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
HMA Ultra-Thin

**Purpose:**
- Protect the pavement structure
- Slow rate of deterioration
- Correct surface deficiencies
- Improve skid - resistance
- Improve ride quality
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
## Traffic Classifications

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Comm. ADT*</td>
<td>&lt;380</td>
<td>380 - 3400</td>
<td>&gt;3400</td>
</tr>
<tr>
<td>Crush (min)</td>
<td>50%</td>
<td>75%</td>
<td>95%</td>
</tr>
<tr>
<td>Binder (PG)</td>
<td>64-22</td>
<td>64-28P</td>
<td>70-22P</td>
</tr>
</tbody>
</table>

* 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
HMA Ultra-Thin Performance

M-60 – 8 Years old

US-127 – 8 Years old
### HMA Ultra-Thin Performance

<table>
<thead>
<tr>
<th>Region</th>
<th>County</th>
<th>House</th>
<th>Location</th>
<th>Description of Work</th>
<th>COGS</th>
<th>Unit</th>
<th>Price</th>
<th>Quantity</th>
<th>Total LT Cost</th>
<th>Leading Date</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stuff</td>
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</tbody>
</table>

**MICHIGAN Rides On Us**

Asphalt Pavement Association of Michigan
HMA Ultra-Thin Performance

MDOT Projects - Statewide

<table>
<thead>
<tr>
<th>UT Type</th>
<th># of Jobs</th>
<th>Length (miles)</th>
<th>Avg. Age (end service)</th>
<th>Avg. Age (in service)</th>
<th>Avg. Age (overall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra-thin low</td>
<td>40</td>
<td>385</td>
<td>6.6 (13)</td>
<td>8.9</td>
<td>8.0</td>
</tr>
<tr>
<td>Ultra-thin med</td>
<td>27</td>
<td>187</td>
<td>5.5 (4)</td>
<td>8.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Ultra-thin high</td>
<td>7</td>
<td>50</td>
<td>5.3 (3)</td>
<td>7.3</td>
<td>6.4</td>
</tr>
</tbody>
</table>
# HMA Ultra-Thin

## Preventive Maintenance Treatment Cost Comparison

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$/syd</th>
<th>Cost/mile (24’ wide)</th>
<th>MDOT Life extension range (years)*</th>
<th>MDOT Life extension range average (years)*</th>
<th>Cost/mile* per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double chip seal</td>
<td>$2.96</td>
<td>$41,675</td>
<td>3-5</td>
<td>4</td>
<td>$10,419</td>
</tr>
<tr>
<td>Micro-surface</td>
<td>$3.15</td>
<td>$44,350</td>
<td>3-5</td>
<td>4</td>
<td>$11,088</td>
</tr>
<tr>
<td>Ultra-thin low</td>
<td>$2.80</td>
<td>$39,422</td>
<td>5-9</td>
<td>7*</td>
<td>$5,632</td>
</tr>
<tr>
<td>Ultra-thin med</td>
<td>$2.76</td>
<td>$38,859</td>
<td>5-9</td>
<td>7*</td>
<td>$5,551</td>
</tr>
<tr>
<td>Ultra-thin high</td>
<td>$3.20</td>
<td>$45,054</td>
<td>5-9</td>
<td>7*</td>
<td>$6,436</td>
</tr>
</tbody>
</table>

*Average Life Extension estimated by APAM
Unit Prices based on MDOT Information  (thru Jan. 2014)
Preventive Maintenance

WHAT EXACTLY IS YOUR PREVENTIVE MAINTENANCE PROGRAM PREVENTING?
# HMA Ultra Thin

<table>
<thead>
<tr>
<th>Feature</th>
<th>HMA UT</th>
<th>Chip Seal</th>
<th>Microsurfacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase skid resistance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Minimizes curb loss</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Corrects surface distress</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Can be applied in one pass</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Increases structural strength</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improves ride quality</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improves pavement draining</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrects minor rutting</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Eliminates dust, loose aggregate</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
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.
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.
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 ...
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 100,000 syds

- Others in the Area added projects throughout the summer
HMA Ultra Thin

Questions?