

Montana Department of Transportation
Research Programs

EXPERIMENTAL EVALUATION FINAL REPORT

Thin-Whitetopping Bonded Composite

Location: Kalispell, Montana – Flathead County

Project No.: STPP 1-2 (93)121, East Idaho St.

FHWA No. MT 00-02

Description: Ninth year analysis of experimental construction project consisting of milling approximately 130mm (5") of Asphalt Cement (AC) and placement of 130mm Portland Cement (PCCP) onto the milled surface to create a bonded-composite pavement. Project length-0.8 kilometer (0.5 mile)

Evaluation Date: August 2010

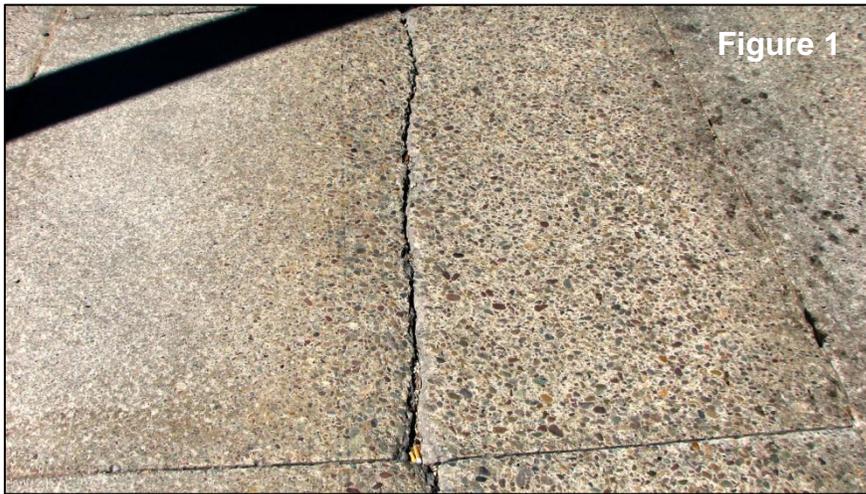
Date Constructed: September 2000

Principal Investigator: Craig Abernathy
Experimental Project Manager

This was the ninth annual analysis of this project since construction in fall of 2000. This inspection consisted of a visual review to document any surface distress or deterioration of the whitetop/AC-bonded composite.

The overall appearance of the whitetopping is good. Forty-two cracked panels were documented in the 2009 report. Fourteen additional panels were documented during this evaluation making the approximate total of 56 cracked panels. The majority cracks are low-severity in nature with no observed vertical displacement or debonding of the composite panels.

The overall majority of the pavement cracking is located in the outer lanes, outer wheel path. This may be due to heavy trucks mainly using the outer lanes and the super-elevation (at 2%) which places more loading at that outer edge. Several cracks appeared to be at a .25-.50 (moderate severity) inch wide width or more with some spalling. At this time, there is no indication of a pattern or reasons for the randomness of the cracked panels; therefore, it is premature to attempt to ascertain a cause. It should be noted that initially (within the seven years since construction) the majority of the cracking occurs on the north half of the project, west-bound (which was placed first) between the streets of 8th Ave. EN and 6th Ave. EN. However panel cracking is now beginning to spread out proportionally throughout



the entire project. Refer to the crack maps at the end of this report for a general representation of cracked panel locations and the relationship of how the crack is located within the panel itself. The crack map is strictly an indication of

approximate cracked panel locations over time within the project. It is not to scale.

Figure 1 is an examples of the in-lane, moderate severity crack. It has been estimated that this project contains over 4200 sawed panels with an approximate forty-two (56) panels exhibiting minor cracking since construction which represents approximately .013% of the entire project.



Figure 2, (yellow arrow) shows the area of the doweled PCCP patch placed during construction due to unconsolidated concrete by lack of adequate vibration (as documented in the 2000 construction report). Visual observation of traffic moving over this section displayed no faulting or movement of the

slab. At this time, no visual surface distress was noticed. This repair is approximately located in the center section of the westbound lanes 2 meters past the intersection of 6th Avenue EN and East Idaho St.



Figure 3 is showing the east-end transition area of the project. It is important to point this feature out due to the innovative way this approach was placed, please refer to the construction report for details. No evidence of distress to the east or west transitions was noticed during this evaluation. Transfer of load from AC to PCCP is intact.

Minor spalling is beginning to appear but at a frequency that is not an issue to date. It was observed that cracking is beginning to appear around several of the manholes on the project. No debonding or faulting has been seen with traffic moving over those features.



The following images are the east and west views of the project at each ends.

The whitetopping project is rated as performing well.

