Appendix H

TDM Checklist

NZ TRANSPORT AGENCY
WAKA KOTAHI

PSF 14

Checklist of TDM Measures to be Considered for Inclusion in State Highway Schemes

(Refer *to PSG/14 for guidance on completion of this form*

TDM Measure	General Description TDM Measure	Factors to Consider	TDM Measure to be Included Yes/No	Reason for Inclusion/Exclusion
Bus Priority Lanes	Separate highway lane for use of buses only. Can operate on a continual basis or for specified periods only, eg peak hours with major traffic flow.	Can priority lane physically be accommodated? What is the likely impact on highway capacity? Can carriageway be widened to accommodate priority lane? Does bus service currently use this route? Is there potential for bus service to use this route? Is current/will future bus service be frequent enough to merit priority lane? (check density) Does the route potentially link major trip generators eg residential areas to employment/urban centres etc? Would a bus lane offer the potential to bypass congestion? Would a bus lane complement and extend existing public transport priority facilities? Is the RLTC/bus company supportive?	No	Bus service is too infrequent to warrant bus lanes. Also the general vehicle lanes have sufficient capacity to accommodate buses with minimal delay. Improvements in bus operation will be achieved through a reduction in through traffic on the existing SH1 once the expressway is built.

TDM Measure	General Description TDM Measure	Factors to Consider	TDM Measure to be Included Yes/No	Reason for Inclusion/Exclusion
HOV Lanes	Operates as bus lane but allows other vehicles to use subject to minimum number of occupants. Advantage of encouraging greater vehicle occupancy through car sharing etc and increases use of highway space if bus frequencies are not excessive. Studies suggest most effective at reducing car use on congested highways to large employment centres in large urban areas.	Can a HOV lane physically be accommodated? What is the likely impact on highway capacity? Can carriageway be widened to accommodate HOV lane? Does the route potentially link major trip generators eg residential areas to employment/ urban centres etc? Are there any initiatives in place/proposed that will help route users locate other potential car sharers? Is bus frequency such that other HOV vehicles would act to reduce public transport journey reliability? Could the HOV lane operate full-time/part-time?	No	Expressway has sufficient capacity to accommodate all vehicles. HOV lanes will not make a difference to the highway performance.
HOT Lanes	Operate as HOV but also allow single occupant vehicles (SOV) to use lane provided they pay toll. Avoids scenario of under-utilised lane.	Would usage of HOV be such that it would still provide time saving benefits if SOVs were permitted to use lane on payment of toll? Would extra SOVs reduce travel time reliability of public transport?	No	Expressway has sufficient capacity. HOT lanes will not make a difference to the highway performance.
Other Bus Priority and Promotional Measures	Selective Vehicle Detection at traffic signals – enables priority for public transport by calling the green signal early or extending an existing green. Most effective where there is a series of signal junctions along a bus route. Queue Bypass Features such as signals to stop general traffic with lane to allow buses to by-pass this. Locate bus stops and provide flares to enable buses to re-enter the traffic stream with minimum delay. Bus Build-outs – physical built out onto carriageway to remove need for bus to pull off carriageway.	Are there a number of signal junctions on bus route that would enable greater time saving benefits? Can bus bypass congestion, to get close enough to signals to activate the SVD? Without this benefits are marginal. Is there enough space to build queue by-pass facility? Bus delays occur when the bus cannot re-enter the traffic stream after stopping for a pickup. Can bus stops be locates/designed to minimise delays? Is the additional delay to general flow from build-outs acceptable? Need to balance benefit to public transport against disbenefits to other traffic.	No	No signalised intersections within the study area. As discussed earlier, less traffic on the local roads should help bus priority, while long distant buses can also utilise the Expressway to improve reliability and travel times.

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Cycling	Rural State Highway: • On highway cycle lanes. • Adequate hard shoulder to operate as cycle lane. • Segregated cycle lanes adjacent to state highway or as separate structure eg parallel bridge. • Warning signing. • Alternative route provision to address safety issues eg narrow bridge. • Highway maintenance. Urban and Peri-urban State Highway: • On highway cycle lanes. • Alternative local road route. • Advanced stoplines at junctions. • Crossing facilities for cyclists (Toucan crossings). • Joint facilities eg cycle use of bus lanes, shared cycle/ pedestrian routes. • Warning signing. • Alternative route provision to address safety issues eg narrow bridge. • Cycle Parking. • Highway Maintenance.	Is there an equally direct and convenient alternative route available (non-state highway)? Does facility contribute to wider cycle network? Does it link main trip generators or provide a facility on a potential tourist route? Can a segregated facility be provided adjacent to the state highway? Are facilities to help cyclists across the state highway needed? eg toucan crossing (signalised pedestrian and cyclist crossing), overbridge etc. Are there personal security issues with these? Is there sufficient width to allow a cycle lane to be marked on highway and still accommodate freight/buses etc? Can bus lanes be promoted/signed for cycle use? Is the speed differential between motorists and cyclists in urban areas greater than 40kph? If so, a cycle facility is advisable to ensure safety. Can advanced stoplines be accommodated at signal junctions? Do specific maintenance regimes need to be put in place eg to ensure hard shoulder/segregated facility is regularly swept? Can signs warning drivers of the presence of cyclists or speed reductions be introduced where there is a cycle safety problem? Can cycle parking facilities be provided in the state highway corridor? Is NZTA working with the RCA to ensure integration of local road and state highway cycle facilities including parking provision?	Yes	Shared use path provided along entire project length. 2.5m wide shared paths incorporated into the design of all new bridge structures. 2.5m wide path is being added to existing Otaki River Bridge. All cross corridor connections will also have a shared path included as part of the cross section.

