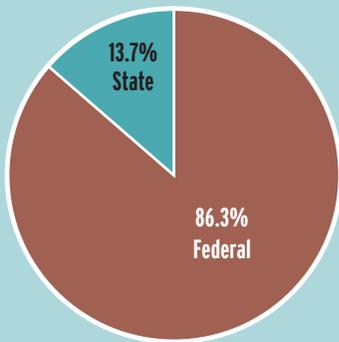


### FY 2014 At-A-Glance

OCTOBER 1, 2013 - SEPTEMBER 30, 2014

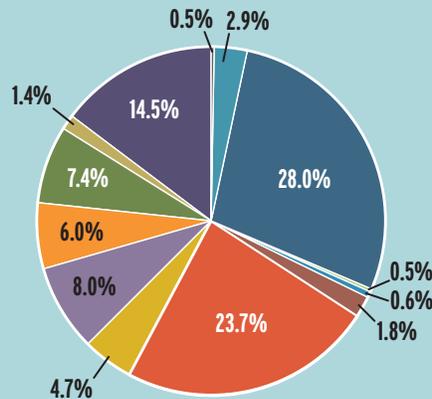
This publication presents a summary of Research and Library funding statistics and project progress for Fiscal Year (FY) 2014. The tables on pages 2 through 7 list all MDOT-funded research projects by topic area that were active or completed during 2014. These listings include both individual Michigan research projects and multi-state pooled fund projects.

#### FY 2014 SP&R Part II Expenditures by Funding Source



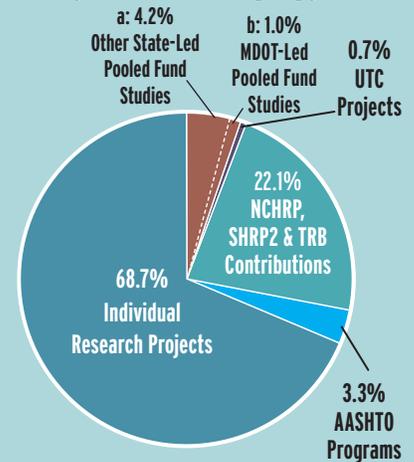
State Research Funds	\$ 1,016,855.45
Federal Research Funds	\$ 6,381,671.73
<b>TOTAL</b>	<b>\$ 7,398,527.18</b>

#### FY 2014 Research Project Expenditures by Focus Area



Administration	\$ 25,520.02
Asset Management	\$ 155,186.06
Bridges & Structures	\$ 1,498,971.88
Environment & Water Resources	\$ 27,200.00
Freight Rail	\$ 32,491.02
Geotechnical & Foundation Design	\$ 98,664.97
Intelligent Transportation Systems	\$ 1,265,355.15
Local Transit	\$ 248,851.16
Maintenance	\$ 426,815.69
Mobility, Systems & Signal Operations	\$ 319,627.89
Pavements & Materials	\$ 397,801.01
Rest Areas, Utilities & Landscaping	\$ 75,141.73
Transportation Safety	\$ 775,924.90
<b>TOTAL</b>	<b>\$ 5,347,551.48</b>

#### FY 2014 SP&R Part II Expenditures by Type



Individual Research Projects	\$ 5,084,277.23
Multi-State Pooled Fund Studies	
a: Participation in Pooled Fund Studies Led by Other States	\$ 314,000.00
b: Participation in MDOT-Led Pooled Fund Studies	\$ 71,706.00
UTC Projects	\$ 51,568.25
Research Project Expenditures	\$ 5,521,551.48
NCHRP, SHRP2 & TRB Contributions	\$ 1,635,975.70
AASHTO Programs	\$ 241,000.00
<b>TOTAL</b>	<b>\$ 7,398,527.18</b>

# MDOT 2014 Research

## THESE TABLES ARE ORGANIZED BY FOCUS AREA:

### RESEARCH PROJECTS:

- Completed research reports that were released in FY 2014: October 2013 to September 2014
- Research contracts that were active during FY 2014

### POOLED FUND PROJECTS:

- Multi-state transportation pooled fund studies led by MDOT
- Other multi-state transportation pooled fund studies in which MDOT participates, either through an FY 2014 contribution or through past contributions that are still producing value for Michigan

### ABBREVIATIONS:

FAM: Focus Area Manager  
RM: Research Manager

Completed project reports are available at  
[www.michigan.gov/mdotresearch](http://www.michigan.gov/mdotresearch).

