

# APPENDIX I – STATE HIGHWAYS ACTIVITIES FOR 2007/08 (LAND TRANSPORT PROGRAMME), CONTRIBUTION TO LTMA OBJECTIVES

	Large Activities (2007/08)	Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered	
Northland	Kamo Bypass Stage 2	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability.</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> </ul>	<ul style="list-style-type: none"> <li>Reduces noise, vibration and air pollution impacts by shifting through traffic away from existing communities</li> </ul>	<ul style="list-style-type: none"> <li>Provides improved levels of amenity to properties on the existing State highway route</li> <li>Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening, bypass routes and various TDM options</li> </ul>
	Bulls Gorge Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by substandard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening</li> </ul>
Auckland	Newmarket Viaduct	Additional Lanes	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability.</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Various TDM options</li> </ul>
	Newmarket Viaduct to Greenlane Auxiliary Lane								
	Kopuku Realignment								
	Warkworth Stage 1								
	Te Atatu to Royal 6L	Auckland Western Ring Route	<ul style="list-style-type: none"> <li>Reduces congestion and delay through central Auckland by assisting to provide a real alternative to SH1 between Albany and Manukau City</li> <li>Improved travel times/access between all four cities and from the west to the airport</li> <li>Travel time reliability is improved</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improves accessibility by providing more direct route</li> <li>Improves mobility by reducing congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Bypass routes, and various TDM options</li> </ul>
	Rosebank to Te Atatu 8L								
	Waterview Connection								
	Hobsonville Deviation								
	Waterview to Rosebank 8L	Barriers	<ul style="list-style-type: none"> <li>Reduction in accident rate would:                             <ul style="list-style-type: none"> <li>Reduce travel delay between economic nodes</li> <li>Improve travel time reliability</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Reduces head-on accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options, and carriageway widening</li> </ul>
	Auckland Harbour Bridge Moveable Lane Barrier								
Papakura Interchange Upgrade Stage 1	Intersection Improvement	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> <li>Assists adjoining land development</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of intersection crashes</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion and accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Bypass routes and various TDM options</li> </ul>	
Pungunui Stream Bridge	Bridge Renewal	<ul style="list-style-type: none"> <li>Minimises the risk of road closures and associated economic costs of traffic diversion and delays</li> <li>Preserves valuable public assets</li> <li>Reduces the need for bridge load restrictions which could impact on freight movements</li> <li>Enhances route security</li> </ul>	<ul style="list-style-type: none"> <li>Minimises safety risks from structural failure</li> <li>Can reduce accidents caused by substandard alignment, congestion</li> </ul>	<ul style="list-style-type: none"> <li>Preserves current level of access</li> </ul>	<ul style="list-style-type: none"> <li>May reduce injury-related accidents.</li> <li>Potential health benefits from improved walking and cycling opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Provision of alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options</li> </ul>	
Advanced Traffic Management Systems Stage IV – Stage 2	Traffic Management	<ul style="list-style-type: none"> <li>Reduces congestion and delay on the Auckland Motorway network by providing up to the minute driver information</li> </ul>	<ul style="list-style-type: none"> <li>Assists emergency services personnel in reacting to incidents more quickly</li> <li>Potential to reduce accidents caused by congestion or incidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces Congestion</li> <li>Provides for greater choice in travel</li> </ul>	<ul style="list-style-type: none"> <li>May reduce risk of injury related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves energy efficiency and vehicle emission performance from reduced congestion</li> <li>Enables prompt responses to incidents such as hazardous spills</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	
Waikato	Long Swamp to Rangiriri 4L	Additional Lanes	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by substandard alignment and inadequate passing opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Bypass routes, and various TDM options</li> </ul>
	Te Rapa Bypass	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> <li>Potential for localised economic gains resulting from improved local retail/main street conditions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> </ul>	<ul style="list-style-type: none"> <li>Reduces noise, vibration and air pollution impacts by shifting through traffic away from existing communities</li> </ul>	<ul style="list-style-type: none"> <li>Provides improved levels of amenity to properties on the existing State highway route</li> <li>Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening, bypass routes and various TDM options</li> </ul>
