High Value Pavement Enhancement





Extends pavement life
Protects pavement structure
Restores pavement smoothness



Presentation Outline

- What is HMA Ultra Thin
- Performance History
- Comparison with Other Preservation Treatments





3/4" to 1" Thickness





Purpose:

Protect the pavement structure Slow rate of deterioration Correct surface deficiencies Improve skid - resistance Improve ride quality







Ex. Pavement Conditions:

Good cross section
Good base, structurally sound
Visible surface distress may include:

- Moderate cracking, ≤ 1/2"
 wide
- Raveling and surface wear
- Slight to moderate flushing or polishing
- Occasional patch in good condition







Traffic Classifications

	Low Vol.	Med. Vol.	High Vol.
Comm. ADT*	<380	380 - 3400	>3400
Crush (min)	50%	75%	95%
Binder (PG)	64-22	64-28P	70-22P

* Two-Way Truck Traffic



BENEFITS

- 5-9 year life extension
- Seals pavement to delay further deterioration
- Improve ride quality
- Minimize or eliminate structure adjustments
- Reduce noise
- Improve drainage
- Ease of construction, standard paving operation
- Minimal construction time





HMA Ultra-Thin Performance





M-60-8 Years old

US-127 – 8 Years old



HMA Ultra-Thin Performance

Ultra Thin Tracking																												
	Type LV. Total IT Cost. Letting Completion																											
Region	County	M-68		Location ad to (E) to U	JS-23	7.08 mi. Overb	and Crack Fill	١.	CS 1021 49	JN MV, H	/) Unit	Bld Price			\rightarrow	Date	Contri		Date									
North	Presque Isle			load MB to C	ounty	5.34 mi. UT HM	Or ciral	1				1.6	140,000		,568.19	12/4/19			2/1999									
Superior	Marquette	M-35		Road 480	1				2032] 4/	321 L	V m2	1.7 Ultr	uj 84,849 a Thin Tracki		,244.59	1/31/19	99[P&D 6/1	7/1999									
Bay	Gratiot	Region	County	Route		Location		Des	sription of	Work	cs	JN	Type (LV, MV, HV)	Unit	Bld Pric	e Qua	ntity To	tal UT Cos	Lettin Date			ipletion Date						
Superior	Macomb	North	Alpena	M-32	Alpe	na west county (W) of Salina	line (E) to Rd. Se	2.40 r	ni. Overban and HMA U	d Crack	4021	74975	MV	evd	1.6			\$145,800.0	0 3/5/20			9/2004						
Superior	Marquette	North		M-32	Alpe	na west county	ine (E) to 5.96	mi. C		g and HMA	4021	79014	MV		1.6			240,160.0				0/2005						
University	Jackson		- Inches		Fee	(W) of Salina Rd. U				9	4021	10014		,,,,			Thin Trac		101112	-	-	32000	-					
Superior	Marquette	North	Oscoda	M-33				Т			Т			Т	Т		Type (LV	Ť			Total UT	Cost	Letting		Completion	300		
Superior	Houghton	University	Livingston	US-23 Re	glon	County	Route			Mason Street		esription		+	CS	JN	MV, HV	Unit	Bid Price	Quantity	Total of	000.	Date	Contractor	Date			
North	Leelanau	_		So	uthwest	Cass	US-12			from state line ass County	13.4	9 mi HMA	UT Overlay	14	041	90359	MV	syd	2.55	414,00	\$1,059,0	12.00	10/5/2007	MPMC	8/22/2008	83		
Superior	Schoolcraft			M-90				Nor 13	thbound fro	m south of U	S					- 1				116	a Thin Track	king						
Superior	Chippewa	Bay	Isabella	US-127 No	orth	Wexford	US-131				Τ.				\neg					Jill	Type (LV,	Ť			Total UT Cost	Letting		Completion
		University		M-99				N SO	Region	County	Rou		Local Linwood Road		w to	Desr	iption of	Work	CS	JN	MV, HV)	Unit	Bid Price	Quantity	Total of Cost	Date	Contractor	Date
Superior	Mackinac	Bay		M-25				St					Johnson Cree from near Ga	ek, on M-	46													
Superior	Alger & Marquette	Bay		M-81	orth	Δloona	US-23	١,				68	sterly to St. A and on M-58 fr	ndrews F	Road,	11.15 m	I. HMA UT	Overlay										
Bay	Isabella	Bay Southwest		M-90 M-152	Au.	Albulla	00-23	E					reet easterly t	o State S	Street												!	
