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/5902021 - Quarter 4

TPF-5(466) https://pooledfund.org/Details/Study/693 (October 1 – December 31, 2021)

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 guarterly report. Individual budgets are attached to this guarterly report for both efforts.

Project Manager(s):	Phone Number:	E-Mail
Glenn Engstrom (MnDOT)	(651) 366-5531	glenn.engstrom@state.mn.us
Robert Orthmeyer (FHWA)	(708) 283-3533	Robert.orthmeyer@dot.gov
Lead Agency Project ID:	Other Project ID (i.e., contract #):	Project Start Date:
None	None	Phase 1 - February 22, 2016
		Phase 2 – February 22, 2021
Original Project End Date:	Current Project End Date:	Number of Extensions:
Phase 1 - September 30, 2018	Phase 1 – February 22, 2021	Phase 1 (Approved - Dec 2017 by
Phase 2 – February 22, 2025	Phase 2 – February 22, 2025	NRRA Executive Committee till
		2021)
		Phase 2 - NA

Project schedule status → On schedule

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

Total Project	Total Costs obligated	Percentage of Time and
Budget	to Date for Project	Funding Completed to Date
\$4,850,000	SPR Funding Budgeted = \$4,883,481 (101%)	Complete as of Feb 22, 2021
	Invoices Paid = \$3,467,711 (71%)	Some contracts still continue into Phase-II
	Funds Remaining = -20,702	Showing a neg balance but expect this to change

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

Total Project	Total Costs obligated	Percentage of Time and
Budget	to Date for Project	Funding Completed to Date
\$4,938,000	SPR Funding Budgeted	Time = 10/60 months (17%)
	\$5,100,000 (103%)	SPR Encumbered = \$4,238,148 (86%)
	Funds Remaining = -\$162,000	

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 ten (11) government agencies and over fifty-five (65+) 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.

Phase-I Projects

- Tech Transfer 100% of the 13/13 projects complete.
- 2017 Long Term Research 50% of the 4/8 projects complete
- 2019 Long Term Research 8% of the 1/11 projects complete
- 2019 Call for Innovation Research 0% of the 0/5 projects complete
- 2020 Call for Innovation Research 0% of the 0/7 projects complete

Phase-2 Projects

- 2021 Long Term Research 0% of the 0/13 projects complete
- Currently teams have research RFP contractors selected and MnDOT is coordinating the contracting on each effort and is done with 80% of them to-date.

General

- NRRA members/Teams have met every monthly again this quarter which also acts as TAP meetings for each team's short and long term research efforts also focusing on development of 2021 projects with inputs on MnROAD 2022 construction / sensors.
- Monthly Research pays off webinars have been completed and a plan for 2022 topics are developed.
- Budget sheet is attached at the end of this report.
- See the NRRA website for details on all the teams' updated activities.

Anticipated work next quarter:

The following is expected to be completed for next quarter.

- Final contracts for 2 of the RFP will be finalized.
- Technical teams TAPS developing construction designs, layers, sensor requirements, and ICT related construction activities to include in the 2022 MnROAD construction.
- Development of partnerships with FHWA for veta and carboncure related research efforts.
- Development of partnerships with a local HMA plant to furnish HMA surface mix for the reflective cracking group study.
- Development of partnerships with a local PCC plant to furnish PCC mix need for the 2022 construction.
- Development of partnerships with Missouri and the funding received for reflective cracking challenge.
- Contact member states and their pooled fund dollar commitments
- Continued work on Phase-I pooled fund efforts and reporting in the team meetings.
- 2022 TRB NRRA meeting activities
- Planning <u>2022 Minnesota Transportation Conference & Expo</u> in St. Paul, Minnesota, May 17-19 and the NRRA tracks for each technical team.

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 have discuss a number to topics in the technical teams. More formal documentation will start to be developed at the contracts are awarded and this work begins.

NRRA is now up to 11 government members and at 65+ associate members. NRRA Agencies and Associates members make up the now 6 teams that play an important technical role in setting both the technology transfer and long-term research needs. Each team has been active this summer meeting every two weeks to develop and prioritize ideas that fall into each of these categories above to meet both local, state, regional and national research needs. The teams report directly to the NRRA executive committee.

