

# Preventive Maintenance on High Speed Roadways - Operational *Issues*

SHRP 2 R26 Preservation of High-Traffic-  
Volume Roadways

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# Outline

## Introduction -

- Minnesota DOT (MnDOT) - Metro District
- Budget & Funding Levels
- Treatments & Program

## Issues

- Striping
- Traffic
- Managing Public Expectations
- ADA

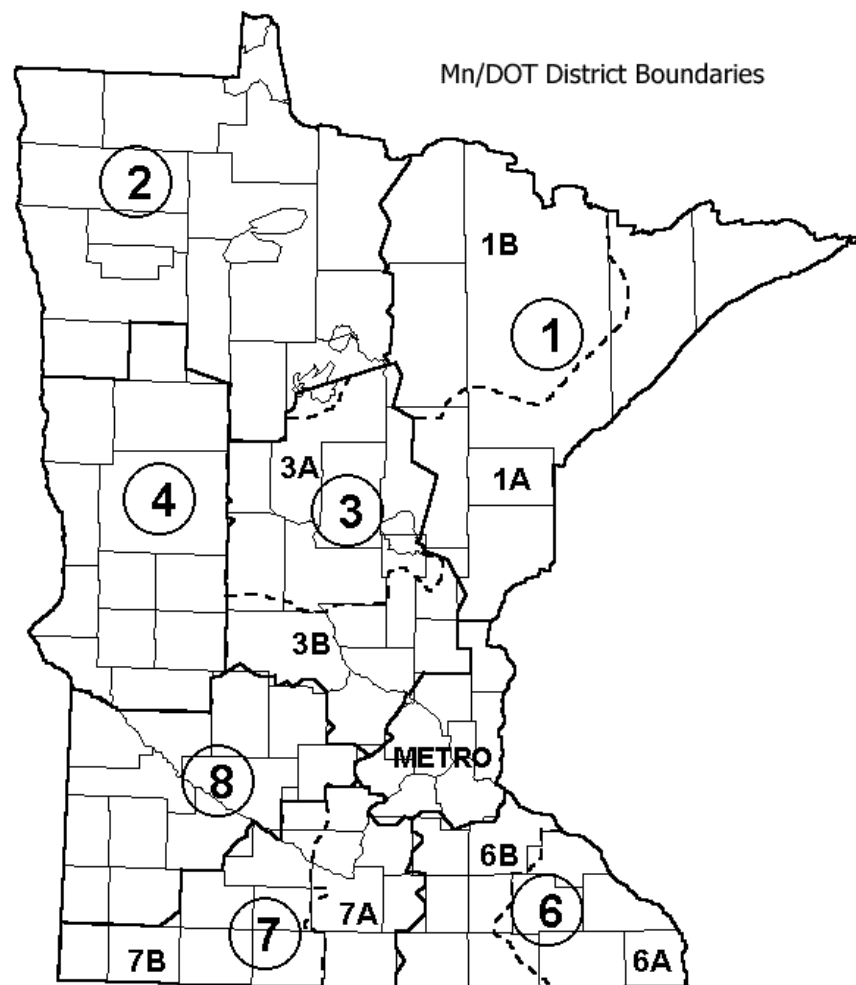
## Summary





# MnDOT Metro District

- ~3M people (55% of State population)
- \$141.7B Economy
- \$357M Annual Construction Program
- 145 Average No. of Construction Projects
- 4,064 Lane Miles (1,095 Centerline Miles)







# MnDOT Metro Maintenance

Bridge & Road Construction ("BARC") - Not PM

- ~\$1.2M Contract Pavement Project
- ~\$350k Materials "In-House" Maintenance

Preventive Maintenance (PM) \$4.5 - \$5.0M

- Dist. Set-Aside (Programmed \$ not Projs.)
- Contract Work
- Supportive Materials Engineer
- PM Program for 14+ Years





# Treatments

## Surface Treatments

- Ultra-Thin Bonded Wear Course (UTBWC)  
NovaChip Type Spec
- Micro-Surface
- Chip Seal & Cape Seals
- Fog Sealing (Shoulder Only)

## Localized Treatments

- Crack/Joint Sealing
- Mastic

## Concrete Pavement Repair (CPR)

## Bridge PM (Epoxy Chip Seals, Joint Seals)







# Treatments







# Treatments







# Striping

- #1 Issue Impacting Preservation Treatments
- Chemical & Mechanical (Plows)
- Life of Markings vs. Life of Pavement







# Striping

- Two Coat System Creates Recessed Area
- Before Recessing: 40-90% Loss
- After Recessing: 80-90% Retained





# Evaluation of Pavement Markings on Challenging Surfaces

- CTRE at Iowa State University, MnDOT, Vogel, DOW, VISILOK
- Evaluating 10 Test Sections:
  - MicroSurface (4-lane) & Chip Seal (2 lane)
  - HighBuild, Latex, HPS4 (Epoxy), MFUA-10 (MnDOT Modified Urethane)
  - With/Without Primer
  - Centerline, Edgeline







