana Department of Transportation and Development (LADOTD) committees; and
-Managed the Southeast Transportation Consortium activities.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continue to manage the SPR Research Program;
-Implement the LTRC 2012 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; and
-Continued support for Southeast Transportation Consortium.

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:	**30000721**	Project Start Date:		7/1/2012
Research Project Number:	13-1EQM	Completion Date	(original)	6/30/2013
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$230,000	**Total**		**$230,000**
	(revised)				
Est. Expended to Date			Salaries		$170,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	$60,000
	(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). Special emphasis will be on automation of instrumentation systems used for data collection.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Maintained the Louisiana Transportation Research Center (LTRC) research laboratory and field equipment:
- Calibration of Profiler, FWD, Dynaflect, and Friction Tester;
- Participated in AMRL laboratory proficiency testing;
- Participated in State Cooperative Testing Program (Co-Op);
- Maintained AMRL accreditation of asphalt laboratory;
- Maintained AMRL accreditation of concrete laboratory;
- CCRL Certification submittal and Technician Certification through ACI;
- Calibration of Mobile Imaging System;
- Laboratory Equipment Maintenance and repair of Asphalt Binder, Mixture equipment; and
- Performed required safety training and reporting responsibilities.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Maintain AMRL laboratory accreditations:
- Perform routine and unscheduled maintenance of LTRC research laboratory and field equipment.
- Developed plans and prepared specifications for new lab equipment need 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;
- Equipment controller and data acquisition for Cox and Sons;
- Calibration of Profiler, FWD, Dynaflect, and Friction Tester;
- Perform routine and unscheduled maintenance of LTRC research laboratory and field equipment.

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:	**30000722**		Project Start Date:		7/1/2012
Research Project Number:	13-1LFT		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$180,000	**Total**		**$180,000**
	(revised)				
Est. Expended to Date			Salaries		$180,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
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 2011 - 2012 ACCOMPLISHMENTS

-Assessment of I-49 AC Pavement for Whitetopping;
-Assessment of LA 10 for Alexandria, Louisiana, District 08;
-Forensic evaluation of Rutting Issues on LA 74 SP NO. 264-02-0011, Ascension Parish District 61 LA;
-Pavement, base, sub-base, and embankment codes for GPR data collection;
-I-10 Twin Span, 450-18, Friction Assessment; and
-Porous Pavements, storm water management, and bioremedatation.

FISCAL YEAR 2012-2013 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.

Title:	**New Products Evaluation**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000723**		Project Start Date:		7/1/2012
Research Project Number:	13-1NPE		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$50,000		**Total**		**$50,000**
	(revised)					
Est. Expended to Date				Salaries		$50,000
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

-New Project Evaluation:
-Rapid Low Set P Cement evaluation for QPL 24;
-TerraCem Evaluation and Report (cement & cement kiln dust blend), Manufacturer: LaFarge;
-LKD Evaluation (lime kiln dust), Manufacturer: Omni Materials;
-Rheomac 300D evaluation for QPL 58;
-Rapid Set Low P;
-Rheomac 300D;
-Darafill (liquid and dry);
-Endurablend;
-Rosphalt 50 LT;
-Joint Bond;
-Reclamite Fog Seal;
-COS-50 Asphalt Road Base – Cold Mix; and
-SOCHEM Earth Bound.

FISCAL YEAR 2012-2013 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 2012-2013

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

SIO:	**30000725**		Project Start Date:		7/1/2012
Research Project Number:	13-1TA		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$280,000		**Total**		**$280,000**
	(revised)					
Est. Expended to Date				Salaries		$280,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
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 2011 - 2012 ACCOMPLISHMENTS

-US90 Detour-St Mary, District 03;
-I-10 Skiddabrator, District 61;
-Profiler Certification Sites, Section 22;
-I-59 Skid, District 62;
-US 190 Skid, District 62;
-LA 3002 FWD and Profiler, District 62;
-LA 1 Uretek, District 08;
-I-49 FWD, District 04;
-LA 511 Profiler, District 04;
-ARAN Calibration Site Pavement Management;
-Capstone Project, District 02;
-I-10 FWD Load Transfer, District 03;
-LA 10 FWD, District 08;
-US 61 OGFC Skid, District 61;
-I-10 Bridge Decks Skid, District 61;
-Direct Shear Testing;
--SP # 840-43-0001, US 71 (Alexandria), District 08 (Tested 12/2011)
--SP # 840-43-0001, US 71 (Alexandria), District 08 (Tested 08/2011)
-I-10 Slope Repair Assistance;
-Participation of LADOTD Standard Specification Book Rewrite committees;
-Pilot study on Bar Code Scanner application and Roadway Core Density;
-Forensic Evaluation for various asphalt issues on state projects located on LA 928, I-49, I-12, US 190, and I-20;
-Performed Rice density computation of HMA mixture from roadway cores collected from LA 6 (SP # 034-02-0041). The cores were supplied by District 08;
-Participated in round robin MSCR testing for SEAUPG;
-Evaluation of various Cold Mix Asphalt products;
-Coring and Laboratory testing on I-55, US 190, I-10, I-49 and LA 964;
-Assist Materials Lab in Asphalt Binder Testing;
-Testing on Lightweight Aggregates;
-Performed LWT testing/JMF Approval on the following construction projects: LA 627, SP # 282-30-0016; LA 146, SP# 085-09-0015; I-20, SP# H.003338; I-10, SP# 450-03-0083/H.002978; LA 151, SP# 317-02-002; LA 34 SP# 067-09-0042; US 90 SP# 424-02-0088; I-10, SP# 450-03-0084; I-10 SP# 450-03-0057;
-Specification committee work on NS items such as Warm Mix Asphalt mixtures, various tack coat products;
-Permeability Test for Quality Assurance;
-Coring and Laboratory testing on US 90 Bridge and LA 1 Bridge;
-Service life modeling assistance for two ongoing construction projects with permeability requirements;
-Specification committee work on NS items such as latex modified concrete;
-Testing cylinders and making adjustments for ternary implementation project;
-Forensic evaluation of I-49 and commentary for the clay ball issue;
-Assist with Materials Manager templates;
-Assist Materials Lab with RCP testing; and
-Development of templates and databases for automation of data analysis and storage: concrete sample manager, redesign of mustang form, various asphalt templates, timesheets.

FISCAL YEAR 2012-2013 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 2012-2013

Title:	**Technical Research Surveillance**	**Project Status:**	**Ongoing**

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

SIO:	**30000726**		Project Start Date:		7/2/2012
Research Project Number:	13-1TRS		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$535,000		**Total**		**$535,000**
	(revised)					
Est. Expended to Date				Salaries		$535,000
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

-Initiated 17 new research contracts;
-Managed research contracts on 40 external university/consultant contracts;
-Provided review on draft reports for completed research projects;
-Completed 14 projects; and
-Published 20 final reports.

FISCAL YEAR 2012-2013 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 2012-2013

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

SIO:	**30000727**		Project Start Date:		7/1/2012
Research Project Number:	13-1TTRI		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$395,000		**Total**		**$395,000**
	(revised)					
Est. Expended to Date				Salaries		$395,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
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 2011 - 2012 ACCOMPLISHMENTS

-Design, Development, Testing and Deployment of various computer software such as Project Management Modules, Bridge Scour Program for the Louisiana Department of Transportation and Development (LADOTD);
-Louisiana Transportation Conference committee assistance;
-TRB, Transportation Research Board Annual Meeting, Washington, DC; attendance and committee participation, three committee chairs, and thirteen committee members, several presentations given. Participate NCHRP research advisory panels;
-Hosted the Louisiana Transportation Research Center (LTRC) Seminar Series: Congestion Management;
-Hosted TRB Webinar on Tack Coat Optimization, with 433 participant's world- wide, the highest on record for that seminar series.
-Principles of Quality Hot Mix Asphalt Pavement Construction Class;
-Hosted European Union Research Consortium FEHRL US Scanning tour on climate change;
-Expert Task Group meetings:
  -Asphalt Mixture
  -Asphalt Binder
  -Modeling
  -ProVal workshop
  -Presentation on Concrete and Asphalt Materials
  -General Asphalt Specification Presentations
  -Seminars and Conferences
  -Required CPTP courses
  -Required LTRC courses
  -Certification courses

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continue Research Implementation activities;
-Begin development of program for 2013 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 Demonstration of New Bridge Approach Slab Designs and Performance**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000116**		Project Start Date:		8/1/2008
Research Project Number:	05-1GT		Completion Date	(original)	8/1/2011
Research Agency:	LTRC		Completion Date	(revised)	6/30/2013
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$393,176		**Total**		**$39,500**
	(revised)					
Est. Expended to Date		$259,900		Salaries		$29,500
FY 2011 - 2012 Budget				Equipment	(expendable)	$10,000
FY Funds	(original)	$59,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$50,000		Other		

PURPOSE AND SCOPE

This project implements the findings from two Louisiana Transportation Research (LTRC) Projects: "The Rideability of a Deflected Bridge Approach Slab" (02-2GT) and "Determination of Interaction between Bridge Concrete Approach Slab and Embankment Settlement" (03-4GT). It will also study such major causes of extra settlement from the collapsible behavior of embankment soils and its relation with construction methods, the erosion control of embankment, the settlement of native ground as embankment foundation and its control, etc. In this project, lab and field tests will be conducted for soil deformation. Field-testing sections of bridge concrete approach slabs will be built and their performance will be monitored and analyzed so that final recommendation can be made to the Louisiana Department of Transportation and Development (LADOTD) on the bump issue at bridge ends. These bridge approach slabs tested are based on new design from the Bridge Design Section and comply with the recommendations from the two finished research projects.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

- Conducted more literature review on relevant research projects on field testing, geogrid soil reinforcement, instrumentation, and monitoring;
- Analyzed the collected data from two truck load tests on the approach slab at Bayou Courtableau Bridge;
- Designed and developed the instrumentation testing plan for the Bayou Lacassine Bridge approach slab; and
- Purchased the instrumentations for the Bayou Lacassine Bridge approach slab.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

- Install the geogrid reinforcement layers and other instrumentations beneath the approach slab at the Bayou Lacassine Bridge;
- Install sister bar strain gauges within the approach slab structure at Bayou Lacassine Bridge;
- Conduct truck load test on both approach slabs at Bayou Lacassine Bridge, and monitor and collect data from all instrumentations during the test; and
- Look for new bridge approach slab embankment sites for instrumentation and monitoring.

LTRC Annual Research Program
Fiscal Year 2012-2013

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)	
Principal Investigator:	Mr. Gavin Gautreau				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$264,878		**Total**		**$138,000**
	(revised)					
Est. Expended to Date		$35,000		Salaries		$138,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$169,225		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$35,000		Other		

PURPOSE AND SCOPE

Intelligent compaction refers to the use of instrumented rollers that record soil stiffness (vibration load/soil displacement) and GPS position. These measurements are used to create a stiffness index. Once calibrated, subsequent passes are compared against target values. The roller receives feedback from the soil based on the resistance encountered; the intelligent roller then automatically and “instantaneously” modifies its settings (force amplitude, frequency) to meet the target modulus.
The on-board computer is used to help the operator avoid over and under compaction. This can speed the contractor's production, and benefits the department by creating a continuous record of stiffness. The goal of the technology is to ensure proper compaction is achieved while reducing delays and “pumping” problems.
A goal is to utilize intelligent rollers to shadow the normal data collection process throughout the test section. The results (collected on soil and asphalt) will be used to help develop a performance specification. The project will develop draft specification and proposal to demo technology on a highway test site possibly located south of New Iberia, Louisiana, on US 90 between Darnall and LA 85 in May of 2012.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-The specification to allow instrumented rollers on the demo project has been finalized, approved and added to the project; and
-The demo project's LET date has had another setback, Right of Way issues pushed it four months from January, 2012 to May, 2012, which reduced the activity on the project for this fiscal year.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-The project will have begun and field testing will begin;
-The Louisiana Transportation Research Center (LTRC) will coordinate with the district and the contractor to review and train on the selected roller; and
-The test plan will be implemented and data collected. SHRP2 staff will assist with training and startup; and share the data.

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)	12/31/2012
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$88,776		**Total**		**$13,000**
	(revised)	$320,951				
Est. Expended to Date		$307,951		Salaries		$13,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$68,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$55,000		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 2011 - 2012 ACCOMPLISHMENTS

- Analyzed the lateral load test data using high order polynomial curve fitting of measured pile rotation with depth;
- Analyzed the lateral load test at M19 Eastbound pier of Twin Span bridge using the FB-multiPier program;
- Compared between the measured and predicted values from high order polynomial curve fitting and FB-MultiPoer Analysis;
- Back-calculated the p-y curves of battered pile groups at M19 pier from high order polynomial curve fitting;
- Coordinated with the subcontractor to incorporate additional instrumentation for the long-term monitoring system. However, there has been delay due to the unavailability of the power supply at the I-10 Twin Span Bridge site; and
- Prepared a draft report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

- Coordinate with the subcontractor to install the additional instrumentations (cost = $66,956): 12 strain gages on concrete girders, 12 strain gages on steel girders, and 3 OSMOS extensometers to three steel girders;
- Coordinate with the subcontractor to re-calibrate the OSMOS WIMI;
- Coordinate with the subcontractor to complete and setup the long-term monitoring system (depends on availability of electric supply power); and
- Prepare a final 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 2012-2013 Budget**		
Total Cost	(original)	$523,000		**Total**		**$208,500**
	(revised)					
Est. Expended to Date		$523,000		Salaries		$147,500
FY 2011 - 2012 Budget				Equipment	(expendable)	$37,000
FY Funds	(original)	$203,000		Equipment	(non-expendable)	
	(revised)			Travel		$18,000
Est. FY Expenditure		$203,000		Other		$6,000

PURPOSE AND SCOPE

The objectives of the 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 2011 - 2012 ACCOMPLISHMENTS

- Provided geotechnical testing support and technical assistance for the Louisiana Department of Transportation and Development (LADOTD);
- Published several technical papers/reports on LTRC research results;
- Developed potential ideas and problem statements for future Louisiana Transportation Research Center (LTRC) research projects;
- Developed research proposal on "In Situ Evaluation of Design Parameters and Procedures for Cementitiously Treated Weak Subgrades using Cyclic Plate Load Tests"; and
- Maintained and upgraded software's related to CPT application.

FISCAL YEAR 2012-2013 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:	**Design Values of Resilient Modulus of Stabilized and Non-stabilized Base**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000099**		Project Start Date:		9/1/2010
Research Project Number:	10-3GT		Completion Date	(original)	2/29/2012
Research Agency:	LTRC		Completion Date	(revised)	12/31/2012
Principal Investigator:	Mr. Khalil Hanifa				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$120,985		**Total**		**$4,300**
	(revised)	$129,880				
Est. Expended to Date		$100,000		Salaries		$4,300
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$60,493		Equipment	(non-expendable)	
	(revised)	$69,388		Travel		
Est. FY Expenditure		$66,000		Other		

PURPOSE AND SCOPE

The purpose of this research study is to determine the design values of stabilized and non-stabilized base specified by the Louisiana Department of Transportation and Development (LADOTD) through lab tests with respect to resilient modulus and other parameters used by pavement design guides.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Conducted lab tests on stabilized base materials;
-Finished conducting lab tests on non-stabilized base materials;
-Finalized lab results;
-Analyzed test data;
-Made recommendations of design values that accommodate field variation during construction; and
-Drafted final report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Submit final report to Project Review Committee for review, comments and editing;
-Schedule Project Review Committee meeting to receive final comments and edits; and
-Submit final report for editing.

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 2012-2013 Budget**		
Total Cost	(original)	$489,708		**Total**		**$67,500**
	(revised)					
Est. Expended to Date		$100,000		Salaries		$57,500
FY 2011 - 2012 Budget				Equipment	(expendable)	$10,000
FY Funds	(original)	$56,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$56,000		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 incorporating 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 2011 - 2012 ACCOMPLISHMENTS

- Conducted literature review on relevant research studies related to pile setup phenomenon in clayey soils;
- Developed an instrumentation testing plan for a selected pile at Bayou Zouri Bridge site;
- Installed the pile and field instrumentations for the selected pile at Bayou Zouri Bridge site to evaluate the pile setup phenomenon with time; and
- Tested one pile at Bayou Zourie Bridge site (static and dynamic load tests) at different times after pile driving for evaluation pile setup.
- Developed an instrumentation testing plan for three test piles at Bayou Lacassine Bridge and submitted to LADOTD Bridge Section;
- Started analyzing the pile setup data at Bayou Zourie Bridge site; and
- Collected some data from previous projects for piles tested dynamically several times after installation.

FISCAL YEAR 2012-2013 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 Zourie Bridge site;
- Follow up on instrumentation and testing plan of the three piles at Bayou Lacassine Bridge site;
- Continue collecting and analyzing data from previous projects for piles tested several times after installation;
- Analyze the setup of the tested pile at Bayou Boeuf Bridge Extension, US 90;
- Conduct laboratory tests to evaluate pile setup parameters; and
- Identify new potential sites/bridges for performing field instrumentation pile set-up test.

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)	12/31/2013
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$297,579		**Total**		**$141,000**
	(revised)					
Est. Expended to Date		$219,000		Salaries		$135,000
FY 2011 - 2012 Budget				Equipment	(expendable)	$6,000
FY Funds	(original)	$171,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$171,000		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 2011 - 2012 ACCOMPLISHMENTS

- Conducted literature review on the use of geosynthetic for subgrade stabilization and reinforcement of base aggregate layer in flexible pavements;
- Designed the six geosynthetic reinforced test lane sections at the ALF site;
- Piles were driven in the designated site for support of reinforced concrete strip foundation (or pile cap);
- Started conducting cyclic plate load tests on in-box geosynthetic reinforced test section's;
- Prepared an instrumentation plan for the test lane section's;
- Prepared construction plan and drawings for bidding;
- Ordered the instrumentations needed for the ALF test section's; and
- Conducted in-situ field tests for the subgrade layer.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

- Continue conducting literature review on relevant published works;
- Follow up on constructing the footings and pavement section's;
- Conduct in-situ field testing prior to construction, the section's to characterize the in-situ strength/stiffness of the subgrade, and pavement layers;
- Install all instrumentations in the test sections;
- Conduct accelerated load tests on the lane sections;
- Continue conducting cyclic plate load tests on in-box test section's;
- Continue cyclic plate load tests on the test lane section’s; and
- Start analyzing the experimental test results.

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)	
Principal Investigator:	Dr. Leticia Santos da Rocha Courville				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$132,144		**Total**		**$38,162**
	(revised)	$155,006				
Est. Expended to Date		$115,994		Salaries		$35,789
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$67,462		Equipment	(non-expendable)	
	(revised)	$88,772		Travel		
Est. FY Expenditure		$88,772		Other		$2,373

PURPOSE AND SCOPE

The objective of this research is to create performance curves applied to LED circular traffic signals according to the Institute of Transportation Engineers (ITE)'s measurements of luminous intensity in order that Louisiana will be better equipped to carry out the replacement of these traffic signals.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Specification and installation of the components of the performance testing applied to LED traffic signals operating under Louisiana environmental conditions.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Measurement of LED traffic signals' luminous intensity;
-Measurements of LED traffic signals' voltage and current; and
-Preliminary results of the LED traffic signals' performance testing.

Title:	The Rideability of a Deflected Bridge Approach Slab (LTRC Project 02-2GT Continuation: Phase II)	Project Status:	Ongoing
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000160**		Project Start Date:		4/1/2011
Research Project Number:	11-3P		Completion Date	(original)	3/31/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Martinez				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$295,789	**Total**		**$80,344**
	(revised)				
Est. Expended to Date		$96,379	Salaries		$80,344
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$90,848	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$54,816	Other		

PURPOSE AND SCOPE

The objectives and methodology of this project have been modified such that it will no longer pursue TVTF development. This change was due to the industry's general acceptance of the 25-ft base-length method of assessing localized roughness and the need to evaluate it. In light of this, the new scope and purpose of 11-3P had to be revised. The revised objective is to gain insights into the correlation that exists between the vehicular-response based LRI approach and the 25-ft or shorter base-length method and develop the recommendation to have the best use of these two types of indices to quantify localized pavement distresses including bridge end bumps.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Task 1: Literature has been examined (Principally, Proval and other material exploring the strengths and weaknesses of the 25-ft method);
-Task 2: All bridges on the Interstate 10 have been LRI and 25-ft method tested; and
-Task 3: Ordered pairs have been developed for most of the collected and delays have been measured and recorded for those ordered pairs; plots have also been developed.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 3: Remaining ordered pairs will be developed along with their respective delays and plots;
-Task 4: Follow-up testing will be carried out on bridges having the greatest LRI/25-ft method disparity; and
-Task 5: The final report will be generated.