The current push by each of the NRRA technical teams is to develop long term research needs and the MnROAD test sections that will be used to support these initiatives. MnDOT is providing \$4 million of construction funding to support NRRA long term research needs to be built at MnROAD in the summer of 2022. Each team is working to get the final designs and special provisions to MnDOT so the plans can be developed, and a formal construction project can be let in February 2022. The long-term research is listed in the phase-2 budget along with the budgets determined by the executive team.

Other important team activities include the formation of technology transfer topics. The NRRA technology transfer team has been approved by the executive committee to fund 2 technology transfer topics from each of the four technical teams. Each topics goal is to pull together the existing state and national state of practice so that a common practice or specification can be developed by the members. Prioritized topics include longitudinal joint construction performance, tack coats, design and performance of concrete unbonded overlays, repair of concrete joint related distress, large unbound subbase materials, subgrade design, surface characteristics of diamond ground PCC, and pavement preservation approaches to lightly surfaced roadways. Currently the teams are updating the problem statements so that a MnDOT hired contractor can be hired to complete the work.

More information on these efforts including the long term research and technology transfer topics can be found under each of the <u>team member's webpage</u>. Summary of the projects are also attached in attachment C at the end of this report.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems)

None

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 A - NRRA Budget Summary (July 20, 2021)

NRRA Phase-1

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

Funding income complete

Current		2016	2017	2018	2019	2020	2021	Total
CA Obligation Payment - 150,000 50,000 150,000 150,000 150,000 IA Obligation Payment - 150,000 150,000 150,000 150,000 IL Obligation 150,000 150,000 150,000 150,000 150,000 150,000 Payment 150,000 150,000 150,000 150,000 150,000 150,000 150,000 MI Obligation 150,000 150,000 150,000 150,000 150,000 300,000 MN Obligation 150,000 150,000 150,000 150,000 150,000 150,000 Payment 150,000 150,000 150,000 150,000 150,000 150,000 MO Obligation 150,000 150,000 150,000 150,000 150,000 ND Obligation 250,000 150,000 150,000 150,000 150,000 150,000 WI Obligation 250,000 150,000 150,000 150,000 150,000 150,000 Illinois 70lway Payment 250,000	650,000							
	150,000	500,000						
IA	Obligation				0,000 150,000 150,000 650,00 0,000 150,000 150,000 500,00 150,000 150,000 150,00 150,000 150,000 150,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 300,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00 150,000 150,000 750,00	150,000		
	Payment					150,000		150,000
IL	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
	Payment	150,000	150,000	150,000	00 150,000 150,000 650,000 00 150,000 150,000 500,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 75,000 75,000 750,000 75,000 75,000 750,000 150,000 150,000 750,000 150,000 150,000 750,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000			
MI	Obligation	150,000	150,000	0,000 50,000 150,000 150,000 150,000 650,000 0,000 50,000 150,000 150,000 500,000 150,000 150,000 150,000 150,000 0,000 150,000 150,000 750,000 0,000 150,000 150,000 750,000 0,000 150,000 300,000 750,000 0,000 150,000 300,000 750,000 0,000 150,000 150,000 750,000 0,000 150,000 150,000 750,000 0,000 150,000 150,000 750,000 0,000 150,000 150,000 750,000 0,000 150,000 150,000 750,000 - - 75,000 75,000 750,000 - - 75,000 750,000 750,000 0,000 150,000 150,000 750,000 750,000 0,000 150,000 150,000 150,000 150,000 <td< th=""></td<>				
	Payment	150,000	150,000	150,000			300,000	450,000
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
МО	Payment 150,000 150,000 150,000 150,000 750,000 Obligation 150,000 150,000 150,000 150,000 750,000	750,000						
	Payment	150,000	150,000	150,000	150,000	150,000		750,000
ND	Obligation	1	1	1	75,000	75,000		150,000
	Payment	1	- 150,000 50,000 150,000 150,000 650,000 - 150,000 50,000 150,000 150,000 500,000 - 150,000 150,000 150,000 150,000 150,000 150,000 150,000 150,000 750,000 150,000 150,000 150,000 150,000 750,000 150,000 150,000 150,000 750,000 750,000 150,000 150,000 150,000 750,000 750,000 150,000 150,000 150,000 750,000 750,000 150,000 150,000 150,000 750,000 750,000 150,000 150,000 150,000 750,000 750,000 150,000 150,000 150,000 750,000 750,000 150,000 150,000 150,000 750,000 750,000 - - - - 75,000 750,000 150,000 150,000 150,000 150,000 750,000					
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	Obligation					150,000		150,000
Tollway	Payment					150,000		150,000
Totals	Obligation	750,000	900,000	800,000	825,000	1,125,000	450,000	4,850,000
	Payment	750,000	900,000	800,000	825,000	1,125,000	450,000	4,850,000

