Work Zone Crashes, Injuries, & Fatalities

Work zone fatalities reached a 16-year high in 2020. Between 2013 and 2020, work zone fatalities increased 45%. In 2020, over 102,000 work zone crashes were estimated to have occurred resulting in over 45,000 injuries and 857 fatalities. Economic costs of these crashes have been estimated at over $17.5 billion annually.

In 2020, during the COVID-19 pandemic, work zone crashes & fatalities climbed despite lower traffic volumes. The Governor's Highway Safety Association (GHSA) projected that the U.S. pedestrian fatality rate jumped an unprecedented 21% from 2019. A prior study found that 38% of "Pedestrian" fatalities in work zones were workers (i.e. road construction/maintenance workers, utility workers, and planning/surveying workers). The serious hazards faced by people working on foot on or along our roadways, who are among the most "Vulnerable Road Users", highlights the need for positive protection measures.

For the first half of 2021, USDOT estimates another 18.4% surge in traffic fatalities over 2020 and the largest number of traffic fatalities since 2006. In 2021, TxDOT reported that work zone fatalities surged 33%. More motorists and road workers are being killed or injured in preventable work zone crashes. In a 2021 survey, most highway contractors (60%) reported crashes into their work zones. In an earlier survey, 89% of highway contractors think positive protection would help improve safety and prevent these horrific crashes.

The rising number of accidents, injuries, and fatalities highlight the need for positive protection. The Infrastructure Investment and Jobs Act of 2021 (IIJA) amends the Highway Safety Improvement Program (HSIP) to add protection for "Vulnerable Road Users", which includes road construction workers and people working on foot on or along our roadways. In 2021, USDOT set the value of a single life (VSL) at $11.8 million dollars.

"It's as if we were living through a war... When it comes to roadway deaths, we have a crisis that's urgent, unacceptable - and preventable."

— U.S. Transportation Secretary, USDOT, "Transcript: Secretary Buttigieg Remarks on National Roadway Safety Strategy"

"Blaming human error alone is convenient, but it places all Americans in greater danger."

— David Zipper, Harvard Kennedy School's Taubman Center, "The Deadly Myth That Human Error Causes Most Car Crashes"

"Motorists will inevitably make mistakes. Too often they pay for their mistakes with their lives – or the lives of innocent bystanders.... We have the technology and 'know how' to build our roadway system to anticipate user error. It can be designed, constructed, equipped, and operated to forgive the errant user and protect the innocent victim."

— ARTBA, "Every Life Counts: Improving the Safety of our Nation's Roadways"
2021 Contractor Reported Work Zone Crashes, Project Delays, Injuries, & Fatalities

The Associated General Contractors of America's (AGC) 2021 nationwide study on highway work zone safety reveals that 60% of highway contractors reported work zone crashes over the last year. As a result of these work zone crashes, 35% of firms reported project delays, 4% reported worker fatalities, 19% reported worker injuries, 13% reported public fatalities, and 34% reported public injuries. 78% of highway contractors also reported that the risk of highway work zone crashes is greater now compared to a decade ago. 26

AGC Study - Outcomes of Work Zone Crashes 26
(Mouseover data points for details.)

AGC Study - Percentage of Highway Contractors Reporting Work Zone Crashes Over Time 26, 25, 4, 5, 6, 7, 19, 18, 17

The 2019 AGC study revealed that an increasing percentage of contractors believe positive protection would improve safety on their projects.

- 89% of contractors report that increased use of positive protection barriers would help reduce injuries and fatalities on their projects.

4
Estimated National Work Zone Crashes & Injuries

The number of crashes in work zones and injuries resulting from those crashes has been increasing.

- In 2020, an estimated 102,000 crashes and 45,000 injuries were estimated to have occurred in work zones.

