

# APPENDIX I – STATE HIGHWAY ACTIVITIES FOR 2008/09 (LAND TRANSPORT PROGRAMME)

	Large Activities (2008/09)	Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered	
Northland	Akerama Curves Realignment and Sth Bd PL	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Should reduce travel delays between economic nodes</li> <li>Likely to provide greater time reliability</li> <li>Ensures route efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by sub-standard alignment and limited passing opportunities</li> </ul>	<ul style="list-style-type: none"> <li>No significant contribution to access and mobility</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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, passing lanes</li> </ul>
	Matakohe Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Promotes route security</li> <li>Should reduce travel delays between economic nodes</li> <li>Likely to provide greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by sub-standard alignment and seal width</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by a accidents</li> <li>Preserves an important access route to Auckland</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates instability of road built on a sidling on current alignment</li> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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, routes</li> </ul>
	Brynderwyn Hill Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Promotes route security</li> <li>Should reduce travel delays between economic nodes</li> <li>Likely to provide greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by sub-standard alignment and seal width</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents</li> <li>Preserves an important access route to Auckland</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates instability of road built on a sidling on current alignment</li> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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, routes</li> </ul>
Auckland	Punganui Stream Bridge	Bridge Renewals	<ul style="list-style-type: none"> <li>Promotes route security</li> <li>Should reduce travel delays between economic nodes</li> <li>Likely to provide greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by narrow width constraints</li> <li>Minimises safety risks from potential structural failure</li> </ul>	<ul style="list-style-type: none"> <li>Preserves a secure SH16 access route</li> <li>Supports improved access for pedestrians and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>Could support walking and cycling health benefits</li> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Likely to facilitate flow of the watercourses during flood periods</li> <li>Reducing traffic delays are likely to lead to small improvements in air quality</li> </ul>	<ul style="list-style-type: none"> <li>Short-term alternatives, do-nothing</li> </ul>	<ul style="list-style-type: none"> <li>Alternative engineering options</li> </ul>
	Newmarket Viaduct to Greenlane Auxiliary Lane	Additional Lanes	<ul style="list-style-type: none"> <li>Reduces travel delays between economic nodes</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Improves mobility by reducing levels of congestion</li> <li>Improves access to central Auckland and Newmarket</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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 TDM strategies and options</li> </ul>
	Schedewys Hill Deviation	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Should reduce travel delays between economic nodes</li> <li>Likely to provide greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by sub-standard alignment</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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, routes</li> </ul>
	Warkworth Stage I	Intersection Improvement	<ul style="list-style-type: none"> <li>Should reduce travel delays caused by local/through traffic conflicts</li> <li>Likely to provide greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing levels of congestion</li> <li>Expected to improve accessibility within Warkworth</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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 TDM strategies and options</li> </ul>
Waikato	Te Rapa Bypass	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Potentially creates opportunities for localised economic gains</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by congestion and local/through traffic conflicts</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents in bypassed areas</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>No significant contribution to environmental sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Additional safety measures, increased maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options</li> </ul>
	Hamilton Southern Links	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Provides efficient link to key industrial and commercial areas</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by local/through traffic conflicts</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing levels of congestion</li> <li>Improves access to key industrial and commercial areas</li> <li>Supports improved access for pedestrians and cyclists on bypass route</li> </ul>	<ul style="list-style-type: none"> <li>Promotes walking and cycling health benefits</li> <li>Could reduce noise, vibration and air pollution impact on communities in bypassed area</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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 bypass routes</li> </ul>
	Huntly Bypass	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Potentially creates opportunities for localised economic gains due to improved local retail/main street conditions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by congestion, sub-standard alignment, local/through traffic conflicts</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents in bypassed areas</li> <li>Improves important access route to Auckland</li> <li>Supports improved access for pedestrians and cyclists in bypassed areas</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Could reduce noise, vibration and air pollution impact on communities in bypassed area</li> <li>Likely to have minimal impacts on sensitive receiving environments and significant ecological resources</li> <li>Possibility of promoting community cohesion in bypassed area</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 bypass routes</li> </ul>
	Long Swamp to Rangiriri 4L	Additional Lanes	<ul style="list-style-type: none"> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents at traffic conflict points</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Likely to have minimal impacts on sensitive receiving environments and significant ecological resources</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 TDM strategies and options</li> </ul>
	Hamilton Bypass	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Potentially creates opportunities for localised economic gains due to improved local retail/main street conditions on bypassed route</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by congestion, sub-standard alignment, local/through traffic conflicts</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents in bypassed areas</li> <li>Improves important access route to Auckland</li> <li>Supports improved access for pedestrians and cyclists in bypassed areas</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Could reduce noise, vibration and air pollution impact on communities in bypassed area</li> <li>Likely to have minimal impacts on sensitive receiving environments and significant ecological resources</li> <li>Possibility of promoting community cohesion in bypassed area</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 bypass routes</li> </ul>
Bay of Plenty	Tauranga Central Corridor Improvements	Intersection Improvement	<ul style="list-style-type: none"> <li>Reduces travel delays on heavily-trafficked corridor</li> <li>Provides greater travel time reliability</li> <li>Likely to encourage shift in transport modal use</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>Enhances mobility by providing choice of viable transport modes</li> <li>Supports improved access for pedestrians and cyclists</li> <li>Improves transport choices for transport disadvantaged</li> </ul>	<ul style="list-style-type: none"> <li>Possible improvement in air quality could reduce respiratory illnesses</li> <li>Promotes walking and cycling health benefits</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</li> </ul>	<ul style="list-style-type: none"> <li>Four lane corridors, alternative routes</li> </ul>	<ul style="list-style-type: none"> <li>Other TDM strategies and options</li> </ul>