NRRA Phase-2

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

Funding income now active

Current		2021	2022	2023	2024	2025	2026	Total
CA	Obligation							1
CA	Payment							ı
IΛ	Obligation							1
CA	Payment							ı
	Obligation		150,000	150,000	150,000	150,000	150,000	750,000
CA IA IL MI MN MO* MS ND WI FHWA** Illinois Tollway Totals	Payment							-
MI	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
CA Payr	Payment	150,000						150,000
MN	Obligation	150,000	150,000	150,000	150,000	150,000		750,000
14114	Payment	150,000.00	150,000	150,000	150,000	38,816		638,816
MO*	Obligation	550,000	150,000	150,000	150,000	150,000		1,150,000
MO*	Payment	550,000						550,000
MS	Obligation	75,000	75,000	75,000	75,000	75,000		375,000
MN MO* MS ND	Payment							-
ND	Obligation	75,000	75,000	75,000	75,000	75,000		375,000
CA	Payment	75,000						75,000
IA IL MI MN MO* MS ND WI FHWA** Illinois Tollway	Obligation	150,000	150,000					300,000
VVI	Payment	150,000	87,286					237,286
Ε Η\Λ/Λ**	Obligation	488,000						488,000
IIIVA	Payment	488,000						488,000
Illinois	Obligation							-
Tollway	Payment							-
Totals	Obligation	1,638,000	900,000	750,000	750,000	750,000	150,000	4,938,000
iotais	Payment	1,563,000	237,286	150,000	150,000	38,816	-	2,139,101

 $\mbox{MO*}$ - 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

Funding Summary - January 27, 2022

Same as last quarter

Attachment B - NRRA Budget Summary (October 22, 2020)

This spreadsheet is approximate summary of income and spending – MnDOT finance has the official dollars.

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

For 2020 - quarter 4 report - updated 1/22/2020 SPR **Funding Group** Description **Funding Totals** Remaining SPR - Pooled Funds (9 agencies) - Pooled Fund + Wisconsin 150K + 150K Tollway 4,850,000 Percent \$ (33,481) States (SPR) Total SPR Encumbered = 4,883,481 101% 3,467,711 71% Paid Invoices = MnDOT Constrction Funding for 2017 MnROAD Construction 3,132,681 **Additioanl State Funding** Missouri DOT funding of the roller compacted PCC construciton and research effort 275,000 (Not NRRA SPR Dollars) NRRA Associate funding not included in this budget Not in this report 8,257,681

				Total Spending (SPR and Other)	\$ 8,257,681	_		
Spending De	etails	SPR Dolla	rs Budget/Spe	nding				
NRRA Focus Areas	us Areas Type (Letter.#) Charge General Outcome / Deliverable #		tem 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	152,648	152,648	100%
	Purchase	T1.1	TPF15341	Agency travel / meals / meeting room costs (assume no more travel in 2020)	MNDOT PO	93,368	37,842	41%
	Contract	T1.2	TPF15541	Communication (Written, Newsletter, video, Website) - MnDOT will not charge	Not Done			
Tech Transfer (T)	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	22,522	22,522	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	92,302	92,302	100%	

