Bridges and Structures August 7, 2001

All Employees 521.1

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Bridges and Structures

Bridge Superstructure Design-MM No. 13 (Analysis of Existing Slab Overhangs for TBR Loads).

Questions have been raised on the placement of TBR on existing bridges during staged construction and also the analysis of temporary slab overhangs that may be created during the partial removal of the existing bridge construction.

The office policy is to place the centerline of the TBR along the centerline of the existing beam line if possible. When this is not possible because of roadway width requirements, and a temporary cantilever of the existing slab is required, follow the guidelines shown: to locate the TBR

1. Place the TBR on the existing slab cantilever limiting the placement so that the traffic side of the barrier face is a maximum of 1ft (300 mm) from the centerline of the exterior beam.
2. Provide a minimum of 6 inches (150 mm) of clearance from the edge of the slab to the edge of the TBR. The maximum temporary cantilever lengths should be approximately 3.5 ft. (1060 mm).
3. Check the top slab reinforcement due to a distributed load from a collision on the TBR. The collision load may occur at the TBR joint where the anchorage is located. The distribution for continuous concrete parapet found in AASHTO Spec. 3.24.5.2 -E = 0.8 * x + 5.0 ft. (0.8*x + 1520 mm) can be used for calculating the load. Use 75% of yield for allowable stress analysis of the reinforcing steel.
4. Consider the condition of the existing slab when doing the analysis. What is the condition of slab concrete and reinforcing steel (consider loss of section due to delaminating of the concrete and any corrosion of the reinforcing). Should deductions in capacity be made due to these conditions? Some flexibility can be used in this design because of the fact that it is a temporary construction loading that occurs during the staging.

Check with your section leader for approval when using the cantilever situation.

Currently the anchorage system for the TBR sections that is being used is under review and may be updated in the future.

GAN/DGB/ln