

MnROAD

Original Interstate 94 (Westbound)

2013 Diamond Grinding 964-969				2013 Dowel Replacement 970-982				2017 Spall Repairs 94001-94010				2017 Hot Mix Asphalt Overlays of Concrete 983-995										2017 Spall Repairs 94011-94015																	
94019	94018	23	22	21	20	19	18	17	16	215	115	114-914	613	12	72	73	71	70	96	162	160	9	8	7	806	706	606	506	805	705	605	505	4	3	2	201	101	94017	94016

Mainline Interstate 94 (Westbound)

2016 HMA Performance Testing Test Sections (tied to NCAT)								Maintain Roadways		Whitotopping Bonded Concrete Overlay of Asphalt								Recycled PCC	1993 PCC	SHRP-II Composite Pavements				White-topping Fiber Reinforced Concrete			
23	22	21	20	19	18	17	16	215	115	914	814	714	614	514	414	314	214	114	613	12	72	71	70	96	162	160	
5" HMA PG 64E-34	5" HMA PG 58H-34	5" HMA PG 58H-34	5" HMA PG 52S-34	5" HMA PG 64S-22	5" HMA PG 64S-22	5" HMA PG 64S-22	5" HMA PG 64S-22	2.25" WM 58-34	2.6" WM 58-34	6' x 6' Astro Turf Driving LN 1" Dowels	6' x 6' Astro Turf Driving LN No Dowels	6' x 6' Astro Turf Driving LN 1" Dowels	12L' x 6W' Astro Turf Driving LN Plate Dowels	6' x 6' Astro Turf Driving LN 1" Dowels	6' x 6' Astro Turf Driving LN No Dowels	6' x 6' Astro Turf Driving LN 1" Dowels	6' x 6' Astro Turf Driving LN No Dowels	6' x 6' Astro Turf Driving LN 1" Dowels	7.5" Recycled PCC	9.5" PCC	3" PCC 15'Lx12'W 1.25" dowel	3" PCC 15'Lx12'W 1.25" dowel	3" PCC 15'Lx12'W 1.25" dowel	3" 64-34 Saw/Seal	MicroSurface 6" Fiber Reinf. PCC	4" Fiber Reinf. PCC	5" Fiber Reinf. PCC
Low LTC Potential 15% RAP HiMA	High LTC Potential 20% RAP LMS PG Binder + anti-strip	Med LTC Potential 20% RAP Typical Mix	Med/High LTC Potential 30% RAP 12" Class 6	Med LTC Potential 20% RAP 3% Air Voids 12" Class 6	Med LTC Potential 20% RAP 12" Class 6	High LTC Potential 10% RAP 5% RAS 12" Class 6	High LTC Potential 20% RAP 5% RAS 12" Class 6	11" 64-22 1993 HMA	11" 64-22 1993 HMA	8" 58-28 93HMA	8" 58-28 93HMA	7.5" 58-28 93HMA	7" 58-28 93HMA	7" 58-28 93HMA	6" 58-28 93HMA	6" 58-28 93HMA	5" 58-28 93 HMA	5" 58-28 93 HMA	15'Lx12'W 1.25" dowel Long Tined	15'Lx12'W 1.25" dowel	6" PCC Low Cost	6" PCC Low Cost	6" PCC Recycle	6" PCC Recycle	2011 Traditional Grind	Trans Broom	Trans Broom
12" Class 6	12" Class 6	12" Class 6	12" Class 3	12" Class 3	12" Class 3	12" Class 3	12" Class 3	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	5" Class 5	5" Class 5	8" Class 7	8" Class 7	8" Class 7	8" Class 7	7" 58-28 93HMA	7" 58-28 93HMA	6" 58-28 93HMA	
7" Select Gran	7" Select Gran	7" Select Gran	7" Select Gran	7" Select Gran	7" Select Gran	7" Select Gran	7" Select Gran	M-Mill .75" Overlay 1.5" (2 0.75" lifts, 4.75 mm PG 58V-34)	M-Mill .375" Micro surface CQS-1P 0.375"									Neoprene Sealed	Clay	EAC Surface	Clay Innovative Grind (Driving Ln) Convent. Grind	Clay Innovative Grind (Driving Ln) Convent. Grind	Clay Innovative Grind (Driving Ln) Convent. Grind	15'Lx12'W Driving Ln 1.25" dowel	5'Lx6'W Polyolefin Fibers 25pcy	20% RSR 6'Lx6'W	20% RSR 6'Lx6'W
Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	2017	2017	Oct 08	Oct 08	Oct 08	Oct 08	Oct 08	Oct 08	Oct 08	Oct 08	Jul 13	Jun 93	May 10	May 10	May 10	May 10	Oct 97	Jul 13	Jul 13	
500	500	500	500	500	500	500	500	283	290	60	24	18	109	37	31	136	24	81	513	499	469	210	267	480	168	228	219
										12								2		5				9			