Phase-I Second Page

mase re	Jecona r	age		2017 M DOAD County with a County Double-		150 130		
	Purchase	R1.1	TPF15341	2017 MnROAD Construction Sensor Purchases	MnDOT PO	159,130 25,542	184,672	100%
	Lohor	D1 2	TDF1F241C	2018 CCP Missouri Sensor Purchases - broken off the 60K avalible Inspection (MnDOT) - costs over the initial budget	Madoot		100.021	1000/
	Labor	R1.3	TPF15341C		MnDOT	100,021	100,021	100%
		D4 4		MnROAD Staff - Construction, Sensors and Performance Monitoring		270 240		
		R1.4		MnDOT approved operating funds for any additional costs - 120K approved by EC -		279,318		
	MnROAD			MnDOT fund from Dec 17 budget report				
	Labor	R2.4	TPF15341D	Approved \$120K extra funding for monitoring 2018	MnDOT	120,000	737,144	100%
Research (R) Research (R)		R3.4		Approved \$200K extra funding for monitoring 2019		200,000		
		R4.4		Approved \$200K extra funding for monitoring 2020		111,826		
		R1.8		Missouri Sensor Labor Costs for 2018 installs - CCP - broken off the 60K avalible		26,000		
	Contract	R1.5		PCC Sampling/Testing	AET Consultant	20,000	61,514	100%
	Contract	R2.5		Additional Funding Approved (low initial estimate)	ALT CONSUITANT	41,514	01,514	10070
	Contract	R1.6		HMA Performance Testing (75K original Estimate - will not use in Phase-I)	Not Done			
		R1.7	TD545044	Partial Depth Repairs Construction (not in construction contract)	Diamond	40,000	70.662	4000/
	Contract	R2.7	TPF15341	Additional Funding Approved	Surfacing	38,662	78,662	100%
	MnDOT				Missouri DOT			
	Agreement	R1.8		Compacted Concrete Pavement Construction (not in construction) - \$50K original	Hired University			
	Contract	R1.9		Diamond Grinding Construction (not in construction contract) - \$50K	Not Done			
	Contract	R1.10		HMA Overlay and Rehab of Concrete and Methods of Enhancing Compaction	UNH	169,970	169,970	100%
	S	R1.11			AET Consultant	99,997	99,997	100%
	jed			Cold Central Plant Recycling				
	Pro .	R1.12		Fiber Reinforced Concrete Pavements	UMD	145,462	145,462	100%
	Ę	R1.13		Long Term Effects of Diamond Grinding - \$75k	Not Done	440.000	440.000	4000/
	Ter	R1.14	TPF15341	Conctete Early Opening Strength to Traffic	UofPitt	149,999	149,999	100%
	gue	R1.15		Optimizing the Concrete Mix Components for Contractors	Iowa State	147,627	147,627	100%
	٦, اد	R1.16		Compacted Concrete Pavements for Local Streets - \$80K - Did do in Missouri	Not Done			
	017	R1.17		Recycled Aggregates in Aggregate Base and Larger Subbase Materials	Iowa State	225,000	225,000	100%
	2	R1.18		Maintaining Poor Pavements	SRF	28,925	28,725	99%
		R1.19		Partial Depth Repair	Braun Inertec	74,978	74,925	100%
		R1.21		HMA – Asphalt Mix Rejuvenator Test Sections (added 50K in April 2020)	UNH	148,981	27,088	18%
		R1.22		PM - Spray on Rejuvenator Test Sections	NCAT - 100k	100,000		
				ICT - Levels 3-4 Intelligent Compaction Measurement Values (ICMV) for Soils	_			
		R1.23		Subgrade/Aggregate Subbase Compaction	Transtec Group	162,024	2,545	2%