Estimated Work Zone Crashes and Resulting Injuries

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Crashes</th>
<th>Estimated Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10,000</td>
<td>5,000</td>
</tr>
<tr>
<td>2014</td>
<td>11,000</td>
<td>6,000</td>
</tr>
<tr>
<td>2015</td>
<td>12,000</td>
<td>7,000</td>
</tr>
<tr>
<td>2016</td>
<td>13,000</td>
<td>8,000</td>
</tr>
<tr>
<td>2017</td>
<td>14,000</td>
<td>9,000</td>
</tr>
<tr>
<td>2018</td>
<td>15,000</td>
<td>10,000</td>
</tr>
<tr>
<td>2019</td>
<td>16,000</td>
<td>11,000</td>
</tr>
</tbody>
</table>
| 2020 | 17,000            | 12,000             

National Work Zone Crash Fatalities

Work zone crash fatalities have been on the rise nationally.

- 45% increase in fatalities since 2013.

Fatalities Resulting from Work Zone Crashes

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>500</td>
</tr>
<tr>
<td>2014</td>
<td>550</td>
</tr>
<tr>
<td>2015</td>
<td>600</td>
</tr>
<tr>
<td>2016</td>
<td>650</td>
</tr>
<tr>
<td>2017</td>
<td>700</td>
</tr>
<tr>
<td>2018</td>
<td>750</td>
</tr>
<tr>
<td>2019</td>
<td>800</td>
</tr>
<tr>
<td>2020</td>
<td>850</td>
</tr>
</tbody>
</table>

Table 1. NHTSA CRSS Statistical Model Percent Error:

<table>
<thead>
<tr>
<th>Year</th>
<th>Recorded Fatalities (FARS)</th>
<th>Estimated Fatalities (CRSS Statistical Model)</th>
<th>Percent Error (of CRSS Statistical Model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>701</td>
<td>349</td>
<td>-50%</td>
</tr>
<tr>
<td>2016</td>
<td>781</td>
<td>525</td>
<td>-32%</td>
</tr>
<tr>
<td>2017</td>
<td>806</td>
<td>597</td>
<td>-26%</td>
</tr>
<tr>
<td>2018</td>
<td>754</td>
<td>636</td>
<td>-15%</td>
</tr>
<tr>
<td>2019</td>
<td>842</td>
<td>298</td>
<td>-64%</td>
</tr>
<tr>
<td>2020</td>
<td>857</td>
<td>478</td>
<td>-44%</td>
</tr>
</tbody>
</table>

† In general, the NHTSA FARS & GES/CRSS crash report datasets underreport work zone crashes as well as resulting injuries and fatalities.

The statistic for fatalities resulting from work zone crashes is obtained from NHTSA FARS dataset which attempts to aggregate various state police crash report datasets. However, crashes occurring inside work zones are not always properly classified by police as work zone related.

A cursory glance of NHTSA FARS data in 2018 quickly reveals examples of missed fatalities resulting from work zone crashes. A number of studies confirm that work zone crashes are underreported in crash report datasets.
Pedestrian Fatalities in Work Zones

In 2018, there were 122 cases of pedestrians killed as a result of a work zone crash. Work zone pedestrian fatalities are often assumed to be members of the public who have fallen into complacency walking a routine route. However, in 2018, 38% of pedestrian fatalities in work zones were actually on the job and primarily engaged in road work, utility work, and planning/surveying.

Work activities at the time of death include activities such as installing traffic signs, reopening a lane, flagging, picking up debris, replacing damaged concrete, paving operations, exiting a work vehicle, utility work, construction labor, DOT electrical work, DOT maintenance work, fence contracting, repairing guardrail, stringing cable guard rail, and repairing a bridge.

Based on a review of each work zone pedestrian fatality, it is found that:

- **Activity**: Many Pedestrian Fatalities in Work Zones occurred while working (38%, 46 of 122).
- **Work Activity**: The majority of Working Pedestrian Fatalities in Work Zones were engaged in road work, utility work, planning/surveying (87%, 40 of 46 Working Pedestrians).
- **Work Hazard**: The majority of Working Pedestrian Fatalities in Work Zones were killed by motorist incursions (80%, 37 of 46 Working Pedestrians)
- **Location**: Few Pedestrian Fatalities in Work Zones occurred at/near intersections (15%, 18 of 122).