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:	FHWA		Completion Date	(revised)	
Principal Investigator:	Mr. Mark Martinez				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$263,502		**Total**		**$141,000**
	(revised)					
Est. Expended to Date				Salaries		$141,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The central objective of the research is to validate the newly developed Equivalent 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) for 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 2011 - 2012 ACCOMPLISHMENTS

Project has not yet begun.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 1: All relevant literature will be reviewed (focus on findings derived from Louisiana Transportation Research Center's (LTRCs) Project 03-3GT);
-Task 2: A canvassing of prospective rehabilitation and new construction projects that fit project needs will be compiled. DCP, cores, Shelby tubes, plate bearing value tests, FWD, and LFWD testing will be conducted. LTRC's GERL lab will be utilized to model conditions not represented in the field; and
-Task 3: A comparative analysis will be conducted wherein empirical data will be compared to theoretical projections.

LTRC Annual Research Program
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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)	
Principal Investigator:	Mr. Kevin Gaspard				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$341,459	**Total**		**$112,000**
	(revised)				
Est. Expended to Date		$50,000	Salaries		$100,000
FY 2011 - 2012 Budget			Equipment	(expendable)	$12,000
FY Funds	(original)	$50,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$50,000	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 2011 - 2012 ACCOMPLISHMENTS

-Completed literature search, field topographic survey, and distributed survey to Districts; and
-Began site assessment and instrumentation work plan.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct detailed geotechnical assessment;
-Complete laboratory program, and instrumented site; and
-Begin a one year site monitoring program.

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)	
Principal Investigator:	Mr. Kevin Gaspard				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$262,210		**Total**		**$127,000**
	(revised)					
Est. Expended to Date		$50,000		Salaries		$100,000
FY 2011 - 2012 Budget				Equipment	(expendable)	$15,000
FY Funds	(original)	$50,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$50,000		Other		$12,000

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 2011 - 2012 ACCOMPLISHMENTS

-The literature search was completed as well as the integration of the USDA soil unit maps into the LADOTD GIS system;
-The 14 research sites were identified and two were instrumented; and
-Basic soil testing was completed on those sites as well.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Instrument 12 sites and complete soil testing on those sites;
-Monitor sites seasonally after they are installed; and
-Begin working on the Interim Report.

LTRC Annual Research Program
Fiscal Year 2012-2013

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)	
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				Estimated 2012-2013 Budget		
Total Cost	(original)	$160,231		**Total**		**$92,400**
	(revised)					
Est. Expended to Date		$60,000		Salaries		$92,400
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$60,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$60,000		Other		

PURPOSE AND SCOPE

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

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Task 1 – Conduct Literature Review;
-Task 2 – Classify Louisiana Typical Pavement Structures for DARWin-ME Pavement Design; and
-Task 3 – Determine Louisiana DARWin-ME Pavement Design Criteria (incomplete/ongoing).

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 3 – Determine Louisiana DARWin-ME Pavement Design Criteria;
-Task 4 – Analyze Louisiana Pavement Structures using DARWin-ME;
-Task 5 – Identify DARWin-ME Design Modules that can be used without local calibration;
-Task 6 – Develop DARWin-ME Implementation Guidelines; and
-Task 7 – Prepare the Final Report.

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 2012-2013 Budget**		
Total Cost	(original)	$217,957		**Total**		**$80,000**
	(revised)					
Est. Expended to Date		$36,000		Salaries		$80,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$36,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$36,000		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 2011 - 2012 ACCOMPLISHMENTS

-Task 1: Literature review and fact-gathering;
-Task 2: Acquired DFT and CTM devices (loaned both the DFT and CTM devices from FHWA); and
-Task 3: Select field test sections.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 4: Perform field tests; and
-Task 5: Determine the relationship between frictional characteristics measured from laboratory, and field-compacted pavement surfaces.

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)	
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$363,959		**Total**		**$127,000**
	(revised)					
Est. Expended to Date		$100,000		Salaries		$97,000
FY 2011 - 2012 Budget				Equipment	(expendable)	$30,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				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 2011 - 2012 ACCOMPLISHMENTS

-Task 1: Literature Review; and
-Task 2: RCC Mix Design.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 3: Construction of test sections;
-Task 4: Accelerated loading of test sections using the ATLAS; and
-Task 5: Analysis of the experiment results.

Title:	**Evaluation of Warm Mix Asphalt Technology in Flexible Pavements**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000117**		Project Start Date:		3/15/2009
Research Project Number:	07-1B		Completion Date	(original)	3/15/2011
Research Agency:	LTRC		Completion Date	(revised)	3/31/2013
Principal Investigator:	Mr. Bill King				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$325,420		**Total**		**$93,532**
	(revised)	$480,980				
Est. Expended to Date		$387,448		Salaries		$93,532
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$120,442		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$66,750		Other		

PURPOSE AND SCOPE

The objective of this research is to evaluate existing technologies that allow the reduction of mixing and compaction temperatures of asphalt mixtures and ultimately develop an innovative approach to achieve that without compromising the performance and durability of the resulting mixtures. Reduced production and paving temperatures would have beneficial environmental and economic effects. A comparison of conventional mix designs to existing Warm-Mix technologies will be conducted on Field mixtures. Chemical properties and engineering (rheological) properties of the modified asphalt binder in this study will be evaluated using standard analytical method and Superpave binder tests. Asphalt mixtures that contain different levels of additives will be characterized by a suite of fundamental engineering tests. Those tests will be aimed at characterizing the stability and durability of the asphalt mixtures.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

- Incorporate permissive Warm Mix Asphalt (WMA) specification in section 502 of the new Louisiana Department of Transportation and Development (LADOTD) standard specifications;
- Letting of selected project on US 61, pre-construction meeting;
- US 61 project scheduled to begin construction around May 1, 2012. Began sampling and testing;
- A WMA showcase is scheduled for May 15, 2012, with a demonstration at the contractors plant;
- Conducted beam fatigue test and analysis;
- New Project on US 90 near Lake Charles, Louisiana was added to test factorial; and
- Completed sample preparation and testing on US 90.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Complete testing on US 61 project; -Complete Final Report writing; -Hold final Project Review Committee meeting; and -Publish Final Report.

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 2012-2013 Budget		
Total Cost	(original)	$345,000	**Total**		**$173,400**
	(revised)				
Est. Expended to Date		$345,000	Salaries		$160,400
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$176,000	Equipment	(non-expendable)	
	(revised)		Travel		$3,000
Est. FY Expenditure		$176,000	Other		$10,000

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 Center's (LTRCs) 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 2011 - 2012 ACCOMPLISHMENTS

-Participated in the LADOTD Asphaltic Concrete Specification Committee;
-Developed and conducted a Superpave Mixture Design and Analysis Course for the Lafayette Consolidated Government; and
-Participated in several technical assistance projects.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continue participation in the Louisiana DOTD Asphaltic Concrete Specification Committee;
-Continue participation in technical assistance projects; 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)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$299,433		**Total**		**$102,136**
	(revised)					
Est. Expended to Date		$108,600		Salaries		$102,136
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$98,600		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$98,600		Other		

PURPOSE AND SCOPE

The goal of the proposed research 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 2011 - 2012 ACCOMPLISHMENTS

Completed the following tasks:
-Task 1: Conducted Literature Review;
-Task 2: Identification of field projects and sample preparation; and
-Task 3: Conducted laboratory and field experiments.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Continue work on the following tasks:
-Task 2: Identification of field projects and sample preparation;
-Task 3: Conducting laboratory and field experiments; and
-Task 4: Performing preliminary data analyses.

Title:	**Validity of Multiple Stress Creep Recovery Test for DOTD Asphalt Binder Specification**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000167**		Project Start Date:		9/1/2010
Research Project Number:	11-1B		Completion Date	(original)	6/30/2012
Research Agency:	LTRC		Completion Date	(revised)	6/30/2013
Principal Investigator:	Md. Sharear Kabir				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$144,838		**Total**		**$101,788**
	(revised)	$171,788				
Est. Expended to Date		$70,000		Salaries		$101,788
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$102,838		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$52,000		Other		

PURPOSE AND SCOPE

Multiple Stress Creep Recovery (MSCR) test has been used extensively to identify the elastic response in a binder at different stress levels and can be used to determine the presence of polymer in a binder. This test has already been added to the AASHTO Specifications for PG Binder. The main objective of this study is to collect asphalt binders from various sources listed in the Qualified Product List of Louisiana Department of Transportation and Development (LADOTD) and characterize their elastic responses with regard to the present AASHTO Binder Specifications. In addition, recommendations to the current LADOTD Asphalt Binder Specifications will be developed.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Conducted significant literature review;
-The previous malfunctioning DSR device has been replaced with a new DSR. It is expected to finish the test factorial without major problems;
-Test factorial has been modified. MSCR tests are conducted at 64°C and 70°C using separate binder samples;
-Force Ductility tests have been added to the test factorial;
-Conducted laboratory tests on numerous binders collected from various LADOTD projects and from Asphalt producer/ suppliers; and
-Conducted Elastic Recovery and Forced Ductility tests on Emulsions for 11-2B study.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Collect more binder samples from various asphalt suppliers;
-Finish the laboratory testing as outlined in the revised test factorial;
-Conduct data analysis; and
-Submit draft Final Report for review and publication.

Title:	**Testing and Analysis of LWT and SCB Properties of Asphalitc Concrete Mixtures**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000220**		Project Start Date:		4/1/2011
Research Project Number:	11-3B		Completion Date	(original)	3/31/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Bill King				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$263,975		**Total**		**$113,000**
	(revised)					
Est. Expended to Date		$81,000		Salaries		$113,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$113,225		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$65,000		Other		

PURPOSE AND SCOPE

The Louisiana Transportation Research Center (LTRC) has been conducting Loaded Wheel Tracker (LWT) and Semi-Circular Bend (SCB) test for several years for forensic investigation and research purposes only. Recently, the state plans to develop LWT and SCB specification limits for asphaltic concrete pavement construction. Consequently, a statewide testing scheme is planned to generate a wide spread LWT and SCB database.
The overall goal of this research is to introduce LWT (rutting) and SCB (cracking) limits that are reasonable and practical, considering the commonly used construction materials and projected traffic in the state of Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Conducted literature review;
-Significant progress has been made to develop a simplified SCB test Apparatus (Modify Marshall Load Frame); and
-Samples collected and tested from field projects.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continue identifying appropriate field projects for sample collection;
-Perform laboratory testing's;
-Conduct data analysis;
-Submit draft Final Report for review and publication; and
-Develop End Result Specifications for the LADOTD.

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 2012-2013 Budget**		
Total Cost	(original)	$358,462		**Total**		**$80,000**
	(revised)					
Est. Expended to Date		$170,000		Salaries		$75,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$80,000		Equipment	(non-expendable)	$1,000
	(revised)			Travel		$4,000
Est. FY Expenditure		$79,000		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 the Louisiana State University (LSU) 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 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 that LTRC issues proposals on.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Management of Special Studies section;
-Taught CE 7640 "Transportation Policy and Planning" in the Fall of 2011 and CE 7641 "Urban Transportation Planning Models" in the Spring of 2012; and
-Completed research project "Development of a Time-Dependent Hurricane Evacuation Model for the New Orleans, Louisiana area - Phase II".

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct study on "Improving Freight Crash Incident Management";
-Conduct study on "Travel Time Estimation in Urban Areas using Bluetooth Receivers"; and
-Conduct study on "Testing the Transferability of LTRC's Hurricane Evacuation Demand Models"

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)	
Principal Investigator:	Mr. Harold 'Skip' Paul				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,900		**Total**		**$15,450**
	(revised)					
Est. Expended to Date		$5,000		Salaries		$15,450
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$5,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$5,000		Other		

PURPOSE AND SCOPE

The purpose of the project is to provide the Louisiana Transportation and Development (LADOTD) match funding for the Administration of the 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. Louisiana State University (LSU) and LADOTD has committed to providing the matching funds.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Planning activities for the development of the research projects funded by the NCITEC.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Provide support for the administration of the UTC.

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)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$124,096		**Total**		**$76,831**
	(revised)					
Est. Expended to Date		$30,000		Salaries		$74,831
FY 2011 - 2012 Budget				Equipment	(expendable)	$2,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				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 2011 - 2012 ACCOMPLISHMENTS

-Ordered ring molds;
-Mixture and test matrix developed, includes two typical Louisiana Transportation and Development (LADOTD) control mixtures and two types of internal curing methods; and
-Laboratory testing plan prepared, includes slump, air, unit weight, set time, compression, flexure, modulus, surface resistivity, and ring shrinkage.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Complete test matrix and laboratory testing;
-Run statistical analysis on laboratory data; and
-Begin preparation of draft final report.

Title:	**Comparison of Conventional and Self-Consolidating Concrete for Drilled Shaft Construction**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000681**		Project Start Date:		5/1/2012
Research Project Number:	12-5C		Completion Date	(original)	10/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$119,096		**Total**		**$76,831**
	(revised)					
Est. Expended to Date		$25,000		Salaries		$74,831
FY 2011 - 2012 Budget				Equipment	(expendable)	$2,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

Significant anomalies have been observed in many of the recent drilled shaft constructions throughout Louisiana. The anomalies typically occur in the form of honeycombing within the zones of heavy reinforcement or sometimes at the shaft bottom. Self-Consolidating Concrete (SCC) has shown great potential of overcome the difficulties noted in some pilot studies. As an example, SCC was used in the drilled shafts for the Huey P. Long Bridge in New Orleans, Louisiana, and performed satisfactorily. Contrast to the Huey P. Long Bridge, conventional concrete was used for the Audubon Bridge. Problems were noted in the construction as well as the shaft resistance. Both projects consist of large size shafts constructed in the Mississippi River in similar conditions. One possible explanation of the differences in shaft performance is the concrete mixture design.

The objective of this research project is to study the suitability of SCC in the drilled shaft construction. The research should include studying the effect of different types of drilling slurries to the effectiveness of SCC. The research will introduce the use of an "L" which tests the turbidity of the concrete during placement under water. A full scale load test of a drilled shaft constructed using the two types of concrete should be conducted to determine any improvement.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Ordered L-Box;
-Mixture and test matrix developed, includes two typical LADOTD control mixtures with multiple SCC admixtures; and
-Laboratory testing plan prepared, includes slump, air, unit weight, set time, compression, flexure, modulus, surface resistivity, inverted cone, and L-Box test.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Complete test matrix and laboratory testing; -Run statistical analysis on laboratory data; and -Begin preparation of draft final report.

FHWA

Part II SPR Funded Research Program

PROPOSED RESEARCH

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

SIO:	**30000661**		Project Start Date:		7/1/2012
Research Project Number:	11-1GT		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$300,000	**Total**		**$88,000**
	(revised)				
Est. Expended to Date			Salaries		$82,000
FY 2011 - 2012 Budget			Equipment	(expendable)	$6,000
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			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, fly ash) 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 be also 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Perform literature review on the soil-type dependent cementitious stabilization/treatment techniques and the in-situ evaluation of resilient modulus of cementitious treated subgrades;
-Identify the different types of subgrade soils in Louisiana and appropriate stabilization schemes for those soils;
-Start modifying the repeated plate load testing facility and purchasing instrumentation needed for this research;
-Start conducting laboratory unconfined compression tests, resilient mod repeated plate load tests will be also conducted on cementatious treated soft subgrade samples; and
-Start conducting repeated plate load tests on selected sections.

Title:	**Developing p-y Curves for Analysis of Laterally Loaded Piles in Louisiana Soil**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

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

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$20,000	**Total**		**$30,000**
	(revised)				
Est. Expended to Date			Salaries		$30,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

P-y method is the most widely used method for analysis in the design of pile foundations under lateral loading. The p-y method is based on beam theory combined with nonlinear load transfer functions to represent the resistance of the soil to lateral displacement by the pile. The lateral soil resistance is known to comprise these primary components: the passive stresses normal to the pile leading face; the active stresses normal to the trailing face - usually negligible; and the shear stresses along the sides of the pile. The existing models for p-y curves were developed from a limited number of lateral load tests for specific site conditions and lump all components of lateral resistance into one curve.

Because of the large degree of empiricism incorporated in the p-y method of analysis, there is a need to develop and calibrate p-y curves for Louisiana soil using data from tests conducted on Louisiana soil. Furthermore, characteristics of the individual soil resistance components, (i.e. passive normal stresses and side shear stresses) are apparently different since the soil corresponding to the individual component interacts differently with the pile. Separate p-y curves for the two components would more closely simulate the soil-pile interaction under lateral loading and provide more accurate predictive information for the design of a pile foundation.

The work program includes conducting large-scale lateral load tests on piles installed at selected site. The testing piles will be instrumented by strain gauges in pair at various levels to measure the pile bending moment and deduce the total soil resistance. The passive normal stress and pore-water stress at the pile-soil interface will be measured also at various depths by using pressure cells and piezometers installed in the pile and flush with the top face of the pile. Separate p-y curves for the two components of soil resistance will be developed for Louisiana soil based on the testing results. In addition, group effects will possibly also be investigated for typical Louisiana pile group configuration if a group pile foundation is constructed for the lateral load test.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Conduct in-depth literature review on p-y curve method with an emphasis on study of soil-pile interface stress and relevant techniques of developing p-y curves; -Identify a site for the lateral load test and start the logistic planning for the test; -Acquire appropriate sensors for instrumenting the pile and data acquisition system; and -Cast the piles and install sensors.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Implementation of Slag Stabilized Blended Calcium Sulfate (BCS) in a Pavement Structure.	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000728		Project Start Date:		7/1/2012
Research Project Number:	13-2GT		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Gavin Gautreau				

BUDGET STATUS

Total Budget				Estimated 2012-2013 Budget		
Total Cost	(original)	$77,839		**Total**		**$52,246**
	(revised)					
Est. Expended to Date				Salaries		$52,246
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

Test sections, as requested by the Louisiana Transportation Research Center (LTRC) Project 03-8GT, will be constructed as part of this study. The application of the LTRC Project 03-8GT specification will be evaluated, and additional laboratory studies will be conducted to refine the break point of moisture stability with additional percentages of the slag additive. Actual applications will need various strength requirements, while still meeting durability requirements. The need for various strengths with varying slag percentages is needed and will aid in the implementation of slag treated BCS to provide an alternative base course material or even surface course (similar to lean concrete).
This project will focus on the variation of strengths obtained through the stabilization of BCS with GGBFS to meet the needs of highway and other commercial needs, like local roads, driveways, etc. The project will research and document a slag-treated BCS test sections conducted by the Louisiana Transportation Research Center (LTRC).

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

The proposed project is prepping for the upcoming shoulder test section in Sorrento, LA., at US Hwy 61 just south of the intersection of LA 22.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

The test section and testing will be conducted and completed, and the evaluation of the section will be continued and documented in a final report.