A mark in the "Spotlight" column indicates that a  
Research Spotlight for this project can be found at  
[www.michigan.gov/mdotresearch](http://www.michigan.gov/mdotresearch).

"Number of Participating States" for some pooled funds  
includes Canadian provinces and agencies such as FHWA.

A complete FY 2014 annual report can be found at [www.michigan.gov/mdotresearch](http://www.michigan.gov/mdotresearch).

## Asset Management

FAM: Bill Tansil, RM: Mark Polsdofer

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	Evaluating Roadway Surface Rating Technologies	UM	Belzowski	Tansil	8/20/13	9/30/14	\$161,657.01	100%	\$155,186.06	

## Bridges & Structures

FAMs: Dave Juntunen and Matthew Chynoweth, RM: Michael Townley

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1602	Improving Bridges with Prefabricated Precast Concrete Systems	WMU	Aktan	Juntunen	10/1/10	12/31/13	\$400,672.27	95%	\$41,984.95	
RC-1601	Side-by-Side Probability for Bridge Design and Analysis	WSU	Eamon	Yalda	10/1/12	4/15/14	\$105,583.36	94%	\$24,994.91	
RC-1610	Accelerated Bridge Construction and Structural Move Workshop	WMU	Aktan	Chynoweth	8/31/13	6/30/14	\$36,541.61	100%	\$36,539.40	
RC-1614	Design and Construction Guidelines for Strengthening Bridges Using Fiber Reinforced Polymers (FRP)	WSU	Eamon	Kahl	10/1/12	9/30/14	\$173,017.59	100%	\$127,741.49	
RC-1615	Evaluation of Prestressed Concrete Beams in Shear	WSU	Eamon	Kulkarni	10/1/11	9/30/14	\$329,634.04	100%	\$135,510.24	
	Evaluation of Bridge Decks Using Non-Destructive Evaluation (NDE) at Near Highway Speeds for Effective Asset Management	MTU	Ahborn	Burns	11/1/12	12/19/14	\$247,819.01	96%	\$133,954.18	
	Evaluating Prestressing Strands and Post-Tensioning Cable in Concrete Structures Using Non-Destructive Evaluation (NDE) Methods Including Joint Shear Wave Analysis	LTU	Jensen	Curtis	10/1/12	12/31/14	\$264,495.42	84%	\$122,602.38	
	Remote Monitoring of Fatigue Sensitive Details on Bridges	WMU	Attanayake	Kahl	10/1/12	3/30/15	\$263,162.84	75%	\$131,185.68	
	Development, Characterization and Applications of a Non-Proprietary Ultra High Performance Concrete for Highway Bridges	UM	El-Tawil	Kahl	3/30/13	3/30/15	\$319,101.30	64%	\$153,248.40	
	Research on Evaluation and Standardization of Accelerated Bridge Construction (ABC) Techniques	WMU	Aktan	Rogers	10/1/13	9/30/15	\$257,061.16	37%	\$96,237.41	

## Bridges & Structures, cont.

FAMs: Dave Juntunen and Matthew Chynoweth, RM: Michael Townley

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	Wireless Data Collection and Retrieval of Bridge Inspection/Management Information	MTU	Brooks	Kathrens	10/1/13	9/30/15	\$377,437.44	45%	\$170,562.20	
	Bridge Design System Analysis and Modernization	MTU	Colling	Guerrazzi	11/1/13	11/30/15	\$561,176.40	34%	\$190,796.00	
	Evaluating Long-Term Capacity and Ductility of Carbon Fiber Reinforced Polymer Prestressing and Post-Tensioning Strands	LTU	Grace	Chynoweth	10/1/13	9/30/17	\$721,223.28	7%	\$50,833.49	
	Statewide Overall Carbon Fiber Composite Cable Bridge Monitoring	LTU	Grace	Chynoweth	12/17/13	9/30/20	\$491,549.00	7%	\$36,075.15	

