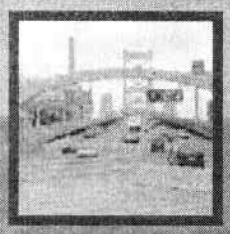
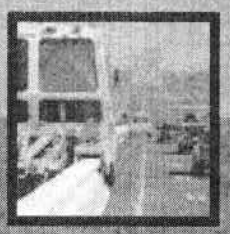
BARRIER SYSTEMS

Quickchange®

Moveable Barrier Systems For Managed Lanes

Mitigating Traffic Congestion and Improving Motorist Safety

Quickchange®

Moveable Barrier System For Managed Lanes

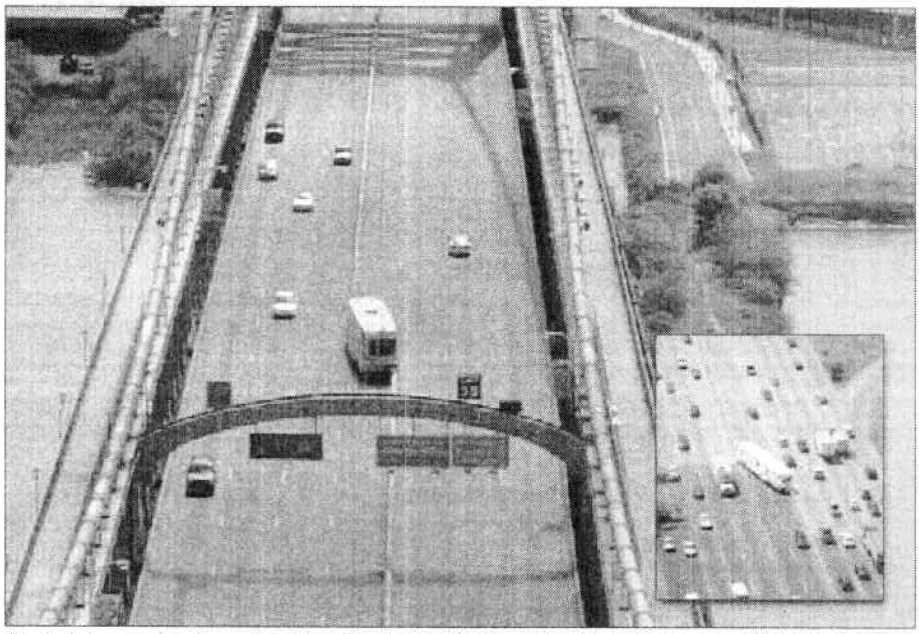
Quickchange® Moveable Barrier (QMB™) is designed to cost effectively increase capacity and reduce congestion by making more efficient use of new or existing roadways. Applications include high volume highways where additional right-of-way may not be available, where environmental concerns may exist, or where the lack of funding may slow or inhibit support for new construction.

The system can transfer up to two lanes per pass of high performance concrete barrier at a speed of up to 10 mph (15 km/h), offering DOT's an innovative strategy for making our congested highway system more efficient, safe and functional. These benefits can be realized in less than one year, depending on options, and at a fraction of the cost of building new highway lanes, especially lanes for bridges, tunnels and viaducts.

Moveable barrier technology provides a quick and cost effective solution for highway capacity improvements without having to wait for time consuming study reviews. This "reusable asset" can also be used during construction and when it is no longer needed it can be moved to other congested locations.

Moveable Median

Reconfigure Existing Lanes to Maximize Peak Capacity While Maintaining Positive Barrier Separation



Barrier being transferred as a moveable median during off peak period - Ben Franklin Bridge, Philadelphia, USA (Inset Photo) Two lanes reconfigured per pass to meet peak capacity demands - San Juan, Puerto Rico