LTRC Annual Research Program
Fiscal Year 2012-2013

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 2012-2013 Budget**		
Total Cost	(original)	$150,000		**Total**		**$20,000**
	(revised)					
Est. Expended to Date				Salaries		$20,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
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 soft wares, 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 microstrains 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 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 soil properties to describe the actual soil behavior at M19 pier of I-10 Twin Span Bridge.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Upgrading Bridge Scour Program for Hydraulics Department	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		1/7/2012
Research Project Number:	13-4GT		Completion Date	(original)	1/7/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Ms. Pallavi Bhandari				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$25,000	**Total**		**$25,000**
	(revised)				
Est. Expended to Date			Salaries		$25,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

Bridge Scour program was traditionally developed using Visual Basic development environment, which had served its purpose for the Hydraulics department and is continuing to do so. However, due to the advancement in technology, both hardware and software, has made it very difficult to maintain this program on the new operating systems and computers. Visual Basic is sometimes called "Programming with training wheels." It runs slow and requires a lot of memory. New technology can provide a rich user interface and advanced application functionality to improve the existing program. It will also give us an opportunity to revisit the Bridge Scour program and update it.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

None

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

None

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Bridge Abutments with Geosynthetic Reinforced Soil	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		12/1/2012
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 2012-2013 Budget		
Total Cost	(original)	$300,000	**Total**		**$38,500**
	(revised)				
Est. Expended to Date			Salaries		$28,500
FY 2011 - 2012 Budget			Equipment	(expendable)	$10,000
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 abutments.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct literature search relevant to geosynthetic reinforced soil and its application for bridge abutments;
-Identify bridges for potential use of GRS in design and construction of abutments; and
-Prepare an instrumentation plan for monitoring the GRS bridge abutments

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-7GT		Completion Date	(original)	6/30/2015
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$55,000	**Total**		**$17,667**
	(revised)				
Est. Expended to Date			Salaries		$16,667
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$1,000
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The original proposal was submitted to the “Industrial Ties Research Subprogram” (ITRS) of the Research and Development Program managed by the Louisiana (LA) Board of Regents. The ITRS is a stimulus program that aims to fund research activities with significant near-term potential for development and diversification of Louisiana’s economic base. A special requirement is that all research activities funded by this subprogram should have close collaboration with the private sectors and receive financial support from the industrial partners.

The ultimate goal of this proposal is threefold:
- 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

- Characterize the pile test sites and hence develop a thorough understanding of the soil profile and soil properties of the test sites;
- Design and fabricate the test piles with significant support from the industrial partners; and
- Establish close collaboration with and acquire technical and financial support from industrial partners, including data collection regarding planning of typical construction operations to inform the pile driving construction process improvement framework.

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

SIO:	**30000729**		Project Start Date:		6/1/2012
Research Project Number:	12-3P		Completion Date	(original)	12/31/2014
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Zhong Wu				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$200,000		**Total**		**$54,000**
	(revised)					
Est. Expended to Date		$20,000		Salaries		$54,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				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 2011 - 2012 ACCOMPLISHMENTS

-Conducted preliminary literature review; and
-Proposed test sections.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Construct and Micro-cracking test sections; and
-Perform field tests.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**User Oriented Pavement Management Interfaces and Applications**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		10/1/2012
Research Project Number:	12-6P		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Patrick Icenogle				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$100,000		**Total**		**$10,000**
	(revised)					
Est. Expended to Date				Salaries		$10,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

This project is a follow up to the Louisiana Transportation Research Center (LTRC) Project 11-1P. The results of LTRC Project 11-1P will determine levels of variability of Pavement Management (PM) distress values and what type of project level applications are feasible based on available PM data and user requests. This project will follow up with development of project level PM applications for users.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Meet with various users from districts and sections interested in using PM data to determine applications to accommodate user needs;
-Meet with database system managers for availability of other data systems which can be combined with PM data for applications;
-Begin development of project level PM applications for users; and
-Provide assistance to Principal Investigators of LTRC Project 11-1P.

Title:	**Nonlinear Resilient Modulus for Typical Unbound Pavement Materials from Inverse Analysis of FWD Testing**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		
Research Project Number:	13-3P		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$200,000		**Total**		**$10,000**
	(revised)					
Est. Expended to Date				Salaries		$10,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The recently released AASHTO pavement design program, DARWin-ME utilizes a mechanistic-empirical (ME) approach for pavement design. The program is organized according to three hierarchal levels among which the first level of inputs is generally the most accurate but more resources and time intensive.
The first level of design for unbound pavement layers adopts a universal nonlinear stress-dependent model to characterize the resilient moduli of unbound materials including base aggregates and subgrade soil. The nonlinear resilient modulus constants (k1, k2, k3) can be obtained by conducting cyclic triaxial tests in accordance with AASHTO T307/TP46. Such laboratory tests are usually elaborate, cumbersome, time consuming and advanced equipment is required to mimic the stress state in the field and the environment conditions, particularly moisture content the pavement is undergoing during all seasons.
Using the deflection measurements obtained from falling weight deflectometer (FWD) tests, the nonlinear resilient modulus can be back calculated through an inverse analysis procedure coupling Finite Element (FE) numerical modeling of pavements and an optimization algorithm. The FE numerical modeling will incorporate the nonlinear stress-sensitive model for the unbound base layer and subgrade and generate pavement responses (peak deflection value or time-history of deflection) under the prescribed FWD loading. The optimization algorithm will compare the calculated pavement surface deflection with the measured deflection by FWD and adjust the nonlinear resilient modulus parameters until the calculated and measured deflections reach a good agreement.
This inverse analysis procedure will be verified by standard laboratory resilient modulus testing results. Once the inverse analysis procedure based on FWD testing is proved to be reliable, it can be applied to characterize a wide range of pavement unbound materials under various seasonal conditions in Louisiana. Such a procedure is expected to be more efficient, cost- and labor- saving.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
- Perform literature review on resilient modulus, FWD testing, and numerical modeling of pavements and synchronize back calculation techniques for FWD testing; - Identify Louisiana aggregate and soil for pavement construction and conduct resilient modulus test; - Conduct FWD testing on selected pavement sections; - Develop numerical models for the pavement structures; - Develop the inverse analysis procedure; and - Verify the results of inverse procedure against laboratory testing results.

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	12-1B		Completion Date	(original)	6/30/2014
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$205,000		**Total**		**$103,000**
	(revised)					
Est. Expended to Date				Salaries		$103,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The primary objective of this research project is to evaluate the potential use of roofing shingles 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 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.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Investigation of the Use of High RAP/RAS Content in Hot Mix Asphalt Mixtures**	**Project Status:**	**Proposed**

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

SIO:			Project Start Date:		1/1/2013
Research Project Number:	12-2B		Completion Date	(original)	1/2/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$275,000		**Total**		**$100,000**
	(revised)					
Est. Expended to Date				Salaries		$100,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

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 this 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 establish mechanistic test criteria for asphalt mixtures (warm and hot) containing high-RAP content and/or Reclaimed Asphalt Shingles (RAS); and 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Conduct a thorough literature review; -Develop laboratory and field experiments; and -Conduct laboratory experiments.

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:		10/1/2012
Research Project Number:	13-1B		Completion Date	(original)	9/30/2014
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$300,000		**Total**		**$52,000**
	(revised)					
Est. Expended to Date				Salaries		$50,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		$2,000

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 validate the effectiveness of photocatalytic compounds in the field; determine the influence of environmental and operating conditions on photocatalytic efficiency; assess the durability of the TIO2 layer in the field and its influence on the pavement skid resistance; and quantify the environmental impacts of by-products.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

The following tasks will be performed:
-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; and
-Task 5: Accelerated loading testing of the photocatalytic pavement.

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:		12/1/2012
Research Project Number:	13-1ST		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:	Dr. Walid Alaywan				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$75,000	**Total**		**$40,000**
	(revised)				
Est. Expended to Date			Salaries		$35,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		$5,000

PURPOSE AND SCOPE

With the continuance of research in bridges in Louisiana, the number of instrumented bridges is fast increasing. Currently all instrumented bridges that are parts of ongoing studies are being monitored by their respective principal investigators. Monitoring instrumented bridges can provide bridge designers with a quantitative level of distress at a bridge should it experience an unforeseen event. This will provide the designer with an early warning to mitigate the problem.
The purpose of this study is to investigate the establishment of a network to monitor instrumented bridges after research projects are completed and bridges that have been instrumented as parts of research projects whose contract has expired.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

N/A

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Perform an extensive literature search to learn about bridge monitoring networks available supplier/user);
-Decide on where collected data will be housed;
-How can data be downloaded, modem vs. online access;
-Party responsible for data download and analysis;
-Prepare several bridge monitoring network scenarios; and
-Submit a final report with recommendations.

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	12-1SA		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Marie Walsh				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$200,000	**Total**		**$25,000**
	(revised)				
Est. Expended to Date			Salaries		$20,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	$5,000
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The Louisiana Transportation Safety Center will provide a structure for Louisiana's research universities to collaborate on safety related projects and leverage resources. Supported by research and technology transfer, the Safety Center will provide enhanced technical assistance to federal, state and local transportation agencies and will be available to 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 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Develop a proposal to establish the Louisiana Transportation Safety Center; and
-Develop a Business Plan for the Louisiana Transportation Safety Center.

Title:	DOTD Support for UTC Project: A Tool for Documenting, Tracking, Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements	Project Status:	Proposed
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:	**30000544**		Project Start Date:		7/1/2011
Research Project Number:	12-4SA		Completion Date	(original)	
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Ms. Pallavi Bhandari				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$41,708	**Total**		**$27,805**
	(revised)				
Est. Expended to Date			Salaries		$27,805
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

Provide the Louisiana Transportation Research Center (LTRC) staff support for the UTC project A Tool for Documenting, Tracking, and 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 Louisiana 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 1: Literature Search (3 Months);
-Task 2: Requirements Gathering and Analysis (3 Months);
-Task 3: Programming and/or Software Preparation (9 Months);
-Task 4: Data is Gathering and Input (2 Months); and
-Task 5: Final Report (1 Month).

Title:	**Testing the Transferability of LTRC's Hurricane Evacuation Demand Models**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-1SS		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$70,000		**Total**		**$70,000**
	(revised)					
Est. Expended to Date				Salaries		$70,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The purpose of the project is to measure the stability of the hurricane evacuation demand models developed at the Louisiana Transportation Research Center (LTRC) when subjected to different hurricanes in different locations. The scope of the project is limited to hurricane evacuation demand models (i.e. models that estimate whether and when households evacuate in the face of a hurricane) in the state of Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Estimate hurricane evacuation demand models on the RP, SC, and joint RP/SC data;
-Apply the models to the 9 hypothetical storms in the SC data;
-Compare the time-dependent evacuation predicted by the models with the evacuation reported in the SC data; and
-Estimate models on different geographical areas within the study area and compare estimated parameter values in the models to determine stability.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Travel Time Estimation in Urban Areas Using Bluetooth Receivers**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-2SS		Completion Date	(original)	6/30/2014
Research Agency:			Completion Date	(revised)	
Principal Investigator:	Mr. Ravindra Gudishala				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$150,000		**Total**		**$90,000**
	(revised)					
Est. Expended to Date				Salaries		$57,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	$30,000
	(revised)			Travel		$3,000
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

Travel time estimates are needed in urban areas to identify problem spots and to monitor congestion over time. This project is aimed at using Bluetooth technology to estimate travel time in Baton Rouge, Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Determine the instrumentation needed;
-Establish a deployment strategy to sample sites throughout the urban area;
-Determine the number of instruments needed; and
-Purchase equipment.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	DOTD Support for UTC Project: Improving Freight Crash Incident Management	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:	30000763		Project Start Date:		7/2/2012
Research Project Number:	13-5SS		Completion Date	(original)	12/30/2013
Research Agency:	DOTD		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				Estimated 2012-2013 Budget		
Total Cost	(original)	$54,000		**Total**		**$36,000**
	(revised)					
Est. Expended to Date				Salaries		$36,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The purpose of this project is to provide the Louisiana Department of Transportation and Development (LADOTD) staff support the UTC project: Improving Freight Crash Incident Management. The project objective is to determine the most effective way for the state of Louisiana to mitigate the impact of freight vehicle crash incidents on the public. The study will be limited to freight crash incidents on freeways in Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

None

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Identify and review freight incident management studies conducted elsewhere;
-Identify Louisiana laws and processes for managing freight incidents;
-Establish a three-year inventory of Louisiana's freight incidents on the Interstate System; and
-Identify laws and processes needed to support quick clearance.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Roller Compacted Concrete Field Demonstration in Haynesville Shale Area	Project Status:	Proposed
Funding Source:	SPR: TT-Fed/TT-Reg	Budget Category:	FHWA

SIO:			Project Start Date:		7/1/2012
Research Project Number:	12-1C		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$150,000	**Total**		**$21,714**
	(revised)				
Est. Expended to Date			Salaries		$21,714
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

This project will evaluate different overlay and reconstruction applications of roller compacted concrete as a low cost alternative to maintenance and overlay operations currently being used to offset the massive damage caused to low volume roadways by the Haynesville Shale drilling in Shreveport, Louisiana, District 04. Test sections (at least three) will be constructed and monitored for two to three years to note surface and structural damage. The results will then be compared to existing sections constructed around the same time.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Select roadway candidates that will not impede current truck traffic;
-Design test sections;
-Develop mix design;
-Construct test sections;
-Collect initial surface distress (IRI, images) and structural (FWD, cores) measurements for RCC and control sections; and
-Begin short term monitoring.

Title:	**High Volume Replacement of Portland Cement in Roller Compacted Concrete**	**Project Status:**	**Proposed**
Funding Source:	**SPR: TT-Fed/TT-Reg**	**Budget Category:**	**FHWA**

SIO:			Project Start Date:		12/3/2012
Research Project Number:	12-2C		Completion Date	(original)	
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Tyson Rupnow				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$215,000		**Total**		**$29,129**
	(revised)					
Est. Expended to Date				Salaries		$29,129
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

This project will evaluate various ternary combinations as replacement for Portland Cement in Roller Compacted Concrete (RCC) mixtures. A factorial of ternary combinations will be used to compare OPC RCC to ternary RCC. Items to be measured include: permeability, strength gain (flexural and compressive), length change, and modulus of elasticity. Alternative mix design methods will be investigated.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Develop test matrix;
-Acquire necessary materials; and
-Begin laboratory testing of proposed test matrix.

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-1C		Completion Date	(original)	12/31/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Patrick Icenogle				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$76,322	**Total**		**$59,615**
	(revised)				
Est. Expended to Date			Salaries		$36,015
FY 2011 - 2012 Budget			Equipment	(expendable)	$600
FY Funds	(original)		Equipment	(non-expendable)	$20,000
	(revised)		Travel		$3,000
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The objective of this research is to evaluate the MIT-SCAN-T2 as a non-destructive pavement thickness measuring device for quality control purposes. A ruggedness study will be performed using the apparatus to determine influencing factors that affect the thickness measurements. These factors include: depth to target (8" and 13"), target surface area (large and small), target dimension (circular and square), target source (manufacturer supplied and locally fabricated), orientation of target (square only), placement of target (flat and askew), and presence of steel-toed boots.
A one mile test section on three PCC pavements and three HMA pavements will be used for field evaluation. Thirty reflective targets will be placed in each mile and a minimum of six cores will be collected directly over targets for thickness verification measurements in accordance with the Louisiana Department of Transportation and Development (LADOTD) TR 225.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

- Complete ruggedness study;
- Locate 3 PCC and 3 HMA projects for field evaluation;
- Collect data all thickness measurements and cores on field sections; and
- Perform data analysis and begin draft report.

FHWA

Part II SPR Funded Research Program

POOLED FUND
LOUISIANA
LEAD STATE RESEARCH

LTRC Annual Research Program
Fiscal Year 2012-2013

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)	
Principal Investigator:	Mr. Mark Morvant				

BUDGET STATUS

Total Budget				Estimated 2012-2013 Budget		
Total Cost	(original)	$150,000		**Total**		**$10,000**
	(revised)					
Est. Expended to Date		$22,222		Salaries		$1,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$25,000		Equipment	(non-expendable)	
	(revised)			Travel		$7,000
Est. FY Expenditure		$5,798		Other		$2,000

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 2011 - 2012 ACCOMPLISHMENTS

-Hosted STC Annual Meeting in Baton Rouge, October 2011;
-STC Synthesis Projects: Proposals were received and evaluated by Technical Advisory Committees. Louisiana is pursuing contacting with the primary selections:
  -Best Practices for Determining Value of Research Results;
  -Asphalt Surface Treatments for Pavement Preservation;
  -Water Quality Management at Construction Sites; and
  -Regional Implementation of Warm Mix Asphalt.
-Timber Bridge Inspection Demonstration Project sponsored by the US Dept. of Agriculture. Louisiana is the southeast regional research partner working through the STC to demonstrate the technology;
-Louisiana, Georgia, Alabama, North Carolina have committed to participate in the program;
-Continued update and maintenance of STC project database;
-Accepting commitments for new pooled fund solicitation #1318: Develop A Design and Analysis Procedures for Asphalt Mixtures Containing High-RAP Contents and/or RAS; and
Current commitments:
  -Louisiana
  -Florida
-Presented update at the 2012 Annual TRB meeting.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continued update of state projects into database;
-Present status of activities at the Annual Research Advisory Committee Meeting;
-Initiate contracts for the four synthesis projects;
-Hold kickoff meetings for synthesis projects; and
-Begin planning STC annual meeting in Baton Rouge, Louisiana for October, 2012.

LTRC Annual Research Program
Fiscal Year 2012-2013

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 2012-2013 Budget**		
Total Cost	(original)	$366,667	**Total**		**$139,700**
	(revised)				
Est. Expended to Date		$109,636	Salaries		$110,000
FY 2011 - 2012 Budget			Equipment	(expendable)	$10,000
FY Funds	(original)	$132,029	Equipment	(non-expendable)	
	(revised)	$109,636	Travel		$4,000
Est. FY Expenditure		$109,636	Other		$15,700

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.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

The project was started late in FY 2011-2012. However, substantial amount of work has been completed so far for integrating Prep-ME with DARWin-ME. In particular, one graduate student and one post doc have been using DARWin-ME licenses for testing, validation, and coding. The revised Prep-ME compatible with DARWin-ME will be demonstrated in late April to participating agencies. It is anticipated that by mid-April, a research assistant professor will be on staff at 50% capacity for this project. This new addition of staff will further accelerate the development of Prep-ME for DARWin-ME.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-During the coming FY 2012 to FY 2013, the research team will deliver a production-worthy Prep-ME in draft format meeting most of the delivery requirements in the contract. By the end of this FY, the research team shall have substantial amount of feedback information from users to make the new version of Prep-ME stable; and
-Due to late start of the project in FY 2011-2012, and the use of other OSU funds to purchase the two DARWin-ME licenses, more than $20,000 will be moved from the current FY to FY 2012-2013.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Asphalt Surface Treatments for Pavement Preservation**	**Project Status:**	**Ongoing**

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

SIO:	**30000540**	Project Start Date:		6/15/2012
Research Project Number:	12-2PF	Completion Date	(original)	6/14/2013
Research Agency:	Florida International University	Completion Date	(revised)	
Principal Investigator:	Dr. Hesham Ali			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,000	**Total**		**$26,000**
	(revised)				
Est. Expended to Date			Salaries		$25,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$1,000
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

There are many types of surface treatments available to the states, including but not limited to chip seals, rejuvenators, slurry seals, micro-surfacing, etc. Successful application of surface treatments depends on timing of treatments, condition of existing pavements, treatment type selected, construction techniques and material quality. Application of surface treatments varies between and within states.
Syntheses are Technical Summaries of research performed and state-of-the-practice reports will be prepared under contract by outside individuals or firms. These reports are oriented toward practical solutions of specific transportation problems. This synthesis will summarize the results of surface treatment research completed to date, state best practices and implementation status. Deliverables should include recommended implementation tools and/or additional research if needed to enhance implementation of pavement preservation in the region.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined.

Title:	**Best Practices for Determining Value of Research Results**	**Project Status:**	**Ongoing**

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

SIO:	**30000541**	Project Start Date:		6/1/2012
Research Project Number:	12-3PF	Completion Date	(original)	5/31/2013
Research Agency:	Georgia Tech Research Corporation	Completion Date	(revised)	
Principal Investigator:	Dr. Baabak Ashuri			

BUDGET STATUS

Total Budget		
Total Cost	(original)	$30,000
	(revised)	
Est. Expended to Date		
FY 2011 - 2012 Budget		
FY Funds	(original)	
	(revised)	
Est. FY Expenditure		

Estimated 2012-2013 Budget		
Total		**$26,000**
Salaries		$25,000
Equipment	(expendable)	
Equipment	(non-expendable)	$1,000
Travel		
Other		

PURPOSE AND SCOPE

State transportation research programs are tasked with looking for innovations in safety, cost savings, quality, efficiency and project delivery. It's through technical exploration that we discover new ways to approach old problems. Research touches the lives of every driver every day. It saves lives, money, and time. Most State DOT research programs do not have economists trained in the computation of the value of implemented research. There is a variety of methods for determining the qualitative and/or quantitative value of transportation research project results. The goal of this synthesis is to identify and compile best practices of determining value.
Syntheses are Technical Summaries of research performed and state-of-the-practice reports prepared under contract by outside individuals or firms. These reports are oriented toward practical solutions of specific transportation problems. This synthesis project will look at data needs, common methodologies, and provide examples to illustrate computation of value and to demonstrate how research impacts transportation agencies and the traveling public.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined.

