

Alternative Concrete Barrier

When a concrete traffic barrier is present on an MSE wall, MoDOT currently anchors it to the pavement slab. The anchorage consists of 9 ft. 4 in. epoxy-coated reinforcing bars bent into 180° hooks. Depending on the thickness of the pavement slab, the bars are either #5 or # 6, with a spacing ranging from 4 in. to 12 in.

The desire to present designers and contractors with a less complicated solution has prompted MoDOT to entertain alternative solutions.

One such alternative uses a single-slope barrier, similar in design to the State of California Department of Transportation (CALTRANS) Type 60 barrier. This system is cast on grade (rigid or flexible pavement) at the edge of the shoulder and is anchored at its ends only. The system, as modified for MoDOT use, can be viewed by [clicking here](#).

The success of the CALTRANS Type 60 barrier lies in its geometry and material composition, rather than a mechanical anchorage. Overturning is resisted by the torsional resistance inherent in the trapezoidal section, coupled with the substantial mass of the concrete material. Lateral movement, or deflection, is nonexistent due to the mass of the concrete, the tensional resistance in the longitudinal reinforcing steel, and the frictional resistance of the barrier/pavement interface.

In two separate tests, an unanchored CALTRANS concrete median barrier passed the applicable roadside safety standards and displayed no lateral deflection. Although this report deals only with the single-slope barrier, the safety shape (New Jersey) barrier passed as well.

A fiscal analysis of the unanchored alternative revealed no financial advantage. However, the use of the alternative barrier may be advantageous to other logistics of the project such as staging.