

Category 1: Work Health and Safety

No Reversing Insitu Recycling

David Berg & Jason Parrish
Stabilised Pavements of Australia



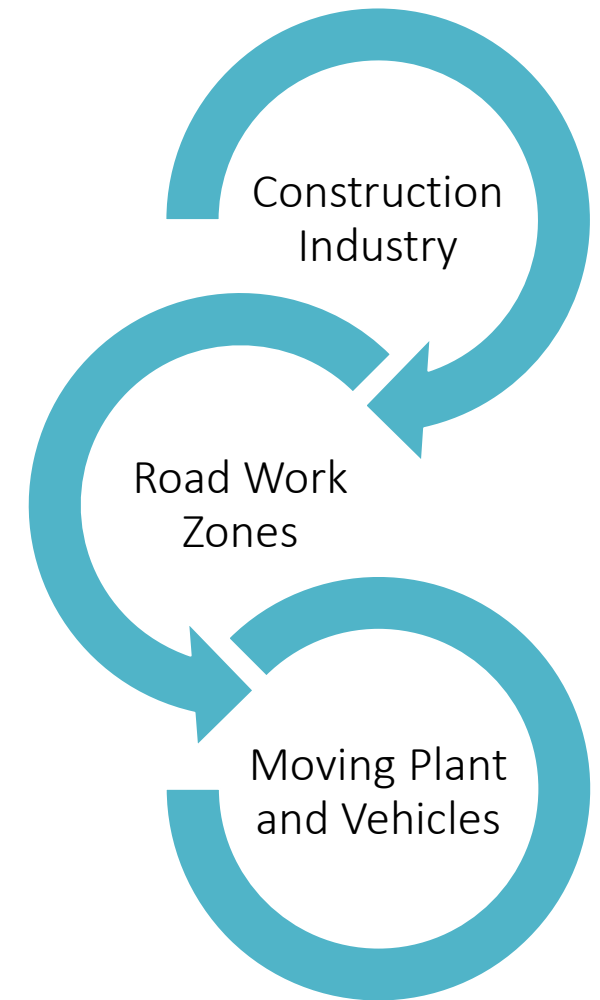
2021 AustStab Awards of Excellence

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Background

- The Construction Industry is a hazardous industry to work in and risks can be extreme, ranking third most highest fatalities behind the Agriculture Industry and Transport Industry
(Safe Work Australia, Work-related Traumatic Injury Fatalities, Australia, 2019)
- Road rehabilitation and construction sites pose a great risk to workers from moving plant and vehicles
- Road work zones are where vehicular traffic, moving plant and road workers share space or are in close proximity
- Let's look at some Australian statistics for some evidential context...



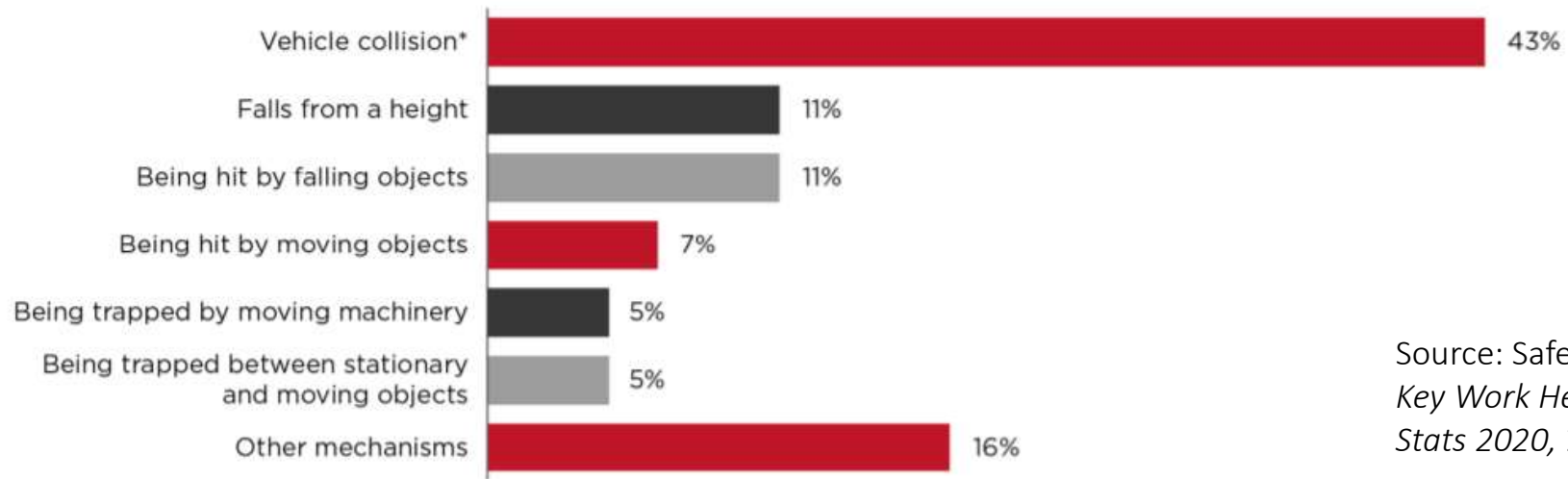
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Background