Title:	**STC Synthesis of Research Results for Water Quality Management at Construction Sites**	**Project Status:**	**Ongoing**
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000543**		Project Start Date:		5/1/2012
Research Project Number:	12-5PF		Completion Date	(original)	4/30/2013
Research Agency:	Thompson Engineering		Completion Date	(revised)	
Principal Investigator:	Mr. Richard Sheffield				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$29,950		**Total**		**$22,450**
	(revised)					
Est. Expended to Date				Salaries		$20,950
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$7,500		Equipment	(non-expendable)	
	(revised)			Travel		$1,500
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

State Departments of Transportations (DOTs) are required to minimize water quality impacts of road construction. Water quality impacts are managed when performing work in and around bodies of water by using construction best management practices that minimize sediment loss from a project. Syntheses are technical summaries of research performed and state-of-the-practice reports prepared under contract by outside individuals or firms. These reports are oriented toward practical solutions of specific transportation problems. This synthesis will summarize the results of research on water quality impacts at construction sites, best practices and implementation status. Deliverables should include recommended successful compliance strategies and/or additional research if needed.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Perform literature search; and
-Begin collecting state information.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined.

Title:	**Regional Implementation of Warm Mix Asphalt**	**Project Status:**	**Proposed**
Funding Source:	**SPR: Pooled Fund: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000542**		Project Start Date:		7/1/2012
Research Project Number:	12-4PF		Completion Date	(original)	6/30/2013
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$29,962		**Total**		**$26,000**
	(revised)					
Est. Expended to Date				Salaries		$25,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$1,000
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

Warm Mix Asphalt (WMA) is the generic name for any of several technologies currently used to reduce the mixing and placement temperatures of hot mix asphalt by 50-100 degrees F. The number of states piloting and evaluating WMA projects is growing each year and WMA technology is becoming more prevalent in routine roadway construction across the country.
Syntheses are Technical Summaries of research performed and state-of-the-practice reports prepared under contract by outside individuals or firms. These reports are oriented toward practical solutions of specific transportation problems. This synthesis will summarize the results of warm mix research completed to date, state pilot projects and implementation status. Deliverables should include recommended implementation tools and/or additional research if needed to enhance implementation of this technology in the region.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined.

FHWA

Part II SPR Funded Research Program

POOLED FUND EXTERNAL LEAD STATE RESEARCH

LTRC Annual Research Program
Fiscal Year 2012-2013

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:	LTRC	Completion Date	(revised)	
Principal Investigator:				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$25,000	**Total**		**$5,000**
	(revised)				
Est. Expended to Date		$20,000	Salaries		
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

1. Interaction with Technical Monitor and/or Project Advisory Committee;
2. Frequent conference calls with Planning Committee; and
3. Summary of research activities pertaining to the project may be found on TTCC website.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
Plan and conduct TTCC Fall meeting.

Title:	**Superpave Regional Center**	**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(228)		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$60,000	**Total**		**$20,000**
	(revised)				
Est. Expended to Date		$65,000	Salaries		
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$20,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$20,000	Other		$20,000

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 Southeastern Asphalt User/Producer Group to promote technology transfer from research to implementation.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Accomplishment should be found on the Federal Highway Administration (FHWA) Pooled Fund website.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Follow up will be made on several research ideas discussed at the annual SSC Management Committee meeting.

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 2012-2013 Budget**		
Total Cost	(original)	$75,000	**Total**		**$15,000**
	(revised)				
Est. Expended to Date		$30,000	Salaries		
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

Accomplishments may be found on project website.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Proposed activities may be found on project website.

LTRC Annual Research Program
Fiscal Year 2012-2013

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 2012-2013 Budget		
Total Cost	(original)	$80,000	**Total**		**$20,000**
	(revised)				
Est. Expended to Date		$20,000	Salaries		$20,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$20,000	Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure		$20,000	Other		

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 2011 - 2012 ACCOMPLISHMENTS

-The kickoff call was held on October 19, 2011 where the participants were encouraged to recommend more detailed objectives for the study and tasks to carry them out. The participating states panel identified three specific objectives the focus on safety performance function support for the states;
-A follow up call on Nov 16, 2011 to discuss the draft SOW developed by the lead agency and the contracting mechanisms that the study can use to solicit a contractor. The panel gave input to the draft SOW and recommended a schedule for the tasks.
-A brief call on December 20, 2011 to remind the participating agencies to execute the transfers so the project can proceed. Only 30K of the committed 110K for FY 11 has been transferred to FHWA. The panel agreed to use an Interagency Agreement (IAA) with Volpe for one of the tasks and the Office of Safety's IDIQ for the remainder.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
To be determined by project panel.

LTRC Annual Research Program
Fiscal Year 2012-2013

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:			Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$70,000		**Total**		**$70,000**
	(revised)					
Est. Expended to Date				Salaries		
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		$70,000

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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

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

FHWA

IBRD Funded Research Program

CONTINUING RESEARCH

LTRC Annual Research Program
Fiscal Year 2012-2013

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)	7/31/2012
Principal Investigator:	Dr. Murad Abu-Farsakh				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$449,925		**Total**		**$153,073**
	(revised)	$565,550				
Est. Expended to Date		$479,433		Salaries		
FY 2011 - 2012 Budget				Equipment	(expendable)	$153,073
FY Funds	(original)	$153,073		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				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 2011 - 2012 ACCOMPLISHMENTS

-Analyzed the lateral load test data using high order polynomial curve fitting of measured pile rotation with depth;
-Analyzed the lateral load test at M19 Eastbound pier of Twin Span bridge using the FB-multiPier program;
-Compared between the measured and predected values from high order polynomial curve fitting and FB-MultiPoer Analysis;
-Back-calculated the p-y curves of battered pile groups at M19 pier from high order polynomial curve fitting;
-Coordinated with the subcontractor to incorporate additional instrumentation for the long-term monitoring system. However, there has been delay due to the unavailability of the power supply at the I-10 Twin Span Bridge site; and
-Prepared a draft report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Coordinate with the subcontractor to install the additional instrumentations (cost = $66,956): 12 strain gages on concrete girders, 12 strain gages on steel girders, and 3 OSMOS extensometers to three steel girders;
-Coordinate with the subcontractor to re-calibrate the OSMOS WIM;
-Coordinate with the subcontractor to complete and setup the long-term monitoring system (depends on availability of electric supply power); and
-Prepare a final report.

Title:	**Integral Abutment Bridge for Louisiana's Soft and Stiff Soils**	**Project Status:**	**Ongoing**
Funding Source:	**IBRD: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000131**		Project Start Date:		10/1/2007
Research Project Number:	07-4ST		Completion Date	(original)	8/31/2011
Research Agency:	LSU		Completion Date	(revised)	4/30/2013
Principal Investigator:	Dr. George Z. Voyiadjis				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$400,000		**Total**		**$108,364**
	(revised)	$459,981				
Est. Expended to Date		$350,000		Salaries		$88,118
FY 2011 - 2012 Budget				Equipment	(expendable)	$8,000
FY Funds	(original)	$76,000		Equipment	(non-expendable)	
	(revised)			Travel		$8,000
Est. FY Expenditure		$76,000		Other		$4,246

PURPOSE AND SCOPE

The proposed project is to use embedded instrumentation to monitor a full Integral Abutment Bridge for Louisiana's soft and stiff soil condition. This will be used to evaluate the long-term performance of the Integral Abutment Bridges. The project incorporates the use of smart materials or embedded instrumentation for future continuous monitoring of operational performance of such bridges.
This study has been approved and is federally funded through the Innovative Bridge Research and Deployment Program (IBRD) program.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Instrumentation and Testing Plan for the Caminada Bridge:
-The control/data acquisition system was installed as well as the sensors to the control panel;
-A computer was purchased and used to establish a communication protocol with the bridge field control panel;
-Data gathering from the monitoring system was initiated and has been sustained for four months; and
-Analysis using the finite element modeling of the bridge abutment was conducted (several piers)for evaluation of the instrumentation plan.

Instrumentation and Testing Plan for the Bodcau Bayou Bridge:
-Piles were instrumented at the steel yard;
-Piles were driven; and
-Modeling of the bridge was initiated using the finite element method for several piers of the sub-structure.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
Instrumentation and Testing Plan for the Caminada Bridge: -Data gathering from the monitoring system will be continued; -Complete analysis using the finite element modeling of the bridge abutment; and -Comparison of the model predictions with the data obtained from the sensors. Instrumentation and Testing Plan for the Bodcau Bayou Bridge: -Data gathering from the monitoring system will be continued; -Complete modeling of the bridge using the finite element method for several piers of the substructure; and -Comparison of the model predictions with the data obtained from the sensors.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Monitoring Bridge Scour Using Fiber Optic Sensors	Project Status:	Ongoing
Funding Source:	**IBRD: TT-Fed**	**Budget Category:**	**FHWA**

SIO:	**30000132**		Project Start Date:		1/1/2009
Research Project Number:	08-2ST		Completion Date	(original)	7/1/2011
Research Agency:	LSU		Completion Date	(revised)	12/30/2012
Principal Investigator:	Dr. Steve C.S. Cai				

BUDGET STATUS

Total Budget				Estimated 2012-2013 Budget		
Total Cost	(original)	$199,999		**Total**		**$80,000**
	(revised)					
Est. Expended to Date		$90,000		Salaries		$60,000
FY 2011 - 2012 Budget				Equipment	(expendable)	$8,000
FY Funds	(original)	$60,000		Equipment	(non-expendable)	
	(revised)	$40,000		Travel		$2,000
Est. FY Expenditure		$40,000		Other		$10,000

PURPOSE AND SCOPE

This research project is to develop a scour monitoring system for bridge piers. The developed system will collect field data that can be used to verify the applicability and accuracy of the various design procedures in Louisiana and eventually to result in improving existing scour prediction methods. The scope of work will include laboratory test and field applications.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Task 3: Development of Scour Monitoring Methodology
-Monitoring methodology to monitor the scour has been developed and improved; and
-A bridge identified previously has been discarded and a new bridge has been identified.

Task 4: Test of Monitoring Methodology in Laboratory
-The concept of monitoring the scour has been further investigated in lab by testing the flow and sensor interaction.

Task 6 and Task 7 - Documentation
-Documentation has been conducted towards a final report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Task 5: Installation and Field Testing
-The developed system will be installed in field and data will be collected.

Task 6 Guideline for Long-Term Monitoring of Scour
-A guideline and/or strategy for long-term monitoring of bridge scour, including the user manual of the scour measurement, will be developed for the Louisiana Department of Transportation and Development (LADOTD) engineers for future long-term monitoring.

Task 7 Final Report
-The final report will document the results of the entire research effort including evaluation of previous methods, methodology used in the present study, experimental and analytical findings, conclusions, and recommendations.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Monitoring System for Bridges Subject to Heavy Loads**	**Project Status:**	**Ongoing**

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

SIO:	**30000204**		Project Start Date:		3/15/2010
Research Project Number:	10-1ST		Completion Date	(original)	3/31/2012
Research Agency:	LTU		Completion Date	(revised)	9/30/2012
Principal Investigator:	Dr. Aziz Saber				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$446,318		**Total**		**$35,000**
	(revised)					
Est. Expended to Date		$359,000		Salaries		$18,230
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$100,000		Equipment	(non-expendable)	
	(revised)	$60,600		Travel		$1,500
Est. FY Expenditure		$77,000		Other		$15,270

PURPOSE AND SCOPE

Purpose:
During the 2009 regular session the Louisiana Senate passed a concurrent resolution (Senate Concurrent Resolution 35), sponsored by Senator McPherson, which urged the Louisiana Department of Transportation and Development (LADOTD) to conduct a pilot study on alternative truck-trailer configurations to support the bio-fuels industry. Resolution 35 specifically requested that the study include vehicles hauling sugarcane biomass for alternative fuel and electricity generation. The alternative truck-trailer configuration will use extra axles under the load to reduce the impact on Louisiana roads. The alternative truck-trailer when compared to the traditional trailer designs, will decrease the number of trucks and increase the total number of tons of sugar cane that travel on Louisiana roads.

Scope:
-Study the effects of heavy truck loads (100,000-lb, 148,000-lb.) on distribution of forces and moments on slab-girder bridges;
-Develop a long-term monitoring system which can assess the impact of heavy truck loads on safety, serviceability, and durability of non-interstate bridges; and
-Determine the cost of the fatigue damage per heavy truck load (100,000-lb and 148,000-lb.) per year.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

All activities are completed except for the final report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Complete final report and submit it to Project Review Committee for their review and comments; and -Implement Project Review Committee comments on final report.

FHWA

LTAP Funded Program

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:		Project Start Date:		1/1/2012
Research Project Number:	12-LTAP	Completion Date	(original)	12/31/2014
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Dr. Marie Walsh			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$453,838	**Total**		**$453,838**
	(revised)				
Est. Expended to Date			Salaries		$226,998
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$24,000
Est. FY Expenditure			Other		$202,840

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 2011 - 2012 ACCOMPLISHMENTS

-Coordinated and promoted local road inventory and certification project in partnership with the Louisiana Department of Transportation and Development (LADOTD) through the Police Jury Association, Louisiana Municipal Association, and other stakeholders;
-Coordinated local public agency (LPA) related activities with new DOTD program manager including input to new manual and development of outreach and training programs for local agencies and stakeholders that use federal or state aid;
-Implemented first phase of local transportation Asset Management initiative including evaluation and selection of TAM system for local agencies;
-Supported local road projects and local agency participation in the regional coalitions being established statewide in Louisiana;
-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; annual Louisiana APWA conference; as well as serving as Board members and chairs of Education Committees for stakeholder organization;
-Participated in planning activities for the 2014 National Association of County Engineers (NACE) which will be hosted by the Louisiana Parish Engineers and Supervisors Association in Baton Rouge, Louisiana; and
-Continued to provide traditional work program of transportation and safety related training to local public agencies.
-Presented 67 classes or workshops:
  -6 Worker Safety Classes
  -28 Highway Safety Classes
  -21 Infrastructure Management Classes
  -12 Workforce Development Classes
  -11287 hours of training
  -1892 program participants

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continue implementation of local Transportation Asset Management Program;
-Coordinate local agency participation in Louisiana Department of Transportation and Development (LADOTD) preparation of LA Public Roads Inventory;

FHWA

STP Funded

Technology Transfer
and
Education Program

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:	**30000320**		Project Start Date:		7/1/2012
Research Project Number:	08-1TSQ		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$351,746		**Total**		**$351,746**
	(revised)					
Est. Expended to Date				Salaries		$310,766
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	$15,000
	(revised)			Travel		$6,000
Est. FY Expenditure				Other		$19,980

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 2011 - 2012 ACCOMPLISHMENTS

-Produced website, program and registration for National Transportation Training Directors Conference held in New Orleans, LA.;
-Assisted in registration for National Transportation Training Directors Conference held in New Orleans, LA.;
-Published 2 Tech Todays;
-Published 2011 Annual Report;
-Photographed all Louisiana Transportation Research Center (LTRC) events;
-Assisted in registration for the LPESA Fall conference Lafayette, LA.;
-Developed registration and program for Congestion Management - LTRC Seminar Series – Baton Rouge, LA.;
-Assisted in registration for the Congestion Management - LTRC Seminar Series – Baton Rouge, LA.;
-Set up online registration for NHI/training courses (13 – 9 NHI, 4 Other);
-Edited and distributed 10 Project Capsules, 18 Technical Summaries, 18 Final Reports, 4 Fact Sheets and 1 Implementation Impact;
-Filmed and produced LADOTD Bridge Inspection video;
-Filmed and produced State of DOTD video; and
-Filmed and produced Partners in Leadership.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Develop and Maintain 2013 Louisiana Transportation Conference (LTC) Website;
-Participate in several committees for the 2013 LTC;
-Coordinate sponsorship for the 2013 LTC;
-Coordinate online registration and e-commerce capabilities for the 2013 LTC;
-Develop, process and assist in registration for all LTAP and LTRC events;
-Develop and assist in registration for the Hot Mix Showcase - LTRC Seminar Series – Kenner, LA.;
-Participate in development of LPA civil engineering and inspection class;
-Produce website, program and registration for 2012 National Transportation Training Directors Conference held in Seattle, WA.;
-Editing and distribute Project Capsules, Technical Summaries, Final Reports and Technical Assistance Reports;
-Create content and publish Tech Today (2);
-Re-design LTRC website;
-Photograph all LTRC events; and
-Available to video any LTRC event.

LTRC Annual Research Program
Fiscal Year 2012-2013

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 2012-2013 Budget**		
Total Cost	(original)	$110,000		**Total**		**$20,000**
	(revised)					
Est. Expended to Date		$20,282		Salaries		
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$20,000		Equipment	(non-expendable)	
	(revised)	$4,477		Travel		$20,000
Est. FY Expenditure		$4,477		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 2011 - 2012 ACCOMPLISHMENTS

This project provided support for travel for presentation of the following papers developed from LTRC research projects:
-Developing Louisiana Crash Reduction Factors;
-Implementation of Rolling Wheel Deflectometer (RWD);
-Evaluation of Continuity Detail for Precast Prestressed Girders;
-Comparative Analysis of Modified Binders: Original Asphalts and Materials Extracted from - Existing Pavements; and
-Photocatalytic Previous Concrete for Ambient Air Purification and Water Quality Improvement.

FISCAL YEAR 2012-2013 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 2012-2013

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

SIO:		Project Start Date:		7/1/2012
Research Project Number:	13-1TSQ	Completion Date	(original)	6/30/2013
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$493,524	**Total**		**$493,524**
	(revised)				
Est. Expended to Date			Salaries		$493,524
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

-Produced website, program and registration for National Transportation Training Directors Conference held in New Orleans, LA.;
-Assisted in registration for National Transportation Training Directors Conference held in New Orleans, LA.;
-Published 2 Tech Todays;
-Published 2011 Annual Report;
-Photographed all Louisiana Transportation Research Center (LTRC) events;
-Assisted in registration for the LPESA Fall conference Lafayette, LA.;
-Developed registration and program for Congestion Management, LTRC Seminar Series Baton Rouge, LA.;
-Assisted in registration for the Congestion Management, LTRC Seminar Series Baton Rouge, LA.;
-Set up online registration for NHI/training courses (13 – 9 NHI, 4 Other);
-Edited and distributed 10 Project Capsules, 18 Technical Summaries, 18 Final Reports, 4 Fact Sheets and 1 Implementation Impact;
-Filmed and produced LADOTD Bridge Inspection video;
-Filmed and produced State of DOTD video; and
-Filmed and produced Partners in Leadership.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Develop and Maintain 2013 Louisiana Transportation Conference (LTC) Website;
-Participate in several committees for the 2013 LTC;
-Coordinate sponsorship for the 2013 LTC;
-Coordinate online registration and e-commerce capabilities for the 2013 LTC;
-Develop, process and assist in registration for all LTAP and LTRC events;
-Develop and assist in registration for the Hot Mix Showcase - LTRC Seminar Series – Kenner, LA.;
-Participate in development of LPA civil engineering and inspection class;
-Produce website, program and registration for 2012 National Transportation Training Directors Conference held in Seattle, WA.;
-Editing and distribute Project Capsules, Technical Summaries, Final Reports and Technical Assistance Reports;
-Create content and publish Tech Today (2);
-Re-design LTRC website;
-Photograph all LTRC events; and
-Available to video any LTRC event.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Support for Senior Project Courses**	**Project Status:**	**Ongoing**

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

SIO:		Project Start Date:		7/1/2012
Research Project Number:	13-1TT	Completion Date	(original)	6/30/2013
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$37,500	**Total**		**$37,500**
	(revised)				
Est. Expended to Date			Salaries		
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

Four universities participated in this program this reporting period:
-McNeese State University;
-Louisiana Tech University;
-University of Louisiana at Lafayette; and
-Southern University.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Continue to provide support for senior project engineering courses.