## Bridges & Structures Pooled Fund Studies

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
TPF-5(254)	Evaluation and Analysis of Decked Bulb T-Beam Bridges	Juntunen	MI DOT	5	\$36,706.00	\$109,312.00	\$173,000.00	9/19/11	2/28/15
TPF-5(271)	Reorganization of Section 5, Concrete Structures, of the AASHTO LRFD Bridge Design Specifications	Chynoweth	KS DOT	17	\$10,000.00	\$10,000.00	\$30,000.00	10/1/12	9/30/15

## Environment & Water Resources

FAM: Kristin Schuster, RM: Michael Townley

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1598	Greenhouse Gas Inventory for the Michigan Department of Transportation	FTCH	Buckler	Annelin	9/16/11	12/31/13	\$68,000.00	100%	\$27,200.00	

## Freight Rail Pooled Fund Study

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
116234	National University Rail Center for Research, Education and Technology Transfer (NURails)	D'Lamater	MTU	N/A	\$32,491.02	\$66,978.59	\$99,470.00	10/8/12	4/30/14

## Geotechnical & Foundation Design

FAM: Dick Endres, RM: André Clover

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1600	Effect of Pile-Driving Induced Vibrations on Nearby Structures and Other Assets	UM	Zekkos	Endres	10/1/11	10/31/13	\$229,370.76	88%	\$6,551.27	X
	Predictive Modeling of Freezing and Thawing of Frost-Susceptible Soils	MSU	Baladi	Endres	10/1/12	9/30/14	\$106,136.58	73%	\$42,113.70	

## Geotechnical & Foundation Design Pooled Fund Study

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
TPF-5(285)	Standardizing Lightweight Deflectometer Measurements for Quality Assurance (QA) and Modulus Determination in Unbound Bases and Subgrades	Endres	MD DOT	8	\$50,000.00	\$0.00	\$50,000.00	10/1/13	9/30/14

## Intelligent Transportation Systems

FAM: Matt Smith, RM: André Clover

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	Infrastructure Monitoring Data Management	Alfred Benesch	Darwish	Cook	9/30/09	4/1/15	\$216,322.36	60%	\$43,084.48	
	Costs and Benefits of MDOT Intelligent Transportation System Deployments	WMU	Oh	Castle	6/3/13	4/30/15	\$235,932.69	64%	\$139,750.73	
	Connected/Automated Vehicle and Infrastructure Research	UM	Sweatman	Ajegba	10/1/13	9/30/15	\$3,200,000.00	0%	\$0.00	
	Advanced Applications of IntelliDrive Data Use Analysis and Processing 2 (DUAP2)	Mixon Hill	Mixon	Castle	8/9/11	11/1/15	\$3,770,152.65	81%	\$1,082,519.94	

## Intelligent Transportation Systems Pooled Fund Studies

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
TPF-5(206)	Research Program to Support the Research, Development and Deployment of System Operations Applications of Vehicle Infrastructure Integration (VII)	Smith	VA DOT	15	\$50,000.00	\$50,000.00	\$300,000.00	10/1/12	9/30/16
TPF-5(231)	ITS Pooled Fund Program (ENTERPRISE)	Nederveld	MI DOT	12	\$35,000.00	\$140,000.00	\$175,000.00	10/1/09	9/30/14

## Local Transit

FAM: Cathy Hudson, RM: Mark Polsdofer

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1608	Synthesis of Methods for Developing Transit Vehicle Specifications	URS	Winsor	Nobach	10/1/13	4/30/14	\$60,004.71	94%	\$56,690.54	
RC-1613	Measuring Michigan Local and Statewide Transit Levels of Service	Cambridge	Van Hecke	Adams	10/1/13	9/30/14	\$185,118.16	93%	\$173,083.39	

## Local Transit Pooled Fund Studies

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
116226	A Study of Factors That Inhibit and Enable Effective Development of Sustainable Regional Transit Systems in Southeastern Michigan	Edgar	UDM	N/A	\$11,577.27	\$82,523.77	\$100,000.00	7/1/12	12/31/13
116233	A Study of the Remanufacturing, Repurposing and Recycling of Lithium-Ion Batteries in Public Transit Vehicles	Fandalian	GVSU	N/A	\$7,499.96	\$42,500.04	\$50,000.00	9/19/12	12/31/13

