TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT
for
National Road Research Alliance (NRRA)
Phase – 1 (2016-2021)
Phase – 2 (2021-2025)

Lead Agency: Minnesota Department of Transportation

Transportation Pooled Fund Program Project #	**Report Period:**
TPF-5(341) *http://www.pooledfund.org/Details/Study/590* TPF-5(466) https://pooledfund.org/Details/Study/693	2024 - Quarter 3 (July 1 – September 30, 2024)

Project Title: National Road Research Alliance – NRRA
http://www.dot.state.mn.us/mnroad/nrra/index.html

NRRA quarterly reports for Phase-I and Phase-II are being combined because of existing projects in phase-I that are still ongoing and still pertain to the NRRA efforts that are being done in phase-II. Both websites will be updated with the same quarterly report. Individual budgets are attached to this quarterly report for both efforts.

Project Manager(s):	**Phone Number:**	**E-Mail**
Ben Worel (MnDOT) Steve Cooper (FHWA)		Ben.worel@state.mn.us stephen.j.cooper@dot.gov
Lead Agency Project ID: None	**Other Project ID (i.e., contract #):** None	**Project Start Date:** Phase 1 - February 22, 2016 Phase 2 – February 22, 2021
Original Project End Date: Phase 1 - September 30, 2018 Phase 2 – February 22, 2026	**Current Project End Date:** Phase 1 – February 22, 2021 Phase 2 – February 22, 2026	**Number of Extensions:** Phase 1 - NRRA Executive Committee extended till 2021) Phase 2 - NA

Project schedule status → On schedule

Phase – 1 TPF-5(341) Overall Project Statistics:

Total Project Budget	Total Costs obligated to Date for Project	Percentage of Time and Funding Completed to Date
$5,000,000	SPR Funds Budgeted = $4,957,083 (99%) Invoices Paid = $4,777,471 (96%) Funds Remaining = 42,917	Complete as of Feb 22, 2021 SPR 341 left open till all contracts are complete for Phase-I and audit can be done

Phase – 2 TPF-5(466) Overall Project Statistics:

Total Project Budget	Total Costs obligated to Date for Project	Percentage of Time and Funding Completed to Date
$7,559,163 (SPR) $8,355,326 (SPR+MnDOT Projects Funding)	Total Funds Budgeted by Executive Committee = $8,430,030 Dollars paid out = $2,846,545 (38%) Funds Remaining to spend = (-)$74,704 (note expecting $700,000 more SPR from agencies to cover this negative remaining funds and future projects)	Time = 46/60 months (77%)

Project Description:
This pooled fund phase-II is open for new states and they can join at any time. This pooled fund will help direct and compliment the use of the MnROAD test track for local, regional and national research, tech transfer and implementation. Road owner agencies will provide input and participate in the decision making needed for future MnROAD construction and research scheduled in 2017 (Phase-I) and in 2022 (Phase-2). In Phase-I MnDOT and Missouri have funded construction in both states while Phase-2 MnDOT, Missouri, Wisconsin will fund 2022-2023 construction of test sections. MnROAD will continue to support common goals. Industry and academia will also play an important role to provide critical input on long-term future trends in research and barriers to implementation, including working with their customers and members who play a direct role in implementation.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):
To date 14 government agencies and over fifty-five (85+) industry, associations, consultants, and academic institutions have become NRRA members to share their expertise and are learning about new tools and methods to improve and expand upon transportation systems nationally.

Membership
- Idaho joined NRRA in 2024 / Montana and Nebraska joined NRRA in 2022.
- Around 85+ NRRA associates participating.

Phase-I Projects
- Tech Transfer - 100% of the 13/13 projects complete.
- 2017 Long Term Research – 100% of the 8/8 projects complete.
- 2019 Long Term Research – 91% of the 10/11 projects complete.
- 2019 Call for Innovation Research – 67% of the 4/6 projects complete.
- 2020 Call for Innovation Research – 72% of the 5/7 projects complete.