	Huntly Bypass								
	Hamilton Bypass								
	Rangiriri Bypass								
	Ngaruawahia Bypass								
	Hamilton Southern Links								
	Piaterer – Oak Tree Bend Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by substandard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening</li> </ul>
Maramarua Deviation									

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Large Activities (2007/08)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered
Bay of Plenty	Katikati Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> <li>Potential for localised economic gains resulting from improved local retail/main street conditions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion</li> <li>Reduces accidents caused by local/through traffic conflicts</li> <li>Improves safety for pedestrians and cyclists on bypassed routes</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> </ul>	<ul style="list-style-type: none"> <li>Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Various TDM options</li> </ul>
	Pyes Pa Bypass							
	Tauranga Central Corridor TDM	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Reduces congestion on heavily-trafficked corridors</li> </ul>	<ul style="list-style-type: none"> <li>Dedicated and/or purpose-built facilities reduce the accident risk for pedestrians and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> <li>Improves mobility by providing choice of viable transport modes for short/medium trip</li> <li>Improves transport choices for transport disadvantaged</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions.</li> <li>Health benefits of walking and cycling</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> <li>Reduces vehicle related emissions by reducing dependency on motor vehicles</li> <li>Reduces reliance on non-renewable sources of energy</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>Alternative TDM strategies and options</li> </ul>
	Omokoroa Roundabout	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes (particularly for Heavy Commercial Vehicles)</li> <li>Improves travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of intersection crashes</li> <li>Enables diversion of Heavy Commercial Vehicles from local road network (including residential areas)</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reduce accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Enables the diversion of Heavy Commercial Vehicles from environmentally sensitive areas</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>		
	Tauranga Eastern Motorway	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Travel time reliability is generally improved</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, and TDM options</li> </ul>
Gisborne	Tolaga to Gisborne Seal Widening	<ul style="list-style-type: none"> <li>Reduces travel delay in rural regions, provides greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by narrow seal width and alignment</li> </ul>	<ul style="list-style-type: none"> <li>May improve conditions for cycling and walking</li> </ul>	<ul style="list-style-type: none"> <li>May improve conditions for cycling and walking</li> </ul>	<ul style="list-style-type: none"> <li>No significant contribution</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Various different alignments within the existing corridor</li> </ul>
Hawke's Bay	Waipukurau Overbridge Realignment	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes, provides greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by substandard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Various different alignments within the existing corridor</li> </ul>
	Matahorua Gorge Realignment	<ul style="list-style-type: none"> <li>Reduces travel delay in rural regions</li> <li>Reduces vehicle operating cost (fuel)</li> <li>Travel time reliability is generally improved</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening and bypass routes</li> </ul>
	Hawke's Bay Expressway Southern Extension	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion</li> </ul>	<ul style="list-style-type: none"> <li>Reduces noise, vibration and air pollution impacts by shifting through-traffic away from existing communities</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Provides improved levels of amenity to properties on the existing State highway route</li> <li>Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening, bypass routes and various TDM options</li> </ul>
	Prebensen Drive/ Hyderabad Rd	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes (particularly for Heavy Commercial Vehicles)</li> <li>Improves travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of intersection crashes</li> <li>Enables diversion of Heavy Commercial Vehicles from local road network (including residential areas)</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reduce accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Enables the diversion of Heavy Commercial Vehicles from environmentally sensitive areas</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>		
Manawatu/Wanganui	Papatawa Realignment	<ul style="list-style-type: none"> <li>Reduces travel delay in rural regions, provides greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by narrow seal width and alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Various different alignments within the existing corridor</li> </ul>

Table continues overleaf