Key WHS statistics Australia 2020
Work-related injury fatalities



Worker fatalities by mechanism of incident, 2019



Source: Safe Work Australia, *Key Work Health and Safety Stats 2020, 2020*

*vehicle collisions include fatalities that occurred as a direct result of a vehicle crash. Vehicles include not only road vehicles such as cars and trucks, but also machines such as aircraft, boats, loaders, tractors and quad bikes.

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Background

Key WHS statistics Australia 2020
Work-related injury fatalities



Worker fatalities by occupation, 2019



Machinery operators and drivers

8.3

fatalities per 100,000 workers



Labourers

2.3

fatalities per
100,000 workers



Managers

1.6

fatalities per
100,000 workers

Source: Safe Work Australia,
*Key Work Health and Safety
Stats 2020, 2020*

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Background

Table 8: Fatalities: percentage by industry group classes and mechanism of incident, 2002–03 to 2013–14 combined

Industry group classes	Falls from a height	Vehicle incident	Contact with electricity	Hit by falling objects	Hit by moving objects	Other mechanisms	Total
Site preparation services	6%	17%	1%	19%	20%	36%	100%
Electrical services	22%	20%	53%	0%	2%	4%	100%
House construction	49%	11%	11%	19%	0%	11%	100%
Road & bridge construction	6%	26%	0%	9%	41%	18%	100%
Non-residential building construction	35%	19%	4%	23%	4%	15%	100%
Painting & decorating services	71%	5%	10%	0%	5%	10%	100%
Plumbing services	52%	14%	24%	5%	5%	0%	100%
Concreting services	20%	15%	10%	20%	10%	25%	100%
Roofing services	75%	0%	25%	0%	0%	0%	100%
Landscape construction services	0%	36%	18%	9%	18%	18%	100%
Other industry group classes	30%	15%	14%	12%	11%	18%	100%

Source: Safe Work Australia, *Key Work Health and Safety Stats 2020, 2020*

Note: Vehicles not only include road vehicles such as cars and trucks, but also machines.

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Description of traditional insitu recycling workplace environment

- Types of plant that are typically present in the workplace during traditional insitu recycling operations

- Spreader
- Stabiliser/Reclaimer/Mixer
- Watercart
- Padfoot Roller
- Smooth Drum Roller
- Multi Tyre Roller
- Grader
- Bitumen Tanker
- Cement/Lime Tanker
- Profiler
- Light vehicles

Present on all sites, not the focus of this initiative, which have arguably separate controls for reversing to those of plant for insitu recycling



A few of the traditional plant items listed



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Description of traditional insitu recycling workplace environment

- Except for when the watercart and/or bitumen tanker is connected to the stabiliser/reclaimer, all plant items are separate
- Two pass mixing is required
- Extra plant items to achieve compaction (padfoot roller)
- Grader requires extensive reversing and forwards line-of-travel to shape bulked stabilised material



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New streamlined process – Improved workplace safety

- New process for insitu recycling – Paver-Laid Insitu Recycling
- Alongside many impressive additions, it is ironically what this new method omits which is revolutionary – reversing plant on site
- All insitu recycling occurs in just one pass of the ‘construction train’



Visual of the W380CR and the full construction train, which is forward-moving without reversing

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New streamlined process

– Improved workplace safety

- ‘No Reversing Insitu Recycling’ using this unique process is enabled by:
- The forward-moving construction train completing recycling operations in a single-pass, reducing the number of separate plant
- Wide working and paver-laid placement widths allow for high production and thorough mixing in one pass that would normally require multiple passes using conventional stabilisation
- Partially compacted material upon placement by the paver requires only one smooth drum roller for final compaction
- Use of a roller with swivel seat allows the driver to be positioned in the forward-facing direction at all times
- Paver-laid feature ensures controlled surface levels, eliminating the need for a grader

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Key WHS improvements

- No reversing (with roller in multidirectional position)
- Less separate plant items on site (not less overall numbers of plant)
- Single-pass process significantly reduces number of passes back and forth along the worksite
- Less risk of plant and workers on foot collisions
- ‘No Reversing Insitu Recycling’ significantly improves Work Health and Safety by employing the highest level in the hierarchy of risk control – elimination – to address extreme risk rating hazards, specifically plant collisions and plant and Worker on Foot collisions

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