				ICT - Support Importing, Viewing and Analysis of Dielectric Constant Data in Veta				
	5	R1.24		(paid by Veta pooled fund)	Transtec Group	-	-	
	m Researc	R1.25	TPF15341	ICT - HD and VHD Seismic Approaches for Roadway Evaluation	Park Consulting	299,886	277,096	92%
		111.23		Geo - Mechanistic Load Restriction Decision Platform for Pavement Systems Prone	Tark Consulting	255,000	277,030	32/0
		R1.26		,	UNH	90,231	90,231	100%
	Ter	D4 27		to Moisture Variations	NA:-b: C+-+-	25.000	25,000	1000/
	ng	R1.27		Geo - Environmental Impacts on the Performance of Pavement Foundation	Michigan State	35,000	35,000	100%
	9	R1.28		Geo - Permeability of Base Aggregate and Sand		30,000	30,000	100%
	016	R1.29		Geo - Improve material inputs into mechanistic design properties for reclaimed		30,000	30,000	100%
	2			HMA Roadways				
		R1.30		PCC - Construction Report for Jointless FRC Roundabout in Minnesota	Iowa State	49,999	49,999	100%
Research (R)		R1.31		PCC - Incorporate Joint Faulting Model Into BCOA-ME	Contracting	24,999	24,999	100%
					Uof Pittsburg	2 1,555	2 1,555	20070
		R1.32		PCC - Engineered Dowel and Tie Bars combined with LTPP SPS-2 Determination of	ERES Consulting	101,083	53,510	53%
		11.32		Causes for Cracking Over Dowel Bars	LINES CONSUMING	101,083	33,310	33/0
	uo	R1.33		Blending of Higher Strength Aggregates with Recycled Concrete and Marginal	Contracting -	22 222		0%
	⁄atik	V1.33		Aggregates to Improve Concrete Properties	UofSt Thomas	32,332		0%
	Von	R1.34		Performance of Concrete Overlays over Full Depth Reclamation (FDR)	ARM	34,265	1,680	5%
	<u>=</u>	R1.35		Bio-material Maintenance Treatments	Iowa State	50,000	4,000	8%
	for		TPF15341	Innovative Practical Approach To Assessing Bitumen Compatibility As A Means Of				
	a∥	R1.36		Material Specification	Cargill	204,119	54,955	27%
	19			Cold Asphalt Recycling Technologies using Rejuvenating Asphalt Emulsion: Impact;				
	20:	R1.37		Implementation; Specification	UNH	141,400	64,316	45%
	Contract	R1.38		Support Contract for T1.3.1 (SRF) Repair of Joint Associated Distress Pavements	Iowa State	4,972	4,972	100%
Contract	Contract	R1.39		Pavement-Specific Structural Synthetic Fibers	UMD	99,792	7,372	0%
	_	N1.39		ravement-specific structural synthetic ribers		99,792		0%
	tior	R1.40		Understanding and Improving Pavement Milling Operations	University of New	100,000		0%
	ovat				Hampshire			
	טעע	R1.41		Novel Methods for Adding Rejuvenators in Asphalt Mixtures with High Recycled	NCAT	80,000	15,000	19%
	Jr I			Binder Ratios		·		
	III fc	R1.42		Impact of Polymer Modification on IDEAL-CT and I-FIT for Balanced Mix Design	NCAT	100,000	15,000	15%
	Ca	R1.43		Asphalt Real Time Smoothness (ARTS) for Asphalt Paving	Transtec Group	104,021	50,318	48%
				Enhanced Entrained Air Void System Characterization for Durable Highway				
Research	920	R1 //		, e e	TCII	100 000	72 797 1	720/
	2020 Call for Innovation	R1.44		Concrete	TSU	100,000	23,282	23%
	2020	R1.44 R1.45			UTEP	100,000	23,282 9,121	9%

