EXPERIMENTAL PROJECT PROPOSAL
FOR THE EVALUATION OF A COLD IN-PLACE RECYCLE
USING KOCH PAVEMENT SOLUTIONS® CIR-EE PROCESS
(Work Plan)

Location: Red Lodge, Montana-Carbon County
Highway 212, P-28: Milepost (approximate) 89-101.6

Project Number: Red Lodge - North STPP 28-2(22)70

Type of Project: Cold In-place Recycle (CIPR)

Principal Investigator: Craig Abernathy - Construction Report/Annual Evaluations and Final Report

Objective

Experimental rehabilitation project consisting of cold milling approximately 75-90mm of asphalt cement, replace with cold in-place recycled using Koch’s CIR-EE (Cold In-place Engineered Emulsion), plant mix surfacing (45mm & 90mm) and seal & cover.

Experimental Design

Mill off approximately 75-90mm of existing asphalt cement and recycle back with same using Koch’s engineered emulsion process. Various overlay depths of 45-90mm with seal & cover. Two sections of straight mill and fill. The experimental breakout as shown below. Mile posting is approximate.

- MP 89-MP 91, 90mm cold mill, fill with 105mm PMS
- MP 91-MP 94.3, 75mm recycle with 45mm PMS overlay
- MP 94.3-MP 95.4, 75mm recycle with seal and cover
- MP 95.4-MP 96.3, 75mm mill and fill PMS
- MP 96.3-MP 98, 75mm recycle with seal and cover
- MP 98-MP 101.6, 75mm recycle with two lifts of PMS (90mm)
**Evaluation Procedures**

Visual inspection of the asphalt surface will include examining topical features and the logging of cracks (through mapping). The crack mapping will determine the average cracks-per-mile for each individual pavement treatment. Fixed data sites will be established at 300 ft. (91m) per location. These data sites (as represented by the red arrows below) will be located at three stations within each treatment demarcation. Care will be taken to avoid transition areas. Sites will be referenced in the field by durable marking paint at logical reference points (mile markers, delineators, etc.) At the center of each data site a string line will be stretch across both lanes to collect rut data in each wheel path. Rut data will be averaged for the entire length of each treatment. IRI data will be included in the annual and final reports.

<table>
<thead>
<tr>
<th>90mm Cold Mill 105 mm PMS</th>
<th>75mm Recycle - 45mm PMS Overlay</th>
<th>75mm Recycle with Seal &amp; Cover</th>
<th>75mm Mill &amp; Fill PMS</th>
<th>75mm Recycle with Seal &amp; Cover</th>
<th>75mm Recycle with Two Lifts of PMS (90mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP 89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP 91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP 94.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP 95.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP 96.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP 98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP 101.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Project Cost**

Construction plus CE: $3,697,000.00 (per construction report)

**Evaluation Schedule**

Research staff will monitor performance for a period of five years annually, with every year after that reviewed informally, up to ten years. This is in accordance with the Department’s “Experimental Project Procedures”. Annual Reports are required as well as a Final Project Report (responsibility of the Research Bureau).

2001: Construction  Construction report completed and on file
2002-2006: Annual Evaluations  Annual reports
2007: Final Evaluation  Final Report
2008-2013: Annual Evaluations  Informal, optional evaluation based on longevity of treatment – annual reports