

Reactive Tension System Barrier for Static Applications

RTS Barriers Increase Safety on Narrow Roadways and Bridge Decks



ROAD ZIPPER™

RTS Barrier Helps Agencies in Non-Moveable Applications

Typically, moveable barrier is considered for applications where reconfiguring the roadway is critical in some way to the success of a construction project or managed lanes facility. Some DOTs and stakeholders have discovered that Reactive Tension System barriers can be the best solution for narrow or shallow-depth roadways even when the system is not required to move at all. These “static barrier walls” save lives and help maintain the integrity of the roadway in an unanchored configuration without the need to change traffic lane patterns throughout the day.

THE SAFETY OF POSITIVE PROTECTION

In Seattle, the Spokane Street Viaduct earned the mayor’s pronouncement that it was “...the most dangerous stretch of roadway in the city.” From 1991 to 1999, the three-quarter mile long viaduct saw 51 head-on collisions resulting in numerous injuries and 12 fatalities. The four existing lanes had been narrowed as much as possible, and there was still only one foot of space between opposing traffic lanes, so the typical

permanent and portable barrier options were not possible. The 12” steel RTS barrier installed in 2000 provided the narrow profile required by the road layout combined with excellent unanchored deflection performance. Crossover head-on accidents were completely eliminated and the general accident rate dropped by 30%. This was considered to be a “temporary” solution, but the barrier remained on the viaduct until the widening project was completed in 2012.

On the Farrington Highway in Hawaii, there were similar concerns about safety and space constraints. It was determined that a permanent concrete median would create aggressive vehicle impact trajectories, and vehicle impacts with a portable concrete median would create unsafe barrier deflection into opposing traffic lanes. In this instance, there was enough median space to install the 18” concrete RTS barrier with a small buffer on each side to account for a deflection of approximately two feet based on NCHRP testing data. Since the installation, the barrier has performed

as expected and crossover accidents have dropped to zero.

MAINTAINING BRIDGE DECK INTEGRITY

The Pell Bridge in Rhode Island carries four lanes of traffic across Narragansett Bay. Without positive protection between oncoming lanes of traffic, the number of crossover accidents leading to injuries and fatalities began to rise over the years. The RTS system offered RITBA the only unanchored barrier option, which meant that the barrier would provide TL-4 protection levels without compromising the integrity of the bridge deck. Anchored only at the ends, the RTS barrier wall is able to absorb energy from impacting vehicles with minimal deflection. Instead of investing in a Zipper Truck, the bridge authority chose to purchase a trailer with a similar conveyor system that can be towed behind a heavy work vehicle to move the barrier for special events and emergencies such as hurricane evacuations, and also for traffic control during maintenance work.



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