

# Creating a new path towards Safe System

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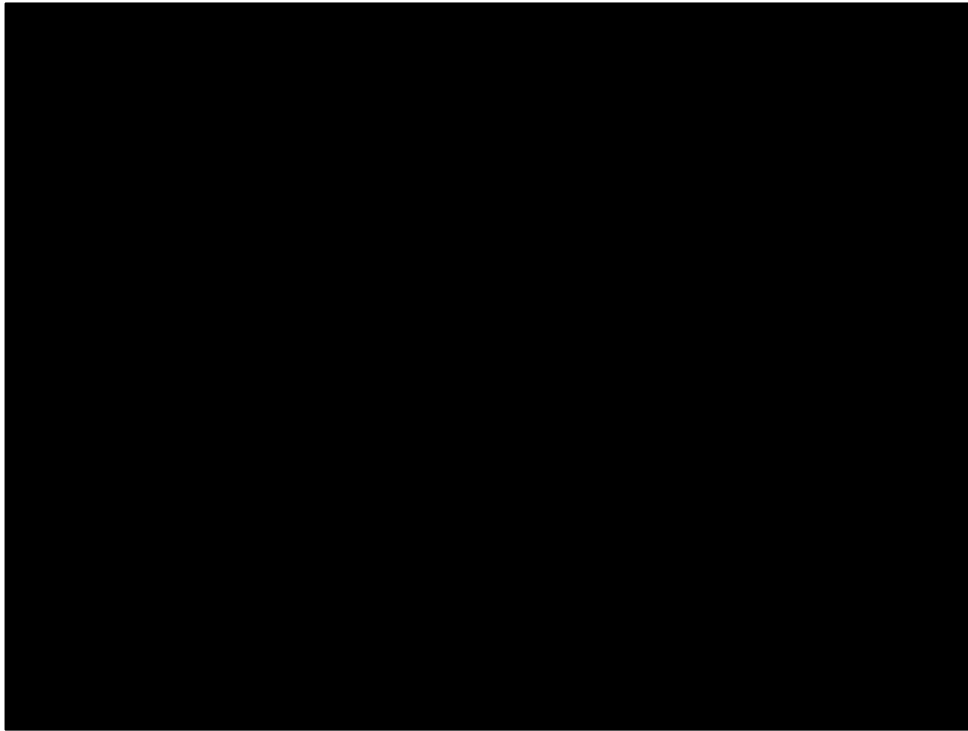


Safe Roads



New Zealand Government





Can anyone tell me what the death toll on the roads for this year is?

It is 139.

IS this acceptable?

139 families were affected. Families who lost their father, mother, daughter or son.

We collectively can and need to do better

I'm here today to talk briefly about Safe System, it's principles and how through Safe Roads Alliance, we are implement the Safe System approach.

The Safe System approach is based on four principles. It's the level of ambition, combined with these four principles is what makes the Safe System approach fundamentally different.

The four principles are:

Firstly recognising that we are human and we make mistakes but this should not cost us our life

I want you to meet Graham





We do not look like Graham, and so we need to understand that we are not designed to withstand significant impact force.

3. Not a blaming community. Everyone plays a part – driver, designers, roads owners - we all contribute

4. Realisation that we need to strengthen all parts of the system

The first two are about accepting human nature, and the second two are about dealing with their implications.