Davi	Huron	Southwest	Barry	M-179 Ur	iversity	Livingston	M-36	<u>_</u>	Bay	Saginaw	M-13	10	nio State Line	_					9033	106473	MV	syc	2.60	378,528	\$984,173	12/4/2009	Saginaw	7/23/2010
Bay	Huron	University	Calhoun	M-199_Ur	iversity	Washlenaw	1-94	F					from US-127 156 in the city			21.65 m	II HMA UT	Overlay									!	
Bay	Huron	Bay	Bay	M-13				S	University	Hillsdale	US-127		Hillsdale and Coun		90				30071	100288	LV	syc		110,550	\$313,962			11/15/2010
North	Presque Isl	North University		M-32 No M-124	orth	Ostego	1-75	+	North	Ogemaw	Sage La		rom the sout sirview Road r	h village i			MILV HM		65129	107344	LV	ton		250	\$13,710	2/5/2010	Bolen	8/27/2010
Superior	Chippewa	University		M-99				1	North	Ogemaw	State Ro	1	33	_	_	5.49	IIII LV HM	AUI	65129	102483	LV	tor	52.03	4,020	\$209,161	2/5/2010	Pyramid	8/27/2010
University	Livingston							(East limts of Northbour	nd ramp														
North	Roscommo		Washtenaw	US-23				Jt					orthwesterly to and of H-40, C	hilpewa	and	21.15	mi LV HN	M UT									!	
Souttwest	Calhoun	Superior			iversity	Hillsdale	US-12	Fi	Superior	Mackinac	M-123	ΔΙ	Mackinac (den Highway/						49131	106977	LV	syc	2.58	402,503	\$1,038,458	2/5/2010	R-R	9/1/2010
Superior	Chippewa	Bay	Bay	M-13				Of N	North	Antrim	East To	1	from the sout	county I		1.15 mi H	MA Ultra-1	hin Overty	5009	108353	MV	ton	69.34	4,778	\$331.099	3/5/2010	B-B	6/30/2010
Superior		North	Crawford	US-127				Br	University		Luna Pi	er Road	From M-12 R-306 from R	5 to 1-75				nin overlay		106748	LV				\$77,196			
University	Hilisdale 4/2012/Julia			lle.	wareth	Hillsdale	US-12		North	Roscommon	Loxley F	id.	northerty rom the Ferm	to M-55			HMA UT	,	72487	108071	HV	syc	2.57	10,642	\$27,350	5/7/2010	Bolen	9/1/2010
-		University	Washtenaw	I-94	includy	rimodalo	00 12	F	University	Monroe	North D	xie Hw	to Post	Road	Ĭ		HMA UT		58460	106749	LV	syc	3.45	8,702	\$30,022	5/7/2010	Gerken	8/30/2010
		North	Mason	US-31	iversity	Monroe	M-50	Ť,	Grand	Kent Co.	84th St.		to Byron Cen	ter Aven	ue do 1		mi. UT ov		41081	108037	HV	Ton	113.30	275	\$31,157.50	5/21/2010	Nagel	8/28/2010
							M-65	M	Grand	Newaygo	Stone R	d	Mile Road	(M-20)	4.	.99 mi HN	AA Ultra-T	hin Overlay	62555	105434	HV	Tor	65.97	5,076	\$334,798	7/2/2010	MPMC	10/1/2010
		Bay	Gladwin	M-18	orth	Alcona	11 00	+	North	Missaukee	Stoney	0	asterty to M-6	6 in thé c		s. ml. HM	A Ultra-Th	in Overlay	57555	102959	MV	SVC	3.25	11,350	\$36,888	7/2/2010) Fahrner	11/1/2010
		100			perior etro	Gogebic Wayne	US-2 US-24		Ivolul	Missaunce	Soliey	F	rom M-119 e Harbor Sprin	asterty to		15 ml 18	MA Lillen T	hin Overlay		102505	- MIV	Syc	3.20	11,300	930,000	7122010	Failifei	11/1/2010
				No	orth	Manistee	CR591	E	North	Emmet	Lake Ro		limit North of	s.	olly 1.	IO III. M	WA OIDE I	IIII Overlay	24155	109331		syd	2.40	18,970	\$45,288	8/6/2010	R-R	10/29/2010
				- 3				П				Ro	pad/W eaver R outh of Coun	d. northe	erty to 8.	35 ml. HP	MA Ultra-T	hin Overlay	,									
				No	orth	losco	M-65	\perp	North	Alpena, Mont	m M-33		north.		612,				4021	110663	MV	syc	2.55	212,600	542,130	8/6/2010	Bolen	10/8/2010
				No.		4 7 7			H-t			F	rom Morton R M-36 in the	village o		91 ml. HP	MA Ultra-T	hin Overlay								a muno : -		
									University	Ingham	M-52	F	Stockb rom 3 Mile Ro	1. norther	rty to	17.05 mi	I O THMA U	Utra-Thin	33091	111026	LV	syc		71,160	206,364	9/3/2010	Barrett	6/10/2011
									Grand	Newaygo	M-37		18 Mile rom Sheffer R	load nort			Overlay		62032	109768	LV	syc	2.43	318,980	775,121	10/4/2010	R-R	10/10/2011
									North	Ogemaw	Sage La		to the village south I		ott .0	06 mi HM	A Ultra-Th	in Overlay	65129	110373	LV	Tor	55.18	322	17,768	11/5/2010	Bolen	6/24/2011