Phase-2 Projects
- 2021 Long Term Research
  - 7% of the 1/14 projects complete.
  - Missouri contract for reflective cracking contract to be developed
  - 2 RFP are being developed – perpetual pavements and recycled binder availability.
- 2023 Call for Innovation (approved July 2023)
  - 16 projects

General
- NRRA Technical Teams have met every month again this quarter which also acts as TAP meetings for each team's short and long-term research efforts.
- See the NRRA website for details on all the teams' updated activities.
- Monthly Research pays off webinars have been completed and a plan for 2024 topics are developed.
- Agency participated in 2 trips (2 per agency) either for the 13th International Concrete Pavement conference in Minnesota and/or the Intelligent construction conference in Florida.
- MnROAD constructed 8 low cement / reduced cement test sections to support a newly funded use of Innovative Sustainable and Durable Materials in Concrete Pavements.
- NRRA budget for Phase-I and Phase-II are attached at the end of this report.

Anticipated work next quarter:
The following is expected to be completed for next quarter.
- Final contracts for 3 of the RFP will be finalized in 2024.
- Final contract being worked on for the Missouri reflective cracking/NCAT additive study that Missouri is funding with SPR dollars.
- Continued work on Phase-I pooled fund efforts and reporting progress in the team meetings.
- Continued work on Phase-2 pooled fund efforts and reporting progress in the team meetings.
- Planning for 2025 TRB meeting and travel along with the April 2025 NRRA Pavement Conference to be held in Minnesota.
- Added a "working group" for agencies/members to work on low carbon materials and what coordination is possibly needed with the funding each state has received. This could develop into a team depending on

what is needed.
- Working on collecting member input for the NRRA benefits document.

Significant Results:
Currently this pooled fund is working well for all the members. We have shared resources and technology with each other related to intelligent construction and sustainability and have discuss a number of topics in the technical teams. More formal documentation will start to be developed as the contracts are awarded and this work begins.

- NRRA includes15 government members and at 85+ associate members. New agencies/associates are always welcome to join at any time during this phase.
- Many technologies transfer and long-term research needs are completed or under contract. The progress/final products are shown on the NRRA website.
- NRRA members are asked to continue to brainstorm how as a group we can push implementation noting that NRRA has funding to help with this as needed in the form of contracts or travel.

Attachment A (Income Summary)
- Contains the NRRA income summary.

Attachment B (Financial Summary)
- Contains the funding summary along with the research progress by invoices. More detail is listed under the NRRA team member's webpages.

Potential Implementation:
See the NRRA team pages for implementation topics that are being developed – TAP members of each of the contracts and teams will be asked to help the development of implementation for the technology transfer team to push with its members. This is a focus area that is probably the hardest part of successful research. The technology transfer team will be focused on this topic in the upcoming months.

Attachment – A1 (NRRA Phase-1 Income) – 10/15/2024 financial Report

NRRA Phase-1

TPF-5(341) National Road Research Alliance - NRRA Pooled fund

Funding income complete

		2016	2017	2018	2019	2020	2021	Total
CA	Obligation	-	150,000	50,000	150,000	150,000	150,000	650,000
	Payment	-	150,000	50,000	150,000	150,000	150,000	650,000
IA	Obligation					150,000		150,000
	Payment					150,000		150,000
IL	Obligation	150,000	150,000	150,000	150,000	150,000	150,000	900,000
	Payment	150,000	150,000	150,000	150,000	150,000	150,000	900,000
MI	Obligation	150,000	150,000	150,000			300,000	750,000
	Payment	150,000	150,000	150,000			300,000	750,000
MN	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
	Payment	150,000	150,000	150,000	150,000	150,000		750,000
MO	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
	Payment	150,000	150,000	150,000	150,000	150,000		750,000
ND	Obligation	-	-	-	75,000	75,000		150,000
	Payment	-	-	-	75,000	75,000		150,000
WI	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
	Payment	150,000	150,000	150,000	150,000	150,000		750,000
Illinois Tollway	Obligation					150,000		150,000
	Payment					150,000		150,000
Totals	Obligation	750,000	900,000	800,000	825,000	1,125,000	600,000	**5,000,000**
	Payment	750,000	900,000	800,000	825,000	1,125,000	600,000	**5,000,000**