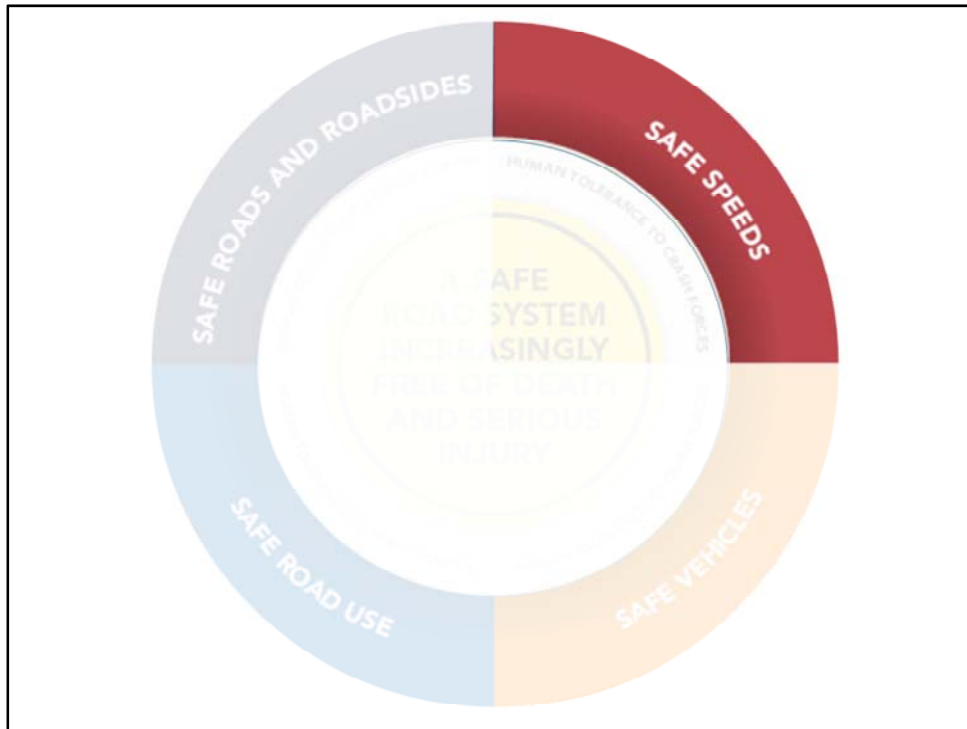
We are not taking behaviour and compliance out of our efforts – we are simply recognising their limits. We still need enforcement, to try to keep as many as possible within system limits.

The four pillars of Safe System are:

Safe speed



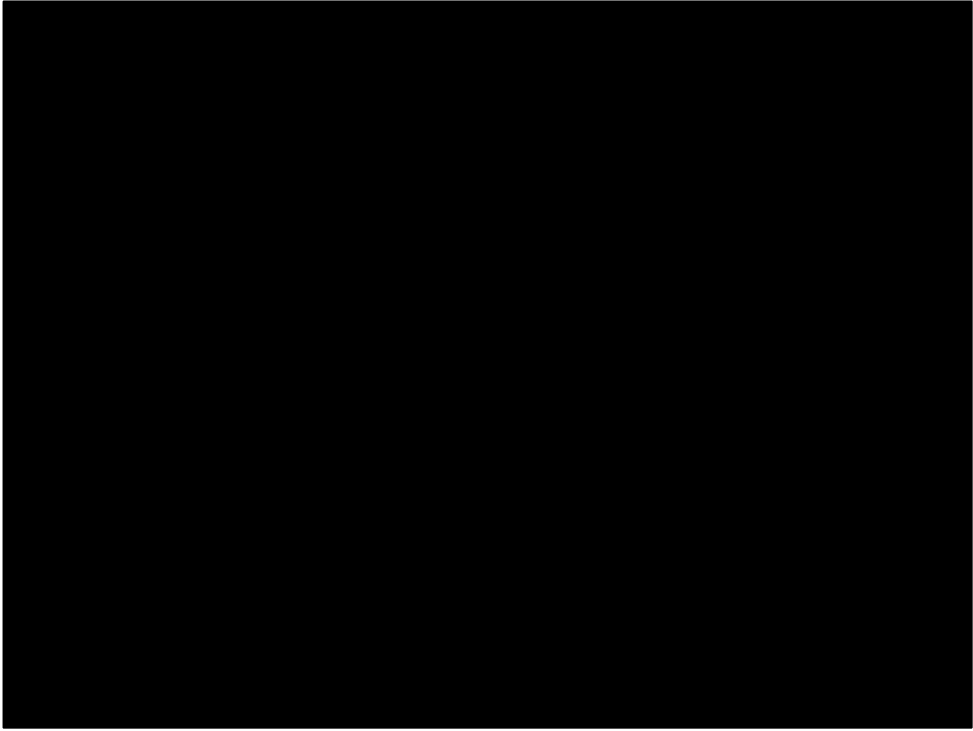
video



Drivers are obviously responsible for how they speed on the roads. But responsibility also sits with the system designers.