Original 5-Year PCC			Fiber Reinforced PCC				Fiber Reinforced PCC Overlay		Unbonded PCC Overlay of PCC		Stabilized Full Depth Reclamation			Maintain Roadways		Original WB	Mainline Westbound - ESALS per Year				Year	Original Westbound - ESALS per Year			
9	8	7	806	706	606	506	805	705	605	505	4	3	2	101	201	All Cells	Driving Lane		Passing Lane		Year	Driving Lane		Passing Lane	
Flexible	Rigid	Flexible	Rigid	Flexible	Rigid	Flexible	Rigid	Flexible	Rigid	Flexible	Rigid	Flexible	Rigid	Flexible	Rigid	9.5" PCC	Flexible	Rigid	Flexible	Rigid	Year	Flexible	Rigid	Flexible	Rigid
7.5" PCC	7.5" PCC	7.5" PCC	5" Fiber Reinf. PCC (High) Astro Turf	5" Fiber Reinf. PCC (Enhanced) Astro Turf	6" Fiber Reinf. PCC (Standard) Astro Turf	5" PCC Control No Fibers Astro Turf	5" PCC Fibers Unsealed No Dowels Astro Turf	5" PCC Fibers Unsealed No Dowels Astro Turf	5" PCC No Dowels Trans Broom	5" PCC No Dowels Trans Broom	1" 64-34	1" TBWC	1" TBWC	6" 58-28 75 blow	5.5" 58-28 75 blow	12'x27' ITS 1.25" Dowels	263,499	395,956	67,082	104,717	1994 *	37,388	56,183	9,518	9,518
2008 Ultimate Grind	2007 Traditional Grind	2007 Innovative Grind	11" Class 5Q	11" Class 5Q	11" Class 5Q	11" Class 5Q	7.5" PCC 1993 cracked D 12'Lx6'W, 12'Lx8'W P 12'Lx6'W, 12'Lx7'	7.5" PCC 1993 Driving 12'Lx14'W Passing 12'Lx12'W	7.5" PCC 1993 Driving 6'Lx7'W Passing: 6'Lx6.5'W	7.5" PCC 1993 cracked Driving: 6'Lx7'W Passing: 6'Lx6.5'W	8" FDR + EE	6" FDR + EE	6" FDR + EE	33" Class 4	33" Class 4	Clay	579,931	877,886	176,791	276,724	1995	61,508	93,109	18,751	18,751
4" PSAB	4" PSAB	4" PSAB	3" Class 5	3" Class 5	3" Class 5	3" Class 5	3" Class-4	3" Class-4	3" Class-4	3" Class-4	2" 64-34	2" 64-34	2" 64-34	33" Class 4	33" Class 4	Clay	532,911	808,851	159,421	248,394	1996	176,345	267,656	52,754	52,754
3" CI 4	3" CI 4	3" CI 4	27" Class-3	27" Class-3	27" Class-3	27" Class-3	3" Class-4	3" Class-4	3" Class-4	3" Class-4	8" FDR + EE	6" FDR + EE	6" FDR + EE	33" Class 4	33" Class 4	Clay	415,828	632,244	110,144	173,507	1997	306,921	466,656	81,296	81,296
Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	9" FDR + Fly Ash	33" Class 3	4" Class 4	Clay	Clay	Clay	542,037	821,696	163,020	254,847	1998	157,057	238,089	47,236	47,236
15'Lx14'W 15'Lx13'W	15'Lx14'W 15'Lx13'W	20'Lx14'W 20'Lx13'W 1" dowel	Fibers 0.75% by Volume	Fibers 30% RSR	Fibers 20% RSR	Fibers 20% RSR	4" PCC Shoulder Inside lane	4" PCC Shoulder Inside lane	RCC Shoulders	RCC Shoulders	Clay	Clay	Clay	Clay	Clay	Clay	641,264	967,499	186,017	289,248	1999	165,844	250,215	48,108	48,108
13' PCC Shoulder	13' PCC Shoulder	1" dowel	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	672,845	1,015,504	178,090	272,328	2000	200,422	302,491	53,048	53,048
Passing Ln 1" dowel	Passing Ln 1" dowel		Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	712,973	1,077,422	191,675	291,229	2001	169,180	255,660	45,482	45,482
Sep 92	Sep 92	Sep 92	2017	2017	2017	2017	2017	2017	Sep 11	Sep 11	Oct 08	Oct 08	Oct 08	2017	2017	1973	712,316	1,077,750	185,766	282,422	2002	163,089	246,758	42,532	42,532
518	510	500	131	135	134	146	118	133	148	153	496	454	560	252	248	See Below for each cell description	692,453	1,042,991	190,299	288,709	2003	182,098	274,281	50,044	50,044
			28								75			110		60		5				9			