Pooledfund.org does not show 150K Illinois Tollway contribution - $4,850,000 shown on website

Attachment – A2 (NRRA Phase-2 Income) – 10/15/2024 financial Report

NRRA Phase-2

TPF-5(466) National Road Research Alliance - NRRA Pooled fund

		2021	2022	2023	2024	2025	2026	Total
CA	Obligation		150,000	150,000	300,000			600,000
	Payment		150,000	150,000	300,000			600,000
FHWA**	Obligation	488,000						488,000
	Payment	488,000						488,000
GA (Veda)	Obligation		25,000	25,000	25,000	25,000		100,000
	Payment		25,000	25,000	25,000			75,000
IA	Obligation			75,000	150,000	150,000		375,000
	Payment			75,000	150,000			225,000
ID	Obligation				75,000	75,000		150,000
	Payment				75,000			75,000
IL	Obligation		150,000	150,000	150,000	150,000	150,000	750,000
	Payment		150,000	150,000	150,000			450,000
Illinois Tollway	Obligation			75,000	75,000			150,000
	Payment			75,000	75,000			150,000
MI	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
	Payment	150,000	150,000	150,000	150,000			600,000
MN***	Obligation	150,000	150,000	746,163	150,000	150,000		1,346,163
	Payment	150,000	150,000	746,163	150,000	38,816		1,234,979
MO*	Obligation	550,000	150,000	150,000	150,000	150,000		1,150,000
	Payment	550,000	150,000	150,000	150,000			1,000,000
MS	Obligation	75,000	75,000	75,000	75,000	75,000		375,000
	Payment	75,000	75,000	75,000	75,000			300,000
MT	Obligation			75,000	75,000	75,000		225,000
	Payment			75,000	75,000			150,000
ND	Obligation	75,000	75,000	75,000	75,000	75,000		375,000
	Payment	75,000	75,000	75,000	75,000			300,000
NE	Obligation			75,000	75,000			150,000
	Payment			75,000	75,000			150,000
NY (Veta)	Obligation	25,000	25,000	25,000	25,000	25,000		125,000
	Payment				100,000			100,000
WI	Obligation	150,000	150,000	150,000				450,000
	Payment	150,000	150,000	150,000				450,000
Totals	Obligation	1,663,000	1,100,000	1,996,163	1,550,000	1,100,000	150,000	**7,559,163**
	Payment	1,638,000	1,075,000	1,971,163	1,625,000	38,816	-	**6,347,979**

MO* - Missouri added 400K to support the Missouri Reflective Cracking/Additive efforts

FWHA** - FHWA added 300K for Carbon Cure PCC and 188K for ICT related efforts

1,211,184 Addional Payments

MnDOT*** - MnDOT added 400K for Veta in Dec 2022 + 200K for e-tciketing Dec 2023 non-SPR dollars + 196,163 past Veta Funds

Attachment – B1 (NRRA Phase-1 Financial Summary and Project Invoicing) – 10/15/2024 financial Report

NRRA Phase-1
TPF-5(341) National Road Research Alliance - NRRA Pooled fund

For 2023 - quarter 2 report - updated 6/27/2023

Funding Group	Description	Total Dollars		Percent	SPR (Contracted but not paid out)	SPR (Not Bugeted)
States (SPR)	- Pooled Funds (9 agencies) - Pooled Fund + Wisconsin 150K + 150K Toll	$	5,000,000			
	Total SPR Encumbered =	$	4,957,083	99%		$ 42,917
	Paid Invoices =	$	4,777,471	96%	$ 222,529	
Additioanl State Funding (Not NRRA SPR Dollars)	MnDOT Constrction Funding for 2017 MnROAD Construction	$	3,132,681			
	Missouri DOT funding - roller compacted PCC constr and research	$	275,000			
	Total Spending (SPR and Other)	$	8,407,681			

