



## Safer Traffic Poles?

### The Balancing Act Between Crash Safety & Third Party Safety

“Why are NZ NASSRA poles so much heavier wall thickness than the UK?”

“How can we reduce injuries from car vs pole incidents, can we reduce the wall thickness?”

# From the High Risk Intersections Guide

*Deaths are likely to occur in collisions with solid objects such as power poles at impact speeds above 30km/h. It is important to remove, protect or mitigate risks associated with vehicles in collision with street furniture. Streets carry utilities such as power, telephone and lighting in addition to the traffic function. Intersections by their very nature necessitate signage and traffic signal equipment to be sited either within and/or on approach to them, a collision with which can result in F&S crashes. These crashes can result as a secondary collision from a crash or result from vehicles attempting to avoid collision. This is even more crucial for higher speed environments.*

# CRASH DATA

Three years 2015-2018

Rough sort, not an in depth study, sufficient only to quantify the problem

			Death	Serious	Minor	None
Intersection	Traffic Signs	anything	2	29	163	427
		Traffic Signals	0	11	46	122
		TCR	0	12	62	153
			Death	Serious	Minor	None
Intersection	Traffic Signs	anything exc TCR	2	17	101	274
		Traffic Signals	0	11	46	122

153 noted to see the TCR which was not undertaken. The numbers seen above are only those noted as hitting a signal pole, and do not include any that required looking at the TCR.

The 2 fatal injuries were from one crash noted as hitting lamp post and concrete pillars of a car park

Not clear as to what caused the injury, whether hitting a car first and then ricochet of into a pole or straight into a pole. But poles are causing injury and it's a similar magnitude to that of other poles such as power poles.

*Addressing the issue of collision severity mitigation is widely acknowledged to reduce crash severity although overall number of crashes unlikely to reduce.*

*30% reduction in injury crashes where frangible sign posts used.*

# The difference between UK & NZ?

What is the difference between the UK and New Zealand



Why do NZ poles require a heavier wall thickness and bigger foundation?

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# The real differences?

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Wind speed – SLS (Serviceability Limit State)

UK General Region – 24m/s

NZ General Region – 37m/s

NZ Region W (Wellington) – 43m/s

Target Boards – NZ uses them and the majority of installations in the UK don't

Seismic – We shake and they don't in generally

New Zealand Building Code – every new installation must meet or exceed the code

# How much is too much



What do we design our poles to carry?

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# Current design factors

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100NB NASSRA with 4.5mm wall thickness

Based on:

1 x 6 Aspect 200mm lantern with target board

1 x 3 Aspect 200mm lantern with target board

1 x 2 Aspect 200mm pedestrian lantern

1 x Audio Box

Region A is 42% over building code

Region W is 11% over building code

Safety factors are required for the unknown -  
cameras, repeaters, aerials, and road signs



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# UK pole design factors

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100NB NASSRA with 3.2mm wall thickness

Based on:

1 x 6 Aspect 200mm lantern with target board

1 x 3 Aspect 200mm lantern with target board

1 x 2 Aspect 200mm pedestrian lantern

1 x Audio Box

Region A is 4% over building code

Region W fails NZ building code

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# What do we do?

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Stick with the status quo?

Reduce the use of target boards?

Install less equipment on poles, stricter rules

Around additional signage etc on poles?

More considered pole location design?

