

# HMA Ultra-Thin

## 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
- Project Highlights



# HMA Ultra-Thin



$\frac{3}{4}$ " to 1" Thickness



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# HMA Ultra-Thin

## Purpose:

Protect the pavement structure

Slow rate of deterioration

Correct surface deficiencies

Improve skid - resistance

Improve ride quality



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# HMA Ultra-Thin



## Ex. Pavement Conditions:

Good cross section

Good base, structurally sound

Visible surface distress may include:

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





# HMA Ultra-Thin

## 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**



# HMA Ultra-Thin

## 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



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# HMA Ultra-Thin Performance



M-60 – 8 Years old



US-127 – 8 Years old



# HMA Ultra-Thin Performance

Ultra Thin Tracking															
Region	County	Route	Location	Description of Work	CS	J/N	Type (L.V., M.V., H.V.)	Unit	Bid Price	Quantity	Total UT Cost	Letting Date	Contractor	Completion Date	
North	Presque Isle	M-58	Curtis Road to (E) to US-29	7.08 mi. Overband Crack Fill HMA UT Overlay	71021	48048		m2	1.65	145,000	\$174,568.19	12/4/1996	Bolen	8/12/1999	
Superior	Marquette	M-35	County Road M6 to County Road 480	5.34 mi. UT HMA Resurfacing	52022	47321		LV/m2	1.70	84,849	\$144,244.59	1/31/1999	P&D	6/17/1999	
Ultra Thin Tracking															
Region	County	Route	Location	Description of Work	CS	J/N	Type (L.V., M.V., H.V.)	Unit	Bid Price	Quantity	Total UT Cost	Letting Date	Contractor	Completion Date	
Superior	Macomb	North	Alpena	M-32	Alpena west county line (E) to (W) of Salina Rd.	4021	74975	MV	syd	1.62	90,000	\$145,800.00	3/5/2004	Bolen	8/29/2004
Superior	Marquette	North	Alpena	M-32	Alpena west county line (E) to (W) of Salina Rd.	4021	79014	MV	syd	1.58	152,000	\$240,160.00	10/1/2004	Bolen	6/30/2005
University	Jackson	North	Oscoda	M-33											
Superior	Marquette	North	Oscoda	M-33											
Superior	Houghton	University	Livingston	US-23											
North	Leelanau	Bay	Sanilac	M-90											
Superior	Schoolcraft	Bay	Isabella	US-127											
Superior	Chippewa	University	Hillsdale	M-99											
Superior	Mackinac	Bay		M-25											
Superior	Alcona	Bay		M-81											
Bay	Isabella	Southwest	Cass	M-152											
Bay	Huron	Southwest	Isabella	M-179											
Bay	Huron	University	Calhoun	M-199											
Bay	Huron	Bay	Bay	M-13											
North	Presque Isle	North	Montmorency	M-32											
Superior	Chippewa	University	Oscoda	M-124											
University	Livingston	University	Hillsdale	M-99											
North	Roscommon	University	Washtenaw	US-23											
Southwest	Calhoun	Superior	Chippewa	M-134											
Superior	Chippewa	Bay	Bay	M-13											
University	Hillsdale	University	Washtenaw	I-94											
North	Mason	US-31													
Bay	Gladwin	M-18													