## Maintenance

FAM: Gary Mayes, RM: André Clover

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1607	Monitoring Highway Assets with Remote Technology	Dye Management	Zilay	Croze	7/31/12	1/31/14	\$493,182.67	100%	\$86,920.67	X
	Evaluating the Use of Unmanned Aerial Vehicles (UAVs) for Transportation Purposes	MTU	Brooks	Cook	5/22/13	11/30/14	\$270,323.91	96%	\$215,530.37	
	Evaluating the Use of Tow Plows in Michigan	LTU	Bandara	Croze	3/30/13	3/30/15	\$195,224.23	29%	\$39,364.65	

## Maintenance Pooled Fund Study

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
TPF-5(290)	Aurora Program	Gustafson	IA DOT	15	\$25,000.00	\$0.00	\$75,000.00	10/1/13	9/30/16

## Mobility, Systems & Signal Operations

FAM: Steve Cook, RM: André Clover

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	Evaluating Michigan Commercial Vehicle Enforcement Strategies and Facilities	WMU	Kwigizile	Firman	5/7/13	3/30/15	\$272,649.38	69%	\$169,318.43	
	Balancing the Costs of Mobility Investments in Work Zones	WSU	Gates	Owen	6/19/13	5/15/15	\$254,948.74	54%	\$125,309.46	

## Mobility, Systems & Signal Operations Pooled Fund Study

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
SPR-2(207)	Transportation Management Center (TMC) Pooled Fund Study	Peplinski	FHWA	32	\$50,000.00	\$0.00	\$100,000.00	10/1/13	9/30/15

## Pavements & Materials

FAMs: Curtis Bleech and John Staton, RM: André Clover

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1580	Evaluating the Financial Cost and Impact on Long-Term Pavement Performance of Expediting Michigan's Road Construction Work	MSU	El-gafy	Grazioli	10/1/11	10/30/13	\$66,756.87	100%	\$14,776.77	
RC-1593, RC-1594, RC-1595	Preparation of Implementation of the Mechanistic-Empirical Pavement Design Guide in Michigan	MSU	Buch	Eacker	10/1/11	10/31/14	\$415,572.26	97%	\$103,870.23	

## Pavements & Materials, cont.

FAMs: Curtis Bleech and John Staton, RM: André Clover

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	A Method to Assess the Use of New and Recycled Materials in Pavement	MSU	Kutay	Maack	10/1/13	3/31/15	\$201,655.00	47%	\$94,914.02	
	Performance Evaluation of Subgrade Stabilization with Recycled Materials	LTU	Bandara	Grazioli	10/1/13	4/30/15	\$219,692.24	20%	\$44,482.30	
	Improvement of Michigan Climatic Files in Pavement ME Design	MTU	You	Eacker	10/1/13	4/30/15	\$184,484.09	76%	\$139,757.69	

## Pavements & Materials Pooled Fund Studies

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
TPF-5(159)	Technology Transfer Concrete Consortium	Staton	IA DOT	28	\$7,000.00	\$45,000.00	\$59,000.00	10/1/08	9/30/15
TPF-5(215)	Transportation Engineering and Road Research Alliance (TERRA)	Clover	MN DOT	6	\$7,000.00	\$23,500.00	\$30,500.00	10/1/09	9/30/14
TPF-5(242)	Traffic and Data Preparation for AASHTO MEPDG Analysis and Design	Eacker	LA DOT	8	\$25,000.00	\$25,000.00	\$50,000.00	6/1/12	8/31/14
TPF-5(269)	Development of an Improved Design Procedure for Unbonded Concrete Overlays	Krom	MN DOT	8	\$20,000.00	\$40,000.00	\$60,000.00	4/13/12	9/30/14
TPF-5(286)	Next Generation Concrete Pavement Road Map	Staton	IA DOT	5	\$30,000.00	\$0.00	\$75,000.00	10/1/12	9/30/17
TPF-5(297)	Improving Specifications to Resist Frost Damage in Modern Concrete Mixtures	Stallard	OK DOT	13	\$35,000.00	\$0.00	\$52,500.00	10/1/13	9/30/15

## Rest Areas, Utilities & Landscaping

FAM: Kelby Wallace, RM: Michael Townley

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1569	Re-Examination of the 1994 and Subsequent Sewer and Culvert Installations of Various Pipe Types, Sizes and Depths	URS	Guter	Kline	5/25/11	7/15/14	\$598,929.80	97%	\$75,141.73	