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-1WD		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$1,069,820		**Total**		**$1,069,820**
	(revised)					
Est. Expended to Date				Salaries		$1,059,820
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

-Developed 7 training courses, 423 recertification tests given, 109 specialty tests given, 103 certifications awarded;
-Scheduled and registered students for leadership, management, supervisory, computer based training courses, NHI, CADD/GIS and other specialty courses;
-Coordinated the activities of 16 - ERDP participants and 26 - Co-op students;
-Approximately 4500 training opportunities provided to LADOTD and transportation industry;
-Established LAGOV Training Program;
-Established Management Development Structured Training Program;
-Began transfer of training records from ETRN to LSO/LEO; and
-Moved to new on-line testing format – TEST.com.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Continue to meet with principal customers to prioritize needs to develop training courses, performance evaluations, and safe operating checklists; -Manage PC and CAAD software, leadership, technical skills training, and professional development and continuing education; -Continue the program of safety training; -Maintain and build library collection in support of workforce development and research activities; -Continue coordinating activities of ERDP participants and co-op students; -Revise Workforce Development Policy and Procedures (PPM 59); -Continue to transfer training records from ETRN to LEO.LSO; and -Continuing development and revision of construction and maintenance training courses.

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:		Project Start Date:		7/1/2012
Research Project Number:	13-2TT	Completion Date	(original)	6/30/2013
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Mr. Harold 'Skip' Paul			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$147,000	**Total**		**$147,000**
	(revised)				
Est. Expended to Date			Salaries		$147,000
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

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

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

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

LTRC Annual Research Program
Fiscal Year 2012-2013

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

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

SIO:		Project Start Date:		7/1/2012
Research Project Number:	13-COOP	Completion Date	(original)	6/30/2013
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$300,000	**Total**		**$300,000**
	(revised)				
Est. Expended to Date			Salaries		$300,000
FY 2011 - 2012 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 2011 - 2012 ACCOMPLISHMENTS

-30 students participated in CO-OP at various LADOTD sections throughout Louisiana; and
-3 CO-OP students were hired by LADOTD upon graduation.

FISCAL YEAR 2012-2013 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 2012-2013

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-TTRF		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$100,000		**Total**		**$100,000**
	(revised)					
Est. Expended to Date				Salaries		
FY 2011 - 2012 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 2011 - 2012 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 2012-2013 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 2012-2013

Title:	**Workforce Development Contracts**	**Project Status:**	**Ongoing**

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

SIO:			Project Start Date:		7/1/2012
Research Project Number:	13-WDC		Completion Date	(original)	6/30/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Mr. Sam Cooper				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$4,790,265		**Total**		**$4,790,265**
	(revised)					
Est. Expended to Date				Salaries		$706,888
FY 2011 - 2012 Budget				Equipment	(expendable)	$42,000
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$25,000
Est. FY Expenditure				Other		$4,016,377

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 2011 - 2012 ACCOMPLISHMENTS

Conducted the following courses:
-UNO Computer Classes: 112 classes held – 1200 student participants;
-CADD: 40 classes held – 400 student participants;
-LanTEC – ERP: 1 class held – 18 student participants;
-NHI Courses: 14 classes held – 350 student participants;
-LSU STP: 49 classes held – 715 student participants;
-Foundations of Leadership Development: 3 classes held – 38 participants;
-SIDRA: 3 classes held – 40 participants;
-Highway Safety Manual: 2 classes held – 61 participants;
-Highway Capacity manual: 1 class held – 100 participants;
-Test Master's PE Review: 1 class held – 54 participants;
-Sychro: 2 classes held – 39 participants;
-ProVal: 4 classes held – 117 participants;
-Mechanic training: 16 classes held – 200 participants;
-Individual Registrations: 88 classes held – 259 student participants;
-Conferences/Workshops/Webinars: Congestion Management – 188 student participants; and
-Approximately 3761 student participants in 319+ training courses and events.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Conduct at least 25 National Highway Institute courses; -Conduct at least 150 PC software training course; -Manage 30 Safety related training contracts; -Manage Leadership, management, and supervisory training contracts; -Arrange over 500 Individual training registrations; -Conduct and manage at least 11 conferences and workshops for approximately 1,300 participants; -Offer ArcGIS (unable to offer due to contracting issues); -Offer Mechanic Classes (unable to offer due to contracting issues); -Offer Nuclear Gauge Safety (unable to offer due to contracting issues); -Offer Work Zone Safety (unable to offer due to contracting issues); -Offer Trimble Process Training (unable to offer due to contracting issues); -Offer Highway Capacity Manual Training (unable to offer due to contracting issues); -Manage leadership, management, and supervisory training contracts; -Deploy “Foundations of Effective Leadership” course to DOTD personnel; -Develop and pilot test “Emotional Intelligence in the Workplace” course; -Conduct 4-Day Louisiana Transportation Conference for approximately 1,200 participants; -Conduct 5-Day National Transportation Training Directors conference in Seattle, WA for approximately 75 participants and 10 vendors; -Deliver the PE Review Workshop at $100,000 (costs included above); -LADOTD Leadership Institute at $75,000 (costs included above); -LADOTD Management Development Workshops at $100,000 (costs included above); and -Other External Training Contracts and Workshops at $215,000 (costs included above).

State Funded Research Program

CONTINUING RESEARCH

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Geotechnical Information Database – Phase 2**	**Project Status:**	**Ongoing**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000201**	Project Start Date:		3/10/2011
Research Project Number:	10-2GT	Completion Date	(original)	9/9/2012
Research Agency:	Dataforensics, LLC	Completion Date	(revised)	
Principal Investigator:	Dr. Scott Deaton			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$200,000	**Total**		**$20,000**
	(revised)				
Est. Expended to Date		$180,000	Salaries		$18,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$132,000	Equipment	(non-expendable)	
	(revised)		Travel		$2,000
Est. FY Expenditure		$132,000	Other		

PURPOSE AND SCOPE

The Louisiana Department of Transportation and Development (LADOTD) has been collecting geotechnical data for many years in a variety of different formats. Accessing this data and combining it with new data for the purpose of design, analysis, visualization, and reporting is difficult because the data has been generated by disparate systems and stored as hard copies, scanned images, various digital formats, or other non-digital formats such as microfilm. Essentially, there is no single system or repository nor an integrated, systematic approach for collecting, managing, archiving, and retrieving the vast amount of geotechnical data that is collected or generated by LADOTD each year.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Tasks 1, 2, and 3 have been completed. LADOTD personnel have been beta testing the deliverables from these tasks since January, 2012;
-Task 6 is approximately 95% complete and is awaiting feedback from LADOTD personnel;
-Task 5 historical records research, import, etc. is on-going and is expected to be completed by the second quarter of 2012; and
-Task 7 and 8 have been partially completed as power users have been trained on the system and are beginning to utilize the deliverables.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Task 8 (Training) and 9 (the Final Report) are the only items anticipated to be completed in FY 2012-2013.

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

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 2012-2013 Budget**		
Total Cost	(original)	$1,730,000		**Total**		**$460,000**
	(revised)					
Est. Expended to Date		$1,730,000		Salaries		$280,000
FY 2011 - 2012 Budget				Equipment	(expendable)	$110,000
FY Funds	(original)	$500,000		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$500,000		Other		$70,000

PURPOSE AND SCOPE

The 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 Louisiana Transportation Research Center'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, two operators and a research associate 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 2011 - 2012 ACCOMPLISHMENTS

-ALF machine maintenance;
-ATLAS device setup;
-Design and construction of geogrid test sections; and
-Design and construction of RCC test sections.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-ALF loading of geogrid test sections; and
-ATLAS loading of RCC test sections.

Title:	**Development of Cost-Effective Pavement Treatment Selection and Treatment Performance Models**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000166**		Project Start Date:		9/1/2010
Research Project Number:	10-4P		Completion Date	(original)	6/30/2013
Research Agency:	ULL		Completion Date	(revised)	
Principal Investigator:	Dr. Mohammad Jamal Khattak				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$267,395	**Total**		**$86,664**
	(revised)				
Est. Expended to Date		$180,731	Salaries		$52,447
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$120,215	Equipment	(non-expendable)	
	(revised)		Travel		$360
Est. FY Expenditure		$117,715	Other		$33,857

PURPOSE AND SCOPE

The overall goal of this study is to develop pavement treatment performance models in support of cost-effective selection of pavement treatment type, project boundaries and time of treatment. The study has been divided into three phases consisting of nine research tasks. The scope of the study is summarized as follows:

-Conduct a comprehensive review of the Louisiana Department of Transportation and Development (LADOTD) state-of-the-practice regarding pavements projects and treatment selection procedures;
-Identify the pavement treatments and treatment projects with good historical records (e.g., traffic, age, pavement structure and materials, cost data, etc.) and pavement performance data by utilizing the information stored in LADOTD's databases;
-Perform a thorough evaluation of the performance of various pavement treatments used by all LADOTD districts. The evaluation will be based on analysis and review of the time series distress data available from the PMS database;
-Develop treatment performance models based on the available pavement distress data. The models will make it possible to estimate the benefits and the life-cycle costs of each treatment and its impact on the pavement service life;
-Evaluate and update the existing LADOTD treatment selection models. The updated selection models will be based on the life-cycle cost analysis and the newly developed treatment performance models;
-Develop guidelines for the implementation of cost-effective pavement preservation strategies that would maximize the user and agency benefits and minimize their costs;
-Develop software for pavement treatment performance, pavement selection and life cycle cost analysis models with an ability to be updated and evolved with new pavement performance data and changing costs;
-Integrate all the models into the LADOTD PMS, Pavement Preservation system, and Pavement Design System; and
-Train the LADOTD staff to use all models developed in this study.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Identification and selection of pavement treatments and treatment projects with sufficient historical records (e.g., traffic, age, pavement structure and materials, cost data, etc.) and pavement performance data by utilizing the information stored;
-Analyzed the performance of selected pavement projects prior and after treatment using the PMS distress data;
-Compared the costs and performance of pavement sections with treatments and their life extension based on the treatment; and
-Conducted regression analysis to develop pavement treatment models for each pavement type and distress type.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct regression analysis to develop pavement treatment models for each pavement type and distress type;
-Update pavement treatment selection models based on performance data and the experience gained over time;
-Analyze and recommend a process for identifying the optimal timing for the application of rehabilitation actions and/or preventive maintenance treatments;
-Develop guidelines for the implementation of cost-effective pavement preservation strategies that would maximize the user and agency benefits and minimize their costs;
-Develop software for pavement treatment performance, pavement selection and life cycle cost analysis models with an ability to be updated and evolved with new pavement performance data and changing costs; and
-Integrate all the models into the LADOTD PMS and Pavement Preservation System.

Title:	**LaDOTD Pavement Management System (PMS) for Project Level Applications**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000159**		Project Start Date:		5/23/2011
Research Project Number:	11-1P		Completion Date	(original)	5/22/2013
Research Agency:	Nichols Consulting Engineers		Completion Date	(revised)	
Principal Investigator:	Ms. Margot Yapp				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$219,774	**Total**		**$130,319**
	(revised)				
Est. Expended to Date		$75,000	Salaries		$77,892
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$129,091	Equipment	(non-expendable)	
	(revised)	$75,000	Travel		$2,200
Est. FY Expenditure		$60,000	Other		$50,227

PURPOSE AND SCOPE

The main objective of this project is to develop a guideline that provides information on how network level PMS data can be used at project level in the activities of pavement engineering. This objective will be accomplished by a comprehensive assessment of the network level data provided by the current PMS. Because of its enormous information and convenience for access, more and more users have started to use the PMS data for project level activities, especially for pavement preservation at the local district levels. They have compared the distress data such as cracks and rutting from the PMS with those from field observations, hoping they match so that more confidence and credentials can be established with the PMS data. At the network level, department policies, guidelines, and procedures having vital and extensive impacts on the Louisiana Department of Transportation and Development's (LADOTDs) operation, functions, and performance can be developed based on PMS data. This is a legitimate course considering the current environment within LADOTD due to the downsizing and limited funding level. However, network and project levels often yield different sets of data due to the differences in their intended purposes and the ways in which they are collected. Clearly, a guideline will be very helpful to accommodate such users' needs, which will specify the accuracy and limitation of the current PMS data in addition to others. On the other hand, the information contained in the guidelines will also help PMS managers improve their quality control and quality assurance in data collection and management.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Completed Phase I which is composed of Tasks 1 (Literature Review and Online Survey), Task 2 (Criteria and Benchmarks for QC) and Task 3 (Develop Assessment plan). A draft report will be submitted in April, 2012; and
-For this fiscal year, NCE also expects to begin work on Task 4 (Quantitative Assessment) by identifying sites for LADOTD personnel to begin distress data collection.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Complete Phase II which includes Task 4 Quantitative Assessment; -Task 5: Recommendations to Improve Quality; -Task 6: Guidelines for Project Level Applications; and -Task 7: Final Report.

Title:	**Implementation of GPC Characterization of Asphalt Binders at Louisiana Materials Laboratory**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000142**		Project Start Date:		6/1/2010
Research Project Number:	10-6B		Completion Date	(original)	12/1/2011
Research Agency:	LSU		Completion Date	(revised)	7/31/2012
Principal Investigator:	Mr. William H. Daly				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$255,438		**Total**		**$29,220**
	(revised)	$270,438				
Est. Expended to Date		$241,218		Salaries		$29,220
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$109,038		Equipment	(non-expendable)	
	(revised)	$94,818		Travel		
Est. FY Expenditure		$94,818		Other		

PURPOSE AND SCOPE

This research will implement a procedure for using gel permeation chromatography (GPC) as an analytical tool to define the percent amounts of polymer modifiers, which are soluble in eluting GPC solvents, in polymer modified asphalt cements. It will also address quantification of GPC solvent insoluble crumb rubber present in crumb rubber modified binders for which a repeated solvent/non-solvent precipitation procedure is being developed. Attention will also be paid to using GPC for assessment of the extent of oxidative aging of modified asphalt binders as well as forensic analysis of pavement failures.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Purchased and calibrated GPC equipment;
-Transferred GPC instrument to Materials Laboratory;
-A simple small scale core extraction procedure was developed. The binder sample concentration in sample solutions for GPC injection was optimized. Elution solvent flow rates and run times have been optimized;
-Evaluated use of bromopropane instead of toluene or ethanol/toluene azeotrope for extracting binder solubles and then estimating the crumb rubber content gravimetrically. The procedure would be satisfactory for preparing analytical samples, but the high cost of bromopropane precludes the use of this solvent for large scale extractions. The ethanol/toluene azeotrope still appears to be the best option;
-Compilation of a GPC library of asphalts used in Louisiana is under way; and
-Final report submitted.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Edit report as needed.

Title:	**Evaluation of Dynamic Shear Rheometer Tests for Emulsions**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000163**		Project Start Date:		9/15/2010
Research Project Number:	11-2B		Completion Date	(original)	7/14/2012
Research Agency:	LTU		Completion Date	(revised)	11/14/2012
Principal Investigator:	Nazimuddin M Wasiuddin				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$100,000		**Total**		**$2,000**
	(revised)	$105,000				
Est. Expended to Date		$84,000		Salaries		$1,500
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$45,833		Equipment	(non-expendable)	
	(revised)	$60,000		Travel		$300
Est. FY Expenditure		$58,000		Other		$200

PURPOSE AND SCOPE

The main objective of this research is to examine MSCR test at 25°C for emulsion residue. The specific objectives are as follows:
-Determine applicable stress limits; 100Pa, 300Pa, 500Pa, 1000Pa, 5000Pa up to 30000 Pa.;
-Test the Louisiana Department of Transportation and Development's (LADOTDs) available emulsions at shear stress determined in applicable stress limits and compare to force ductility and elastic recovery tested by materials lab; and
-Set specification for emulsions with a quick residual DSR test for emulsions.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

In total 20 emulsions were tested. The following tests were performed on these samples:
-MSCR at 10C, 25C, 58C, 70C and at 2.2kPa temperatures;
-Temperature sweep in the range of 58C-88C;
-Frequency sweep in the range of 0.1-100rad/sec.;
-Strain sweep in the range of 2-52%;
-Elastic recovery; and
-Force ductility.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

The major task to be performed in this fiscal year is to complete the final report. Also, the following two emulsions will be added for fiscal year 2012-2013:
-PME
-SS-1P

Title:	**Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000118**		Project Start Date:		5/2/2011
Research Project Number:	10-4ST		Completion Date	(original)	10/1/2013
Research Agency:	Ocean Engineering Associates, Inc.		Completion Date	(revised)	
Principal Investigator:	Mr. D. Max Sheppard				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$309,117		**Total**		**$150,000**
	(revised)					
Est. Expended to Date		$140,246		Salaries		$147,650
FY 2011 - 2012 Budget				Equipment	(expendable)	$550
FY Funds	(original)	$155,000		Equipment	(non-expendable)	
	(revised)			Travel		$1,800
Est. FY Expenditure		$122,000		Other		

PURPOSE AND SCOPE

The objectives of the proposed research are to:
-Assess the vulnerability for coastal bridges in the 100-year hurricane flood zone in south Louisiana;
-Develop a series of site specific surge atlas for vulnerable bridges and prioritize for wave atlas development; and
-Develop a series of site-specific wave atlas including information on wave height and wave period in the areas adjacent to a small number of most important bridge sites in south Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Task 1: Literature Survey
The first task of this effort is to conduct a literature search on this topic and to determine, through a questionnaire, emails, and telephone calls, what the other Atlantic and Gulf of Mexico Coastal States are doing regarding this issue. The literature search and inquiry of the coastal states has been completed. A report explaining the results of the questionnaire and the literature survey were submitted as explained in Task 4.

Task 2: Bridge Selection and Screening Procedure
In order to analyze a bridge for design storm surge and wave loading, the 100-year water elevation and wave parameters (wave height and length) as well as detailed information about the bridge superstructure are required. The storm surge/wave atlas, being developed by OEA, will provide the surge and wave information and the bridge information will be provided by the Louisiana Department of Transportation and Development (LADOTD). It is important that all critical bridges be analyzed. It is also important that insignificant bridges be excluded from the analysis since the level of effort required is substantial to: 1) obtain the information needed for the analysis and 2) perform the analysis. LADOTD supplied OEA with a list of 1920 on- system and 1257 off-system bridges that were located in coastal parishes in Louisiana. OEA and LADOTD worked on this list of bridges and narrowed it down to 228 bridges using bridge attributes, satellite images, photos, evacuation routes. This list was sent to LADOTD Coastal Districts for final screening. This final screening is nearing completion with responses from three out of four Districts having been received.

Task 3: Bridge Vulnerability Screening
This task has been eliminated after discussions with LADOTD. It was partly covered in Task 2.

Task 4: Write and Present Interim Summary Report
A report was presented on 9/29/2011 covering the literature search and assessment of what the other Gulf and Southern Atlantic Coastal State DOTs are doing regarding storm surge and wave loading on their coastal bridge superstructures. The report was accepted and OEA was approved to purchase 50 tropical storm and hurricane wind and pressure fields from Oceanweather, Inc.

Task 5: Compile and Purchase Data
This task is mostly completed. More data may be collected during mesh generation and calibration, if needed.
High water marks: Data for Hurricanes Lili 2002, Katrina 2005, Rita 2005, and Ike 2008 have been collected.
Tide Gage: Data from NOAA gages during the hurricanes listed above have been downloaded and examined. Figure 1 shows NOAA tide gages active during Hurricane Katrina. Additional water surface elevation data collected by FEMA and posted? at the Louisiana Virtual Coast Data Archive have also been identified.
Topographic and Bathymetric data: Data from NOAA's National Geophysical Data Center (Bathymetric and Global Relief Data) and Coastal Services Center (Lidar Data) have been downloaded. The quality control on the data is underway. Detailed information from LADOTD bridge inspection reports may be collected during mesh generation as needed.
Purchase wind and pressure field data: Using HURDAT database all the storms and hurricanes that have affected Louisiana since the 1850's have been investigated. Hurricanes have been sorted in order of strength and coverage of the state using software developed by OEA. The top 50 have been identified and purchased from Oceanweather, Inc. After these 50 storms are simulated the results will be used to identify up to ten additional storms. This will ensure the inclusion of a sufficient number of storm impacts in all areas of the coast.

Task 6: Develop Storm Surge (ADCIRC) an Wave (WAM and SWAN) Model Mesh
The FEMA Louisiana mesh was obtained and investigated. The FEMA mesh focuses on land areas that can be flooded, while this study focuses on bridges over waterways. A new mesh will be developed that is more appropriate for the needs and resources of this project. A strategy for developing the mesh and a QAQC methodology were developed.

