Portable Steel Barrier vs Portable Concrete Barrier
ROAD WORK
NEXT 118 MILES
WORK ZONES ARE DANGEROUS PLACES TO WORK OR VISIT
YOU'LL NEVER GET TO WORK ON TIME HAHA!!
How would you like it if people drove their cars thru your offices?
How would you like it if people drove their cars thru your offices?
THESE WORKERS WANT PROTECTION
CONES ARE ONLY APPROPRIATE AT SHORT TERM SITES
CONES ARE ONLY APPROPRIATE AT SHORT TERM SITES
CONES ARE ONLY APPROPRIATE AT SHORT TERM SITES
These delineators are cheap & easy to install, but...
...these delineators provide no positive protection
Delineation Devices

Used as channelizing devices
Visual awareness only
Do not prevent penetration into work areas
Without Positive Barrier Protection –

Motorist and Worker Safety Suffers
Motorists Exposed to Heavy Equipment
Motorists and Workers Expect and Deserve Safe Construction and Maintenance Work Zones
Positive Barrier Protection Needed For Worker and Motorist Safety
POSITIVE PORTABLE BARRIER PROTECTION IS NEEDED
IF A PROJECT WARRANTS A POSITIVE PROTECTION PORTABLE BARRIER, IT IS IMPORTANT TO CHOOSE THE MOST APPROPRIATE PORTABLE BARRIER
Types of Work Zone Barriers
In North America, Portable Concrete Barrier has traditionally been used
In Europe, Portable Steel Barrier is used in place of Portable Concrete Barrier.
Portable Concrete & Portable Steel Barriers both provide positive protection.
Portable Concrete Barrier Provides Excellent Positive Protection
Portable Steel Barrier Also Provides Excellent Positive Protection
Portable Concrete & Portable Steel Barriers both provide positive protection.

Why choose one over the other?
In North America, Portable Concrete Barrier is readily available with a low initial price (at times it is free to the contractors because it is owned by the DOT)
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A trained crew can quickly install Portable Concrete Barriers
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PLUS!!
Due to its weight, Concrete Portable Barrier will have reduced deflection.
Some Portable Concrete Barriers Are Designed for Very Low Deflection
Concrete Portable Barrier Will Have Reduced Deflection

PLUS!!
After a design impact, Concrete Portable Barrier may need little or no maintenance
Technology exists that allows contractors to easily move the Portable Concrete Barrier and Safely Expand the Work Zone to Accelerate Construction and Relieve Congestion.
Moveable Barrier to manage traffic flow

Moveable barrier quickly reconfigures the roadway to provide more lanes in the peak traffic direction.

This allows a larger construction work zone, which accelerates construction and eliminates stages.
This provides contractors a wider area to complete their work.
Open All Lanes for Peak Traffic Periods
this gives motorists the lanes they need
Indianapolis, Indiana
Typical 6-lane highway before widening. Must keep 3 lanes open each way to minimize queue (backup)
Typical 6-lane highway before widening. Must keep 3 lanes open each way to minimize queue (backup).

**Typical Roadway Configuration Before Construction**

**Alternative #1: Work completed in three stages over two construction seasons**

1. **Stage 1:** Five lanes to the right of the median barrier, one lane to the left.

2. **Stage 2:** One lane to the right of the median barrier, five lanes to the left.

3. **Stage 3:** Work zone is in the median between temporary barriers.
Traffic is disrupted during paving. Temporary asphalt costs can be very expensive.
Alternative #2: Use costly temporary asphalt on both sides

Traffic is disrupted during paving. Temporary asphalt costs can be very expensive

Alternative #3: Use Moveable Barrier to reduce costs and construction stages

QMB keeps lanes open with no (or minimal) construction, reduces construction seasons by eliminating stages
Safe Work Area
Adjustable Traffic Flow
Maximizing Traffic Flow and Construction Space/Efficiency

AM – 3 Lanes In, 2 Lanes Out
Maximizing Traffic Flow and Construction Space/Efficiency

PM – 2 Lanes In, 3 Lanes Out
Maximizing Traffic Flow and Construction Space/Efficiency

AM – 3 Lanes In, 2 Lanes Out

PM – 2 Lanes In, 3 Lanes Out
There are some negative issues regarding Portable Concrete Barrier.
Portable Concrete Barrier is limited by road weight restrictions
This can make the cost of transport very expensive, especially in Europe.
This becomes a bigger issue if multiple moves are required on a project.
Impacts into concrete barrier can be violent
Impacts into concrete barrier can be violent
ANY QUESTIONS?
Portable Steel Barriers provide similar positive protection for workers and motorists as Portable Concrete Barrier PLUS!!
Depending on the anchoring, the deflection characteristics for some Portable Steel Barriers can be as low as or lower than Portable Concrete Barrier
Depending on the anchoring, the deflection characteristics for some Portable Steel Barriers can be as low as or lower than Portable Concrete Barrier PLUS!!
The initial price of Portable Steel Barriers typically will be much higher than Portable Concrete Barriers.