Table continues overleaf

# APPENDIX I – STATE HIGHWAY ACTIVITIES FOR 2008/09 (LAND TRANSPORT PROGRAMME)

Large Activities (2008/09)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered	
Hawke's Bay	Waipukurau Overbridge Realignment	Bridge Renewals	<ul style="list-style-type: none"> <li>Promotes route security</li> <li>Should reduce travel delays between economic nodes</li> <li>Likely to provide greater time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by narrow width constraints and sub standard approach alignments</li> <li>Minimises safety risks from potential structural failure</li> </ul>	<ul style="list-style-type: none"> <li>Contributes to a secure SH2 access route</li> <li>Supports improved access for cyclists</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the incidence of injuries caused by accidents</li> <li>Promotes cycling health benefit</li> </ul>	<ul style="list-style-type: none"> <li>Higher travel speeds (associated with the improved realignment) are likely to lead to small improvements in air quality</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignments, bridge structures</li> </ul>
Wellington	Basin Reserve Improvements	Intersection Improvement	<ul style="list-style-type: none"> <li>Reduces travel delays between economic nodes</li> <li>Provides greater travel time reliability.</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents at traffic conflict points</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing levels of congestion (which cause travel delays)</li> <li>Improved access to CBD and airport.</li> <li>Supports improved access for pedestrians and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> <li>Promotes walking and cycling health benefits</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> <li>Strategies to reduce traffic volumes and growth</li> </ul>	<ul style="list-style-type: none"> <li>Alternative intersection improvement options</li> </ul>
	Melling Interchange	Intersection Improvement	<ul style="list-style-type: none"> <li>Reduces travel delays between economic nodes</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents at traffic conflict points</li> </ul>	<ul style="list-style-type: none"> <li>Could improve mobility by reducing levels of congestion (which cause travel delays)</li> <li>Improves access to central business district and state highway network</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>Alternative intersection improvement options</li> </ul>
	SH2/58 Grade Separation	Intersection Improvement	<ul style="list-style-type: none"> <li>Should reduce travel delays caused by local/through traffic conflicts</li> <li>Likely to provide greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents at traffic conflict points</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing levels of congestion</li> <li>Expected to improve access onto the state highway network</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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 TDM strategies and options</li> </ul>
Nelson-Marlborough	Whangamoia South Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> <li>Promotes route security</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by sub-standard realignment and narrow seal width</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing the length of travel delays caused by accidents</li> <li>Supports improved access for cyclists</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> <li>Promotes cycling health benefits</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
Canterbury	Western Belfast Bypass	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Potentially reduces the number of accidents caused by local/through traffic conflicts in Belfast</li> </ul>	<ul style="list-style-type: none"> <li>No significant contribution to improving accessibility and mobility</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Likely to have minimal impacts on sensitive receiving environments and significant ecological resources</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 bypass routes</li> </ul>
	QE2 4L Northern Arterial to Hills Road Extension	Additional Lanes	<ul style="list-style-type: none"> <li>Reduces travel delays between economic nodes</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing congestion (which causes travel delays)</li> <li>Expected to improve access to and from the growth areas to the north of Christchurch</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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</li> </ul>
	Sawyers Arms to Memorial Avenue 4L	Additional Lanes	<ul style="list-style-type: none"> <li>Provides strategic through route on the western edge of Christchurch city</li> <li>Reduces travel delays between economic nodes</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing congestion (which causes travel delays)</li> <li>Expected to improve access and mobility to Christchurch International Airport and surrounds</li> <li>Supports improved access for cyclists</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> <li>Promotes cycling health benefits</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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>