Ultra Thin Tracking														
Region	County	Route	Location	Description of Work	CS	J/N	Type (L.V., M.V., H.V.)	Unit	Bid Price	Quantity	Total UT Cost	Letting Date	Contractor	Completion Date
Southwest	Cass	US-12	From M-62 to Mason Street and on M-217 from state line to US-12, Cass County	13.49 mi HMA UT Overlay	14041	90359	MV	syd	2.55	414,000	\$1,059,012.00	10/5/2007	MPMC	8/22/2008
Ultra Thin Tracking														
Region	County	Route	Location	Description of Work	CS	J/N	Type (L.V., M.V., H.V.)	Unit	Bid Price	Quantity	Total UT Cost	Letting Date	Contractor	Completion Date
North	Washtenaw	US-131	Northbound from south of US-13											
Bay	Saginaw	M-13	Linwood Road northerly to Johnson Creek, on M-45 from near Gaslight Lane easterly to St. Andrews Road, and on M-58 from Warwick Street easterly to State Street in the city of Saginaw.	11.15 mi. HMA UT Overlay	9033	106473	MV	syd	2.60	378,528	\$984,173	12/4/2009	Saginaw	7/23/2010
University	Hillsdale	US-127	Ohio State Line northerly to M-34 from US-127 easterly to M-156 in the city of Hudson, Hillsdale and Lenawee Counties	21.65 mi HMA UT Overlay	30071	100298	LV	syd	2.84	110,550	\$313,962	12/4/2009	MPMC	11/15/2010
North	Ogemaw	Sage Lake Rd	From the south village limit to Post Road	.040 mi LV HMA UT Overlay	65129	107344	LV	ton	54.84	250	\$13,710	2/5/2010	Bolen	8/27/2010
North	Ogemaw	State Rd	Fairview Road northerly to M-33	5.49 mi LV HMA UT	65129	102483	LV	ton	52.03	4,020	\$209,161	2/5/2010	Pyramid	8/27/2010
University	Hillsdale	US-12	East limits of the I-75 Northbound ramp northerly to the southerly end of H-40, Chippewa and Mackinac counties.	21.15 mi LV HMA UT	49131	106977	LV	syd	2.58	402,503	\$1,038,458	2/5/2010	R-R	9/1/2010
North	Antism	East Torch Rd	Alden Highway/Comfort Road from the south county line northerly to M-99	8.15 mi HMA Ultra-Thin Overlay	5009	108353	MV	ton	69.34	4,775	\$331,099	3/5/2010	R-R	6/30/2010
University	Monroe	Luna Pier Road	From M-125 to I-75	1.88 mi HMA Ultra-Thin Overlay	58490	106748	LV	syd	2.42	31,895	\$77,196	4/5/2010	AJA	8/23/2010
North	Roscommon	Loxley Rd.	CR-306 from Robinson Lane northerly to M-55	.76 mi. HMA UT Overlay	72487	108071	HV	syd	2.57	10,642	\$27,350	5/7/2010	Bolen	9/1/2010
University	Monroe	North Dixie Hwy	From the Farm Rd crossing to Post Road	.50 mi. HMA UT Overlay	58460	106749	LV	syd	3.45	8,702	\$30,022	5/7/2010	Gerken	8/30/2010
Grand	Kent Co.	84th St.	From Woodhaven Drive east to Byron Center Avenue	.40 mi. UT Overlay	41081	108037	HV	Ton	113.30	275	\$31,157.50	5/21/2010	Nagel	8/29/2010
Grand	Newaygo	Stone Rd	From 32nd St. northerly to 1 Mile Road (M-20)	4.99 mi HMA Ultra-Thin Overlay	62555	105434	HV	Ton	65.97	5,075	\$334,798	7/2/2010	MPMC	10/1/2010
North	Missaukee	Stoney Corner	From the west county line easterly to M-66 in the city of Midland	6. mi. HMA Ultra-Thin Overlay	57555	102959	MV	syd	3.25	11,350	\$36,888	7/2/2010	Fahner	11/1/2010
North	Emmet	Lake Rd.	From M-119 easterly to the Harbor Springs west city limits.	1.15 mi. HMA Ultra-Thin Overlay	24155	109331		syd	2.40	18,870	\$45,298	8/6/2010	R-R	10/29/2010
North	Alcona	M-33	North of Delano Road/Waver Rd. northerly to south of County Road 612.	8.35 mi. HMA Ultra-Thin Overlay	4021	110663	MV	syd	2.55	212,600	\$542,130	8/6/2010	Bolen	10/9/2010
University	Ingham	M-52	From Morlon Rd northerly to M-36 in the village of Stockbridge	3.91 mi. HMA Ultra-Thin Overlay	33091	111026	LV	syd	2.90	71,160	\$206,364	9/3/2010	Barrett	6/10/2011
Grand	Newaygo	M-37	From 3 Mile Rd. northerly to 18 Mile Road	17.05 mi o HMA Ultra-Thin Overlay	62032	109768	LV	syd	2.43	318,980	\$775,121	10/4/2010	R-R	10/10/2011
North	Ogemaw	Sage Lake Rd	From Sheffer Road northerly to the village of Prescott south limits	.06 mi HMA Ultra-Thin Overlay	65129	110373	LV	Ton	55.18	322	\$17,768	11/5/2010	Bolen	6/24/2011



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# 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)	8.9	8.0
Ultra-thin med	27	187	5.5 (4)	8.1	7.5
Ultra-thin high	7	50	5.3 (3)	7.3	6.4