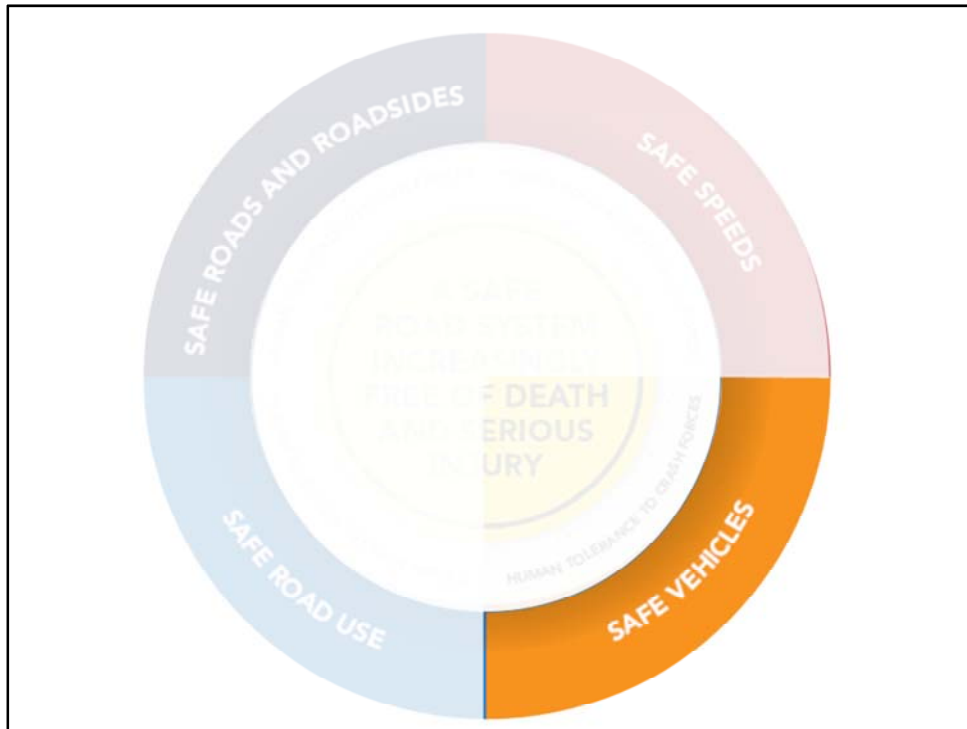
We need safer speeds so people can survive if a crash occurs. What this means is providing appropriate speeds for the environment.

With the recent release of the Speed Management Guide we are one step closer to having consistent speeds appropriate for road function, design, safety, use and surrounding environment.



Safe Vehicles  
Video





## Safe Vehicles

### Video

We need to educate our communities so they want to choose safer vehicles and provide them with the tools to make an educated decision. i.e. ANCAP rating

The responsibility also lies within car manufactures to continually improve vehicle safety



#### Safe Road Use

The road users are a key part of the system. We need our road users to be skilled, alert and comply with the rules.



