

## What are the Benefits of Using Positive Protection Barriers for Work Zone Safety?

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Improved road-user and worker safety is a proven benefit from using positive protection. New types of positive protection barriers can be used to meet regulations and standards, physically separate moving traffic and workers, and provide practical cost-effective work zone safety.

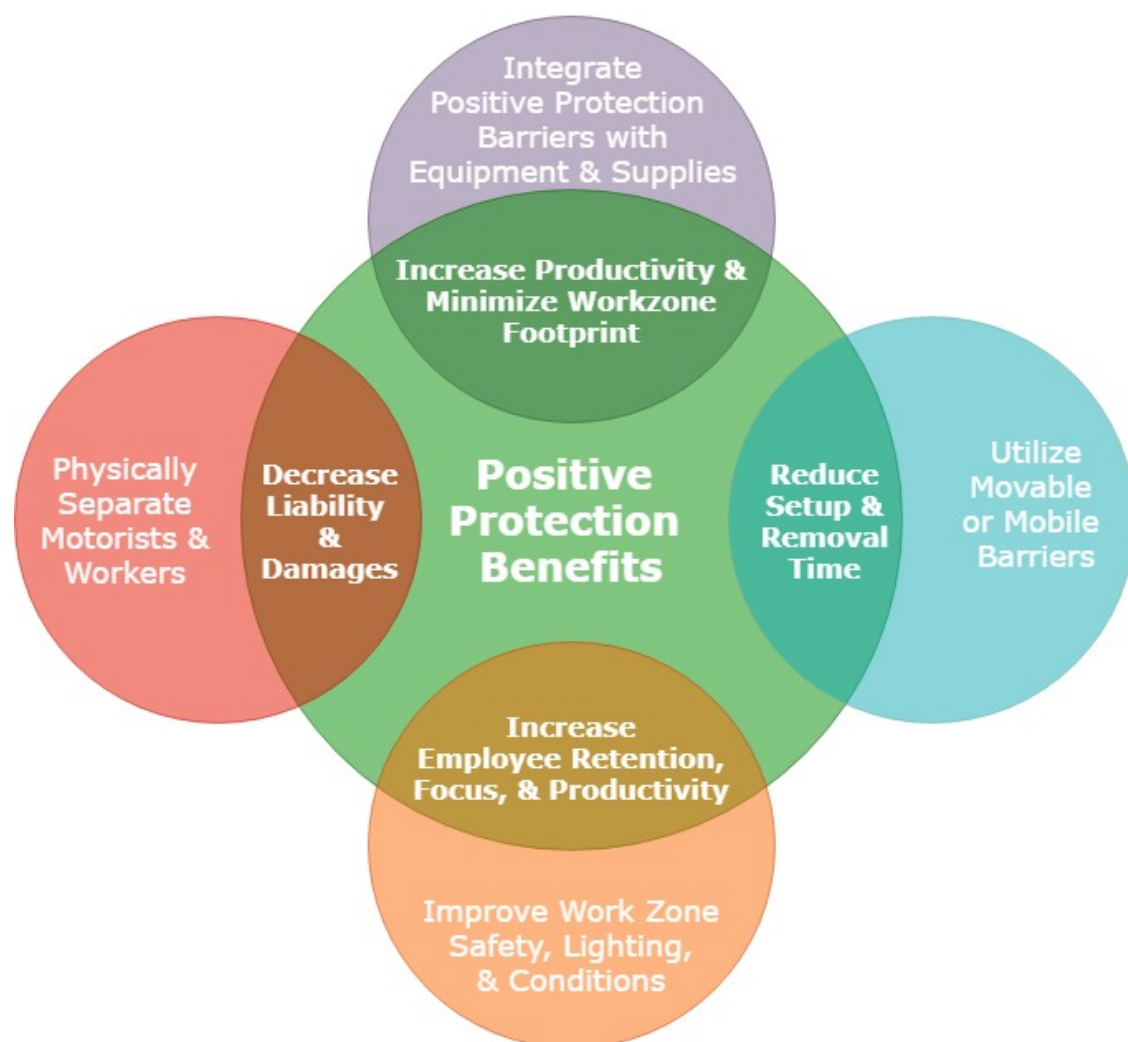
### Cost Benefits

California research found a cost benefit for [highly mobile barrier](#) of \$1.9 million per year, per barrier in 2008 (\$2.72 million in 2023 dollars). <sup>14</sup> In 2021, USDOT set the value of a single life (VSL) at \$11.8 million dollars. <sup>13, 37</sup> When comparing the cost of the life of a worker to positive protection's cost and 20 year expected term of use, the annual cost of using positive protection is minimal. Over 20 years of use, the barrier will most likely save one or more lives and help avoid even more injuries, accidents, and delays.