	Christchurch Northern Arterial Rural	Bypass	<ul style="list-style-type: none"> <li>Reduces travel delay between economic nodes, particularly CBD and Port</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the number of accidents at traffic conflict points</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing levels of congestion</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> </ul>	<ul style="list-style-type: none"> <li>Likely to have minimal impacts on sensitive receiving environments and significant ecological resources</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 bypass routes</li> </ul>
	Memorial Avenue to Yaldhurst Road 4L	Additional Lanes	<ul style="list-style-type: none"> <li>Provides strategic through route on the western edge of Christchurch city</li> <li>Reduces travel delays between economic nodes</li> <li>Provides greater travel time reliability.</li> </ul>	<ul style="list-style-type: none"> <li>Expected to reduce the number of accidents caused by congestion</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing congestion (which causes travel delays)</li> <li>Expected to improve access and mobility to Christchurch international airport and surrounds</li> <li>Supports improved access for cyclists</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the incidence of injuries caused by accidents</li> <li>Promotes cycling health benefits</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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>
	Christchurch TDM Implementation	Travel Demand Management	<ul style="list-style-type: none"> <li>Reduces travel delays on heavily-tracked roads</li> <li>Provides greater travel time reliability</li> </ul>	<ul style="list-style-type: none"> <li>Likely to reduce accident risks for pedestrians and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>Likely to improve mobility by reducing congestion (which causes travel delays)</li> <li>Expected to improve mobility by providing a choice of viable transport modes</li> <li>Improves transport choices for transport disadvantaged</li> </ul>	<ul style="list-style-type: none"> <li>Possible improvement in air quality to could reduce respiratory illnesses</li> <li>Promotes walking and cycling health benefits</li> </ul>	<ul style="list-style-type: none"> <li>Reducing traffic delays are likely to lead to small improvements in air quality</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>

## APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO NZTS AND 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 and 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>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> </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>Reduced 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 adhoc/reactive initiatives</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>
<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 traffic growth and volumes</li> <li>Promotion of alternative routes that avoid sensitive environments</li> <li>Advocate for appropriate land use controls to recognise reverse sensitivity (e.g. 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>	<ul style="list-style-type: none"> <li>n/a</li> </ul>
<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>Do nothing</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>Do nothing</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>Do nothing</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, 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 traffic volumes and growth e.g. promotion of alternative modes</li> <li>Development of bypass routes</li> </ul>	<ul style="list-style-type: none"> <li>Overtaking treatments</li> <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</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 NZTS AND 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>Reduce travel delay between economic nodes</li> <li>Improve travel time reliability</li> <li>Reduces vehicle operating costs (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>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>Road realignments designed to minimise impacts on sensitive receiving environments and significant ecological resources</li> <li>Reduced 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>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</li> </ul>	<ul style="list-style-type: none"> <li>Alternative realignment options, carriageway widening</li> </ul>
<b>Public Transport Rooding 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 (Preventive 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>Do nothing</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>	<ul style="list-style-type: none"> <li>No significant contribution</li> </ul>	<ul style="list-style-type: none"> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>More extensive realignment and carriageway reconstruction</li> </ul>
<b>Traffic Management Systems</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 would:                             <ul style="list-style-type: none"> <li>Reduce travel delay between economic nodes</li> <li>Improve travel time reliability</li> <li>Reduce 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>