Task 6: Develop Storm Surge (ADCIRC) an Wave (WAM and SWAN) Model Mesh (Projected)
A new ADCIRC/SWAN mesh that has suitable resolution at existing and future bridge sites in the study area will be developed.

Task 7: Calibrate Storm Surge and Wave Models (Projected)
Using wave, tide, and high water mark data collected (Task 5) ADCIRC and SWAN models will be calibrated.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Task 8: Run models; -Task 9: Extract information from Solution Files and perform extreme value analyses; -Task 10: Construct storm surge and wave atlas; -Task 11: Compute surge/wave forces and moments; -Task 12: Determine and analyze vulnerable bridges; and -Task 13: Write and submit draft Final Report.

Title:	**Developing Prestressed Girder Transportation Guidelines**	**Project Status:**	**Ongoing**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

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)	
Principal Investigator:	Mr. Jonathan McGormley			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$199,961	**Total**		**$119,961**
	(revised)				
Est. Expended to Date		$80,000	Salaries		$96,600
FY 2011 - 2012 Budget			Equipment	(expendable)	$6,000
FY Funds	(original)	$100,000	Equipment	(non-expendable)	$7,400
	(revised)		Travel		$8,000
Est. FY Expenditure		$70,000	Other		$1,961

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 effect of stresses that transported girders are subject to, and providing recommendations that would ensure the safety of such girders while being transported from the plant to the bridge site.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Completed Task 1: Literature Search: Review the state of practice of transportation of prestressed girders in Louisiana and other states;
-Completed Task 2: Parmetric Study: Examined behavior of girder using finite element model to prepare instrumentation plan;
-Started Task 3: Girder Buckling and Cracking Analysis: Examined cracking behavior using FEM;
-Completed Task 4: Instrumentation Plan: Prepared plan to instrument first trial girder; and
-Started Task 5: Instrumentation Installation: Installed instrumentation during casting of first trial girder. Girder remains in precaster yard.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Complete installation of instrumentation on first trial girder and monitor during transport;
-Review collected data and revise the instrumentation plan for the second girder to capture selected behaviors of the girder;
-Install the instrumentation on the second girder and monitor it during transport;
-Analyze data and examine in conjunction with girder buckling and cracking analysis; and
-Draft interim report summarizing field testing results.

Title:	**Data Collection and Evaluation of Continuity Detail for John James Audubon Bridge #2**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000546**		Project Start Date:		1/3/2012
Research Project Number:	12-1ST		Completion Date	(original)	1/2/2014
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Ayman Okeil				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$61,553		**Total**		**$34,235**
	(revised)					
Est. Expended to Date		$500		Salaries		$21,485
FY 2011 - 2012 Budget				Equipment	(expendable)	$3,250
FY Funds	(original)	$14,300		Equipment	(non-expendable)	
	(revised)	$7,200		Travel		$250
Est. FY Expenditure		$7,200		Other		$9,250

PURPOSE AND SCOPE

The main objective of this project is to continue data collection from an already existing monitoring system with the goal of evaluating the performance of the positive moment detail that is employed in Bridge #2 of the James Audubon Bridge project under long-term effects. The ultimate goal of the project is to provide the Louisiana Department of Transportation and Development (LADOTD) with information on the performance of this detail, which is widely used in the John James Audubon Project Bridges. Furthermore, assessment of a repair that took place to one of the girders in the monitored segment will be conducted.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Reinstate monitoring system;
-Collect data;
-Perform visual inspection of monitored segment; and
-Data procession, analysis, and interpretation.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Collect data;
-Perform visual inspection of monitored segment;
-Data procession, analysis, and interpretation;
-Transfer of system to Louisiana Transportation Research Center; and
-Submit final report.

Title:	**Developing Louisiana Crash Reduction Factors**	**Project Status:**	**Ongoing**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000149**		Project Start Date:		11/1/2009
Research Project Number:	08-3SS		Completion Date	(original)	10/31/2011
Research Agency:	ULL		Completion Date	(revised)	8/31/2012
Principal Investigator:	Dr. Xiaoduan Sun				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$178,087		**Total**		**$18,087**
	(revised)					
Est. Expended to Date		$160,000		Salaries		$18,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$45,000		Equipment	(non-expendable)	
	(revised)	$45,000		Travel		$87
Est. FY Expenditure		$45,000		Other		

PURPOSE AND SCOPE

The primary goal of this research is to develop and document a list of Crash Reduction Factors (CRFs) to be used by the Louisiana Department of Transportation and Development (LADOTD). Particularly, this research will:
-Document the state-of-the-practice in CFR development;
-Determine the CFRs to be developed for Louisiana;
-Develop some CFRs with available information under the budgetary constraint; and
-Develop a web based tool listing the published CFRs and their development information.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Developed CRF for re-striping project (changing four-lane undivided highways to five-lane highways with middle lane for left-turn;
-Performance crash data analysis with four more sections from other districts;
-Performance data analysis for raised pavement marker and edge line on freeways; and
-Start final report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Finish the final report.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Automated Enforcement and Highway Safety	Project Status:	Ongoing

Funding Source:	State: TT-Reg	Budget Category:	State

SIO:	30000203	Project Start Date:		6/1/2011
Research Project Number:	10-3SS	Completion Date	(original)	5/31/2013
Research Agency:	Cambridge Systematics	Completion Date	(revised)	
Principal Investigator:	Dr. Susan Herbel			

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$130,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date		$70,000	Salaries		$45,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$65,000	Equipment	(non-expendable)	
	(revised)	$65,000	Travel		$5,000
Est. FY Expenditure		$80,000	Other		

PURPOSE AND SCOPE

The project purpose is to develop guidelines for implementing automated enforcement at traffic signals in Louisiana. To develop the guidelines we are conducting a literature review, public opinion survey and analysis, reviewing existing state automated enforcement guidelines and policies, and then developing guidelines based on best available practice. The focus of the research is on providing guidance for jurisdictions to develop programs that will achieve public support.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Completed:
-Literature review and background information gathering technical report;
-Survey development and implementation. The survey was implemented as an intercept survey and online using the Louisiana Department of Transportation and Development (LADOTD) website;
-Survey analysis; and
-Two Project Review Committee (PRC) meetings, kick-off meeting and PRC meeting to review literature review memo and background information gathering report.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Complete:
-Memo documenting public opinion survey implementation and analysis;
-Develop report providing alternative strategies for guidelines for implementing automated enforcement;
-Develop draft guidelines for automated enforcement; and
-Conduct Project Review Committee meeting.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Truck Facility Access Design Guidelines	Project Status:	Ongoing
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000202**		Project Start Date:		4/25/2011
Research Project Number:	10-4SS		Completion Date	(original)	4/24/2013
Research Agency:	GEC, Inc.		Completion Date	(revised)	
Principal Investigator:	Mr. Thomas Swanson				

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$99,396	**Total**		**$16,307**
	(revised)				
Est. Expended to Date		$59,637	Salaries		$3,751
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$64,378	Equipment	(non-expendable)	$1,141
	(revised)		Travel		
Est. FY Expenditure		$64,378	Other		$11,415

PURPOSE AND SCOPE

The main purpose of this project is to develop design guidelines for access by means of interchange, to and from truck stop facilities adjoining interstate highways in Louisiana. The following tasks will be pursued to achieve the desired objective:
-Task 1: Identify existing access design standards/ guidelines for truck facilities adjoining interstate highways and for facilities accessed by means of an interchange in other states;
-Task 2: Inventory truck stops adjoining interstates in Louisiana and record current access and truck stop layouts;
-Task 3: Record good and bad practice in truck facility access design;
-Task 4: Evaluate current practice and recommend preferred guidelines; and
-Task 5: Document recommended guidelines.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Surveyed-all state DOT's for access management policies. Limited responses. Attempted to obtain surveys that were not returned;
-Contacted all Louisiana Department of Transportation and Development(LADOTD)District Traffic Operations;
-Have received some information regarding problem Truck Stops;
-Have feedback on a couple of problem locations, seek to obtain more, and hoping to locate some "good" sites, i.e. Good practice; and
-Continuing attempts to obtain surveys that have not been returned.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Evaluate assembled data; and
-Assemble and submit the Final Report.

Title:	**Developing Inexpensive Crash Countermeasures for Louisiana Local Roads**	**Project Status:**	**Ongoing**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000240**		Project Start Date:		1/17/2011
Research Project Number:	10-5SS		Completion Date	(original)	1/16/2013
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Helmut Schneider				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$100,000		**Total**		**$51,000**
	(revised)					
Est. Expended to Date		$36,000		Salaries		$51,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$49,000		Equipment	(non-expendable)	
	(revised)	$49,000		Travel		
Est. FY Expenditure		$49,000		Other		

PURPOSE AND SCOPE

This project uses a systems approach to develop inexpensive crash countermeasures for Louisiana local roads that are ranked as high risk with respect to crash numbers and/or severity of crashes. Local road crash countermeasures are an important part of the overall efforts to reduce crashes and their severity in Louisiana.
The efforts to develop a local road safety program are hampered by the lack of an appropriate risk assessment and low cost countermeasures that enable local agencies to reduce crash frequencies with limited budgets. This proposal deals with both issues. First, statistical models, a so called safety performance functions (SPF), will be developed to assess the risk of local road segments with respect to crash frequencies. Secondly, low cost countermeasures will be researched and recommended for individual road segments based on current geometric features and crash frequency and type of crashes. Thirdly, a score will be developed for each road segment that incorporates the risk, benefits of improvements, and cost which allows ranking of road projects. Finally a local road safety improvement program will be developed to allow local agencies with guidelines and procedures for a systematic system-wide road improvement methodology.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

During the FY 2011-2012 the project had several accomplishments, first being the completion of data collection, including road geometrics data that was not in the agreement to collect. To collect the data we had student workers doing map spotting for crashes in the parishes selected for this study and had to write a program for student workers to collect data on road geometrics. Second, low- cost crash countermeasures were identified and costs were estimated. Third, analysis will be done before the end of this fiscal year analyzing the data to estimate the safety risk level of the local road sections from the two parishes selected for this study.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
For the upcoming fiscal year we plan on establishing the program of road safety improvement for the two parishes. This will be accomplished by utilizing the safety risk analysis and the cost of the crash countermeasures. Lastly, the final report will be finished and presented to the committee.

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

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)	8/19/2013
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$87,474		**Total**		**$30,000**
	(revised)	$124,178				
Est. Expended to Date		$98,634		Salaries		$30,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$23,665		Equipment	(non-expendable)	
	(revised)	$23,655		Travel		
Est. FY Expenditure		$23,655		Other		

PURPOSE AND SCOPE

The lab will address the needs of the Louisiana Department of Transportation (LADOTD), other agencies, and the public, as well as serve as a foundation to conduct “leading edge” research and training of graduate students. The lab will primarily serve as a catalyst to collect and store data from various ITS sources such as traffic monitoring systems (e.g. video detectors and cameras), as well as other sources of data such as crash data, planning data, weigh-in-motion data, etc. The ITS Lab will also process this data and make it available to the interested agencies for use in applications of their needs. The ultimate goal is to create a centralized location for data that can effectively support applications of immediate and long-term needs. This project works in conjunction with the Louisiana Transportation Research Center (LTRC) Support Study 10-7SS.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

The equipment procurement and installation were completed. All software installation was completed as well. An electronic board was also installed for presentations. A database server was also set up to house the traffic data from various sources. Two data sources were identified: Bluetooth data from BlueTOAD, and MIST data from the 360 server. For each source, a computer program was developed to stream the data in real time from the remote source and push it in the database server at the lab. A final report documenting the details of the previous accomplishments will be submitted by mid-April.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

For the next phase of the ITS Lab, it is proposed that a web interface be developed to provide access to the traffic data compiled on the server. This will allow users to remotely query and retrieve data from the server. Dr. Xin Li and one of his graduate students are currently working on a statement of work for the next phase to allow also for data visualization features to be incorporated in the web application.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Measuring Effectiveness of Ramp Metering Strategies on I-12	Project Status:	Ongoing
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000177**		Project Start Date:		4/1/2011
Research Project Number:	11-2SS		Completion Date	(original)	3/31/2013
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				Estimated 2012-2013 Budget		
Total Cost	(original)	$99,999		**Total**		**$23,849**
	(revised)					
Est. Expended to Date		$35,000		Salaries		$23,849
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$49,945		Equipment	(non-expendable)	
	(revised)	$49,945		Travel		
Est. FY Expenditure		$30,000		Other		

PURPOSE AND SCOPE

The main goal of this research is to conduct an overall assessment of the effectiveness of the newly implemented ramp metering strategy on I-12 in the Baton Rouge, Louisiana area. The research objectives of this study are to:
-Conduct a brief literature review of the most recent research findings on ramp metering applications in other states. This is to identify the successful state-of-the-practice techniques for assessment of ramp metering benefits and their relevance to this research study (Task 1);
-Identify the ramp junctions (study area) where ramp metering has already been or will be implemented during the course of study (Task 2);
-Collect traffic data at each of the identified locations over a period of at least three months including periods when ramp metering is turned on and off (Task 2);
-Conduct thorough analysis to evaluate the effectiveness of ramp metering on I-12 using the collected traffic data; and
-Develop a statistical analysis model to illustrate the impacts to travel along the I-12 corridor and test different ramp metering strategies that would optimize the metering parameters and maximize performance.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

The literature review has been completed. Data was collected from MIST, DCMS, and Bluetooth. A sample of data was selected for the period before and the period after ramp meters were installed. Analysis is currently undergoing to select the performance measures and the most suitable statistical methods.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
Statistical analysis will be conducted to determine if the differences in traffic conditions before and after ramp metering installation are significant. The findings will be documented in the final report.

Title:	**Research Expansion Program**	**Project Status:**	**Ongoing**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000169**		Project Start Date:		11/1/2006
Research Project Number:	11-1AD		Completion Date	(original)	11/1/2009
Research Agency:	LTRC		Completion Date	(revised)	6/30/2012
Principal Investigator:	Dr. Vijaya Gopu				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$363,309		**Total**		**$251,942**
	(revised)	$1,088,594				
Est. Expended to Date		$1,088,594		Salaries		$241,442
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$240,884		Equipment	(non-expendable)	
	(revised)			Travel		$10,500
Est. FY Expenditure		$234,884		Other		

PURPOSE AND SCOPE

To cover administrative costs handled under contract to support the Louisiana Transportation Research Center (LTRC) research development and technology transfer expansion funding programs.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Developed and/or coordinated the submission of several multi-million dollar center proposals to the US DOT - RITA office in addition to proposals to EPA, BOR and US Forest Products Lab;
-Collaborated with the Assoc. Director for Research in the coordination of the development of thirteen proposals by various Louisiana university faculty members for submission to the MSU UTC;
-Coordinating the timber bridge inspection study for the SE region of the U.S. Three state DOTs, Alabama, Georgia and North Carolina, in addition to Louisiana DOT are participating in this national study;
-Coordinated the TIRE program. Thirteen proposals were received and four awards were recommended for the 12-13 FY;
-Collaborating with Dr. Seals of LSU to support the CAREER-BRIDGE Learning Community;
-Chaired the Industrial Advisory Board Meeting of the NSF Center for Integration of Composites in Infrastructure held in Miami in January, 2012;
-Served as a member of the NSF Site Visit Teams to review several NEES Earthquake Facilities around the country;
-Served on two NSF Proposal Review Panels;
-Presented technical papers at Louisiana Engineering Conference and International Conference on Earthquake Analysis and Design;
-Participated in the Forest Products Lab Solid Wood and Composites Research Liaison Meeting in Madison, WI.;
-Delivered an invited lecture on Timber Connections to ASCE SEI New Orleans division;
-Chaired the ASCE Committee on Wood Research meeting at the ASCE Structures Congress held in Chicago, April, 2012;
-Participated in the Educator Session of the AISCE/NASC Conference held in Grapevine, TX, April, 2012; and
-Served on the 2012 Tulane Engineering Forum Organizing Committee and co-chaired a session on Infrastructure.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Continue to support the development of collaborative proposals by university faculty and industrial partners and increase the sources of funding;
-Identify university based instructors for the NHI courses of interest to LADOTD and provide a NHI instructor certification course for this selected group of instructors;
-Implement the statewide ME program with the support and approval of all the state universities with civil engineering programs;
-Organize a EFRI workshop in cooperation with NSF program director in charge of EFR;
-Coordinate TIRE program for FY 12-13 awards;
-Complete the timber bridge inspection study for the SE Region of the United States and deliver the results of the study to US FPL;
-Offer proposal preparation workshop with the assistance of Dr. Seals of LSU; and
-Hold Town Hall meetings at selected campuses in the state to educate faculty members about the research funding and collaboration opportunities at LTRC.

State Funded
Research Program

PROPOSED RESEARCH

Title:	**Comparative Evaluation of Pile Set Up and Axial Capacity of Driven Piles Installed Using Impact Hammer versus Vibratory Pile Driving Equipment**	**Project Status:**	**Proposed**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000731**		Project Start Date:		7/1/2012
Research Project Number:	12-1TIRE		Completion Date	(original)	6/30/2013
Research Agency:	UNO		Completion Date	(revised)	
Principal Investigator:	Dr. Malay Ghose Hajra				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,000		**Total**		**$30,000**
	(revised)					
Est. Expended to Date				Salaries		$3,072
FY 2011 - 2012 Budget				Equipment	(expendable)	$26,928
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The main objective of this research study are (a) to evaluate the set-up phenomenon of pile foundation driven on soft soil conditions and (b) to evaluate the difference in axial capacity of driven piles installed using impact hammer versus vibratory pile driving equipment. This will be accomplished by conducting several static load tests over time on multiple piles installed in southeast Louisiana soils. The individual piles will be installed using either impact hammer or vibratory equipment. The subsurface soil properties will also be used in the analysis and interpretation of the set up phenomenon and stimation of pile capacity.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-New Soil Boring;
-Geotechnical Laboratory Testing;
-Development of Shear Strength Profile;
-Estimation of Theoretical Pile Capacity;
-Selection of pile type and pile length for field study;
-Static pile load test program; and
-Final report preparation.

Title:	**Development of LADOTD Standards for GPS Elevation Accuracy**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:			Project Start Date:		8/31/2012
Research Project Number:	13-6GT		Completion Date	(original)	3/1/2014
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$150,000	**Total**		**$100,000**
	(revised)				
Est. Expended to Date			Salaries		$100,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

Global Positioning Systems (GPS) continue to revolutionize positional and elevation survey collection processes. GPS technology is used extensively throughout the government and industry for surveying. Although GPS technology has existed for many years, with increased accuracy, reduced cost, and reduced surveying time, there is no standard method to guide users in the various GPS surveying equipment accuracies. For example, GPS surveying equipment could include: hand held devices, rovers, base stations, single frequency receivers, dual frequency receivers, and continually operating GPS Reference Stations (CORS). Various GPS equipment can provide a level of accuracy that may or may not satisfy the specific project's requirements.

Each surveying technique has inherent accuracy and precision requirements. For example, on construction projects of limited area/distance where the beginning and end of the job are known, temporary benchmarks, only relative to the job may be adequate, as global movement or subsidence is unlikely to affect a short-term project. When very high accuracies are required, traditional survey methods may be more advantageous relative to the set-up time of GPS systems. GPS accuracy increases with additional time on a point, but this can be impractical in certain situations. Yet in the case of an earthen levee, ±3 inches at 30 mph may be acceptable based on the project scope (ex. miles of a levee system). A location that needs many points measured for structural connections, etc., would likely require a greater degree of precision without undue delays in acquiring that level of accuracy, or affecting the progress of the project.

Within South Louisiana, subsidence is a significant problem when establishing benchmark elevations. Many benchmarks are inaccurate due subsidence in South Louisiana where substrate layers are sinking at different rates for different reasons. Currently, the National Geodetic Survey uses GPS leveling techniques to establish benchmark elevations. Traditional methods typically require extensive time and labor to leap frog to remote areas. GPS systems can be used to find elevations in remote areas of the state, independent of older land-based benchmarks very quickly.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

The project has not begun.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-The RFP will be developed and the project awarded; and
-There is a need to develop standards regarding GPS accuracy technique(s). This standard should clearly relate the various GPS equipment to the recommended techniques resulting in an expected precision and accuracy of the GPS results. Therefore, we know GPS accuracy increases proportional to occupation time; however, what occupation times are required for a certain levels of accuracy for a given piece of GPS equipment.