Spending Details **SPR Dollars Budget/Spending**

NRRA Focus Areas	Effort Type	Item	Project Charge #	General Outcome / Deliverable	Vendors	Encumbered	Payments Invoiced	Payment Percent
Marketing (M)	Labor	M1.1	TPF15341A	MNDOT Labor - (Website, Monthly Newsletter, Written Documents/Marketing)	MnDOT	189,800	189,800	100%
Tech Transfer (T)	Purchase	T1.1	TPF15341	Agency travel / meals / Shipping	MNDOT PO	59,047	59,047	100%
	Contract	T1.2		Communication (Written, Newsletter, video, Website) - MnDOT will not charge	Not Done			
	Contract	T1.3.1	TPF15341	Tack Coats Longitudinal Joint Construction Performance Design and Performance of Concrete Unbonded Overlays Repair of Joint Associated Distress Pavements Larger Subbase Materials - Done by Iowa State Subgrade Design for New and Reconstructed Surface Characteristics of Diamond Ground PCC Surfaces Pavement preservation approaches for lightly surfaced roadways Partial Depth Repairs of Concrete E-Ticketing	2016 State of Practice (SRF) top two topics from each team established in 2016	95,565	95,565	100%
	Labor	T1.3.2	TPF15341B	Tech transfer write-ups (MnDOT Labor) - Topics Below	MnDOT	21,965	21,965	100%
	Contract	T1.5.1	TPF15341	HMA – Asphalt Mixture Rejuvenator Synthesis PM - NRRA Spray on Rejuvenator Synthesis PM - Concrete Pavement Restoration (CPR) for BCOA PM - Service Life Enhancement of Substrates Overlaid with Thin Overlays	2019 State of Practice (WSB)	92,102	92,102	100%
Research (R)	Purchase	R1.1	TPF15341	2017 MnROAD Constrruction Sensor Purchases	MnDOT PO	159,130	184,672	100%
				2018 CCP Missouri Sensor Purchases - broken off the 60K avalible		25,542		
	Labor	R1.3	TPF15341C	Inspection (MnDOT) - costs over the initial budget	MnDOT	97,773	97,773	100%
	MnROAD Labor	R1.4	TPF15341D	MnROAD Site Staff Labor - additional 120K approved by EC Dec 2017	MnDOT	279,318	808,593	100%
		R2.4		Approved $120K extra funding for monitoring 2018		120,000		
		R3.4		Approved $200K extra funding for monitoring 2019 - 2022 adjustment 182K		200,000		
		R4.4		Approved $200K extra funding for monitoring 2020		183,275		
		R1.8		Missouri Sensor Labor Costs for 2018 installs		26,000		
	Contract	R1.5	TPF15341	PCC Sampling/Testing	AET Consultant	20,000	61,514	100%
		R2.5		Additional Funding Approved (low initial estimate)		41,514		
	Contract	R1.6		HMA Performance Testing (75K original Estimate - will not use in Phase-I)	Not Done			
	Contract	R1.7		Partial Depth Repairs Construction (not in construction contract)	Diamond Surfacing	40,000	78,662	100%
		R2.7		Additional Funding Approved		38,662		
	MnDOT Agreement	R1.8		Compacted Concrete Pavement Constructior	Missouri DOT Hired University			
	Contract	R1.9		Diamond Grinding Construction (not in const	Not Done			

