



# *MnROAD Pavement Research*

**Safer, Smarter, Sustainable Pavements through Innovative Research**



***Ben Worel***

August 2016

We all have a stake in **A  B**



# Pooled Fund Status

Agency	Year	Commitments	Obligations
California Department of Transportation	2017	\$150,000.00	?
California Department of Transportation	2018	\$150,000.00	
Illinois Department of Transportation	2016	\$150,000.00	150,000
Illinois Department of Transportation	2017	\$150,000.00	
Illinois Department of Transportation	2018	\$150,000.00	
Michigan Department of Transportation	2016	\$150,000.00	150,000
Michigan Department of Transportation	2017	\$150,000.00	
Michigan Department of Transportation	2018	\$150,000.00	
Minnesota Department of Transportation	2016	\$150,000.00	150,000
Minnesota Department of Transportation	2017	\$150,000.00	
Minnesota Department of Transportation	2018	\$150,000.00	
Missouri Department of Transportation	2016	\$150,000.00	150,000
Missouri Department of Transportation	2017	\$150,000.00	
Missouri Department of Transportation	2018	\$150,000.00	
Wisconsin Department of Transportation *invoice being made for the remaining \$75,000	2016	\$150,000.00	* 75,000
Received so Far =			\$675,000





*Office of Materials and Road Research*

**Existing WB  
I-94 Bypass**





**MnROAD**

*Office of Materials and Road Research*

**MnROAD  
"Mainline",  
Westbound  
Interstate-94**

**W.B. I-94 Traffic Diverted  
(3 days / month)**





Office of Materials and Road Research

MnROAD "Low Volume Road"  
Controlled Access





70th ST NE

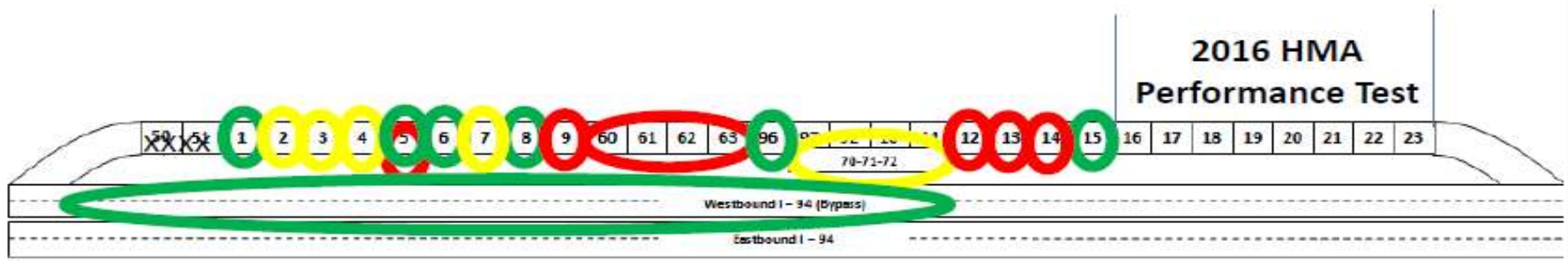
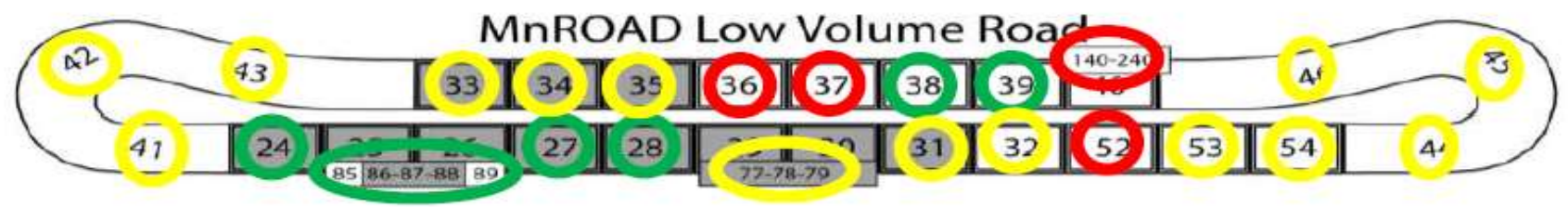
70th ST NE

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# MnROAD "Stockpile Area"