38% of Pedestrian Work Zone Fatalities occurred while working. Primary Activity of the 122 Pedestrian Work Zone Fatalities (2018)

87% of Working Pedestrians were engaged in Road Work, Utility Work, or Planning/Surveying. Work Activity of the 46 Working Pedestrians in Work Zones (2018)

Road Work activities at the time of death include activities such as installing traffic signs, reopening a lane, flagging, picking up debris, replacing damaged concrete, paving operations, exiting a work vehicle, utility work, construction labor, DOT electrical work, DOT maintenance work, fence contracting, repairing guardrail, stringing cable guard rail, and repairing a bridge.
Footnotes

2 Definitions, Subpart K - Temporary Traffic Control Devices, 23 C.F.R. § 630.1104.
4 2019 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
5 2018 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
6 2017 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
7 2016 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
9 Fatalities Data: NHTSA Fatality Analysis Reporting System (FARS) Encyclopedia. 2020 is the last year with available data.
15 Mobile Barriers LLC internal crash analysis for Washington D.C. located highly mobile barrier.
16 Former Deputy Executive Director of the Texas Department of Transportation (TxDOT).
17 2013 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
18 2014 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
19 2015 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
20 Work Zone Fatalities at Highest Level Since 2006, New Data Shows, Roads & Bridges, April 28, 2021.
22 2012 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
23 2011 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
24 CDOT and CSP warn that not all workplaces are meant to zoom: Fatal crashes in work zones on the rise Journal Advocate, November 27, 2020.
26 2020 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
27 2021 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
29 Work Zone Fatalities at Highest Level Since 2006, New Data Shows, Roads & Bridges, April 28, 2021.
30 Crash Costs for Highway Safety Analysis, FHWA-SA-17-071.
33 Despite fewer drivers on the road, Texas work zone traffic deaths climb during pandemic CBS Austin, April 26, 2021.
35 2017 Associated General Contractors of America (AGC) Highway Workzone Safety Study.
37 US DOT Releases New Data Showing That Road Fatalities Soared in First Half of 2021, Secretory Buttigieg calls rising traffic deaths a crisis and calls for cooperation among all levels of government, industry, and advocacy to change course, October 28, 2021.
38 Traffic Deaths Spike in Texas Work Zones Texas Department of Transportation, April 4, 2022.
40 "Based on the methodology adopted in the 2013 guidance, price and real income changes since 2012 yield a current VSL estimate of $11.8 million for analyses using a base year of 2021."
41 "Vulnerable Road Users" as defined in the Infrastructure Investment and Jobs Act (IIJA or BIL) includes road construction workers and people working on foot or on our roadways. Sec. 11111 amends the Highway Safety Improvement Program (HSIP) to add protection for "Vulnerable Road Users".

---

file:///C:/Users/taylo/Dropbox/Website_PositiveProtection/work-zone-crash-facts.html
In 23 USC 148 (a)(1)(15) it defines "Vulnerable Road Users" to include persons with an attribute code that is included in the "number of non-motorized fatalities", as defined in 23 CFR 490.205.

That in turn includes persons designated with NHTSA FARS attribute code (5) "Pedestrians", which in turn includes people working on foot on or along our roads (in work zones and otherwise).

FHWA Memorandum HSA-1 dated February 2, 2022 states that "The FARS person attribute codes only describe the role of the person involved in the crash and may include other types of individuals that fall under the definition of these attribute codes. For example, a construction worker may be viewed as a Pedestrian (and therefore a vulnerable road user) if the construction worker is not in a vehicle."

See also Work Zone Pedestrian Fatalities Data.