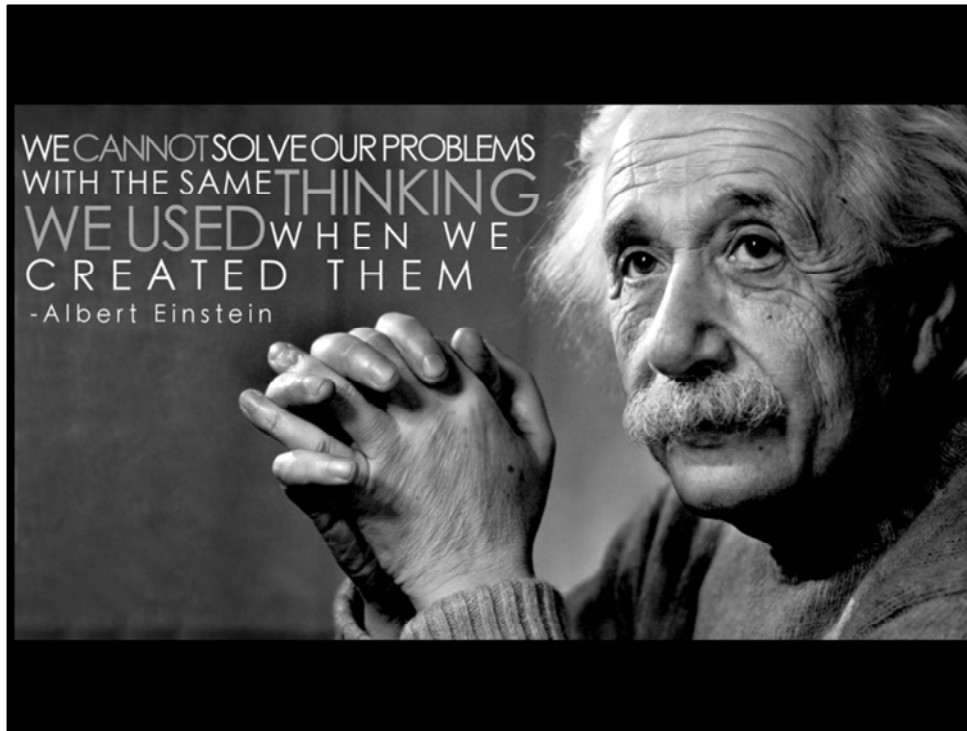
### Safe Roads and Roadsides

We need safe roads that are more forgiving – this is where you as designers can really make the difference.

The difference now would be selecting road treatments with greater focus on dealing with deaths and serious injuries on the roads. For example, thinking about treatments that would reduce the severity, i.e. roundabout instead of signalised intersection. OR raised table at signalised intersections where space and capacity can be constraints in urban areas. We need to be more innovative



The safe system approach means aligning safety across all elements of the system such that we have a safe road system increasingly free of death and serious injury.



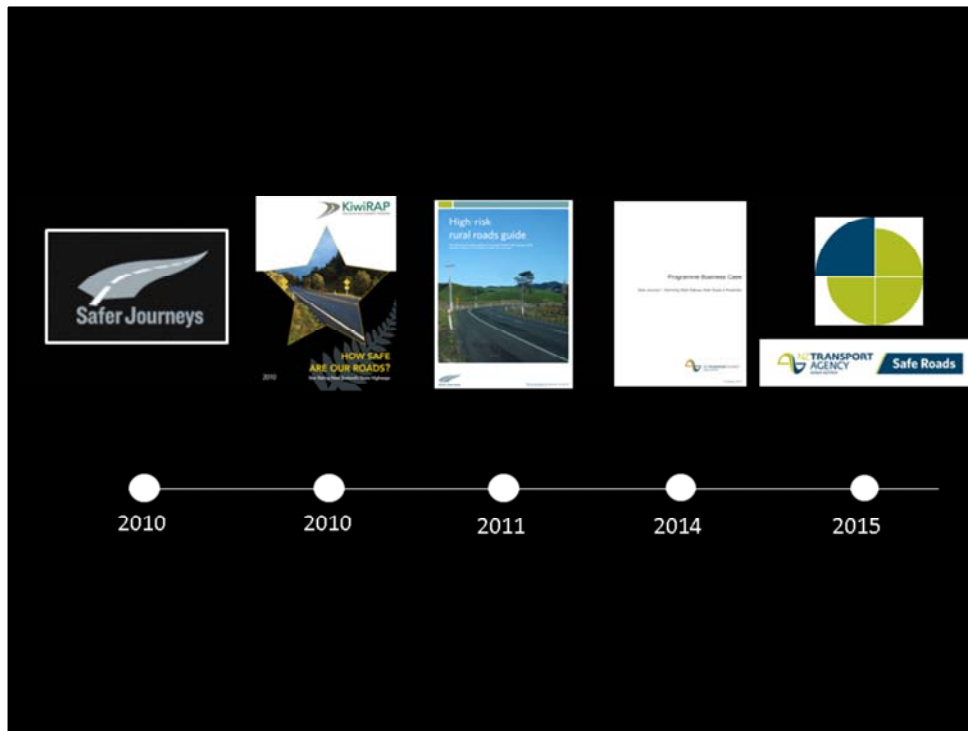
We need a change in thinking .... Einstein said.....We cannot solve our problems with the same thinking we used when we created them.