### Commonly Cited Benefits

Benefits vary by product and application. Commonly cited benefits of using positive protection include:

- Safeguarding Workers Against Intrusions
- Increasing Worker Focus on Tasks
- Reducing Setup
- Increasing Productivity with Onboard Tools and Supplies
- Increasing Efficiency/Saving Time
- Increasing Employee Retention
- Decreasing Liability and Damages
- Reducing Risk and Exposure to Dangers of Live Work Zone



## Benefits for Workers and the Public

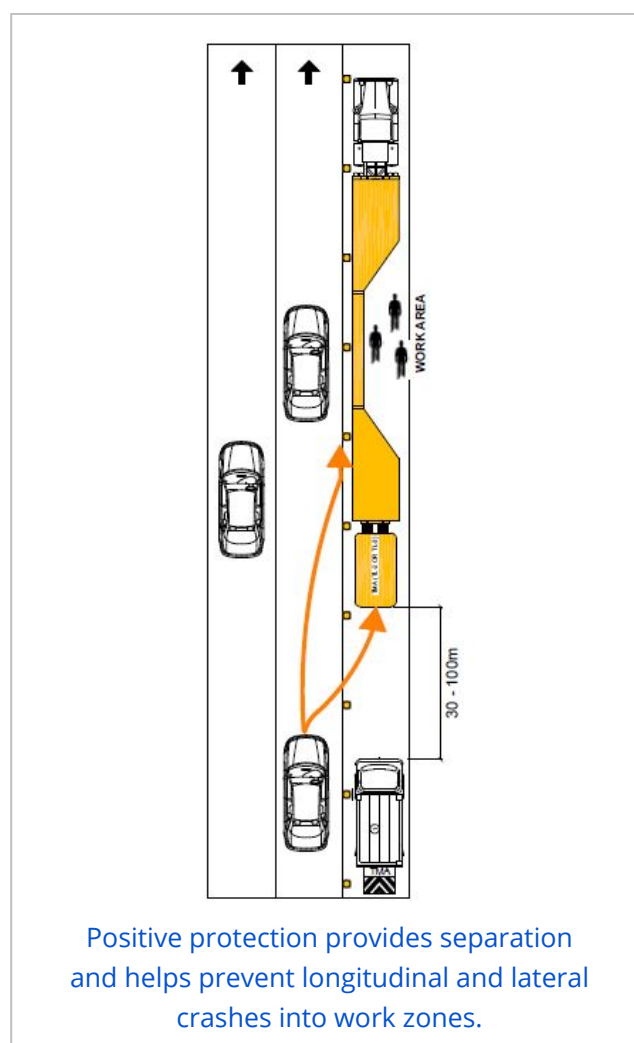
Positive protection benefits workers & the traveling public by both improving safety and mobility in and around work zones.

Truck or Trailer Mounted Attenuators (TMA) and warning devices (rumble strips, alarms, etc.) help but also permit motorists to veer around these devices and swerve back into the work zone. At 50 mph, errant drivers may have less than 1 second to realize and correct their mistakes. In an analysis of impacts in one work zone location, 30-40% of the incidents involved direct rear impacts, and 60-70% of the incidents involved lateral incursions (with relatively tight TMA spacing).<sup>15</sup> Drivers make mistakes but mistakes need not be catastrophic – for drivers, workers, or others.

Positive Protection physically separates workers and motorists. Barriers are designed to prevent longitudinal and lateral crashes into work zone zones. Barriers help drivers better focus on the road ahead and help reduce the severity of mistakes and accidents. In many cases, errant drivers can regain control and continue on their way.

Extended lane closures with low work activity contribute to driver frustration. Traditional practices of taking buffer lanes are not needed and are becoming impractical with increasing traffic volumes. Positive protection helps reduce the number and duration of lane closures. Work and associated protection can be focused in one or more specific areas.

