Montana Department of Transportation	**Bridge Memo Number:** 09-02
	Date Issued: December 2, 2009
	Date Effective: December 2, 2009
Bridge Design / Management Memo	**Date Revised:** June 10, 2015
Subject: Concrete Deck, Assumed Sacrificial Wearing Surface and Concrete Strength	

To: Bridge Bureau
Consultant Design Bureau

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☒ **In-House Design**	☒ **Consultant Design**
☒ **Bridge Management**	☐ **Condition Inspection**

Introduction

On concrete bridge decks, we have been using 2 3/8 inch cover over the top reinforcing steel with 1 3/8 inch of that assumed to be a sacrificial wearing surface. We have not typically seen that depth of wear and where we have seen deep wear, it has been concentrated in the wheel lines. Additionally, our Bridge Management Section has typically used 1/2 inch sacrificial depth for rating purposes unless the bridge condition indicated that a larger value was appropriate.

Our current deck concrete is 4500 psi Class SD Concrete. We are working toward more durable, lower shrinking decks. The result may be a lower paste volume mix that cracks less but has lower design strength.

Policy / Guidelines

Use 2½ inch concrete cover [2015 Revision] over the top reinforcement in bridge decks. Assume that 1/2 inch of that cover is a sacrificial wearing surface for design of the bridge.

Assume a 4000 psi concrete strength for the deck.

A new Deck Design chart and spreadsheet has been issued for LRFD Bridge Decks [2015 Revision]. These changes should not necessitate redesign on current projects.

Closing

The wearing surface change should provide consistency between design and rating without adverse effect on bridge safety.

The deck strength change will provide future options for deck concrete specifications.

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