During the last 20years or more, the Transport Agency has made good progress in reducing crashes by targeting crash “blackspots”.

Consequently, there has been an ever-decreasing number of untreated sites with a concentrated crash problem.

However, we note that this reactive approach can only take us so far.....

Fatal and serious injuries still are often more randomly dispersed across the network and crashes records are still increasing. A proactive approach using predictive analysis methods are necessary to effectively target crash risk in a consistent manner.



The fundamental shift in thinking started when the Safer Journeys Strategy introduced the safe system approach and commitment to addressing road safety on NZ roads.

Later in 2010 KiwiRAP star rating was released. This provided a risk based proactive approach to treating crashes rather than reactive approach based on historical crash data.

In 2011 High Risk Rural Road Guide was released. The research demonstrated that 85% of fatal and serious crashes are head-on, run off road and intersection on rural roads.

2014 National Programme Business Case for safe roads and roadsides was approved. It identified 80 sections of high risk rural roads and intersection to focus on with objectives to reduce death and serious injury casualties and the improve KiwiRAP star ratings.

As a result of the National Programme Business Case – in 2015 Safe Roads was formed.

## What is Safe Roads?



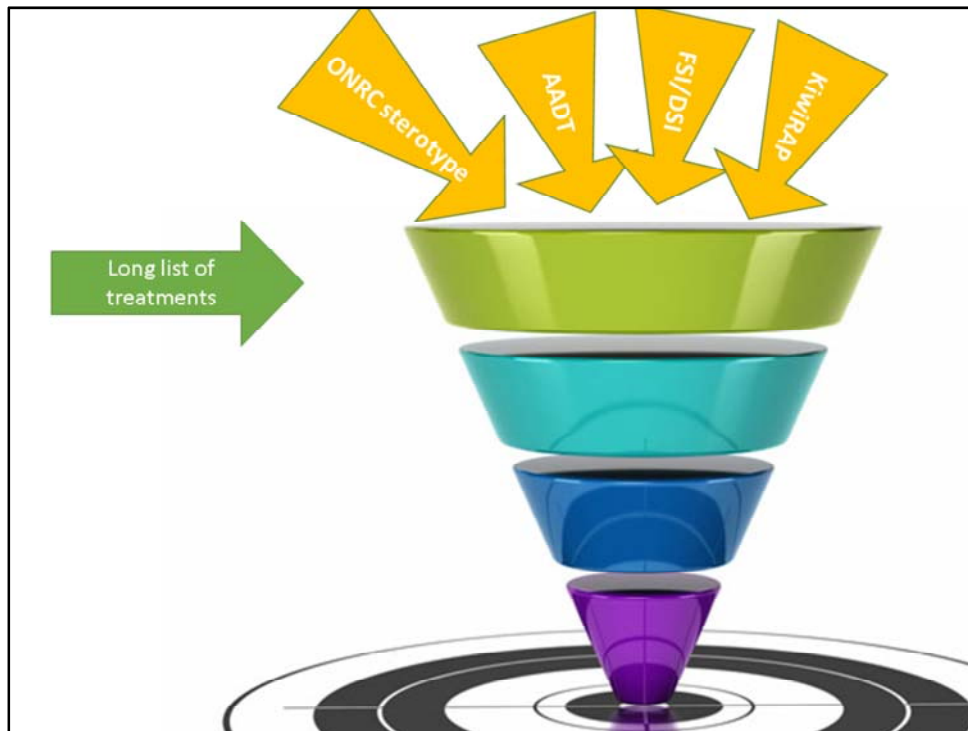
Safe Roads



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Safe Roads is an alliance encompassing NZ Transport Agency, Beca, BBO, Northern Civil and Corben consulting with a focus on the safe roads and roadsides pillar of safe system concentrating predominately reducing death and serious casualties on rural road.

As part of delivering business case process, Safe Roads has developed processes encompassing a risk based approach whilst being cognisant of the crash record, to target routes and locations effectively, achieving the highest future reduction in deaths and serious injuries with affordable solutions.