# HMA Ultra-Thin

## 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	\$2.96	\$41,675	3-5	4	\$10,419
Micro-surface	\$3.15	\$44,350	3-5	4	\$11,088
Ultra-thin low	\$2.80	\$39,422	5-9	7*	<b>\$5,632</b>
Ultra-thin med	\$2.76	\$38,859	5-9	7*	<b>\$5,551</b>
Ultra-thin high	\$3.20	\$45,054	5-9	7*	<b>\$6,436</b>

**\*Average Life Extension estimated by APAM**

**Unit Prices based on MDOT Information (thru Jan. 2014)**



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# Preventive Maintenance



**WHAT EXACTLY IS YOUR  
PREVENTIVE MAINTENANCE  
PROGRAM PREVENTING?**



# HMA Ultra Thin

	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	✓		✓



# HMA Ultra Thin

## Mt. Pleasant

Fancher Street is a truck route street that serves an industrial area in Mt. Pleasant, and is used as a Mission Street bypass by many residents and businesses. In 2000, Fancher Street needed something done soon in order to avoid a failure of the street that would require a complete reconstruction of the street.



Fancher St.



# HMA Ultra Thin

## Mt. Pleasant

- This was their first project using an HMA Ultra Thin overlay. They used Ultra Thin in 2000 and had high hopes for a quick and inexpensive process.
- They did not know what to expect on this street, but were hoping to extend the life of the street by 5 years.



## Fancher St.



# HMA Ultra Thin

## Mt. Pleasant

After 13 years, Fancher Street is in much better condition than they could have hoped. HMA Ultra Thin has performed better than their best expectations ...



Fancher St.



# HMA Ultra Thin

## Mt. Pleasant

and has become a staple of their maintenance program because of it.



## Fancher St.



# HMA Ultra Thin

## Pleasant Street – Roscommon County



# HMA Ultra Thin

## Pleasant Street – Roscommon County





# HMA Ultra Thin

## Berrien County

### Berrien Co. 2013 Micro Surface and Slurry Seal Program

- Micro: 6.4 miles (95,000 syd)
  - St. Joseph, Benton, and Watervliet Townships
  - Village of Stevensville
- Slurry: 5.5 miles (82,000 syd)
  - St. Joseph and Lincoln Townships
- HMA Ultra-Thin bid as an alternate



# HMA Ultra Thin

## Berrien County

### Berrien Co. 2013 Ultra-Thin Projects

- HMA Ultra-Thin alternate bid accepted
  - Cost was relatively close
  - Bids accepted based on “Best Value”



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**Cinema Way and Nickerson Court  
Benton Township**



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**Cinema Way and Nickerson Court  
Benton Township**



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**Miami Road and Woodward Ave**  
**St. Joseph Township**



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**St. Joseph Ave**  
**Village of Stevensville**



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**St. Joseph Ave**  
**Village of Stevensville**



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**N. Watervliet Road**  
**Watervliet Township**



# HMA Ultra Thin

## Berrien Co. 2013 Ultra-Thin Projects



**N. Watervliet Road  
Watervliet Township**



# HMA Ultra Thin

## Berrien County

### Berrien Co. 2013 Ultra-Thin Projects

- HMA Ultra-Thin projects added
  - Watervliet Township (2 projects)
  - Village of Stevensville
  - Over 100,00 syds
- Others in the Area added projects throughout the summer

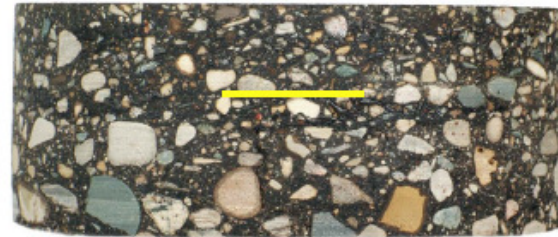


# HMA Ultra Thin

Questions ?

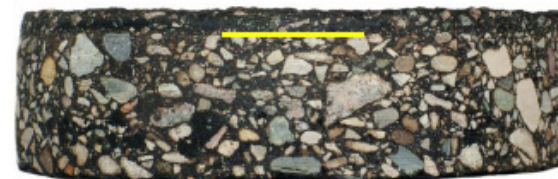
## HMA Ultra-Thin High Value Pavement Enhancement

- 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