MIN-4317 Cost of barrier installation and road realignment

The following provides the average cost/km for the installation of safety barriers on state highways, and information about the expected costs for road realignment/reshaping.

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There are three high risk crash types that contribute to the majority of our road related serious trauma (death and serious injuries). They are head on, loss of control and intersection type crashes. If we don't manage the conflict and/or impact speeds, they are most likely to result in death and serious injuries.

Managing these high-risk crash types effectively can only be achieved with very specific speed and infrastructure interventions, such as median barriers, roundabouts, implementing and enforcing safe and appropriate speed limits supported by other safety interventions such as roadside barriers and rumble strips.

Roading improvements like road realignments can have a limited effectiveness at substantially reducing road trauma and, in some cases like road realignments, can increase the risk of fatal and serious injuries if head-on or run-off road conflicts are not managed appropriately with a combination of safe and appropriate speed limits and appropriate safety infrastructure.

Safety improvements are evidence based and targeted at the risks identified at each location. It is unlikely that road realignment or widening would be considered as a suitable alternative in areas where the installation of median or side barriers has been identified to reduce deaths and serious injuries.

Safety Barriers

There is a broad range in the cost of barrier system installation, influenced by the type of road (state highway, expressway or motorway), the geography, topography, traffic volumes and the alignment of the road.

The preferred Flexible Barrier System has the lowest installation cost. At the same time, the ongoing maintenance and replacement costs are the greatest compared to both semi-rigid and rigid barrier systems.

The wide range of installation costs for the barrier systems reflect the range of environments in which they might be placed. The costs provided below relate to the installation of a single barrier.

Costs

The majority of the time and cost of a barrier system is attributed to preparing the road environment for the installation. This work typically involves purchasing land, widening the state highway, relocating and improving roadside drainage, reshaping the road surface, installing turnaround facilities such as roundabouts, much of which is often accompanied by resource consent requirements. These costs generally make up 75%-90% of the total project costs.

For example, a median barrier project using Flexible Barrier Systems (wire-rope) would typically be expected to cost between $1 million to $4 million per kilometre, while using a Rigid Barrier System (concrete barrier) would generally cost between $1.5 million to $3.5 million per kilometre.

Road realignment/reshaping

It is difficult to provide an average cost of road realignment/reshaping. Similar to installation of barriers, the costs will vary significantly depending on the location (rural or urban), supporting works (such as drainage and retaining walls) and property costs.

For example, a section of the SH58 Safety Improvements Project that involved road widening and realignment cost approximately $18 million per kilometre. Whereas the SH2 College Road to Silverstream project, considered to be a lower cost realignment project, cost approximately $7.6 million per kilometre.