I want to introduce the process taken from problem identification through to landing on a preferred option for the corridor using the Business Case process, to demonstrate the change in thinking.

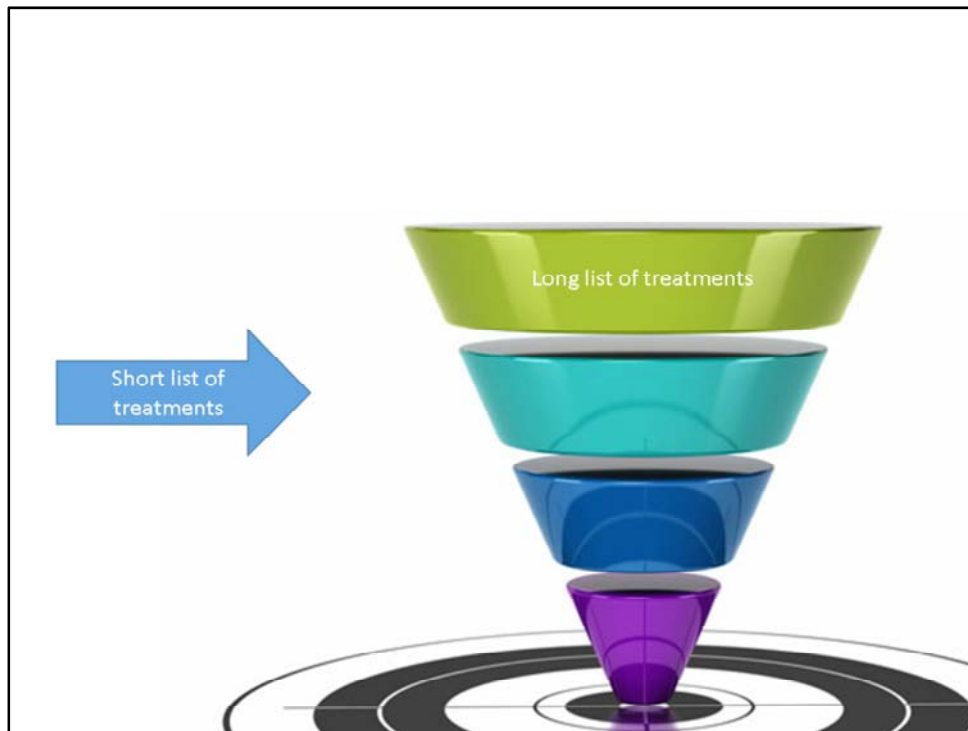
Now that we understand even though crashes are random, there are a number of key features that affect the risk of a death or serious injury occurring, even if a crash has not occurred yet. Taking these features into account as well as the function of the corridor, a stereotype in terms of level of infrastructure based on the one network road classification has been used in the optioneering stage. Having a good understanding of what “good” looks like for a corridor, we use the evidence to define the problems either based on risk or historical data or both.

Majority of the Safe Roads projects sit in the Safer Corridors as part of the High Risk Rural Roads Treatment Philosophy. Based on the treatment philosophy, and stereotype of the corridor a long list of treatments are developed focussing on the three crash types – run off road, head on and intersections.

For example - We know that when AADT is greater than 6000 the risk of head on increases exponentially thereby we would look to have a median treatment ie wide centreline for volumes between 8-10,000. Greater than that we would look at median barrier. Even though the crashes may not be able to support the head on risk, the KiwiRAP data would supports the proposed treatment. Based on the classification, and