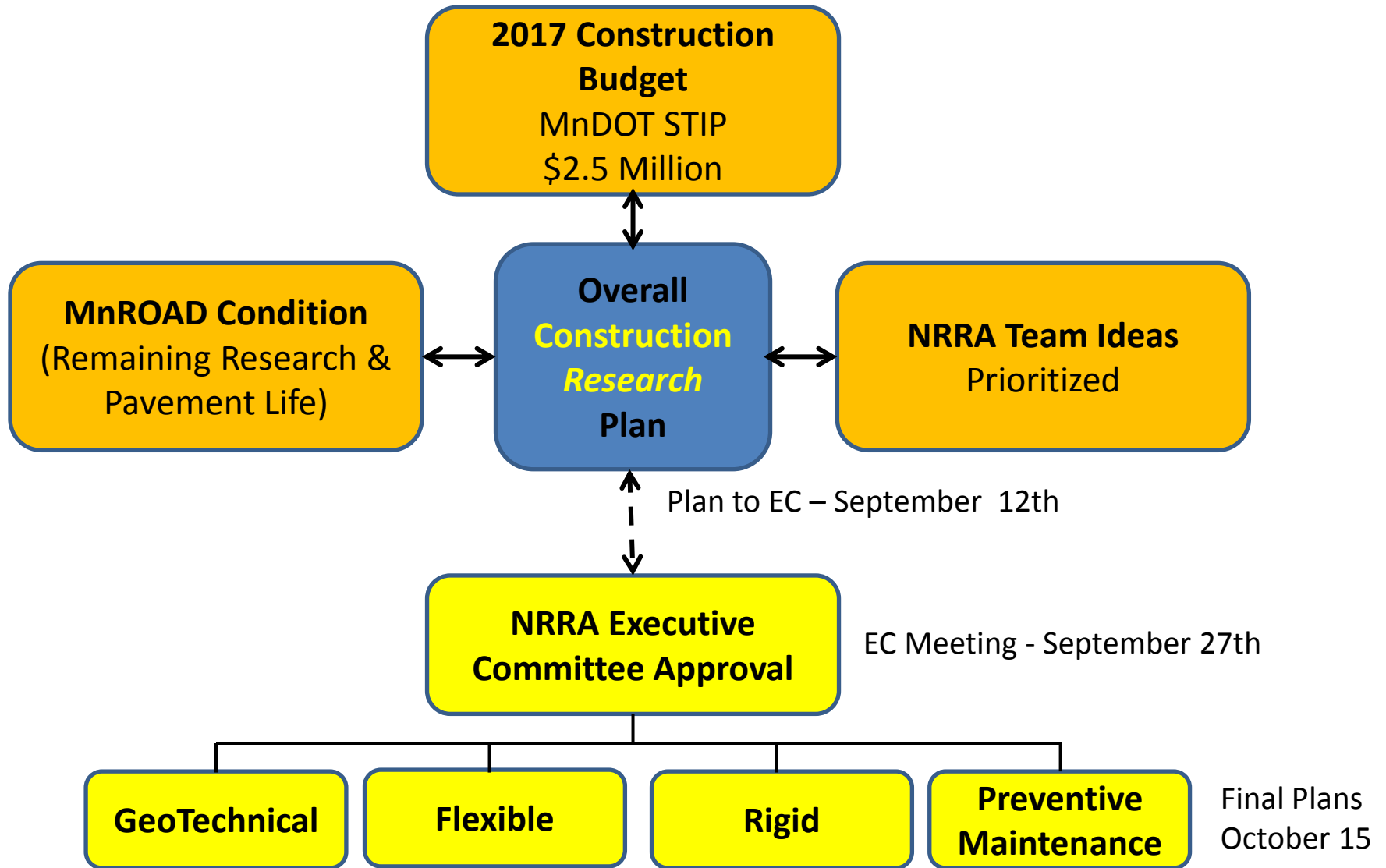


# MnROAD Availability



- Red (Retain – active research still going on)
- Yellow (If better research developed then section available)
- Green (Cell needs work – open for research ideas)

# NRRA Test Section Construction





# 2017 Test Section Details

- **Process**

1. Cell Status (Condition and Research need to keep)
2. What best “fit” each existing cell and location
  - Mainline, LVR, Stockpile, I-94 Bypass
3. What fit NRRRA Team Prioritized Needs
  - Primary Study
  - Secondary Studies
4. Balance the plan
5. Cost?
  - Estimates from past construction
  - Depends on industry partnerships and MnDOT