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Large Activities (2007/08)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered
Wellington	SH2/58 Grade Separation	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of intersection crashes</li> <li>Removes existing traffic signals and cross traffic flows</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion and accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions.</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improved vehicle emission performance from reduced congestion</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Bypass routes and various TDM options</li> </ul>
	Basin Reserve Improvements							
	Transmission Gully	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion</li> <li>Reduces accidents caused by local/through traffic conflicts</li> <li>Improves safety for pedestrians and cyclists on bypassed routes</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion</li> </ul>	<ul style="list-style-type: none"> <li>Reduces noise, vibration and air pollution impacts by shifting through-traffic away from existing communities</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Provides improved levels of amenity to properties on the existing State highway route.</li> <li>Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening, bypass routes and various TDM options</li> </ul>
	Rimutaka Corner Easing (Muldoon's)							
Nelson	Hope Saddle	<ul style="list-style-type: none"> <li>Reduces travel delay in rural regions</li> <li>Improves travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and substandard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Various different alignments within the existing corridor</li> </ul>
Canterbury	Memorial Ave Intersection	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improved travel time reliability</li> <li>Vehicle operating costs (fuel) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion</li> <li>Reduces risk of intersection crashes</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion and accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves vehicle emission performance from reduced congestion</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Bypass routes and various TDM options</li> </ul>
	Christchurch Northern Arterial Rural							
	Christchurch TDM	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Reduces congestion on heavily-trafficked corridors</li> </ul>	<ul style="list-style-type: none"> <li>Dedicated and/or purpose-built facilities reduce the accident risk for pedestrians and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>Reduces congestion</li> <li>Improves mobility by providing choice of viable transport modes for short/medium trip</li> <li>Improves transport choices for transport disadvantaged</li> </ul>	<ul style="list-style-type: none"> <li>Improved air pollution impacts via reduced congestion and therefore emissions.</li> <li>Health benefits of walking and cycling</li> </ul>	<ul style="list-style-type: none"> <li>Improves vehicle emission performance from reduced congestion</li> <li>Reduces vehicle related emissions by reducing dependency on motor vehicles</li> <li>Reduces reliance on non-renewable sources of energy</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>Alternative TDM strategies and options</li> </ul>
	Travel Demand Management							
West Coast	Arahura Bridge Replacement	<ul style="list-style-type: none"> <li>Minimises the risk of road closures and associated economic costs of traffic diversion and delays</li> <li>Preserves valuable public assets</li> <li>Reduces the need for bridge load restrictions which could impact on freight movements</li> <li>Enhances route security</li> </ul>	<ul style="list-style-type: none"> <li>Minimises safety risks from structural failure</li> <li>Can reduce accidents caused by substandard alignment, congestion</li> </ul>	<ul style="list-style-type: none"> <li>Preserves current level of access</li> </ul>	<ul style="list-style-type: none"> <li>May reduce injury-related accidents.</li> <li>Potential health benefits from improved walking and cycling opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Provision of alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options</li> </ul>
	Gates of Haast							
Otago	Kawarau Falls Bridge Replacement	<ul style="list-style-type: none"> <li>Reduces travel delay in rural regions, provides greater time reliability</li> <li>Enhances route security</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by substandard bridge</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative bridge and realignment options</li> </ul>
	East Taieri Bypass							



## APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO LTMA OBJECTIVES

Project Categories	Assists Economic Development	Assists Safety and Personal Security	Improves Access & Mobility	Protects and Promotes Public Health	Ensures Environmental Sustainability	Alternatives Considered	Options Considered