MINUS!
While the initial price of a Potable Steel Barrier will be greater than Portable Concrete Barrier...
Portable Steel Barrier has a cost savings advantage over Portable Concrete Barrier when comparing transportation costs due to weight.
Portable Steel Barrier Can Be Close Packed

More than 600 feet of barrier can be moved on one truck
Four to five times more Portable Steel Barrier can be transferred on a truck compared to Portable Concrete Barrier

PLUS!!
A trained crew can quickly install Portable Steel Barriers
It is possible to install up to 1000 feet of Portable Steel Barrier in an hour.
A trained crew can quickly install Portable Steel Barriers

PLUS!!
Portable Steel Barriers are very durable
Portable Steel Barriers are very durable
Portable Steel Barrier can be configured to match traffic and work area needs
Some Portable Steel Barriers have been tested beyond TL-3 (TL-4 and H-2)
Some Portable Steel Barriers have been tested beyond TL-3 (TL-4 and H-2) PLUS!!

13,000 kg, 70 km/h, 20 degrees (EN1317, H2 Test)
Minimal, if any maintenance is required after a design impact into a Portable Steel Barrier.
Because some Portable Steel Barriers are on wheels, their flexibility makes their use very efficient.
Portable Steel Barrier Can Be Moved in Many Ways:

- Manually by Hand
- Fork Lift or Front Loader
- Pickup Bumper Wheel
- Towed With Pickup
Portable Steel Barrier Can Be Moved in Many Ways:

- Manually by Hand
Portable Steel Barriers can be moved by hand

Moving Single Sections

Moving Multiple Sections
System Moves Over Rough, Uneven Terrain
Portable Steel Barrier Can Be Moved in Many Ways:

- Manually by Hand

- Fork Lift or Front Loader
Portable Steel Barriers can be moved with a Fork Lift or Front Loader
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Portable Steel Barriers can be moved with a Pickup Bumper Wheel System
Portable Steel Barrier Can Be Moved in Many Ways:

• Manually by Hand
• Fork Lift or Front Loader
• Pickup Bumper Wheel
• Towed With Pickup
Towing with a Truck

Towing to Next Work Area

Moves Laterally or Longitudinally
Towing with a Truck

A standard pickup truck can pull up to 225 of barrier at a time
Portable Steel Barrier Can Be Moved in Many Ways:

- Manually by Hand
- Fork Lift or Front Loader
- Pickup Bumper Wheel
- Towed With Pickup
- Moved with a Bobcat
Moving Laterally with a Bobcat
Flexibility and Ease of Use of Steel Portable Barrier

PLUS!!

Towing Into Work Area Easily Set Up
According to AASHTO, over 150,000 bridges in the United States are structurally deficient or obsolete.
BRIDGE REHABILITATION

- One of the top FHWA priorities in 2009
- Excess of One Billion US dollars in the pipeline for bridge rehabilitation
- Every state has structurally deficient bridges
Two major concerns during bridge rehabilitation

DEAD LOAD WEIGHT & DECK PENETRATION
# DEAD LOAD WEIGHT

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<th>Portable Steel Barrier</th>
<th>Portable Concrete Barrier</th>
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<td>600 ft (183 m) bridge</td>
<td>60 lbs (27 kg) per ft</td>
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<td>deck</td>
<td>(304mm)</td>
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**Note:**
- 600 ft (183 m) bridge deck
- 60 lbs (27 kg) per ft (304mm)
- 450 lbs (204 kg) per ft (304mm)
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<td><strong>36,000 lbs (16,329 kg)</strong></td>
<td><strong>270,000 lbs (122,470 kg)</strong></td>
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This weight differential could be critical on a bridge repair job.