HMA Ultra-Thin Performance

MDOT Projects - Statewide

UT Type	# of Jobs	Length (miles)	Avg. Age (end service)	Avg. Age (in service)	Avg. Age (overall)
Ultra-thin low	40	385	6.6 (13)	8.4	7.6
Ultra-thin med	27	187	5.5 (4)	7.3	6.9
Ultra-thin high	8	50	5.3 (3)	6.3	5.9



Preventive Maintenance Treatment Cost Comparison

Treatment	\$/syd	Cost/mile (24' wide)	MDOT Life extension range (years)*	MDOT Life extension range average (years)*	Cost/mile* per year
Double chip seal	\$2.93	\$41,253	3-5	4	\$10,313
Micro-surface	\$3.33	\$46,885	3-5	4	\$11,721
Ultra-thin low	\$2.80	\$39,422	5-9	7*	\$5,632
Ultra-thin med	\$2.82	\$39,704	5-9	7*	\$5,672
Ultra-thin high	\$3.07	\$43,224	5-9	7*	\$6,175

^{*}Average Life Extension estimated by APAM Unit Prices based on MDOT Information (thru Jan. 2013)



Preventive Maintenance



WHAT EXACTLY IS YOUR PREVENTIVE MAINTENANCE PROGRAM PREVENTING?



	HMA UT	Chip Seal	Microsurfacing
Increase skid resistance	✓	✓	✓
Minimizes curb loss	✓	✓	✓
Corrects surface distress	✓	✓	✓
Can be applied in one pass	✓	✓	
Increases structural strength	✓		
Improves ride quality	✓		
Improves pavement draining	✓		
Corrects minor rutting	✓		✓
Eliminates dust, loose aggregate	e 🗸		✓



Questions?

HMA Ultra-Thin

High Value Pavement Enhancement

- · Extends Pavement Life
- · Protects the Pavement Structure
- · Restores Pavement Smoothness



HMA Ultra-Thin 3/4" - 1" Over existing asphalt pavement

- VS -



Typical Surface Treatment 3/16" - 3/8" Over existing asphalt pavement