

# Memorandum

Subject: INFORMATION: National Cooperative Highway Research Program  
(NCHRP) Report 350 Aesthetic Barriers and Bridge Rails

Date: April 9, 2003

From: Michael S. Griffith /**Original Signed by Harry W. Taylor for**/  
Acting Director, Office of Safety Design  
Office of Safety

In Reply Refer To:  
HSA-10/B64-D

To: Safety Field  
Federal Land Highway Division Engineers

Some aesthetic roadside/median barriers and bridge railings developed in conjunction with Federal Lands Highways and the National Park Service have been successfully tested under NCHRP Report 350 guidelines in recent years, but have not been formally acknowledged as being acceptable for use on the National Highway System (NHS). Other aesthetic barriers have been informally accepted for use on the NHS based on the crash performance of similar, but more critical designs. Information on several of these barriers was appropriately included in the 2002 edition of the American Association of State Highway and Transportation Officials' Roadside Design Guide.

Please be advised that the following roadside barriers/bridge rails are considered to have met NCHRP Report 350 evaluation criteria at the test levels indicated:

- Steel-Backed Timber Guardrail w/ 4-inch offset block – TL-3
- Steel-Backed Timber Guardrail w/out offset block – TL-2
- Rough Stone Masonry Guardwall – TL-3
- Smooth Stone Masonry Guardwall – TL-3
- Pre-cast Concrete Guardwall – TL-3
- George Washington Memorial Parkway Bridge Rail – TL-3
- Natchez Trace Bridge Rail – TL-3
- Glacier Removable Bridge Rail – TL-1

Any of the above barrier designs, when built symmetrically, are also acceptable for use as median barriers at the indicated test levels. The preferred termination for these barriers is to anchor the ends in a natural backslope wherever practical, holding the top of the barrier to a constant height above the roadway shoulder and using a flare rate for a rigid barrier appropriate for the design speed of the adjacent roadway. The area between the traffic lanes and the barrier



should be essentially flat (i.e., 10:1), but a steeper side slope is acceptable if the barrier height is adjusted accordingly. A sloped termination or an earth mound at the barrier end is not crashworthy and should be used only when it can be constructed at or beyond the minimum clear zone established for a specific project.

The George Washington Memorial Parkway and the Natchez Trace bridge rails were originally tested under guidelines that preceded NCHRP Report 350 and were assigned equivalent NCHRP Report 350 TL-2 designations. Both of these designs have now been tested under NCHRP Report 350 guidelines and have been reclassified as TL-3 designs. Additionally, two variations of a special “removable” bridge rail design, developed for use in Glacier National Park, were tested to NCHRP Report 350 TL-1.

Details and specifications for the designs listed above can be found or will soon be posted at <http://efl.fhwa.dot.gov/techdev> under Aesthetic Barriers. Additional information can be obtained from Mr. Dan Van Gilder with FHWA’s Eastern Federal Lands Division at (703) 404-6361 or via e-mail at [dan.vangilder@fhwa.dot.gov](mailto:dan.vangilder@fhwa.dot.gov).

FHWA:HSA-10:D.Powers:tb:x61320:4/8/03

File: h://directory folder/Powers/B64D(aesthbar)1

cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;  
D. Powers, HSA-10)