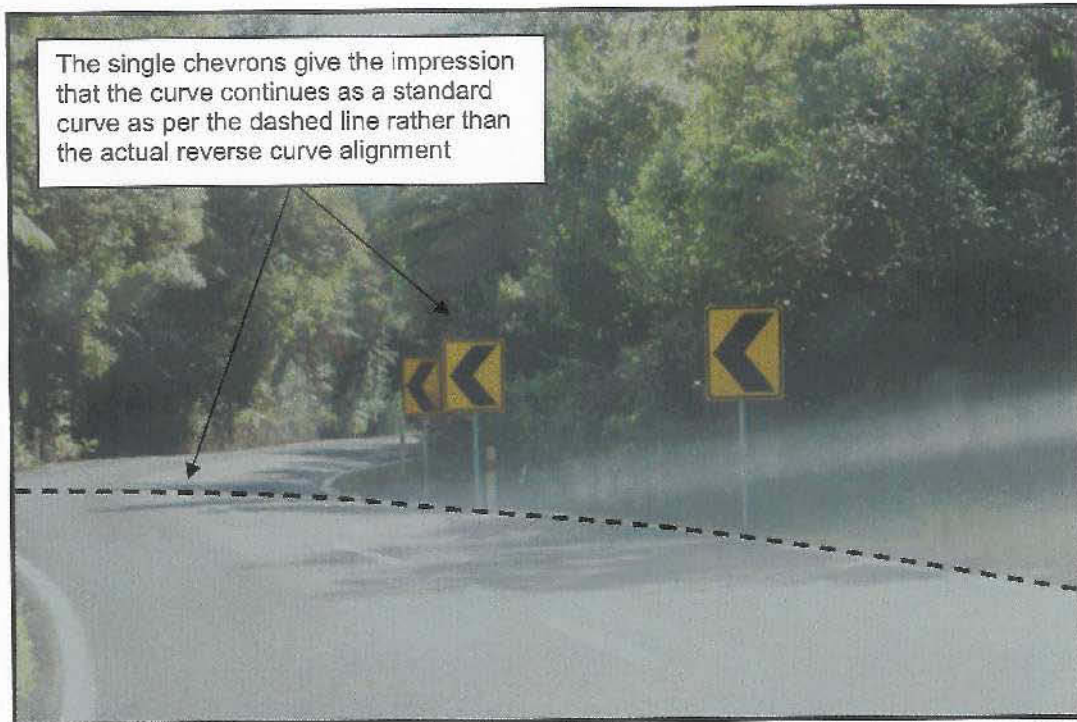


*Misleading Signs*

Misleading signs are a significant safety hazard as they are likely to convey an incorrect message regarding the roading alignment to drivers. They are likely to present a particular hazard at night when the direction of the road ahead is not as obvious as it is during the day and drivers could be confused by the misleading signs. This is exacerbated by the lack of street lighting to clearly define the road alignment. Examples of misleading signs are shown below.



Photograph E: Sign indicating right hand curve when vehicles in fact must make a relatively sharp left turn before turning right



Photograph F: Single chevrons give drivers the impression of a standard curve rather than a reverse curve

### *Non-compliant Signs*

According to the Manual of Traffic Signs and Markings (MOTSAM) horizontal curve chevrons must be preceded by an advanced curve warning sign. In addition horizontal curve chevrons must be followed by a series of chevron curve indicators where practical. As discussed previously, there is inconsistent use of these signs and hence, there are a number of locations on all the routes where these guidelines are not strictly followed.

It is also noted that a number of the bends on the roads have curve advisory speeds with multiples of ten (i.e. 40, 50, 60). The Manual of Traffic Signs and Markings (MOTSAM) specifies that advisory speeds should end with a five (i.e. 45, 55, 65) and hence these signs do not strictly comply with MOTSAM.

The costs associated with correcting non-compliant signs are not considered justified, mainly because the technical non-compliances are not likely to cause a significant safety issues. However advisory speed signs with multiples of 10 kph should be corrected when any new advisory speeds are installed or replaced.



Photograph G: Advanced curve warning and horizontal curve chevron with non-standard advisory speeds of 60 kph.

## Conclusions

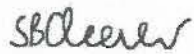
The following conclusions are made:

- There have been a significant number of crashes reported on Piha Road, Huia Road and Scenic Drive in the past five years, with loss-of-control type crashes being significantly over represented on all the routes.
- Safety improvements were implemented on all three routes between April and June 2006 (including the installation of a number of additional curve warning signs) to address the loss-of-control crash problem.
- Concerns have recently been raised regarding the proliferation of curve warning signs on the routes.
- Crash data since the installation of safety measures in 2006 suggest the new signs are reducing the number of crashes on all three roads.
- A small number of signs have been identified on all three routes that are incorrectly located and may give drivers misleading or incorrect information. These signs should be removed or replaced; however, apart from these signs, the overall signage along the routes is considered appropriate.

If you have any questions regarding this letter, please contact the undersigned on 0800 837 583.

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