

Montana Department of Transportation  
Research Program  
May 2002

**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.

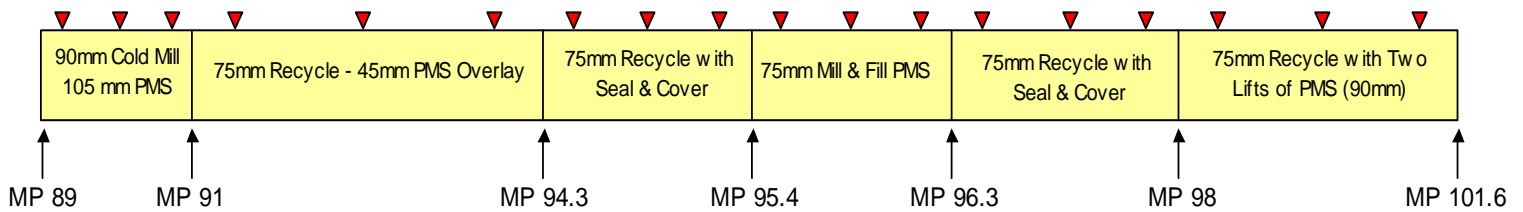
**Experimental Design**

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.



## 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