The highly mobile and movable types of barriers are designed to help reopen the roadway quickly to restore capacity. Roadways can be reopened daily to ease rush hour traffic otherwise congested behind work zones. Reducing congestion benefits both motorists & workers. Speed variance (i.e. congestion/slowdowns) is a significant contributor to accidents in and around work zones. Those accidents may cause additional crashes and/or spill over into work zones. Addressing congestion with positive protection can benefit workers, the public, and commerce by reducing accidents, injuries, fatalities, risk, delay, and interruption. These combined considerations accounted for much of the \$1.9 million savings per highly mobile barrier per year found by California DOT research.<sup>14</sup>



**Case Study: California Bridge Project**  
3 year/\$150-200 million project.

An ongoing project in California illustrates even greater potential savings on projects and benefits for the public. Highly mobile barriers are saving an estimated 1-2 hours per night on setup/removal (a 10-20% savings in time and

3x mobile barriers:

- 10-20% time savings per night.
- Lanes reopen daily.

1x movable barrier:

- Lane shifts improve traffic flow.

Benefits:

- Reduced project duration & cost.
- Optimal traffic flows.

potential project duration). In one closed lane, they are using three barriers to work at different spots along that lane. On a three-year, \$150-200 million project, that amounts to substantial reduction in project duration and cost. For the public, benefits are increased even further by shifting lanes around the work zone using movable concrete barrier. Used together, the highly mobile and movable barriers better maintain traffic flows and reduce overall project duration.

# Footnotes

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<sup>1</sup> [Temporary Traffic Control Devices, 23 U.S.C. § 112\(g\).](#)

<sup>2</sup> [Definitions, Subpart K - Temporary Traffic Control Devices, 23 C.F.R. § 630.1104.](#)

<sup>3</sup> [Positive Protection Measures Defined, 23 U.S.C. 112\(g\)\(4\).](#)

<sup>4</sup> [2019 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

<sup>5</sup> [2018 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

<sup>6</sup> [2017 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

<sup>7</sup> [2016 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

<sup>8</sup> Estimated Total Crashes & Injuries Data: 2013-2015 data from NHTSA National Automotive Sampling General Estimates System (NASS/GES). NHTSA retired NASS/GES at the end of 2015. 2016-2017 data from NHTSA's replacement Crash Report Sampling System (CRSS).

<sup>9</sup> Fatalities Data: NHTSA Fatality Analysis Reporting System (FARS) Encyclopedia. 2018 is the last year with available data.

<sup>10</sup> [Positive Protection Devices, Subpart K - Temporary Traffic Control Devices, 23 C.F.R. § 630.1108\(a\)\(1-5\).](#)

<sup>11</sup> [Payment for Traffic Control, Subpart K - Temporary Traffic Control Devices, 23 C.F.R. § 630.1108\(f\)\(2\).](#)

<sup>12</sup> ["Portable Positive Protection: A Guide for Short Duration and Short Term Work Zones", Updated by Mobile Barriers LLC, Based on Material Developed by ATSSA for the FHWA Work Zone Safety Grant Program \(June 2016\).](#)

<sup>13</sup> [U.S. Department of Transportation. "Guidance on Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analyses - 2016 Adjustment." \(August 8, 2016\).](#)

<sup>14</sup> UC Davis/AHMCT, "A Risk Assessment and Cost Benefit Analysis for [Highly Mobile Barriers]," Technical Report Number UCD-ARR-08-09-30-01, (2008). Ibid, Attachment 3.

<sup>15</sup> Mobile Barriers LLC internal crash analysis for Washington D.C. located highly mobile barrier.

<sup>16</sup> Former Deputy Executive Director of the Texas Department of Transportation (TxDOT).

<sup>17</sup> [2013 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

<sup>18</sup> [2014 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

<sup>19</sup> [2015 Associated General Contractors of America \(AGC\) Highway Workzone Safety Study.](#)

## Work Zone Barriers

[Defining Positive Protection](#)

[Examples & Types of Positive Protection](#)

[Benefits of Positive Protection](#)

## Work Zone Crash Data

[Contractor Reported Crashes & Outcomes](#)

[Workzone Total Crashes & Injuries](#)

[Work Zone Crash Fatalities](#)

[Work Zone Pedestrian Fatalities](#)

[Firetruck and Emergency Response Collision Crash Data](#)

## Implementation

[When are Positive Protection Barriers Appropriate?](#)

[What Federal Funding is Available for Positive Protection Barriers?](#)

[How Can Contractors Obtain & Use Positive Protection Barriers?](#)

[FHWA Repeals Proprietary Product Rule](#)

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