<b>Bridge Renewals</b>	<ul style="list-style-type: none"> <li>Minimises the risk of road closures and associated economic costs of traffic diversion and delays</li> <li>Preserves valuable public assets</li> <li>Reduces the need for bridge load restrictions which could impact on freight movements</li> <li>Enhances route security</li> <li>Can reduce travel delay and improve travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Minimises safety risks from structural failure</li> <li>Can reduce accidents caused by substandard alignment, congestion</li> <li>Can improve safety for cyclists/pedestrians</li> </ul>	<ul style="list-style-type: none"> <li>Preserves or enhances current levels of access and mobility</li> <li>Opportunity to provide adequate access for pedestrians/cyclists</li> </ul>	<ul style="list-style-type: none"> <li>May reduce injury-related accidents</li> <li>Potential health benefits from improved walking and cycling opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Opportunity to reduce adverse ecological impacts of bridge structures e.g. by reducing footprint of the bridge</li> <li>Opportunity to enhance visual amenity through improved design</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> <li>Provision of alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options</li> </ul>
<b>Carriageway Lighting</b>	<ul style="list-style-type: none"> <li>Potential reduction in travel delay between economic nodes (by improving visibility, route definition and reducing accident rates)</li> </ul>	<ul style="list-style-type: none"> <li>May reduce accidents caused by poor visibility or route definition</li> <li>Increased visibility may lessen perceived threats to personal security for cyclists and vehicle occupants</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing travel delays</li> <li>Improves modal choice by improving conditions for cycling</li> </ul>	<ul style="list-style-type: none"> <li>Health benefits from increased use of 'active' transport modes</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> <li>Opportunity to install energy efficient lighting systems</li> <li>Potential reduction in vehicle related emissions by reducing dependency on motor vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes</li> </ul>	<ul style="list-style-type: none"> <li>Variations in lighting design and location</li> </ul>
<b>Crash Reduction Studies</b>	<ul style="list-style-type: none"> <li>Reduces accidents from resulting network improvements would:                             <ul style="list-style-type: none"> <li>Reduce travel delay between economic nodes</li> <li>Improve travel time reliability</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Network improvements likely to reduce accident rates</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> <li>Resulting network improvements provide opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing - continue to use ad hoc/reactive initiatives</li> </ul>	n/a
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>Reduces vehicle servicing costs</li> <li>Maintenance practices designed to minimise traffic disruptions and duration of necessary works</li> <li>Minimises the likelihood of long-term traffic diversions/delays caused by significant deterioration in quality of surface and smoothness of state highways</li> <li>Preserves valuable public assets</li> <li>Reduces the need for load restrictions which could impact on freight movements</li> <li>Enhances route security</li> </ul>	<ul style="list-style-type: none"> <li>Minimises safety risks from structural failure</li> <li>Ensures safety and personal security features on the network are maintained for their specified purposes e.g. pedestrian underpasses</li> </ul>	<ul style="list-style-type: none"> <li>Preserves current levels of access and mobility</li> <li>Enables modal choice by maintaining walking and cycling facilities</li> </ul>	<ul style="list-style-type: none"> <li>Risk of adverse health effects reduced by noise mitigation measures, stock effluent facilities, street cleaning, litter removal</li> <li>Enables/promotes continued use of walking and cycling facilities</li> <li>May reduce the risk of injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Enables ongoing compliance with resource consent conditions</li> <li>Stock effluent facilities reduce the uncontrolled discharge of environmental contaminants</li> <li>Opportunity to improve the function of the existing network as it relates to the surrounding area e.g. using stormwater treatment devices to reduce pollutant contamination of water bodies, installing fish passages in drainage systems, improving ecological connectivity through landscaping, reduced chemical use in vegetation control, using recycled materials in pavement maintenance</li> <li>Improved visual amenity through litter removal, vegetation control and landscaping</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Strategies to reduce speed, traffic volumes and growth</li> <li>Promotion of alternative routes that avoid sensitive environments</li> <li>Advocate for appropriate land use controls to recognise reverse sensitivity (noise)</li> </ul>	<ul style="list-style-type: none"> <li>Set different levels of service for maintenance</li> </ul>
<b>Major Drainage Control</b>	<ul style="list-style-type: none"> <li>Minimises damage to private property in flood/heavy rain events</li> <li>Reduces long term maintenance costs</li> </ul>	<ul style="list-style-type: none"> <li>No significant contribution</li> </ul>	<ul style="list-style-type: none"> <li>Assists in preserving current levels of access</li> </ul>	<ul style="list-style-type: none"> <li>Opportunity to use stormwater treatment devices to reduce pollutants entering drinking water supplies</li> </ul>	<ul style="list-style-type: none"> <li>Opportunity to use stormwater treatment devices to reduce pollutants entering water bodies</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	n/a