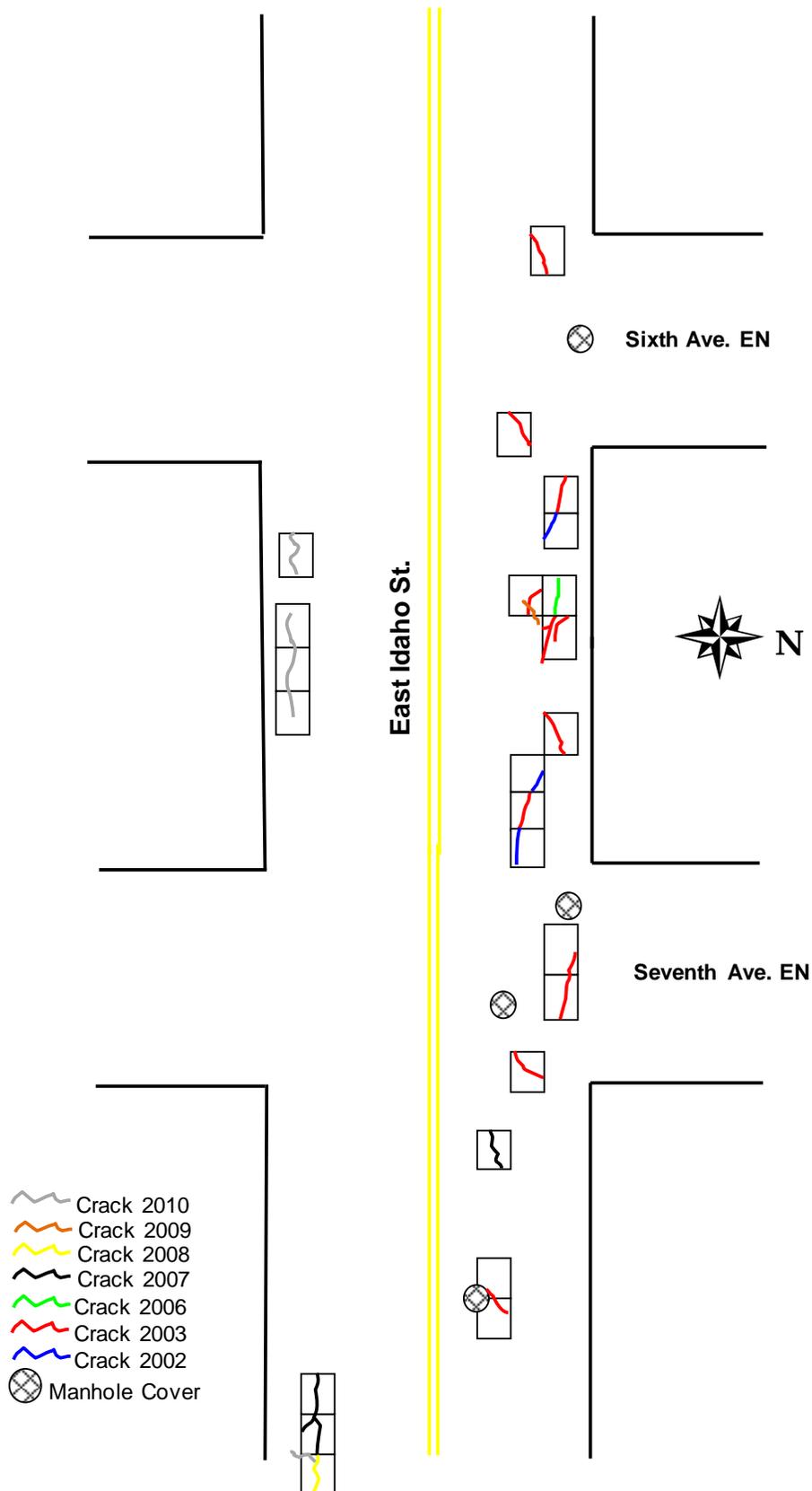
This report and all project information can be located on the MDT Research Internet website at:



http://www.mdt.mt.gov/research/projects/kal_whitetopping.shtml.

The following pages are panel crack maps to represent accumulative distress over the duration of the analysis time frame (2000-2010). These are not to scale. Note that the maps show only that portion of the project that currently contains distress information. There were no distress to report during the 2001, 2004, and 2005 site inspections.

Thin-Whitetopping Overlay Composite - STPP 1-2(93)121 East Idaho St., Kalispell Montana
 Representative Project Crack Map - Approximate Location - Not to scale
 Note: Crack map only shows portion of project which contains distress information



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