NRRA Focus Areas	Effort Type	Item	Project Charge #	General Outcome / Deliverable	Vendors	Encumbered	Payments Invoiced	Payment Percent
Research (R)	2017 Long Term Projects	R1.10	TPF15341	HMA Overlay and Rehab of Concrete and Methods of Enhancing Compaction	UNH	169,970	169,970	100%
		R1.11		Cold Central Plant Recycling	AET Consultant	99,997	99,997	100%
		R1.12		Fiber Reinforced Concrete Pavements	UMD	145,462	145,462	100%
		R1.13		Long Term Effects of Diamond Grinding - $75(	Not Done			
		R1.14		Concrete Early Opening Strength to Traffic	UofPitt	149,999	149,999	100%
		R1.15		Optimizing the Concrete Mix Components for Contractors	Iowa State	147,627	147,627	100%
		R1.16		Compacted Concrete Pavements for Local Streets - $80K - Did do in Missouri	Not Done			
		R1.17		Recycled Aggregates in Aggregate Base and Larger Subbase Materials	Iowa State	225,000	225,000	100%
		R1.18		Maintaining Poor Pavements	SRF	28,725	28,725	100%
		R1.19		Partial Depth Repair	Braun Inertec	74,925	74,925	100%
Research (R)	2019 Long Term Research	R1.21	TPF15341	HMA – Asphalt Mix Rejuvenator Test Sections (added 50K in April 2020)	UNH	148,981	135,437	91%
		R1.22		PM - Spray on Rejuvenator Test Sections	NCAT - 100k	133,912	34,362	26%
		R1.23		ICT - Levels 3-4 Intelligent Compaction Measurement Values (ICMV) for Soils Subgrade/Aggregate Subbase Compaction	Transtec Group	162,024	161,982	100%
		R1.24		ICT - Support Importing, Viewing and Analysis of Dielectric Constant Data in Veta (paid by Veta pooled fund)	Transtec Group	-	-	
		R1.25		ICT - HD and VHD Seismic Approaches for Roadway Evaluation	Park Consulting	299,686	299,686	100%
		R1.26		Geo - Mechanistic Load Restriction Decision Platform for Pavement Systems Prone to Moisture Variations	UNH	90,231	90,231	100%
		R1.27		Geo - Environmental Impacts on the Performance of Pavement Foundation	Michigan State	35,000	35,000	100%
		R1.28		Geo - Permeability of Base Aggregate and Sand		30,000	30,000	100%
		R1.29		Geo - Improve material inputs into mechanistic design properties for reclaimed HMA Roadways		29,999	30,000	100%
		R1.30		PCC - Construction Report for Jointless FRC Roundabout in Minnesota	Iowa State	49,999	49,999	100%
		R1.31		PCC - Incorporate Joint Faulting Model Into BCOA-ME	Contracting Uof Pittsburg	24,999	24,999	100%
		R1.32		PCC - Engineered Dowel and Tie Bars combined with LTPP SPS-2 Determination of Causes for Cracking Over Dowel Bars	ERES Consulting	88,864	101,083	114%

NRRA Focus Areas	Effort Type	Item	Project Charge #	General Outcome / Deliverable	Vendors	Encumbered	Payments Invoiced	Payment Percent
Research (R)	2019 Call for Innovation	R1.33		Performance of Concrete Overlays over Full Depth Reclamation (FDR)	ARM	15,313	15,313	100%
		R1.34		Blending of Higher Strength Aggregates with Recycled Concrete and Marginal Aggregates to Improve Concrete Properties	U of St Thomas	32,332	26,332	81%
		R1.35		Bio-material Maintenance Treatments	Iowa State	50,000	50,000	100%
		R1.36		Innovative Practical Approach To Assessing Bitumen Compatibility As A Means Of Material Specification	Cargill	204,119	168,790	83%
		R1.37		Cold Asphalt Recycling Technologies using Rejuvenating Asphalt Emulsion: Impact; Implementation; Specification	UNH	141,440	141,400	100%
		R1.38		Support Contract for T1.3.1 (SRF) Repair of Joint Associated Distress Pavements	Iowa State	4,972	4,972	100%
	2020 Call for Innovation	R1.39		Pavement-Specific Structural Synthetic Fibers	UMD	99,792	70,000	70%
		R1.40		Understanding and Improving Pavement Milling Operations	University of New Hampshire	100,000	92,608	93%
		R1.41		Novel Methods for Adding Rejuvenators in Asphalt Mixtures with High Recycled Binder Ratios	NCAT	80,000	80,000	100%
		R1.42		Impact of Polymer Modification on IDEAL-CT and I-FIT for Balanced Mix Design	NCAT	100,000	100,000	100%
		R1.43		Asphalt Real Time Smoothness (ARTS) for Asphalt Paving	Transtec Group	104,021	103,877	100%
		R1.44		Enhanced Entrained Air Void System Characterization for Durable Highway Concrete	TSU	100,000	100,000	100%
		R1.45		Continuous Moisture Measurement during Pavement Foundation Construction	UTEP	100,000	100,000	100%
					Totals =	**$ 4,957,083**	**$ 4,777,471**	**96.4%**