Original I-94 Westbound Test Sections

2013 Diamond Grinding			
Section	Layer Description	Length (ft)	Gap (ft)
964	2013 Traditional Grind (First 100' Transil Plus Sealant)	500	0
965	Longitudinal Groved - 125 blades	500	0
966	Longitudinal Groved - 125 blades	500	0
967	Longitudinal Groved - 90 blades	500	0
968	Longitudinal Groved - 90 blades	500	0
969	2013 Traditional Grind (First 100' Transil Plus Sealant)	500	0

Original I-94 Westbound Test Sections

2013 Joint Replacement Study (3 Joints per Section)			
Section	Layer Description	Length (ft)	Gap (ft)
970	Full Depth PCC Repair - 1 dowels - No Grout"	80	0
971	Full Depth PCC Repair - 1.25 dowels - No Grout"	80	0
972	Full Depth PCC Repair - 1 dowels - Bag Grout"	80	0
973	Full Depth PCC Repair - 1.25 dowels - Bag Grout"	80	0
974	Full Depth PCC Repair - 1 dowels - Dip Grout Method"	80	0
975	Full Depth PCC Repair - 1.25 dowels - Dip Grout Method"	80	0
976	Full Depth PCC Repair - 1 dowels - Capsule Grout Method"	80	0
977	Full Depth PCC Repair - 1.25 dowels - Capsule Grout Method"	80	0
978	Full Depth PCC Repair - 1 dowels - Powers Epoxy"	80	0
979	Full Depth PCC Repair - 1.25 dowels - Powers Epoxy"	80	0
980	Full Depth PCC Repair - 1 dowels - Rezi Weld Epoxy"	80	0
981	Full Depth PCC Repair - 1.25 dowels - Rezi Weld Epoxy"	80	0
982	No PCC Repair	80	0

Original I-94 Westbound Test Sections

2017 Spall Repair Study (~3 Panels per Section)			
Section	Layer Description	Length (ft)	Gap (ft)
94001	Rapid Set - DOT Repair Mix (CTS Cement)	80	0
94002	RepCon 928 (SpecChem)	80	0
94003	FasTrac 246 Concrete Mix (Western Materials & Design)	80	0
94004	PaveSaver - Polymeric Concrete Patch (DS Brown)	80	0
94005	FastPatch (Willamette Valley Company)	80	0
94006	Rapid Surface Repair Easy Mix (Five Star Products)	80	0
94007	ProSpec Rapid Patch Commercial DOT Repair	80	0
94008	AquaPatch	80	0
94009	High Performance (HP) Concrete Repair (Craftco)	80	0
94010	TechCrete TRB (Craftco)	80	0
94011	3U18 Modified PCC	80	0
94012	ECOFIX™ BRAND RAPID REPAIR PATCH (USG)	80	0
94013	Helix steel fiber in Rapid set DOT mix	80	0
94014	Flexcrete	80	0
94015	HMA Repair (Plant Mix)	80	0

Original I-94 Westbound Test Sections

2017 HMA over PCC			
Section	Layer Description	Length (ft)	Gap (ft)
983	PCC Control	500	100
984	1.5in HMA overlay (9.5 mm)	500	100
985	1.5in HMA overlay (12.5 mm)	500	100
986	1.75 n HMA overlay (12.5 mm) w/spray paver	500	100
987	2.5in (19 mm) HMA overlay; 1.5in (9.5 mm) HMA overlay	500	100
988	2.25in (19 mm) HMA PG 58H-28; 1.75in (12.5 mm) 4.0 voids HMA overlay	500	100
989	2.25in (19 mm) HMA PG 58H-28; 1.75in (12.5 mm) 5.0 voids HMA overlay	500	100
990	2.25in (19 mm) HMA PG 58H-28; 1.75in (12.5 mm) 3.0 voids HMA overlay	500	100
991	2.25in (19 mm) HMA PG 58H-28; 1.75in (9.5 mm) fine mix HMA overlay	500	100
992	1.0in high-polymer interlayer; 1.5in (9.5 mm) HMA overlay	500	100
993	1.0in PASSRC interlayer; 1.5in (9.5 mm) HMA overlay	500	100
994	1.5in (9.5 mm) HMA overlay w/slab underseal	500	100
995	0.75 inch UTBWC	500	100

Original I-94 Test Sections

Cargill Test Sections		
Section	Layer Description	Length (ft)
94016	West End - HMA inlay control mix 25% RAP - 2018	120
94017	West End - HMA inlay modified Cargill rejuvenator 45% RAP - 2018	120
94018	East End - HMA inlay control mix 25% RAP - 2018	150
94019	West End - HMA inlay modified Cargill rejuvenator 45% RAP - 2018	150