This research would establish standards for GPS accuracy measurements by using common and known practices regarding GPS setup. In essence, what procedures and setup times are necessary to achieve the various levels of precision? The departmental users can then the most effective means of acquiring accurate measurements in a timely manner

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Impact of DOTD's IRI Based Acceptance Specs on the Rideability of Louisiana Highways	Project Status:	Proposed

Funding Source:	State: TT-Reg	Budget Category:	State

SIO:			Project Start Date:		1/1/2013
Research Project Number:	13-1P		Completion Date	(original)	12/31/2014
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$200,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$50,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

Invest the benefit and possible problems related to the Louisiana Department of Transportation and Development's (LADOTDs) IRI Based Acceptance Specs and their impact on the Rideability of Louisiana Highways.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct literature search;
-Collect history data from LADOTD database and other systems; and
-Identify on-going construction project as candidates to check the correlation between construction acceptance and network rideability performance.

Title:	**A Novel Dewetting and Spreading Based Moisture Susceptibility Test Method for Hot and Warm Mix Asphalt**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000732**		Project Start Date:		7/1/2012
Research Project Number:	12-2TIRE		Completion Date	(original)	6/30/2013
Research Agency:	LTU		Completion Date	(revised)	
Principal Investigator:	Nazimuddin M Wasiuddin				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,000		**Total**		**$30,000**
	(revised)					
Est. Expended to Date				Salaries		$27,223
FY 2011 - 2012 Budget				Equipment	(expendable)	$1,577
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$1,200
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The objective of this proposal is to test the hypothesis that the unknown mechanism of how moisture penetrates through the asphalt film into the asphalt-aggregate interface can be explained by a special case of dewetting where dewetting of asphalt film occurs inside an air bubble attached to the asphalt-aggregate particle under water. The research approach will be to control the whole nucleation and growth by viscoelastic and physico-chemical properties of materials, temperature and additives.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Complete tasks defined in proposal; and
-Prepare and submit final report.

LTRC Annual Research Program
Fiscal Year 2012-2013

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

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:		Project Start Date:		
Research Project Number:	12-3B	Completion Date	(original)	
Research Agency:		Completion Date	(revised)	
Principal Investigator:				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$200,000	**Total**		**$50,000**
	(revised)				
Est. Expended to Date			Salaries		$50,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The age hardening properties of asphalt materials and the quantification of the asphalt binder contained in Recycled Asphalt Pavement, RAP, used in construction could be identified with molecular characterization using gel permeation chromotagraphy. Bringing this information to compare to other mix and binder physical properties from the point of view of their chemical composition and/or their reactivity towards their immediate environment (such as air oxygen) in relation to their performance in paving the roads or other construction is the focus of this work. At present, there are no methods to verify percentages of RAP use, nor accurately predict the RAP binder blends from a design perspective without costly extractions. This work, if successful will verify specification limits for RAP and new asphalt mixture blends and provide a method to identify RAP quantities in mixtures confirming design submittals. Other materials under consideration for GPC application are asphalt binders; crumb rubber containing asphalt cements; and warm mix asphalts.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined upon award of contract.

Title:	**Morganza Floodway Bridge Bent Repair using Carbon Fiber Reinforced Polymers (CFRP)**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000724**		Project Start Date:		6/1/2012
Research Project Number:	12-3ST		Completion Date	(original)	5/30/2014
Research Agency:	UNO		Completion Date	(revised)	
Principal Investigator:	Dr. Vijaya Gopu				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,000		**Total**		**$18,000**
	(revised)					
Est. Expended to Date				Salaries		$14,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$1,000
Est. FY Expenditure				Other		$3,000

PURPOSE AND SCOPE

Major effort is being undertaken for repair of Morganza Floodway Bridge and the proposed work will be a small part of this project and will focus on using the latest technology to effectively rehabilitate one of the bents. One side of the bent has heavy spalling under all the 9 supports. In most locations, the spalling is extended all the way to the bearing plates. The support details will be enhanced and the areas with spalling will be repaired with structural grade high-adhesive materials. There is a need to protect the repair material so that it does not spall again. Note that the repair was done once before and the spalling reoccurred.
The primary objective of the proposed retrofit is to repair the bent and prevent any future spalling of concrete. This will be done by confinement of the concrete using high modulus carbon composite. The retrofit operation will be carried out as part of demonstration of the use of high strength composites for transportation infrastructures, under the sponsorship of LTRC. One unique feature about this repair is that the CFRP will be coated with an inorganic polymer that will prevent the ingress of chemicals and block UV rays and hence increase the durability of the entire repair. The coating is self-cleaning and hence organic matter such as mildew growth will not occur.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Submitted a strengthening plan regarding the use an application of the CFRP on the bent.
-Prepared the concrete surface for the installation of the FRP materials and the polymer coating.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Acquire Carbon Fiber Reinforced Polymer (CFRP)reinforcing laminates, adhesive resin, inorganic coating Polymer;
-Apply the CFRP material to strengthen the bent;
-Apply the inorganic polymer to coat the FRP for maintenance and durability purpose;
-Periodically perform visual inspection to monitor the repaired area for performance;
-Perform a benefit cost analysis between this repair and other alternate repairs. This analysis will be included in the final report; and
-Prepare and submit a final report documenting the work done as well as containing repair guidelines for LADOTD maintenance personnel.

Title:	**Live Load Monitoring of the I-10 Twin Span Bridge**	**Project Status:**	**Proposed**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:			Project Start Date:		12/1/2012
Research Project Number:	13-2ST		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$200,000	**Total**		**$75,000**
	(revised)				
Est. Expended to Date			Salaries		$45,000
FY 2011 - 2012 Budget			Equipment	(expendable)	$10,000
FY Funds	(original)		Equipment	(non-expendable)	$5,000
	(revised)		Travel		$5,000
Est. FY Expenditure			Other		$10,000

PURPOSE AND SCOPE

Louisiana has several instrumented bridges and new ones are added every year. One of those instrumented bridges is the I-10 Twin Span Bridge. One span of this structure has all its components instrumented, including a weigh-in-motion-WIM, deck, girder, diaphragms, bent caps, columns, and piers. The purpose of this study is to collect and analyze data when subject to heavy live loads, or wind loads, as well as impact loads to its piers (wave fore or ship collision). This will help the designer in identifying the stress level in those instrumented components and take necessary actions, if need may be.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Gain familiarity with the monitoring system installed on the I-10 Twin Span Bridge;
-Select a location where the collected data be housed;
-Perform a trial run by downloading and analyzing data for a certain event; and
-Submit a summary report regarding the analyzed data.

Title:	**Traffic Counting using Existing Video Detection Cameras**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000604**		Project Start Date:		7/1/2011
Research Project Number:	12-1SS		Completion Date	(original)	
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$33,976		**Total**		**$25,420**
	(revised)					
Est. Expended to Date				Salaries		$25,420
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The purpose of the project is to establish software programs that are capable of processing the data collected by existing video detection cameras and producing estimates of daily, monthly, and seasonal adjustment factors that will allow daily estimates of AADT. The scope of the project is limited to video detection cameras in Baton Rouge, Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Review existing software programs available from the manufacturer of the video detection equipment;
-Evaluate the software programs to determine whether they are capable of establishing the adjustment factors required in the study;
-If necessary, develop additional software to estimate adjustment factors; and
-Demonstrate use of the software programs in sample applications.

Title:	**History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards**	**Project Status:**	**Proposed**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000605**		Project Start Date:		7/1/2012
Research Project Number:	12-2SS		Completion Date	(original)	
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$150,000		**Total**		**$18,100**
	(revised)					
Est. Expended to Date				Salaries		$18,100
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The main purpose of the project is to develop comparative historical time lines for the implementation of national and state road design standards for use in tort liability cases and for knowledge management purposes.
The research is restricted to road design standards in force in Louisiana over the last 90 years. In addition to formally established standards (both applicable national and state standards), the study will also report on accepted codes, policies, directives, or agreements in force within the DOTD during the last 90 years.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

The following activities will be taken up in the fiscal year 2012-2013

-Task 1:Conduct Literature Review
The research team will conduct a literature review on the historical introduction and application of national and state road design standards in Louisiana;
-Task 2: Asses Data Needs
The research team will conduct a data assessment to determine information needed to conduct the study, sources of information , information format, method of accessing information, and any manipulation that may be necessary to gather information from different sources into a common format.; and
-Task 3:Review Laws
The research team will conduct a review of state and national legislation pertaining to road design in Louisiana DOTD in last 90 years.

Title:	**Calibration of the Louisiana Highway Safety Manual (Phase 1)**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000603**	Project Start Date:		7/1/2012
Research Project Number:	12-3SA	Completion Date	(original)	
Research Agency:	LSU	Completion Date	(revised)	
Principal Investigator:	Dr. Brian Wolshon			

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$25,500	**Total**		**$17,657**
	(revised)				
Est. Expended to Date			Salaries		$17,657
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			Other		

PURPOSE AND SCOPE

The objective of this proposed project is to use the state data to calibrate the safety prediction models for three types of highways: rural 2-lane, rural multiple lane and urban and suburban arterials. For each type of highway, the calibration will be done for both segment and intersections. The basic steps for the calibration procedure are: 1, Identify facility types for which the applicable safety prediction model is to be calibrated; 2, Select sites for calibration of the model for each facility type; 3, Obtain data for each facility type applicable to a specific calibration period; 4, Apply the applicable model to predict total accident frequency for each site during the calibration period as a whole; 5 Compute calibration factors for use in safety prediction models.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined upon award of contract.

Title:	**Modeling the Effect of Gusty Hurricane Wind Force on Vehicles Using LSU Driving Simulator**	**Project Status:**	**Proposed**

Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000733**		Project Start Date:		7/1/2012
Research Project Number:	12-3TIRE		Completion Date	(original)	6/30/2013
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,000		**Total**		**$30,000**
	(revised)					
Est. Expended to Date				Salaries		$30,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

\The main goal of this research study is to lay a foundation for modeling the vehicle performance during hurricane conditions that can be used as part of assessments to decide when evacuation routes need to be closed during hurricane and tropical storm events. The specific objectives of the study are: (1) investigate the typical wind force patterns experienced during hurricane events, (2) investigate how to modify the parameters of the driving simulator to replicate vehicle performance of typical vehicles used by the general public, emergency management teams, etc., and (3) explore how to convert wind forces to gusty two dimensional wind loadings on vehicles using the driving simulator.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Literature Review;
-Modification of Driving Simulator Parameters;
-Simulation of Vehicle Performance and Data Analysis; and
-Final Report.

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

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

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$50,999		**Total**		**$17,000**
	(revised)					
Est. Expended to Date				Salaries		$17,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The main purpose of this research is to develop minimum requirements for local growth management policies for use in Louisiana. The research will be conducted in three phases. The first phase of this research will be limited to defining minimum requirements with respect to transportation. The scope of this project is limited to state of Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct literature review to gain an understanding of existing state-of-the-practice concerning growth management;
-Conduct a survey of other states and a cross-section of municipalities to investigate the state-of-the-practices in growth management that are currently in use;
-Establish a task force comprising of representatives from metropolitan planning organizations, municipal and parish public works engineers and municipal and parish planning officials and LADODT engineers and planners;
-Conduct a series of consensus building meetings with the task force established in preceding activity. The main aim of this meetings will be to develop/defining minimum growth managements policies with respect to transportation; and
-Summarize the results of various activities and document the developed minimum requirements for local growth management policies.

Title:	**Distracted Driving and Associated Crash Risks**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000760**		Project Start Date:		7/1/2012
Research Project Number:	13-1SA		Completion Date	(original)	7/1/2013
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Sherif Ishak				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$34,234		**Total**		**$31,754**
	(revised)					
Est. Expended to Date				Salaries		$31,754
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The scope of this study is limited to the use of the newly acquired driving simulator at the Louisiana State University (LSU) to measure the level of driver distraction. Experimental work will be conducted with the simulator using human subjects as drivers. Volunteers will be sought from the LSU community of students and staff members to participate in the experimental work. No monetary compensation will be provided for participants.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 1: In this task, the research team will search for studies with the purpose of gaining the state of the art knowledge on the subject matter. Published reports and journal manuscripts will be thoroughly reviewed to expand on the preliminary literature search presented in this proposal. This task is expected to be completed within the first three months of the project;

-Task 2: Based on the literature search conducted in Task 1, the research team will identify a set of cognitive tasks that previous research considered as distracting to drivers. This includes but is not limited to texting, eating, reading, hands-free talking, etc. The selected cognitive tasks will be used with the human subjects to measure the level of distraction associated with each. This task is expected to be completed within the first four months of the project;

-Task 3: Given the driver behavior data typically collected from the driving simulator during an experiment, this task will identify the most appropriate set of parameters that measure the driving behavior under distraction. Examples of such performance measures include the vehicle trajectory data (e.g. speed variance, lane deviation, lane changing frequency, etc.). Other implicit measures can also be used by presenting the drivers with random roadside information along the trip and asking them about it at the end of the experiment to reveal if the driver was able to recognize such information or events. This task is expected to be completed within the first 6 months of the project; and

-Task 4: This task involves setting up the experimental work and conducting the simulation experiments. The following considerations will apply:

(1) Subjects will be selected from LSU community (students and staff). Sample size requirements will be used to determine how many human subjects will participate. At least 25 participants will be used.

(2) The sample will also include participants from different age groups to measure the effect of age on the level of distraction associated with the selected cognitive tasks.

(3) Each participant will be screened carefully and will be required to complete a training session on the simulator in order to overcome the driving familiarity factor. The driving behavior will be monitored during the training session to determine when a driver has reached an acceptable familiarity level.

(4) Each participant will be required to complete a set of experiments without being engaged in any distracting task in order to capture the typical driving behavior. Then, the participant will be asked to perform certain tasks while driving and the driving behavior will be observed using the set of performance measures identified in Task 3.

(5) Participants will also be monitored with digital cameras and videos will be recorded during the experiment to analysis their behavior afterwards. There is also a possibility of adopting an eye tracking device to track the focus point of drivers during the experiment.

(6) Participants will also be required to respond to a questionnaire after the experiment. Some of the questions will be focused on whether the driver was paying attention during the experiment to specific details along the route (e.g. a fire truck on the side of the road, a pedestrian crossing the road, road signs, etc.). This can implicitly measure the level of distraction if a driver was not able to notice important information along the route. This task is expected to be completed within the first 12 months of the project.

Title:	**DOTD Support for UTC Project: Developing a Highway Safety Fundamentals Course**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000761**		Project Start Date:		7/1/2012
Research Project Number:	13-2SA		Completion Date	(original)	6/30/2013
Research Agency:	ULL		Completion Date	(revised)	
Principal Investigator:	Dr. Xiaoduan Sun				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$64,004		**Total**		**$8,500**
	(revised)					
Est. Expended to Date				Salaries		$8,500
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The goal of this project is to develop a much needed roadway safety curriculum for undergraduate and graduate students for the NCITEC consortium universities. The developed course materials can be used for college education in the classroom setting or for workforce training in the workshop setting. By increasing the workforce short-and long-term competitiveness in highway safety in this region will help the sustainable regional economic development.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task One: Overview;
-Task Two: Developing the course curriculum;
-Task Three: Developing content list for each topic;
-Task Four: Interim report (the first quarter report);
-Task Five: Developing a detailed teaching materials for one major topic “Highway Safety Fundamentals”; and
-Task Six: Final report.

Title:	**DOTD Support for UTC Project: Development of Performance Measurement for Freight Management**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000762**		Project Start Date:		7/1/2012
Research Project Number:	13-3SS		Completion Date	(original)	6/30/2013
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$22,100		**Total**		**$22,100**
	(revised)					
Est. Expended to Date				Salaries		$20,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$2,100
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

This study will develop standardized measurements that can be used to compare the performance of different modes of transportation, as well as multimodal networks, to each other. Federal grants are emphasizing the need to demonstrate improved performance from transportation investments. Identify indicators of performance common to each transportation mode that measure desirable improvements to the transportation system, such as, but not limited to, system capacity, efficiency, and environmental impact. The indicators should be comparable between modes to be capable of evaluating complex multimodal transportation networks. Methodology for collecting data will be developed to provide the highest level of accuracy and lowest probability of error. Where appropriate, levels of acceptable and unacceptable performance will also be identified.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

To be determined upon initiation of the project.

Title:	**User Satisfaction with LA 511 Innovations Sponsored by Highways for Life Program**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:			Project Start Date:		8/1/2012
Research Project Number:	13-4SS		Completion Date	(original)	7/30/2015
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$75,000	**Total**		**$20,000**
	(revised)				
Est. Expended to Date			Salaries		$20,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		
Est. FY Expenditure			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 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 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Conduct before assessments of user satisfaction.

Title:	**DOTD Support for UTC Project: Economic Impact Analysis of Short Line Railroads in the State of Louisiana**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000764**		Project Start Date:		7/1/2012
Research Project Number:	13-6SS		Completion Date	(original)	12/31/2013
Research Agency:	LSU		Completion Date	(revised)	
Principal Investigator:	Dr. Jared Llorens				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$25,500		**Total**		**$18,000**
	(revised)					
Est. Expended to Date				Salaries		$18,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The primary goal of this research project is to assess the economic impact of Short Line rail operations in the State of Louisiana. Short Line (Class III) rail is defined as those rail operations with revenues of $31.9 million or less and those handling terminal and switching operations. Short Line rail operations function in tandem with larger regional (Class II) and national (Class I) rail operations, and according to the American Short Line and Regional Rail Association (ASLRRA) approximately 8 million carloads of goods, ranging from coal to manufacturing products, were shipped over Class III Short Line rail in 2010 (ASLRRA, 2012). In terms of scope, there are an estimated 537 Class III rail operations across the United States which employ approximately 12,000 workers (23 on average) and generate combined revenue of $2.1 billion annually. In Louisiana alone, a total of eleven Class III rail operations (8 freight and 3 switching and terminal) maintain approximately 829 miles of track, representing nearly a quarter of the state's total rail mileage (Association of American Railroads, 2011a).

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Phase I (July 2012-December 2012)
This phase of the research project will first focus on the identification of all Class III rail operations within the state and classification of each operation by region and scope of rail operations.

The second component of this phase will entail the development of a Class III rail survey instrument which will be used to collect data on key performance metrics including, but not limited to, the following key areas: immediate rail employment, existing customer impact, potential customer impact and annual revenues. Quarterly reports to be provided September 29th, 2012 and December 28th, 2012.

Phase II (January 2013-June 2013)
During Phase II, the survey instrument developed in Phase I will be distributed to all identified Class III rail operators. Additionally, this phase of the research project will also include in-depth qualitative interviews with select Class III operators, manufacturing interests relying upon Class III operators and local community leaders in those areas serviced by Class III operators. Research collected during this phase of the project will also include the evaluation of the economic state of those communities where Class III rail operations are currently in place. Quarterly reports to be provided March 29, 2013 & June 28, 2013.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Use of Containers to Carry Bulk and Breakbulk Commodities and its Impact on Gulf Region Ports and International Trade**			**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**			**Budget Category:**	**State**

SIO:	**30000765**		Project Start Date:		7/1/2012
Research Project Number:	13-7SS		Completion Date	(original)	
Research Agency:	UNO		Completion Date	(revised)	
Principal Investigator:	Mr. James Amdal				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$86,733		**Total**		**$8,999**
	(revised)					
Est. Expended to Date				Salaries		$8,999
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The use of containers to carry bulk/breakbulk commodities has had little effect on Louisiana's ports. The state's major container terminal, the Port of New Orleans' (PONO) Napoleon Avenue Terminal has shown some recent healthy growth in containers, primarily with containerized banana and coffee imports. However, over the past decade, container trade at PONO has been pretty static and predictions for US and worldwide container trade for 2012 are expected to be 2-3% less than 2011.