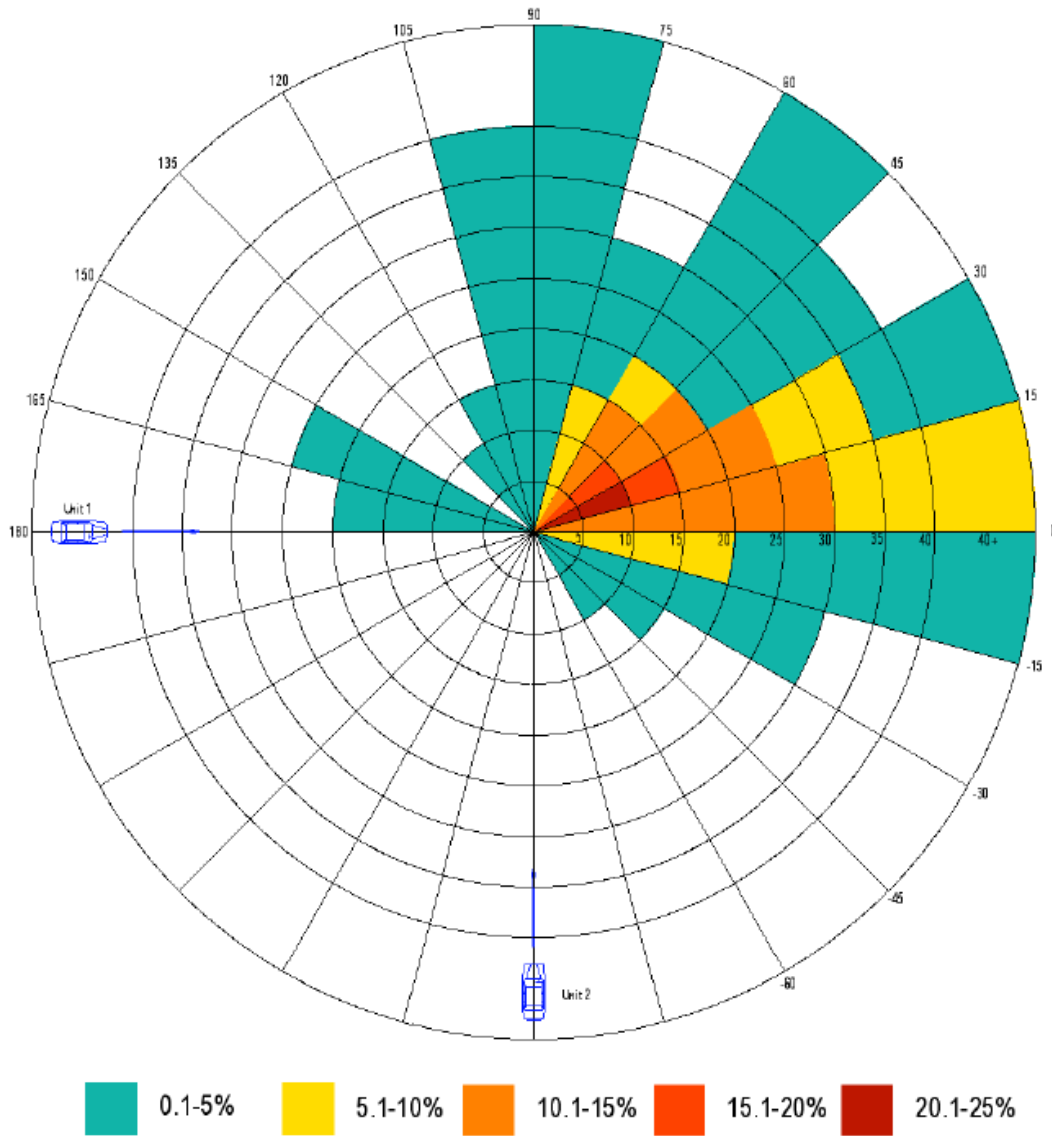
Further research into slotted or frangible?

Understand the accident reporting better?

Street light poles

NASSRA poles

JUMA & JUSP poles



The results of the research show that many vehicles travel a large distance at a shallow angle following an intersection collision.

## *Mitigation of risk from these features includes:*

- removal of unnecessary signing/objects within the intersection and for an appropriate distance on the exits*
- design out the risk by providing where possible, weaker posts designed to yield on impact so they do not present a serious collision risk*
- use of frangible posts for signage, lighting columns and traffic signals or protect with a vehicle restraint system (VRS) or safety barrier.*