



**Division of Transportation
System Development**
Bureau of Structures
PO Box 7916
Madison, WI 53707-7916

**Scott Walker, Governor
Mark Gottlieb, Secretary**
Internet: www.dot.wisconsin.gov

Bill Oliva, Structures Development Chief
Telephone: 608-266-0075
Facsimile (FAX): 608-266-5166
E-mail: william.oliva@dot.wi.gov

August 27th, 2013

Distribution: Users of Wisconsin Department of Transportation Bridge Manual

RE: Clarification of policy on the use of open rails on Local Road Bridges

In the July 2013 update to the Bridge Manual, there is significant modification to Chapter 30-Railings to reflect new guidance related to the use of crash tested rails. The policies included within this chapter are all intended to improve bridge railing safety, long-term durability, economy, and maintenance on all functional classifications of roadways throughout the state.

The Department believes that by shifting the future direction of bridge railings towards concrete parapets for high speed applications, the long-term durability and maintenance of bridges in Wisconsin will be improved. Bridge inspections throughout the state have highlighted the fact that bridge deck edges undergo more rapid deterioration as a result of deck drainage through open rails. The use of concrete parapets minimizes the opportunity for salt laden run-off to deteriorate the deck edges. In addition to deck edge deterioration being a maintenance concern, it may also represent a safety concern if it compromises the integrity of the rail and/or its anchorage.

The Department also recognizes the benefits of solid concrete parapets in minimizing the need for repair work after impacts. Tests and past experience have shown that open railings, attached to the bridge deck with posts and anchorages, produce significant damage to the deck as a result of impacts. Conversely, solid concrete parapets tend to distribute impact loads and do not cause as much deck damage.

In order to promote these policies, section 30.2 of the Bridge Manual provides revised guidance on the application of bridge railings. Item #2 presents guidance as follows:

Chapter 30, Section 2, Page 30-6, #2: "For all new bridge plans with a PS&E date after 2013, Traffic Railings placed on structures with a design speed exceeding 45 mph shall be solid concrete parapets. Where the minimum 0.5% deck grade cannot be accommodated for proper drainage based on project specific constraints, designer shall contact the Bureau of Structures Development Section to receive approval for an exception to this policy."

The policy to shift bridge railings installed on high speed roadways to concrete parapets may be difficult to implement on Local Road projects. The Department understands that many of these projects may not have the available funds to adjust approach roadway work to the extent needed to achieve the 0.5% grade and to install concrete parapets. We also understand that Local maintaining authorities may desire open rails for snow removal operations and may use lower salt application rates that could result in less deterioration of the edges of decks do to drainage through open rails.



**Division of Transportation
System Development**
Bureau of Structures
PO Box 7916
Madison, WI 53707-7916

**Scott Walker, Governor
Mark Gottlieb, Secretary**
Internet: www.dot.wisconsin.gov

Bill Oliva, Structures Development Chief
Telephone: 608-266-0075
Facsimile (FAX): 608-266-5166
E-mail: william.oliva@dot.wi.gov

Therefore, the use of the open rails as described in Chapter 30 of the Bridge Manual will not require pre-approval. However, we strongly encourage Local Road Sponsors and designers of local road bridges to consider the benefits of concrete parapets and inclusion within the proposed projects.

If you have any comments or questions regarding this policy, please do not hesitate to contact Aaron Bonk, Development Engineer at (608)261-0261 or myself at (608)266-0075.

Sincerely,

A handwritten signature in black ink that reads "Bill Oliva".

William Oliva, P.E.
Chief, Structures Development Section
WisDOT DTSD – Bureau of Structures

CC: Scot Becker, PE, Director, WisDOT, DTSD - Bureau of Structures
Bridge Manual Distribution List