Attachment – B (NRRA Phase-2 Financial Summary and Project Invoicing) – 7/15/2024 financial Report

NRRA Phase-2
TPF-5(466) National Road Research Alliance - NRRA Pooled fund
For 2023 - quarter 3 report - updated 10/13/2023

SPR Funding			SPR Dollars	Percent	Remaining	Comment
SPR Funding	SPR - Pooled Funds **(Expected from Agencies)** =		$ 7,559,163	84%		More funding expected (income) to come
	SPR - Pooled Funds **(Received from Agencies)** =		$ 6,347,979			
	Non-SPR MnDOT money for Veta (includes 2024 money)=		$ 600,000			
	Past SPR rollover funding from Veta TPF5(334) for Veta =		$ 196,163			
	Total Funding (SPR and MnDOT) =		$ 8,355,326			
	(MnDOT Encumbered/EC Approved) for Projects =		$ 8,430,030	101%	$ (74,704)	
	SPR Invoiced **(Spent)** =		$ 2,846,545	38%		
MnDOT State Funds	MnDOT Construction Funding for 2022 MnROAD Construction (budgeted) =		$ 6,000,000			
	NRRA Associate funding (not included in this budget but used for NRRA needs)		Used for NRRA efforts --> MnDOT documented dollars			
Partnerships	FHWA Carbon Cure (400K) and ICT Team (188K) Partnership =		$ 588,000	Included already in totals above		
Grand Total	$ 14,147,163	SPR + Construction + FHWA funding				

SPR Dollars Budget/Spending

NRRA Focus	Project# Contract#	General Outcome / Deliverable	Vendors	EC Team Approved	Payments Invoiced	Payment Percent
Travel	TPF15466A	Original Agency travel / meals / meeting room costs	MnDOT Coordination	50,000	80,467	76%
		2024 Concrete International Conference (Workshop and 2/agency travel)		6,500		
		2024 ICT Florida or International Concete Consortium (2 trips/agency)		50,000		
Sensors	TPF15466B	MnROAD Sensors, Equipment, Shipping for 2022 studies (350K) plus 220K funding for 2024 sensors and dynamic upgrades	MnDOT Purchase Orders	570,000	344,787	60%
MnROAD Labor	TPF15466C	MnROAD Staff - Labor for sensors and monitoring (5 years)	MnDOT	800,000	535,256	67%
2021 ICT Funding	BUDGET NOTE	Total Funds for ICT = $1,971,163 (2021 NRRA Directed funding $1,375,000 (includes FHWA 188K) then + 400K MnDOT + 196,163 TPF5(334) rollover) + in 2024 200K MnDOT and 105K NRRA for amendment				
	TPF15466D 1047755	Veta Web and Veta MDMS Standardized Platform	Transtec Group	2,076,163.00	1,025,688	49%
2021 General Team Funding	BUDGET NOTE	Total Funds for Non-ICT Teams = $2,525,000 (2021 NRRA Directed funding $2,125,000 + Missouri 400K funding)				
	TPF15466E 1048189	MnROAD Reflective Cracking Challenge (NRRA)	UNH Auburn	230,499	15,037	7%
	TPF15466EE	Reflective Cracking Challenge Coordination (Missouri - 400K) (400K from Missouri - not apart of the initial $2,125,000 the EC approved)	University of Missouri-Columbia	400,000	-	Contract Development
	TPF15466F 1048190	Use of Alternative Pozzolanic Materials Towards Reducing Cement Content in Concrete Pavements	Nichols Consulting APT	173,148	69,269	40%
	TPF15466G 1048191	Use of Carbon Dioxide for Sustainable and Resilient Concrete Pavements (400K FHWA along with construction, sensors, monitoring)	Iowa State	150,000	74,122	49%
	TPF15466H 1048192	The Use of Alternative Cementitious Materials in Concrete Pavements	Applied Pavement Technology - NCE	150,000	69,225	46%
	TPF15466J 1048193	Performance Evaluation of Wicking Geotextiles for Improving Drainage and Stiffness of Road Foundation	Michigan State Michigan Tech/ Ingios	200,000	151,146	76%
	TPF15466K 1048377	Reclamation and Recycling Techniques to Achieve Perpetual Pavements Characteristics	Braun Intertec	150,002	84,271	56%
	TPF15466L 1036343(3)	Flooded Pavements Assessment App–Phase 2	UNH	200,234	21,538	11%
	TPF15466M 1048485	Validation of Loose Mix Aging Procedures for Cracking Resistance Evaluation in Balanced Mix Design	Auburn University UNH - TTI	100,000	100,000	100%
	TPF15466N 1048486	Perpetual Pavements in Wet Freeze Climate	RFP later in Fall 2024	200,000	-	RFP Soon
	TPF15466P 1048487	Thinlays as a PM Treatment	Terracon	49,918	42,504	85%
	TPF15466R 1048488	Recycled Binder Availability	RFP later in 2024	200,000	-	RFP Soon
	TPF15466S MnIT SWIFT #214249	InfoPAVE MnROAD Database Support and Development	i-Engineering	281,000	-	0%