		NRRA Phase-	2						
		TPF-5(466) National Road Research Alli	ance - NRRA Pooled	fund					
		For 2021 - quarter 4 report - u				<u> </u>			
		SPR Funding SPR - Pooled Funds (Expected from Agencies) =	SPR Dollars	Percent	Remaining		Comment		
		SPR - Pooled Funds (Expected from Agencies) =		43%	Funding received from the agencies to Dat				
MnDOT State Funds Partnerships Grand Total SPR Dollars Bud NRRA Focus Travel Sensors + Purchasing MnROAD Labor 2021 ICT Funding		(MnDOT Encumbered) for Projects =		86%	Encumbe	red vs the tota	al dollars ex	pected	
SPR Funding		SPR Invoiced (Spent) =		5%		Encumbered divided by Expected			
MnDOT State	NRRA Execut	ive Team (Budgeted) to Date (1st round 4.7M + 400K Missouri Effort) =		103%	\$ (162,000)	Ok - Addit	ional Funds	coming	
	NI	RRA Teams have in their budgets but have not proposed for projects =			\$ 861,852	Budgete	ed - Encumb	ered	
MnDOT State	MnD	OT Construction Funding for 2022 MnROAD Construction (budgeted) =	\$ 4,845,000						
Funds	NRRA Asso	ociate funding (not included in this budget but used for NRRA needs)	Used	for NRRA effo	rts> MnDOT	documented	dollars		
Partnerships		FHWA Carbon Cure Partnership	\$ 400,000						
Grand Total	\$10,183,000	SPR + Construction + Carbon Cure	1						
	<u> </u>	ng I		CDD	CDD		Daymananta	Daymana	
	Project# Contract#	General Outcome / Deliverable	Vendors	SPR Budget	SPR Encumbered	Partnership	Payments Invoiced	Payment Percent	
	TPF15466A	Agency travel / meals / meeting room costs	MnDOT	50,000	50,000		invoiced	reitent	
		MnROAD Sensors and Equipment needed for 2022 studies	IVIIIDOT	350,000	350,000		191,461	55%	
	TPF15466B	FHWA funding for Sensors for Carbon Cure Concrete		330,000	330,000	300.000	151,401	33%	
		MnROAD Staff - Construction, Sensors and Performance Monitoring				300,000			
	TPF15466C	(5 years)	MnDOT	800,000	800,000		44,224	6%	
	BUDGET NOTE	2021 Directed ICT funding \$1,375,000 from Executive Team - Remaining to be used		387,004					
	TPF15466D 1047755	Veta Web and Veta MDMS Standardized Platform (FHWA \$188K)	Transtec Group	987,996	987,996		-	0%	
	1047733	2021 Directed funding \$2,125,000 from Executive Team - Remaining	MnDOT 800,000 800,000 387,004 Transtec Group 987,996 987,996 \$ 74,848 UNH Auburn 225,000 225,000 University of Missouri-Columbia 400,000						
Labor 2021 ICT	BUDGET	to be used		\$ 74.848					
	NOTE	in addition to Missouri 400K		7 74,040					
	TPF15466E 1048189	MnROAD Reflective Cracking Challenge (NRRA)		225,000	225,000			Contract Develop	
	TBD	Reflective Cracking Challenge Coordination (Missouri - 400K)	The state of the s	400,000	400,000				
	TPF15466F 1048190	Use of Alternative Pozzolanic Materials Towards Reducing Cement Content in Concrete Pavements	_	175,000	175,000			Contract Develop	
	TPF15466G 1048191	Use of Carbon Dioxide for Sustainable and Resilient Concrete Pavements (400K FHWA along with construction, sensors, monitoring)	Iowa State	150,000	150,000			Contract Develop	
	TPF15466H 1048192	The Use of Alternative Cementitious Materials in Concrete Pavements	Applied Pavement Technology NCE	150,000	150,000			Contract Develop	
	TPF15466J 1048193	Performance Evaluation of Wicking Geotextiles for Improving Drainage and Stiffness of Road Foundation (request for an additional funding up to \$200K)	Michigan State Michigan Tech Ingios	150,000	150,000			Contract Develop	
	TPF15466M 1048485	Validation of Loose Mix Aging Procedures for Cracking Resistance Evaluation in Balanced Mix Design	Auburn University UNH TTI	100,000	100,000			Contract Develop	
	TPF15466N 1048486	Perpetual Pavements in Wet Freeze Climate	RFP later in Fall 2022	200,000				Contract Develop	
	TPF15466K 1048377	Reclamation and Recycling Techniques to Achieve Perpetual Pavements Characteristics	Braun Intertec	150,000	150,000			Contract Develop	
	TPF15466P 1048487	Thinlays as a PM Treatment	Terracon	49,918	49,918		-	0%	
	1036343 WO#3 TPF15466L	Flooded Pavements Assessment App—Phase 2	UNH	200,234	200,234		-	0%	
	TPF15466R 1048488	Recycled Binder Availability	RFP later in Fall 2022	200,000					
	TPF15466S TBD MnIT	InfoPAVE MnROAD Database Support and Development	i-Engineering	300,000	300,000			Contract Develop	
			Totals =	5,100,000	4,238,148		235,685	5.6%	

•	ment C – NRRA Project Listing (Part 1 or 2) See the NRRA website for project individual status updates	