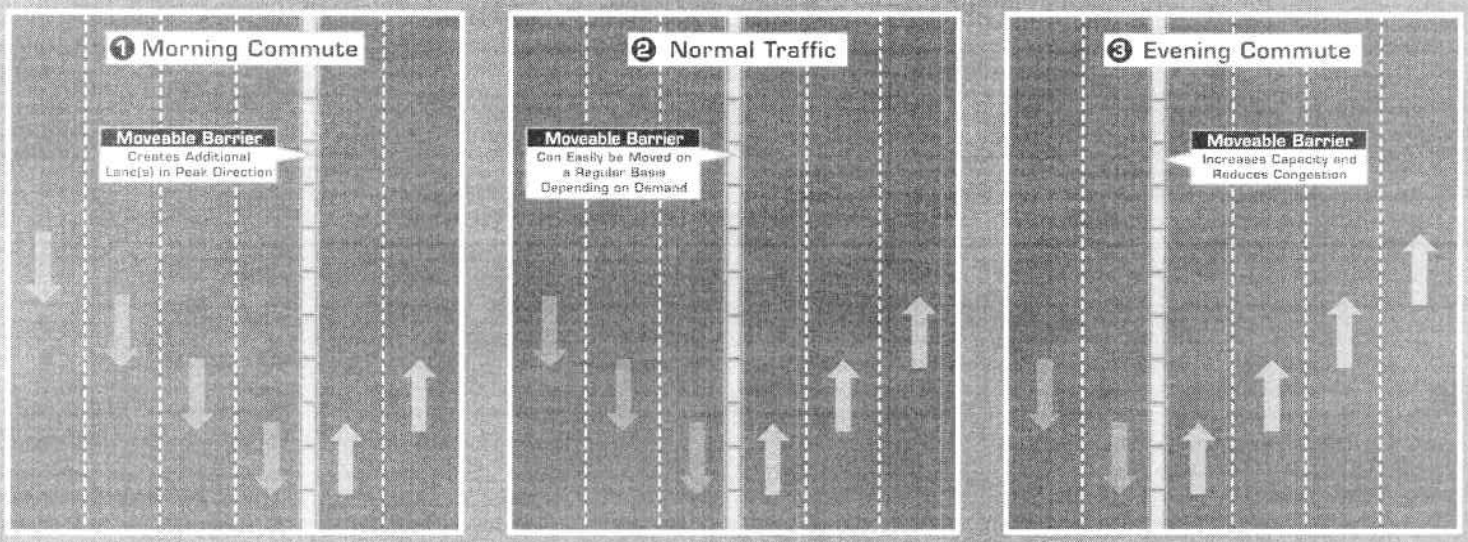
Reconfigure the Median to Accommodate Directional Demand

Using the existing space, additional lanes can be created in the peak direction by moving the median on a regular basis. By utilizing moveable median barrier, the lanes can be reconfigured to meet regular peak capacity demands.

Typical Applications:

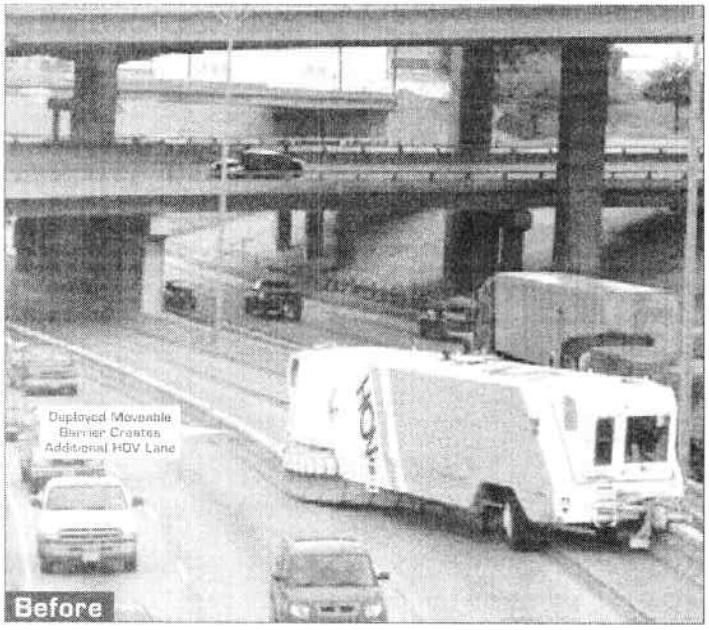
- Bridges, causeways, tunnels and viaducts
- Urban expressways and freeways with limited right of ways
- City streets and thoroughfares with high directional flows

Reconfigure Moveable Medians to Accommodate Directional Demand



Contraflow Applications

Reconfigure Existing Lanes from the Unused Capacity in the Off-Peak Direction to Maximize Peak "Through Put" While Maintaining Positive Barrier Separation



Barrier being transferred off of the median to create contraflow lane - Dallas, Texas, USA

Deployed barrier creates additional lane in the peak direction - Dallas, Texas, USA

Transfer Unused Directional Capacity

Reversible lanes can be opened to exploit unused lane capacity in the off peak direction. The new lanes can accommodate HOV lanes, HOT lanes, BRT (Bus Rapid Transit) or be used to accommodate tidal flows.