# Traffic

## Restricts Treatment Type & Work Times

- More Micros & less Chip Seals
- Start-Stops
- Intersections





## Allowable Lane Closure

Day Hours	MON	TUE	WED	THU	FRI	Average Weekday		SAT	SUN	Day Hours
12-01AM	537	652	667	720	804	676	2	1222	1308	12-01AM
01-02	323	462	464	471	525	449	2	841	907	01-02
02-03	279	372	384	422	483	388	2	693	729	02-03
03-04	345	360	381	391	422	380	2	476	454	03-04
04-05	746	737	719	746	743	738	2	471	403	04-05
05-06	2333	2324	2308	2322	2133	2284	1	783	532	05-06
06-07	5219	5439	5255	5448	5062	5284	0	1523	1017	06-07
07-08	5614	5720	5615	5906	5888	5748	0	2333	1208	07-08
08-09	5245	5479	5354	5485	5535	5419	0	3351	1869	08-09
09-10	5099	5127	5284	5338	5307	5231	0	4063	2910	09-10
10-11	4532	4454	4641	4843	5163	4726	0	4413	3813	10-11
11-12N	4480	4579	4600	4783	5174	4723	0	4881	4245	11-12N
12-01PM	4646	4798	4887	4976	5277	4917	0	5205	4768	12-01PM
01-02	4609	4676	4861	4979	5256	4876	0	5130	4990	01-02
02-03	5054	5098	5271	5323	5494	5248	0	5205	4710	02-03
03-04	5443	5405	5509	5598	5664	5524	0	4924	4535	03-04
04-05	5787	5787	5804	5742	5616	5747	0	4867	4575	04-05
05-06	5545	5553	5577	5468	5427	5514	0	4816	4111	05-06
06-07	4319	4525	4631	4836	4992	4660	0	4382	3646	06-07
07-08	3159	3343	3497	3551	3857	3481	1	3502	2990	07-08
08-09	2811	2976	3134	3224	3209	3071	1	3062	2699	08-09
09-10	2466	2660	2877	2919	3033	2791	1	2898	2335	09-10
10-11	1930	1991	2150	2316	2716	2220	1	2704	1720	10-11
11-12M	1163	1209	1329	1413	1933	1409	2	1990	1006	11-12M
Totals:	81681	83720	85195	87214	89708	85503		73730	61476	

## Allowable Lane Closure





# Managing Expectations

## Difference B/W "Worst First" & PM"

- Metro uses same treatments for both applications
- "How come we got this & not a new road!"
- "You were just here!"

## Texture, Noise

- Near Homes & Businesses
- Not just cars - bikers





# ADA

Now required on all Micro & Capeseal Projects

- Lengthens/complicates project delivery
- Existing Slopes
- Increased Costs







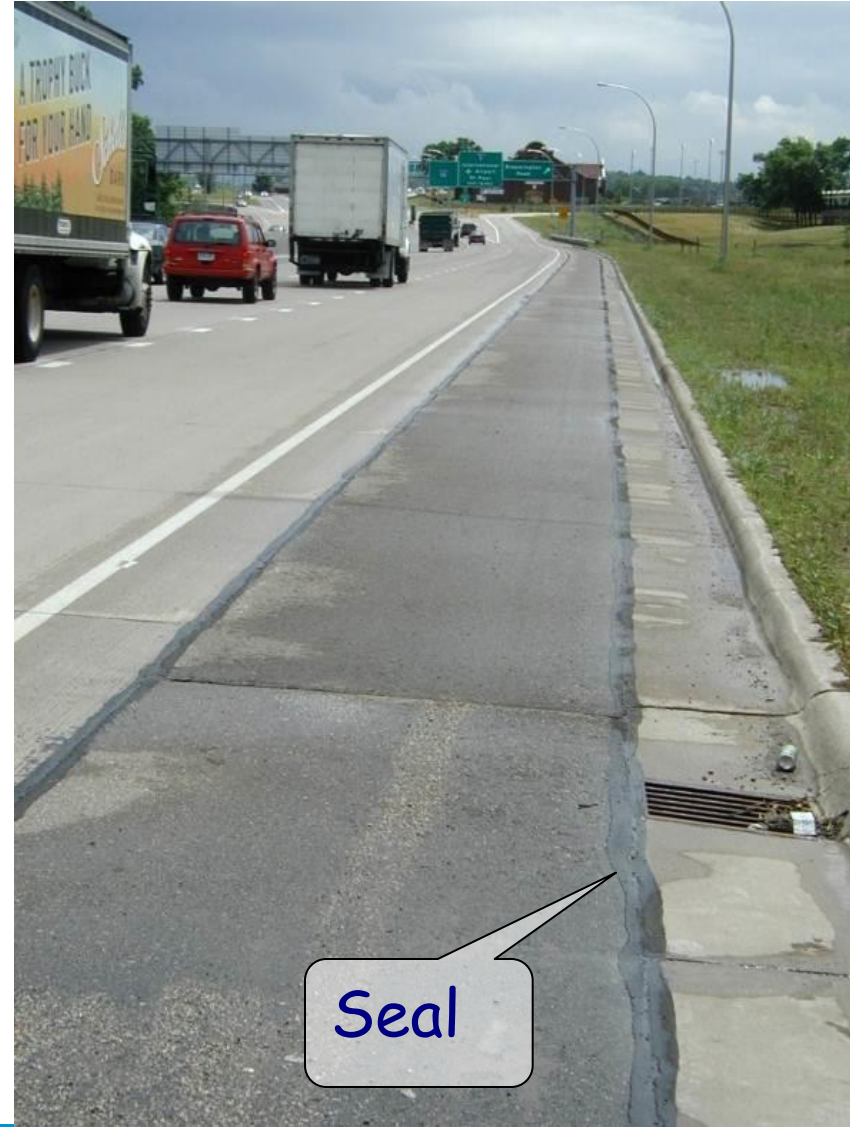
# Summary

- MnDOT has 14+ years experience of coordinated preservation efforts
- Close collaboration within Dept. & Contractors Supplier is critical for success
- Funding Challenges (Needs > Resources)
- Making Progress on Striping
- Communication & Outreach can be improved
- ADA will now be incorporated into projects
- In-spite of Issues & Challenges, PM has yielded substantial benefits & has wide support





# Summary





# Thank You!



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GRAY TRACTOR Pulling road grader.