NRRA Focus	Project# Contract#	General Outcome / Deliverable	Vendors	EC Team Approved	Payments Invoiced	Payment Percent
2023 Research Efforts	TPF15466U 1036337WO6	Instrumentation and data management/analyses for Measurement While Drilling (MWD) technology	MTU	216,845	107,482	50%
	TPF15466V 1036333W07	Field Validation of Using Warm Mix Asphalt at Reduced Production Temperatures for Balanced Mix Design	Auburn University	125,000	-	0%
	TPF15466W 1036333W06	Use of Recycled Materials in Pavement Preservation	Auburn University	86,319	29,644	34%
	TPF15466X 1036333W08	Standardization of SIP Calculation for Hamburg Wheel Tracking Test	Auburn University	47,500	5,000	11%
	TPF15466Y 1036336WO13	Improving Moisture Resistance/Control of Pavement Foundation Systems via Engineered Water Repellency	Michigan State University	160,000	18,542	12%
	TPF15466Y	2024 Construction Repairs - Engineered Water Repellency	FPI Paving Contractors	25,848	-	0%
	TPF15466T	2023 Original Construction - Engineered Water Repellency (40K from MSU 200-40=160 with additional 40K NRRA to cover costs)	Paragon Construction	74,855	-	0%
	TPF15466Z 1036334WO14	Reducing Embodied Carbon with Mineral-Blended Polymeric Microspheres	CP Tech Center	137,486	-	0%
	TPF15466AA 1055530	Effective Use of Traffic Speed Deflectometer for Network-based and Project-based Applications	UTEP	150,000	-	0%
	TPF15466AB 1036337WO5	Hot rubber seal coating to survive wet and frozen environments	MTU	181,912	-	0%
	TPF15466AC 10555518	Automated 3DGPR Analysis for Concrete Pavement Evaluation	Infrasense	156,905	22,567	14%
	TPF15466AD 1036343WO10	Continued Monitoring of TH6 RA Field Sections	UNH	155,408	-	0%
	TPF15466AE 1036343WO9	Continued Monitoring of Original I-94 Westbound Asphalt Overlay Sections and Use of Cracking and Performance Data	UNH	150,000		
	TPF15466AF TBD	Establishing Applicability of NDT Methods for Project-Level Evaluation	UTEP	150,000	-	0%
	TPF15466AG 1056175	Materials-Based Methods to Improve Rumble Strip Durability	Asphalt Materials	99,488	-	0%
March 2024 Contracting	TPF15466AH 1036333WO10	Validation of Loose Mix Aging Procedures for Cracking Resistance Evaluation in Balanced Mix Design (Phase IIA)	Auburn University	300,000	50,000	17%
	TPF15466AD 1056682	Use of Innovative Sustainable and Durable Materials in Concrete Pavements	RFP	175,000	-	0%
			Totals =	**8,430,030**	**2,846,545**	