<b>Minor Safety Projects: Intersection Improvement</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improves travel time reliability</li> <li>State highway access improvements can generate land development opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of intersection crashes (vehicle and non vehicle related)</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion and accident-related travel delays</li> <li>Opportunity to improve crossing facilities for pedestrians and cyclists e.g. signalised crossings</li> <li>Can improve connectivity between local roads and state highway networks</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> <li>Potential public health benefits from improved walking and cycling opportunities</li> <li>Can reduce respiratory illnesses due to improved air quality from decreased congestion and vehicle emissions</li> </ul>	<ul style="list-style-type: none"> <li>Reduces emissions by improving traffic flows</li> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> <li>Opportunity for improved visual amenity through landscaping</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative interchange upgrade options</li> </ul>
<b>Minor Safety Projects: barriers and level crossing warning devices</b>	<ul style="list-style-type: none"> <li>Reduction in accident rate would:                             <ul style="list-style-type: none"> <li>Reduce travel delay between economic nodes</li> <li>Improve travel time reliability</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of head-on and railway crossing accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes</li> <li>Advocating for improved coordination between railway timetables and congestion peaks</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options/ carriageway widening</li> </ul>
<b>Minor Safety Projects: General</b>	<ul style="list-style-type: none"> <li>Reduction in accidents would:                             <ul style="list-style-type: none"> <li>Generate accident cost savings</li> <li>Reduce travel delay between economic nodes</li> <li>Provide greater travel time reliability</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> <li>Opportunity to review provision of walking/ cycling facilities</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the risk of adverse environmental impacts from vehicle crashes</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options/ carriageway widening</li> </ul>
<b>New Roads and Bridges: Additional / Passing Lanes</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improves travel time reliability</li> <li>Vehicle operating costs (e.g. fuel consumption) may decrease</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by:                             <ul style="list-style-type: none"> <li>congestion</li> <li>sub-standard alignment</li> <li>unsafe overtaking manoeuvres</li> <li>conflicts between road users</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion</li> <li>Provides opportunity to provide HOV lanes and cycling and walking facilities to improve travel choice and manage demand</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in injury-related accidents</li> <li>Can reduce respiratory illnesses due to improved air quality from decreased congestion and vehicle emissions</li> </ul>	<ul style="list-style-type: none"> <li>Improves energy efficiency and vehicle emission performance by reducing congestion</li> <li>Road alignments and construction practices designed to minimise impacts on sensitive receiving environments and significant ecological resources</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>Opportunity to enhance visual amenity through design</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes</li> <li>Development of bypass routes</li> </ul>	<ul style="list-style-type: none"> <li>Different alignments</li> </ul>
<b>New Roads and Bridges: Bypass</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improves travel time reliability</li> <li>Vehicle operating costs (e.g. fuel consumption) may decrease</li> <li>Potential for localised economic gains resulting from improved local retail/main street conditions on bypassed route</li> <li>Reduces maintenance costs on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by:                             <ul style="list-style-type: none"> <li>congestion</li> <li>sub-standard alignment</li> <li>local/through traffic conflicts</li> </ul> </li> <li>Improves safety for pedestrians and cyclists on bypassed routes</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion</li> <li>Opportunity to improve local connectivity and modal choice (e.g. walking and cycling) on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Reduces noise, vibration and air pollution impacts for communities adjacent to bypassed route</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses.</li> <li>Potential health improvements due to increased opportunities for cycling and walking on bypassed routes</li> </ul>	<ul style="list-style-type: none"> <li>Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route</li> <li>Road alignments designed to minimise impacts on sensitive receiving environments and significant ecological resources</li> <li>Promotes community cohesion on bypassed route</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>Opportunity to enhance visual amenity on bypassed and bypass routes through improved design</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening</li> </ul>