Since the 1980s, traditional export breakbulk cargoes, (e.g. wood pulp, printing and packing paper in rolls, lumber and logs, compressed baled hay in plugs and cotton) have turned more and more to shipment in containers. In some cases, like cotton and hay, containers are now the only way these commodities are exported. Due to the imbalance of export cargo, container carriers developed new bulk/breakbulk commodity markets such as bagged resins/chemicals, drummed petrochemicals, finished consumer goods and bagged/bulk grains. In the agricultural sector, DDGs (Distilled Dry Grains, a byproduct of ethanol production) and specialty grains (e.g. types of soybeans preferred by Japanese tofu producers) have shown showed huge growth. Most of these cargoes are sourced in the Midwest and are heavily and successfully marketed by the west coast terminals/container carriers.

PONO has the facility to blow DDGs into containers but say it's an expensive/slow process and not always competitive. One of their shippers has tried containerization of logs for their export sales but the occasional 2 or 3 logs that have to be trimmed to fit into the container makes is slow and expensive. They prefer to build up their cargo until they can load 10,000 tons as part cargo on a Far East bound bulk carrier. Another PONO client, TCI, has steady / healthy export chemical business which is primarily bagged/palletized and containerized primarily for the Orient.

Associated Terminals, the Stevedoring Company at both the Port of S. Louisiana and St. Bernard Port, has acquired machinery for bagging and palletizing grains. They do about 10/20,000 tons per year of rice but only about 1% is containerized due to the cost of handling the box and ocean transportation services in Louisiana and adjacent states.

Although close to the rice industry, the Port of Lake Charles is constantly overlooked in the bagged rice export business as the large Houston based container carriers like Maersk are bidding directly from inland elevators for export via their Houston container terminal.

Louisiana's inland port, Greater Ouachita Port, has developed a healthy market of 15,000 export 40s, the boxes are stuffed with coated stiff paper (kind used to make packing for cans of soda, prepared food, etc.) and all are shipped to the Orient via non Louisiana ports.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Review the extensive Louisiana container studies to see what if any commodity / intermodal link has been missed;
-Work with Louisiana State University Ag. Extension and Louisiana Department of Agriculture to see what if any marketing is being done to grow the specialty beans, corn and sorghums that Far East food producers are buying from the U.S.;
-See what, if any, state stimulus (subsidies, etc.) exist; and
-Solicit advice from Louisiana freight forwarders as to how Louisiana crops like cotton can be exported more via LA's ports.

Title:	**DOTD Support for the UTC Project: The Impact of Modifying Jones Act on the US and Louisiana**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000766**		Project Start Date:		7/1/2012
Research Project Number:	13-8SS		Completion Date	(original)	12/31/2013
Research Agency:	UNO		Completion Date	(revised)	
Principal Investigator:	Dr. Asaf Ashar				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$34,000		**Total**		**$11,333**
	(revised)					
Est. Expended to Date				Salaries		$11,333
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The overall objective of this study is to assess the impact of two modifications of Jones Act which would allow the deployment of re-flagged US ships operated by rationalized US crews in coastal shipping of (a) Domestic freight along the coasts of the US mainland and between the mainland and off-shore US states and territories; and (b) International freight between US-based hub ports and smaller US ports (feedering). The study will use the trade routes involving the Gulf Coasts and Puerto Rico as a case study. However, its findings would apply to the East and West Coasts and Alaska trade routes.

The main benefit of coastal shipping services is transportation cost savings to US shippers, compared to their present services either by old and inefficient ships (in the case of Puerto Rico services), or by costly surface modes in the case of mainland services. Another savings, in the case of feedering services, is due to the substitution of direct calls by mother ships with smaller feeder ships. A related benefit stems from mitigating environmental impacts, mainly road congestion and air pollution. For example, according to American Feeder Line, a typical ship emission is 240 gram/ton-mile vs. 330 and 1,050 gram/ton-mile for railcars and trucks respectively. There are two secondary benefits stemming from the increase in the fleet of US-flag ships. First, the additional US-flag ships will be an important contribution to the defense needs of the US. Second, the massive re-flagging of foreign built ships will generate substantial shipyard work, including for those in Louisiana, along with the related economic impact.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Review professional literature; -Define trade lanes and traffic volumes; -Define ships and shipping services; -Assess costs and Level of service of selected services; and -Summarize observations and recommendations.

Title:	**Investigation into the Impact of Privatizing Civil Engineering Operations in Louisiana DOTD**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000840**		Project Start Date:		7/1/2012
Research Project Number:	13-9SS		Completion Date	(original)	1/31/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$200,000		**Total**		**$200,000**
	(revised)					
Est. Expended to Date				Salaries		$158,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$2,000
Est. FY Expenditure				Other		$40,000

PURPOSE AND SCOPE

To investigate and report the impact of privatizing civil engineering operations within the Louisiana Department of Transportation and Development (LADOTD). The scope of the project is:
-Identify civil engineering operations conducted by the LADOTD;
-Review practice of privatization of civil engineering operations in state DOTs;
-Determine core competencies of LADOTD;
-Identify in-house and private sector indirect cost rate;
-Collect data on engineering operations conducted in LADOTD;
-Conduct cost comparison between public versus private sector civil engineering operations in LADOTD;
-Prepare list of other factors besides cost that should feature in a comparison of public versus private sector operation of LADOTD;
-Prepare draft report; and
-Prepare final report.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Identify civil engineering operations conducted by the LADOTD;
-Review practice of privatization of civil engineering operations in state DOTs;
-Determine core competencies of LADOTD;
-Identify in-house and private sector indirect cost rate;
-Collect data on engineering operations conducted in LADOTD;
-Conduct cost comparison between public versus private sector civil engineering operations in LADOTD;
-Prepare list of other factors besides cost that should feature in a comparison of public versus private sector operation of LADOTD;
-Prepare draft report; and
-Prepare final report.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	Investigation of Best Practices for Maintenance of Concrete Bridge Railings	Project Status:	Proposed
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000660**		Project Start Date:		7/1/2012
Research Project Number:	12-3C		Completion Date	(original)	6/30/2013
Research Agency:			Completion Date	(revised)	
Principal Investigator:					

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$35,000		**Total**		**$35,000**
	(revised)					
Est. Expended to Date				Salaries		$35,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The purpose of this proposed research is to investigate the best practices for Portland Cement Concrete (PCC) bridge railing cleaning and maintenance. The scope of the project will include investigation of alternate bridge railing cleaning devices and practices as well as possible mitigation strategies. A cost benefit analysis will be completed to aid in determination of the most cost effective solution.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Development of the Project Review Committee and request for proposals.
-Detailed literature review; and
-Several test bridges will be identified as potential candidates for cleaning and/or mitigation techniques.

Title:	**Preliminary Analysis of Polymer Concrete Used for Bridge Deck Joint Repairs**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:	**30000734**		Project Start Date:		7/1/2012
Research Project Number:	12-4TIRE		Completion Date	(original)	6/30/2013
Research Agency:	ULL		Completion Date	(revised)	
Principal Investigator:	Dr. Chris Carroll				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$30,000		**Total**		**$30,000**
	(revised)					
Est. Expended to Date				Salaries		$19,835
FY 2011 - 2012 Budget				Equipment	(expendable)	$7,000
FY Funds	(original)			Equipment	(non-expendable)	$1,000
	(revised)			Travel		
Est. FY Expenditure				Other		$2,165

PURPOSE AND SCOPE

The objective of the research are to, (1) determine a minimum depth and longitudinal distance, that when filled with Polymer Concrete will resist the combination of a static load equivalent to the highest permissible wheel load based on AASHTO/LADOTD specifications and corresponding breaking force, and (2) develop preliminary guidelines for the use of Polymer Concrete in the repair of bridge deck joints for possible implementation in conjunction with a local contractor.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Conduct task as associated with the proposal; and
-Develop and submit final report.

Title:	**Feasibility of Reducing Source Approval Sampling and Support for the Implementation of a Pavement Design Manual**	**Project Status:**	**Proposed**
Funding Source:	**State: TT-Reg**	**Budget Category:**	**State**

SIO:			Project Start Date:		12/1/2012
Research Project Number:	13-1MATT		Completion Date	(original)	11/30/2013
Research Agency:	S.C. Shah		Completion Date	(revised)	
Principal Investigator:	Mr. S.C. Shah				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$48,000		**Total**		**$24,000**
	(revised)					
Est. Expended to Date				Salaries		$24,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure				Other		

PURPOSE AND SCOPE

The objective of this project is to:
-Determine the feasibility of reducing source approval sampling and testing of selected construction and/or materials;
-Assist the Louisiana Transportation Research Center (LTRC) and the Louisiana Department of Transportation and Development (LADOTD) to implement a Pavement Design Manual; and
-Assist in statistical analysis of related research activities.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Task 1 MATT data evaluation;
-Task 2 Implementation of PDM Manual; and
-Task 3 Provide support for related research activities.

LTRC Annual Research Program

Fiscal Year 2012-2013

2011 RPIC PROBLEM STATEMENTS

FINAL RANKING	PROBLEM STATEMENT TITLE
1	Minimizing Shrinkage Cracking in Cement-Stabilized Bases Through the Use of Microcracking
2	Full Application of HSM in Louisiana
3	Traffic Counting Using Existng Video Detection Cameras.
4	A Tool for Documenting, Tracking, Recording, and Analyzing Intersection Site Improvements
5	Creation of a Strategic Plan for Highway Safety Research
6	Comparison of Conventional Concrete and Self Consolidation Concrete in Drilled Shaft Construction
7	Development of a Model to Guide the Number of Staff Resources Needed for Quality Assurance on Construction Projects
8	Development of Minimum State Requirements for Local Growth Management Policies – Phase I
9	History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards
10	Construction and evaluation of several test sections for mitigating shale gas exploration and mining efforts
11	Joint Repair Using Polymer Concrete Products
12	Development of Standards for GPS Elevation Accuracy
13	Chemical Characterization of Asphalts as Related to Their Performance□
14	Development of Design Method for Post Grouted Drilled Shafts
15	Travel time estimation in urban areas using Bluetooth receivers
16	Develop a GIS based map showing all protected land by the levees with a 100 year flood frequency event or greater within the State of Louisiana.
17	ground-in rumble strips: a detriment to flexible pavement structure?
18	New Concrete Mix with Self-Curing Capabilities
19	Reversing cross slopes on multi lane roads causes water to pond.
20	NCHRP 1-40D Soil Unit Map Data for Louisiana
21	Determination of Pile Splices Transition Length Requirement
22	Development of Geotechnical Manual for LADOTD
23	Louisiana Highway Construction Cost Index Monitoring System
24	Development of a Short-Term Traffic Prediction Model for Travel Times on I-10/I-12
25	Determination of chemical characteristics of fly ash to predict behavior
26	Development of a Graphical Web-Based H&H Programs for LDOTD
27	Development of an Automated Data Collection, Tracking and Notification System/Service for LADOTD District Level Operations

Federal Funded Projects

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Enhancing Calibrated Peer Review for Improved Engineering Communication Education**	**Project Status:**	**Ongoing**

Funding Source:	**NSF**	**Budget Category:**	**Federal**

SIO:	**30000148**		Project Start Date:		9/1/2008
Research Project Number:	09-2SS		Completion Date	(original)	9/1/2011
Research Agency:	LTRC		Completion Date	(revised)	8/31/2012
Principal Investigator:	Dr. Chester Wilmot				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$50,050		**Total**		**$10,397**
	(revised)					
Est. Expended to Date		$39,653		Salaries		$4,397
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$10,397		Equipment	(non-expendable)	
	(revised)			Travel		
Est. FY Expenditure		$6,500		Other		$6,000

PURPOSE AND SCOPE

The purpose of this project is to extend the existing Calibrated Peer Review (CPR) process, which teaches writing skills, to a new process, CPR5, in which visual and oral communication skills are taught as well. The scope of the project is limited to visual and oral communication skills used in presenting a Capstone Design in Civil Engineering. Students learn these skills by reviewing presentations of their peers and then comparing their evaluation with that of an expert. The process is applied repeatedly on a new presentation each time until the student is able to evaluate the presentation similarly to the expert. The student is then considered "calibrated".

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Improved video recordings were obtained in Fall 2011;
-The services of two expert presenters were organized;
-A no-cost extension to the project was obtained until August, 2012; and
-Discussions with UCLA on incorporating the process into CPR5.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Appoint expert presenters and have them evaluate the 8 presentations recorded in Fall 2011; and
-Incorporate process into CPR5.

Self Generated Funded Research Program

CONTINUING RESEARCH

Title:	**LOOP Environmental Monitoring: 2011-2013 Beach Elevation, Beach Vegetation, Land Loss and Habitat Changes Surveys**	**Project Status:**	**Ongoing**
Funding Source:	**LOOP**	**Budget Category:**	**Self-Generated**

SIO:	**30000200**		Project Start Date:		4/12/2011
Research Project Number:	11-3SS		Completion Date	(original)	4/11/2014
Research Agency:	C-K Associates		Completion Date	(revised)	
Principal Investigator:	Ms. Tre Wharton				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$136,247		**Total**		**$52,000**
	(revised)					
Est. Expended to Date		$34,500		Salaries		$51,500
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$71,000		Equipment	(non-expendable)	$500
	(revised)	$71,000		Travel		
Est. FY Expenditure		$40,000		Other		

PURPOSE AND SCOPE

Purpose of the project is to monitor the environmental effects of the operation of the LOOP pipeline. The scope includes three beach crossing elevation surveys, two beach crossing vegetation surveys and a habitat change and land loss analysis using remote sensing.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

-Habitat change and land loss GIS analysis is 60% complete;
-Completed the first beach elevation survey in May of 2011 with the second survey scheduled for May, 2012; and
-Completed the first beach vegetation survey in May of 2011 with the second survey scheduled for May, 2013.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Complete the habitat change and land loss analysis;
-Complete the beach elevation and beach vegetation surveys by May of 2013; and
-Begin development of final report in June of 2013.

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)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget			**Estimated 2012-2013 Budget**		
Total Cost	(original)	$500,000	**Total**		**$104,000**
	(revised)				
Est. Expended to Date		$395,000	Salaries		$63,000
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)	$124,000	Equipment	(non-expendable)	
	(revised)		Travel		$4,000
Est. FY Expenditure		$124,000	Other		$37,000

PURPOSE AND SCOPE

The objectives of this study are:
-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
-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 2011 - 2012 ACCOMPLISHMENTS

Performed the following task:
-Task 4: Conduct laboratory experiments approved in Task 3.

FISCAL YEAR 2012-2013 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, (1) discusses the cause and magnitude of variability in measured volumetric and mechanical properties with the three specimen types of interest; and (2) provides guidance on incorporating these results into specifications and criteria for,(a) mix design verification or validation;(b) quality control and acceptance; and (c) structural design and forensic studies.
-It is anticipated that a time extension to March 31, 2013 will be requested due to the additional work of Phase I that was requested by the Project Pane and delays in securing field mixtures required for Task 4.

Title:	**Modulus Based Construction Specification of Earthwork and Unbound Aggregate**	**Project Status:**	**Ongoing**
Funding Source:	**NCHRP**	**Budget Category:**	**Self-Generated**

SIO:	**30000260**		Project Start Date:		10/7/2010
Research Project Number:	11-4B		Completion Date	(original)	4/6/2013
Research Agency:	LTRC		Completion Date	(revised)	
Principal Investigator:	Dr. Louay Mohammad				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$154,037		**Total**		**$70,000**
	(revised)					
Est. Expended to Date		$60,000		Salaries		$21,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$60,000		Equipment	(non-expendable)	
	(revised)			Travel		$2,000
Est. FY Expenditure		$60,000		Other		$47,000

PURPOSE AND SCOPE

The objective of this research is to develop a modulus-based construction specification for compaction of earthwork and unbound aggregate.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

Performed the following task:
-Task 7: Conduct the work plan approved in Task 6.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Continue work on the following tasks:
-Task 7: Conduct the work plan approved in Task 6; and
-Task 8: Using the results of Task 7, prepare a draft modulus-based construction specification for compaction of earthwork and unbound aggregate.

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 2012-2013 Budget**		
Total Cost	(original)	$103,796		**Total**		**$41,000**
	(revised)					
Est. Expended to Date		$42,000		Salaries		$39,000
FY 2011 - 2012 Budget				Equipment	(expendable)	
FY Funds	(original)	$40,000		Equipment	(non-expendable)	
	(revised)			Travel		$2,000
Est. FY Expenditure		$40,000		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 2011 - 2012 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; and
-Task 4: Conduct of laboratory characterization of the WMA projects.

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

Continue to perform the following tasks:
-Task 3: Conduct of field characterization of the WMA projects; and
-Task 4: Conduct of laboratory characterization of the WMA projects;

Other
DOTD Funded Projects

LTRC Annual Research Program
Fiscal Year 2012-2013

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

SIO:		Project Start Date:		1/1/2012
Research Project Number:	12-LRSP	Completion Date	(original)	12/31/2014
Research Agency:	LTRC	Completion Date	(revised)	
Principal Investigator:	Dr. Marie Walsh			

BUDGET STATUS

Total Budget			Estimated 2012-2013 Budget		
Total Cost	(original)	$276,779	**Total**		**$276,779**
	(revised)				
Est. Expended to Date			Salaries		$215,209
FY 2011 - 2012 Budget			Equipment	(expendable)	
FY Funds	(original)		Equipment	(non-expendable)	
	(revised)		Travel		$8,000
Est. FY Expenditure			Other		$53,570

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 2011 - 2012 ACCOMPLISHMENTS

-Coordinated local public agency (LPA) related activities with new DOTD program manager including input to new manual and development of outreach and training programs for local agencies and stakeholders that use federal or state aid;
-Participated in critical process documentation of Local Road Safety Program project election and administration through LADOTD and FHWA Highway Safety Improvement Program funding process;
-Administered and promoted the Local Road Safety Program as part of the implementation of the Louisiana Strategic Highway Safety Plan;
-Worked with local agencies and regional coalitions to analyze data; conduct Road Safety Assessments; and develop regional projects for inclusion in the Local Road Safety Program in accordance with Louisiana's SHSP;
-Continued to provide traditional work program of transportation and safety related training.
-Conducted driver impaired workshops.
-Presented 67 classes or workshops:
-6 Worker Safety Classes
-28 Highway Safety Classes
-21 Infrastructure Management Classes
-12 Workforce Development Classes
-11287 hours of training
-1892 program participants

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES
-Coordinate local agency participation in Louisiana Department of Transportation and Development (LADOTD) preparation of LA Public Roads Inventory; -Manage current Local Road Safety Program and projects; and -Provide training for implementation of the new Federal sign retro-reflectivity requirements to local agencies.

LTRC Annual Research Program
Fiscal Year 2012-2013

Title:	**Investigating Safety Impact of Pavement Markings and other Roadside Safety Features**	**Project Status:**	**Proposed**

Funding Source:	**Safety**	**Budget Category:**	**Other DOTD Sections**

SIO:	**30000730**		Project Start Date:		7/1/2012
Research Project Number:	13-2P		Completion Date	(original)	6/30/2013
Research Agency:	ULL		Completion Date	(revised)	
Principal Investigator:	Dr. Xiaoduan Sun				

BUDGET STATUS

Total Budget				**Estimated 2012-2013 Budget**		
Total Cost	(original)	$54,437		**Total**		**$54,437**
	(revised)					
Est. Expended to Date				Salaries		$42,435
FY 2011 - 2012 Budget				Equipment	(expendable)	$615
FY Funds	(original)			Equipment	(non-expendable)	
	(revised)			Travel		$500
Est. FY Expenditure				Other		$10,887

PURPOSE AND SCOPE

The goal of this project is to evaluate few key roadside safety features on Louisiana highways including edge line, thickness and retroreflectiveness of pavement line, rumble strip, and cable median. Cost-benefit analysis of these key roadside safety features will also be conducted. The crash data used for the analysis will come from the narrow rural two-lane highway segments studied in the last edge line project, highways with rumble strips (center or edge), and freeways with median cable barriers in Louisiana.

FISCAL YEAR 2011 - 2012 ACCOMPLISHMENTS

FISCAL YEAR 2012-2013 PROPOSED ACTIVITIES

-Complete edge line safety analysis on the narrow rural two-lane highway segments with three-years after crash data;
-Conduct before-and-after crash analysis for rumble-trips (if possible on both center and edge);
-Conduct investigation on safety benefit of cable median barrier;
-Conduct crash characteristic analysis for the above before-and-after crash studies;
-Conduct thickness and retroreflectiveness of pavement lines study; and
-Perform cost-benefit analysis for edge line implementation.