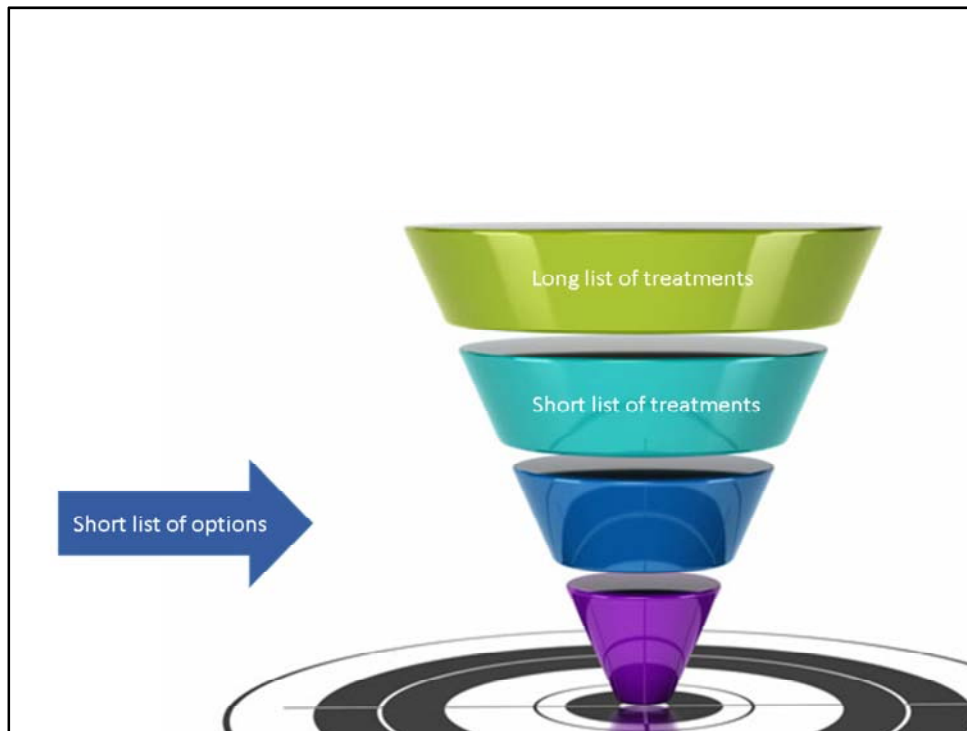


volumes, we would look to include side barriers with and without shoulders options



Filtering from long list of treatments short list, this is based on the problem and what level of infrastructure would be suitable based on the ONRC and addressing the problem.

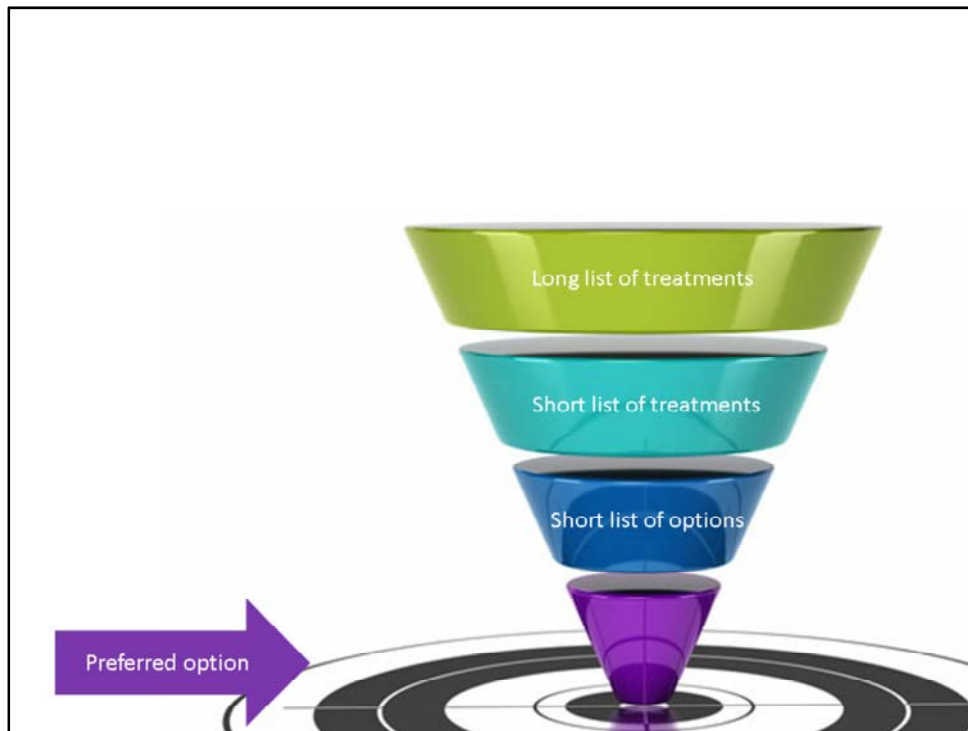
For example investing in a median barrier along a corridor low volume arterial may not fit with the corridor environment and classification and the investment may be greater than required. Using evidence to eliminate the long list of treatments and arrive to a short list of treatments appropriate for the corridor.