Table continues overleaf

## APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO LTMA OBJECTIVES

Project Categories	Assists Economic Development	Assists Safety and Personal Security	Improves Access & Mobility	Protects and Promotes Public Health	Ensures Environmental Sustainability	Alternatives Considered	Options Considered
<b>New Roads and Bridges: Rural Realignment - Safety and Time</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Improves travel time reliability</li> <li>Reduces vehicle operating cost (e.g. fuel consumption)</li> <li>Improves efficiency for freight movements</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> <li>Provides opportunity to improve safety for all road users</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing accident-related travel delays</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces injury-related accidents</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Road realignments designed to minimise impacts on sensitive receiving environments and significant ecological resources</li> <li>Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>Opportunity to enhance visual amenity through design</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Strategies to reduce speed, traffic volumes and growth</li> <li>Development of alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening</li> </ul>
<b>New Roads and Bridges: General</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Reduces congestion on heavily-trafficked corridors and at network pinch points</li> <li>Improves travel time reliability</li> <li>Vehicle operating costs (e.g. fuel consumption) may decrease</li> <li>Reduces maintenance costs on existing route</li> </ul>	<ul style="list-style-type: none"> <li>Reduces accidents caused by congestion and sub-standard alignment</li> <li>Provides opportunity to improve safety for all road users</li> </ul>	<ul style="list-style-type: none"> <li>Improves accessibility by providing more direct route</li> <li>Potential to improve walking and cycling linkages</li> <li>Improves mobility by reducing congestion</li> </ul>	<ul style="list-style-type: none"> <li>Potential public health benefits from improved walking and cycling opportunities</li> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Potential for improved energy efficiency and localised air quality by reducing congestion</li> <li>Road alignments designed to minimise impacts on sensitive receiving environments and significant ecological resources</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>Opportunity to enhance visual amenity through design</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce traffic volumes and growth e.g. promotion of alternative existing routes</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening</li> </ul>
<b>Public Transport Roading Improvements: Bus lanes</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Reduces congestion on heavily-trafficked corridors</li> </ul>	<ul style="list-style-type: none"> <li>Potential to reduce accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion and improving modal choice</li> <li>Improves viability of bus travel as an alternative to the private car</li> <li>Assists in managing travel demand by improving modal choice</li> </ul>	<ul style="list-style-type: none"> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses.</li> </ul>	<ul style="list-style-type: none"> <li>Potential for improved energy efficiency and localised air quality by reducing congestion</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>Opportunity to enhance visual amenity through design</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Increase roading network capacity</li> </ul>	<ul style="list-style-type: none"> <li>Other TDM measures</li> </ul>
<b>Route Protection (Preventative Maintenance)</b>	<ul style="list-style-type: none"> <li>Preserves valuable public assets</li> <li>Minimises the risk of road closure and associated economic costs of traffic diversion and delay</li> </ul>	<ul style="list-style-type: none"> <li>Minimises risk of personal injury from vehicle accidents, falling debris etc. in emergency event</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of access and mobility being severely compromised in emergency event</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of injury related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reduces risk of erosion and adverse effects of soil dumps on receiving environments e.g. sedimentation</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Develop alternative routes</li> </ul>	n/a
<b>Seal Extension</b>	<ul style="list-style-type: none"> <li>Reduces long-term maintenance costs</li> <li>Reduces travel time and delays</li> <li>Reduced roughness reduces vehicle operating cost</li> </ul>	<ul style="list-style-type: none"> <li>Improves safety by improving grip (vehicle/cyclists)</li> <li>Potential reduction in loss of control accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves access to remote areas</li> <li>Improves modal choice by improving conditions for cycling and walking</li> </ul>	<ul style="list-style-type: none"> <li>Reduces air and water pollution impact by reducing dust</li> <li>Reduces noise impact</li> <li>Health benefits of walking and cycling</li> <li>Potential reduction in injury-related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Dust reduction improves local air and water quality</li> </ul>	<ul style="list-style-type: none"> <li>Strategies to reduce speed, traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>More extensive realignment and carriageway reconstruction</li> <li>Increased use of dust suppression measures and low dust generating surfaces</li> </ul>