## Transportation Safety

FAM: Mark Bott, RM: Michael Townley

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
RC-1603	Development of Performance Measures for Non-Motorized Dynamics	WMU	Oh	Thompson	10/1/12	12/31/13	\$206,623.86	98%	\$32,816.98	
RC-1609A	Evaluating the Costs and Benefits of Non-Differential Freeway Speed Limits for Trucks and Buses, and the Outcomes of Raising All Vehicle Speed Limits	WSU	Gates	Bott	2/26/13	12/31/14	\$308,633.26	91%	\$256,440.83	X
RC-1612	Study of High-Tension Cable Barrier on Michigan Roadways	WSU	Savolainen	Torres	10/1/11	12/31/14	\$236,435.73	99%	\$93,452.59	X
	Evaluation of Non-Freeway Rumble Strips, Phase II	WSU	Datta	Bramble	2/8/13	3/31/15	\$256,999.90	81%	\$154,728.50	
	Comparison of Alternative Pedestrian Crossing Treatments	WMU	Van Houten	McQuiston	10/1/13	4/30/15	\$239,613.63	35%	\$84,670.89	

# Transportation Safety, cont.

FAM: Mark Bott, RM: Michael Townley

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	Michigan Urban Trunkline Intersections Safety Performance Function (SPF) Development and Support	WSU	Gates	Kanitz	9/1/13	5/31/15	\$260,600.20	16%	\$41,796.65	
	Evaluation of Michigan's Engineering Improvements for Older Drivers	WMU	Kwigizile	Lariviere	10/1/13	9/30/15	\$304,449.48	35%	\$105,779.03	
	Michigan Urban Trunkline Segments Safety Performance Function (SPF) Development and Support	WSU	Gates	Kanitz	3/1/14	2/28/16	\$262,097.50	2%	\$6,239.43	

# Administration

Report Number	Title	Contractor	Investigator	Project Manager	Start Date	End Date	Total Budget	% Complete	FY 14 Expenditures	Spotlight
	Research Administration Section Planning and Communications	CTC	Casey	Polsofer	1/31/12	3/31/15	\$239,863.00	80%	\$20,520.02	

# Administration Pooled Fund Study

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
TPF-5(237)	Transportation Library Connectivity and Development	Briseno	MO DOT	25	\$5,000.00	\$20,000.00	\$30,000.00	5/1/11	9/30/15

# National Initiatives

Study Number	Title	MDOT Project Manager	Lead State or Agency	Number of Participating States	MI 2014 Expenditures	Expenditures Prior to 2014	Total MI Commitment	Start Date	End Date
115024	Environmental Technical Assistance Program (ETAP)	Barondess	AASHTO	N/A	\$16,000.00	\$8,000.00	\$24,000.00	10/1/12	9/30/15
115193	AASHTO Engineering Technical Service Programs	Clover	AASHTO/FHWA	N/A	\$100,000.00	\$0.00	\$100,000.00	10/1/13	9/30/14
121242	AASHTOWare Bridge Management Software: PONTIS 5.2 Development	Curtis	AASHTO/FHWA	N/A	\$125,000.00	\$125,000.00	\$250,000.00	10/1/12	9/30/14
SHR-2(014)	SHRP 2 Implementation	Clover	FHWA	N/A	\$399,508.00	\$0.00	\$409,799.00	10/1/13	9/30/14
TPF-5(298)	TRB Core Program Activities Period Covering - FY 2014 (TRB FY 2015)	Clover	FHWA	32	\$181,766.00	\$0.00	\$190,000.00	10/1/13	9/30/14
TPF-5(414)	National Cooperative Highway Research Program (NCHRP) for FY 2014	Clover	FHWA	N/A	\$1,054,701.70	\$0.00	\$1,100,000.00	10/1/13	9/30/14

## RESEARCH SERVICES STATISTICS (FY2014)

Amendments	3
Closed individual research projects	15
New individual research projects	14
Individual research projects	67
Pooled fund studies and other national research initiatives	23

## LIBRARY SERVICES STATISTICS (FY2014)

Total circulation (MDOT and C&T Library)	19,211
New materials	405
Reference services	357
Interlibrary loans	102
Visitors (MDOT Library only)	402

# The Research Administration Team



## MISSION

Promoting innovative research for economic benefit and improved quality of life

## VALUES

Quality  
Teamwork  
Customer Orientation  
Integrity  
Pride



## CONTACT US

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