The short list of options are based around options which deliver against the investment objectives for the project. Now that we are delivering each project through the business case process, we have to define the problem and clearly state the investment objectives – the outcomes for the project.

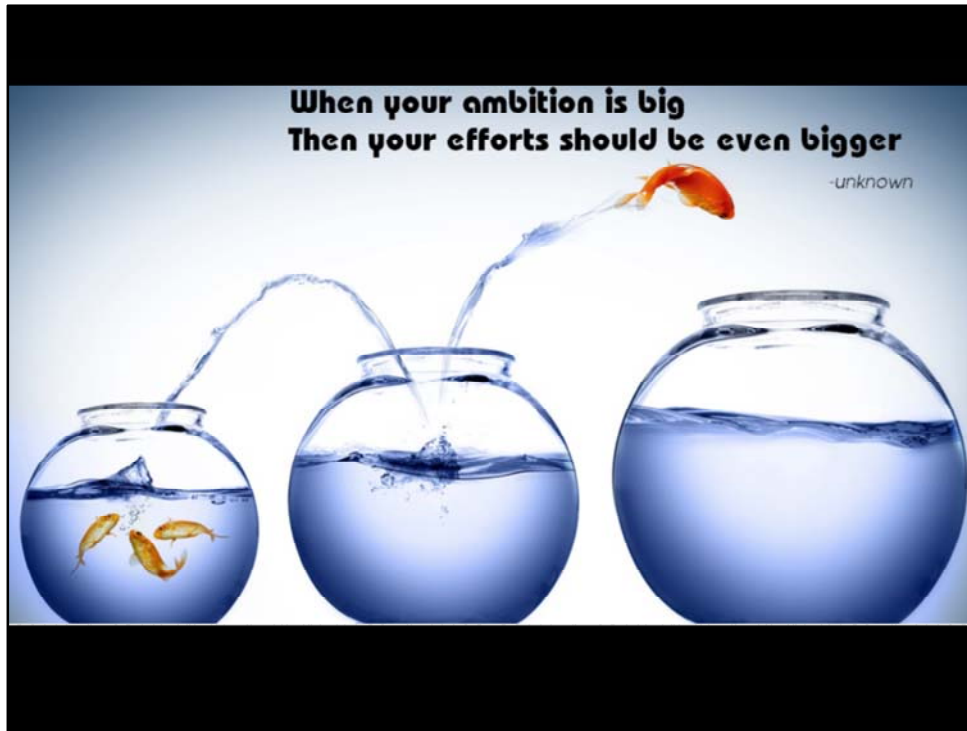
In the past, we have looked at lowest cost options and worked our way incrementally up to a higher costing option.

The new thinking is to start from the top and work our way down for example, let's start with our first option for a high volume regional corridor with median barrier, wide shoulders and side barriers, then each option reduces in treatment. This way we know what our ideal target is and then assess it against the investment objectives, BCR as well as the MCA which gets us to the preferred option.



The preferred option selected would meet the investment objectives and the multi criteria assessment and achieve a BCR of greater than one.

This process focuses on risk and is therefore more proactive which allows Safe Roads to take a more holistic approach to a corridor. Together with this, the business case process allows the ability for the project team to arrive to an outcome best for the corridor rather than focussed solely on highest incremental BCR.



Lastly I'd like to finish off with this slide.

We know that this Safe System approach is new and we are continually learning. We know that there are many risks identified but always too difficult or expensive to address.

Now is the time we need more ambitious with our projects, in order to save more deaths and serious injuries because it is not acceptable.

Therefore, we will require a bigger effort in innovation and acceptance of cutting edge thinking

## Thank You

For more information

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<http://www.nzta.govt.nz/safety/our-vision-vision-of-a-safe-road-system/safe-roads>



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