<b>Seal Widening</b>	<ul style="list-style-type: none"> <li>Reduces travel time by improving traffic speeds/flow</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces accidents caused by narrow seal width and loss of control</li> </ul>	<ul style="list-style-type: none"> <li>Improves modal choice by improving conditions for cycling and walking (i.e. opportunity to widen shoulder)</li> </ul>	<ul style="list-style-type: none"> <li>Can promote cycling and walking in rural areas</li> </ul>	<i>No significant contribution</i>	<ul style="list-style-type: none"> <li>Strategies to reduce speed, traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>More extensive realignment and carriageway reconstruction</li> </ul>
<b>Traffic Management</b>	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Reduces congestion on heavily-trafficked corridors</li> </ul>	<ul style="list-style-type: none"> <li>Potential to reduce accidents caused by congestion or incidents</li> <li>Can improve response time for emergency services</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing congestion, identifying incidents and informing motorists of alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>May reduce risk of injury related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Improves energy efficiency and vehicle emission performance from reduced congestion</li> <li>Enables prompt responses to incidents such as hazardous spills</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Develop alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>Other TDM measures</li> </ul>
<b>Transportation and Strategic Studies</b>	<ul style="list-style-type: none"> <li>Network improvements resulting from study recommendations may reduce congestion and improve safety along a corridor, which:                             <ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Improves travel time reliability</li> <li>Reduces congestion on heavily-trafficked corridors</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Network improvements resulting from the strategy may:                             <ul style="list-style-type: none"> <li>reduce accident rates along corridor</li> <li>improve safety and personal security of cyclists and pedestrians</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Network improvements resulting from the strategy may improve access and mobility by:                             <ul style="list-style-type: none"> <li>improving modal choice</li> <li>reducing congestion</li> <li>reducing accident rates</li> <li>providing priority for freight or HOV etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses</li> <li>Potential health improvements from improved cycling and pedestrian facilities</li> <li>Opportunities to identify and address specific health-related community concerns</li> </ul>	<ul style="list-style-type: none"> <li>Resulting strategy can:                             <ul style="list-style-type: none"> <li>improve energy efficiency and vehicle emission performance from reduced congestion</li> <li>ensure road alignments are designed to minimise impacts on sensitive receiving environments and significant ecological resources</li> <li>improve visual amenity through design and landscaping</li> <li>provide opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>provide opportunity to identify and address specific community concerns</li> <li>identify urban design framework to guide future development of corridor(s)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Ad hoc/reactive initiatives</li> </ul>	n/a
<b>Walking and Cycling facilities</b>	<ul style="list-style-type: none"> <li>Marginal reduction in congestion and travel delay by encouraging shorter and medium length trips to be undertaken by non-vehicular means</li> <li>Improves traffic flows by controlling pedestrian crossing points</li> </ul>	<ul style="list-style-type: none"> <li>Dedicated and/or purpose-built facilities reduce the accident risk for pedestrians and cyclists</li> <li>Opportunity to improve personal security for pedestrian and cyclists by designing facilities in accordance with urban design principles</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by providing choice of viable transport modes for short/medium trips</li> <li>Improves transport choices for transport disadvantaged</li> </ul>	<ul style="list-style-type: none"> <li>Health benefits of walking and cycling</li> <li>Marginal reduction in noise, vibration and air pollution impacts by reducing motor vehicle short trips</li> </ul>	<ul style="list-style-type: none"> <li>Reduces vehicle related emissions by reducing dependency on motor vehicles</li> <li>Reduces reliance on non-renewable sources of energy</li> <li>Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design</li> <li>Opportunity to enhance visual amenity through design</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Advocate to local authorities to provide walking and cycling facilities</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options e.g. road widening</li> </ul>