PLUS!!
MINIMAL DECK PENETRATION using Hilti™ mechanical anchors (16mm)

- Shallow embedment depth of 3.94 inches (100 mm)
- No epoxy for quick installation
- Pull out strength greater than 20,000 pounds (9072 kgs)
- Shear strength of 26,777 pounds (12,146 kg)
Portable Steel Barrier use during repair of bridge railing
Two major concerns during bridge rehabilitation

DEAD LOAD WEIGHT & DECK PENETRATION

PLUS!!
Two major concerns during bridge rehabilitation

DEAD LOAD WEIGHT & DECK PENETRATION
ANY QUESTIONS?
Portable Concrete & Portable Steel Barriers both provide positive protection.
Summary Comparison

Portable Concrete Barrier

Portable Steel Barrier
Summary Comparison

Positive Protection

Portable Concrete Barrier PLUS

Portable Steel Barrier PLUS
Summary Comparison

Positive Protection
Initial Price

Portable Concrete Barrier
PLUS
PLUS

Portable Steel Barrier
PLUS
MINUS
Summary Comparison

Positive Protection
Initial Price
Quick Install

Portable Concrete Barrier
PLUS
PLUS
PLUS

Portable Steel Barrier
PLUS
MINUS
PLUS+
Summary Comparison

Positive Protection
Initial Price
Quick Install
Low Deflection

**Portable Concrete Barrier**
PLUS
PLUS
PLUS
PLUS

**Portable Steel Barrier**
PLUS
MINUS
PLUS+
PLUS* with anchoring
Summary Comparison

Positive Protection
Initial Price
Quick Install
Low Deflection
Maintenance

Portable Concrete Barrier
PLUS
PLUS
PLUS
PLUS
PLUS+

Portable Steel Barrier
PLUS
MINUS
PLUS+
PLUS* with anchoring
PLUS
Summary Comparison

Positive Protection
Initial Price
Quick Install
Low Deflection
Maintenance
Durability

Portable Concrete Barrier
PLUS
PLUS
PLUS
PLUS
PLUS

Portable Steel Barrier
PLUS
MINUS
PLUS+
PLUS
PLUS*
PLUS+ with anchoring
PLUS+
PLUS+
PLUS+
PLUS+
Summary Comparison

Positive Protection: PLUS PLUS
Initial Price: PLUS PLUS
Quick Install: PLUS PLUS
Low Deflection: PLUS PLUS
Maintenance: PLUS PLUS+
Durability: PLUS PLUS
Movable: PLUS PLUS

Portable Concrete Barrier:
- PLUS
- PLUS
- PLUS
- PLUS+
- PLUS

Portable Steel Barrier:
- PLUS
- MINUS
- PLUS+
- PLUS*
- PLUS+  
- PLUS
Summary Comparison

Positive Protection: PLUS
Initial Price: PLUS
Quick Install: PLUS
Low Deflection: PLUS
Maintenance: PLUS+
Durability: PLUS
Movable: PLUS
Transport Costs: MINUS-

Portable Concrete Barrier: PLUS
Portable Steel Barrier: PLUS

PLUS* with anchoring: PLUS
PLUS: PLUS+
PLUS: PLUS
PLUS: PLUS
Summary Comparison

Positive Protection
Initial Price
Quick Install
Low Deflection
Maintenance
Durability
Movable
Transport Costs
Flexibility

Portable Concrete Barrier

PLUS
PLUS
PLUS
PLUS+
PLUS
MINUS-
MINUS

Portable Steel Barrier

PLUS
MINUS
PLUS+
PLUS* with anchoring
PLUS
PLUS
PLUS
PLUS+
Summary Comparison

Positive Protection: PLUS
Initial Price: PLUS
Quick Install: PLUS
Low Deflection: PLUS
Maintenance: PLUS+
Durability: PLUS
Movable: PLUS
Transport Costs: MINUS-
Flexibility: MINUS
Curves: MINUS

Portable Concrete Barrier

PORTABLE CONCRETE BARRIER

PLUS WITH ANCHORING
PLUS
PLUS
PLUS
MINUS-
MINUS
MINUS

Portable Steel Barrier

PORTABLE STEEL BARRIER

PLUS
MINUS
PLUS+
PLUS
PLUS
PLUS
PLUS
PLUS
Summary Comparison

Positive Protection  PLUS
Initial Price  PLUS
Quick Install  PLUS
Low Deflection  PLUS
Maintenance  PLUS+
Durability  PLUS
Movable  PLUS
Transport Costs  MINUS- MINUS
Flexibility  MINUS
Curves  MINUS
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*with anchoring
Summary Comparison

Positive Protection PLUS
Initial Price PLUS
Quick Install PLUS
Low Deflection PLUS
Maintenance PLUS+
Durability PLUS
Movable PLUS
Transport Costs MINUS-
Flexibility MINUS
Curves MINUS
TL-3 + PLUS
Bridge Weight MINUS
Availability PLUS *in USA

Portable Concrete Barrier

Portable Steel Barrier

PLUS MINUS
PLUS+ PLUS
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