Typical Applications:

- Roads with directional flow
- Highways with fixed medians or on dual structures
- Roads with limited expansion room

Safe, Flexible Highways to Meet Rush Hour Demands

The Problem

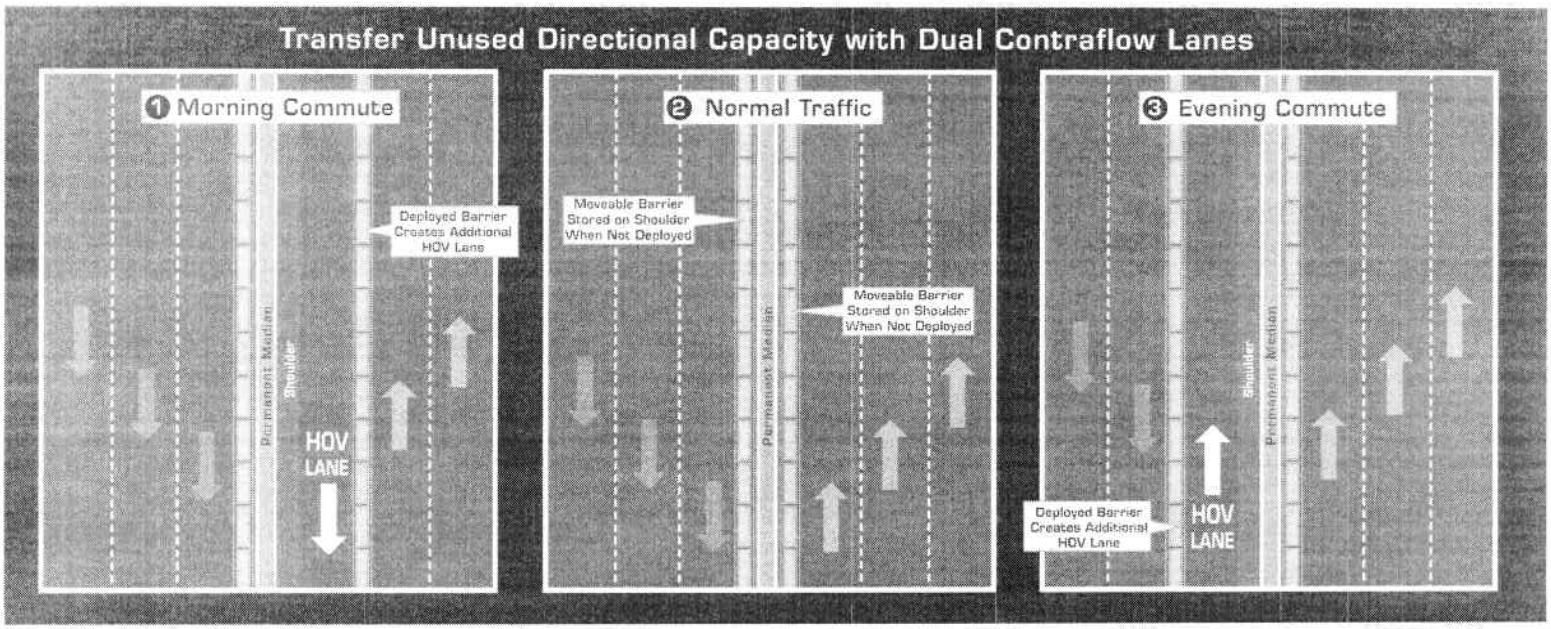
Typical Freeway Congestion Costs America $78 Billion Annually, Delays Increased 236%*

- Lost Productivity
- Increased Fuel Consumption
- Added Pollution

The Solution

Moveable Barrier Adds Lanes to Meet Rush Hour Traffic Demands

* *The Road Information Program (TRIP) 5-01, Texas Transportation Institute 12-98*



Quickchange®
Moveable Barrier System For Managed Lanes

What is the Quickchange® Reactive Tension System?