# 2017 Test Section Details

MnROAD (Need to do)		Rigid				Flexible			Geotechnical				Preventive Maintenance		LRRB	Summary
		1 - Fiber Reinforced	2 - PCC Diamond Grinding	3 - PCC Early Opening	4 - PCC Optimized Mix	1 - HMA Overlay of PCC	2 - Enhancing Compaction	3 - Performance Testing	1 - Shoulder Alternatives	2 - Recycled Base Agg	3 - Larger Base Aggregate	4 - Subgrade Stabilization	1 - HMA Aging	2 - PCC Partial Depth Repair	Local Needs	
Primary Study	# Cells	3	0	0	4	3	0	0	0	1	4	4	0	0	1	20
	Total Feet	750	-	-	1,000	1,177	-	-	-	250	880	1,000	-	-	500	5,557
Secondary Study	# Cells	0	0	0	0	0	11	11	20	0	0	0	2	1	0	45
	Total Feet	-	-	-	-	-	2,807	2,807	5,557	-	-	-	440	500	-	12,111
	Cost	200,000	-	-	400,000	175,000	-	-	-	150,000	300,000	800,000	-	-	100,000	2,125,000

Being Updated – old version after team meet on 8/25/16



# 2017 Test Section Details

MnROAD (Need to do)		Rigid				Flexible			Geotechnical				Preventive Maintenance		LRRB	Summary
		1 - Fiber Reinforced	2 - PCC Diamond Grinding	3 - PCC Early Opening	4 - PCC Optimized Mix	1 - HMA Overlay of PCC	2 - Enhancing Compaction	3 - Performance Testing	1 - Shoulder Alternatives	2 - Recycled Base Agg	3 - Larger Base Aggregate	4 - Subgrade Stabilization	1 - HMA Aging	2 - PCC Partial Depth Repair	Local Needs	
Primary Study	# Cells	3	0	0	4	3	0	0	0	1	4	4	0	0	1	20
	Total Feet	750	-	-	1,000	1,177	-	-	-	250	880	1,000	-	-	500	5,557
Secondary Study	# Cells	0	0	0	0	0	11	11	20	0	0	0	2	1	0	45
	Total Feet	-	-	-	-	-	2,807	2,807	5,557	-	-	-	440	500	-	12,111
	Cost	200,000	-	-	400,000	175,000	-	-	-	150,000	300,000	800,000	-	-	100,000	2,125,000

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MnROAD (Could do)																
Primary Study	# Cells	-	7	2	-	2	1	-	-	-	-	-	-	2	4	18
	Total Feet	-	3,500	900	-	312	500	-	-	-	-	-	-	1,000	2,000	8,212
Secondary Study	# Cells	-	-	-	-	-	5	6	9	-	-	-	9	1	-	30
	Total Feet	-	-	-	-	-	1,812	2,312	3,812	-	-	-	4,500	500	-	12,936
	Cost	-	140,000	150,000	-	60,000	100,000	-	-	-	-	-	-	5,000	220,000	675,000



# Test Section Details

		Rigid				Flexible			Geotechnical				Preventive Maintenance		LRRB	Summary
		1 - Fiber Reinforced	2 - PCC Diamond Grinding	3 - PCC Early Opening	4 - PCC Optimized Mix	1 - HMA Overlay of PCC	2 - Enhancing Compaction	3 - Performance Testing	1 - Shoulder Alternatives	2 - Recycled Base Agg	3 - Larger Base Aggregate	4 - Subgrade Stabilization	1 - HMA Aging	2 - PCC Partial Depth Repair	Local Needs	
<b>MnROAD (Need to do)</b>																
Primary Study	# Cells	3	0	0	4	3	0	0	0	1	4	4	0	0	1	20
	Total Feet	750	-	-	1,000	1,177	-	-	-	250	880	1,000	-	-	500	5,557
Secondary Study	# Cells	0	0	0	0	0	11	11	20	0	0	0	2	1	0	45
	Total Feet	-	-	-	-	-	2,807	2,807	5,557	-	-	-	440	500	-	12,111
	Cost	200,000	-	-	400,000	175,000	-	-	-	150,000	300,000	800,000	-	-	100,000	2,125,000
<b>WB (Could)</b>																
Primary Study Details	# Cells	-	-	-	-	10	-	-	-	-	-	-	-	5	-	15
	Total Feet	-	-	-	-	5,000	-	-	-	-	-	-	-	2,500	-	7,500
Secondary Study Details	# Cells	-	-	-	-	-	9	9	14	-	-	-	9	-	-	41
	Total Feet	-	-	-	-	-	4,500	4,500	7,000	-	-	-	4,500	-	-	20,500
	Cost	-	-	-	-	780,000	-	-	-	-	-	-	-	20,000	-	800,000

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# 2017 Test Section Details

- **Need to do**

1. Propose to teams
2. Get feedback
3. Incorporate into each team write-up
4. Bring back to Executive Committee