QMB-RTS™ is a new barrier system which significantly outperforms other longitudinal barriers, both moveable and permanent, that are designed to keep vehicles from penetrating into opposing lanes of traffic. Key advantages of the system include its narrow profile (13" wide steel encased barrier or 18" wide reinforced concrete barrier) making it ideal for tight applications where limited right of way exists. In addition, QMB-RTS™ provides extremely low deflection upon impact with superior vehicle stability and trajectory.

How does the barrier wall affect emergency vehicle access?

Increased emphasis on national defense and "homeland security" increase the need for a more expandable and flexible transportation system that can be reconfigured for multiple purposes to meet changing traffic conditions and needs. Moveable barrier adds an additional degree of flexibility to accommodate emergency traffic. It actually improves access on bridges because only traffic on one side of the barrier will be affected rather than the entire bridge. Additionally, the barrier hinge design facilitates opening the barrier wall in minutes using only hand tools. If desired, a variable-length barrier "gate" system can be installed.

What happens to a barrier when a vehicle impacts it?

The barrier wall will be slightly deflected, depending on the angle of impact, speed and the weight of the vehicle. The deflecting barrier wall absorbs energy from the impact rather than being transferred to the occupants of the vehicle.

What is the life expectancy of a barrier?

Both the concrete and steel versions are designed to withstand the rigors of an adverse environment, and are extremely durable. The only reason for replacing barrier would be due to damage from impacting vehicles or severe abuse. A number of our barriers and machines have been in continual service for over 15 years.

Advantages & Benefits of Quickchange®

- Congestion Relief
- Safer Highways
- Decreased Fuel Consumption
- Improved Air Quality
- Improve Highway Capacity Utilizing Existing Infrastructure

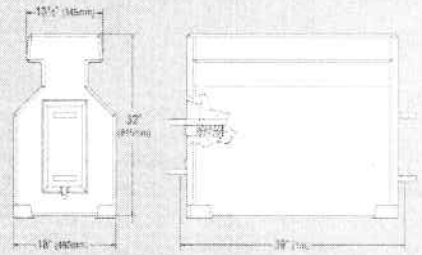
Barrier being transferred from the stored median position creating additional contraflow lanes - Honolulu, Hawaii

QMB™ borrows lanes from underutilized side and adds lanes to peak traffic side. - Honolulu, Hawaii

General Product Specifications:

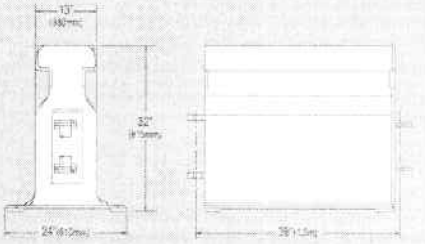
Concrete Reactive Tension System

- Heavily reinforced concrete barrier sections with Reactive Tension elements to reduce deflection while providing a narrow profile.
- Outstanding performance for locations where low deflection is required.



Steel Reactive Tension System

- High strength steel structure filled with concrete and Reactive Tension elements resulting in the narrowest profile and low deflection.
- Ideal for locations where low deflection is required and minimum lane width exists.



Performance:

- Tested and approved to NCHRP Report 350, Test Level 3 (100 km/h)
- Maximum deflection at Test level 3: less than 28 inches (0.7m)
- BS EN 1317-2 Test Level H2*

Mass of each barrier element:

- Approximately 1500 pounds (680 kg)

Barrier Transfer Machine:

- Transfer speed - up to 10 mph (15 km/h)
- Lateral Transfer - up to 26 feet (8 meters) per transfer
- Auto-guidance options available

* For 18" Concrete Barrier

BARRIER SYSTEMS

Barrier Systems Sales and Service
180 River Road, Rio Vista, California 94571
Tel. 707.374.6800 · Toll Free U.S. 888.800.3691
Fax 707.374.6801
www.barriersystemsinc.com
Email: info@barriersystemsinc.com

PTML02-042507

Local Representative