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Cycling -continued		Are cyclists adequately catered for during roadworks? Can local cycle groups be involved in scheme design? Are there opportunities for combined packages with others? Are there cost sharing opportunities?		
Walking *(refers to urban and peri-urban situations only – rural schemes should be considered on individual basis)*	Footways/footpaths within state highway corridor. Pedestrian crossing facilities. Accessibility measures.	Is liaison occurring with TLA on provision of pedestrian facilities? Is adequate width provided adjacent to state highway to accommodate pedestrians where appropriate? Including mobility scooters. Are all pedestrian desire lines being catered for eg provision for crossing motorway off ramps in urban areas?	Yes	As per cycling, a shared use path provided along entire project length. 2.5m wide shared paths incorporated into the design of all new bridge

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	Personal security.	Is personal security adequately catered for eg lighting, visibility etc? What types of pedestrian crossing facilities are required for state highway eg uncontrolled/signalised/grade separated? Are drop crossings and facilities for the mobility impaired included at all junctions eg. tactile paving, audible signals?		structures. 2.5m wide path is being added to existing Otaki River Bridge. All cross corridor connections will also have a shared path included as part of the cross section. There are a number of walking facilities that have been identified as part of the Landscape and Urban Design Plan for the area between Otaki North and Otaki River Bridge – these will provide linkages n/s as well as within the local community.

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Walking - continued	Environmental.	Can features be provided to make the pedestrian space more attractive eg seating? Are pedestrians adequately catered for during roadworks? Do the facilities adequately link into existing pedestrian facilities? Can local pedestrian group be involved in scheme design? Do facilities adequately link into and complement local road pedestrian facilities?		
Traffic Management Systems	Variable Message Signing (VMS)	Would the scheme benefit from the addition of traffic monitoring technology and VMS to inform drivers of incidents, advise of changing speed limits or use of alternative lanes and routes?	Yes	It is understood that the SH1 Corridor Strategy Study will cover this aspect, however the design has given consideration to signs being located on the approach side of each intersection (Otaki North, Otaki South and Peka Peka)
	Active Capacity Management	Would the scheme benefit from the inclusion of active capacity management eg ramp signalling, dynamic lane management and mandatory speed controls? Can any signal junctions be included in a SCATS type system?		

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Traveller Information Services	Technology to provide information on conditions on state highways before and during trip.	Can the scheme include infrastructure/monitoring equipment to enable it to contribute to existing mechanisms to provide travellers, before and during travel, with information on conditions on the state highway eg mobile phone/radio/web based information services? What infrastructure/technology is required to facilitate provision of information on this section of state highway?	No	The SH1 Corridor Strategy Study will cover this aspect.
Parking	On-street parking provision Parking restrictions eg charges, hours of operation, clearways.	Is it appropriate to provide parking on the state highway? What are the adjacent landuses? Are there alternative off-street parking facilities available? What are the impacts on safety/capacity/the community of providing parking? How would parking contribute to the state highway corridor plan/objectives for management? Would parking provision conflict with providing facilities for public transport or cyclists eg opening of car doors? How would it contribute to local parking policy? Should charging/time restrictions be applied where deemed necessary to provide parking? How will restrictions be enforced?	No	No changes to existing parking arrangements are proposed as part of this scheme. If in detail design it is identified that the shift of the Railway Station results in some lost parking, this will need to be considered further at that time.

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Park and Ride	Facility to park car and take public transport for final stage of journey into central area.	Is there potential for a park and ride facility to remove car trips from the state highway and so reduce congestion? Can bus priority be provided on the state highway to support a park and ride facility? Can NZTA provide land adjacent to the state highway for park and ride facility? Will a park and ride facility compete with or complement existing public transport services? Is collaboration with TLAs and public transport service providers appropriate?	No	Park and Ride is already provided at Otaki railway station. No change to this provision is proposed as part of this scheme.
Tolling	Charge made to use specific route.	Is there justification for bringing the project forward? Is there a funding gap for the scheme? Is there an alternative non-tolled route? Is there an existing congestion problem on this route? Would varying charges according to levels of congestion/time of day be appropriate? Are there good public transport alternatives operating for the tolled corridor?	No	Tolling is not relevant to this project.

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Freight Management	Measures to ensure the most cost effective and sustainable movement of freight on the state highway network.	Does the scheme cover a main freight route? Could the scheme include works to ensure alignment geometry caters for increasing vehicle size? Would the inclusion of specific freight orientated signing (route/information) be appropriate? Are junction types proposed taking into account the needs of freight vehicles? Can the scheme be designed to encourage freight vehicles to use it thereby minimising the impact on communities and sensitive areas? Can alternative routes for freight be identified to minimise impact on communities and sensitive areas? Can measures be included to discourage freight (eg weight restrictions) from certain routes where preferred routes are provided? Are gradients such that passing lanes should be provided to cater for large vehicles? Can supporting facilities be provided within or adjacent to highway corridor eg freight parking areas?	Yes	The Expressway and bypass of Otaki with minimise the current impact of HCVs travelling through the Otaki Railway Retail area and Te Horo.

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Communication/ Education	Information provision to raise awareness/educate travelling public on transport issues and NZTA's wider objectives.	Can the scheme be 'branded' to provide message and raise awareness eg brand busways and priority lanes on state highways to promote their use? Can VMS be installed/used to provide general transport messages to assist in reducing congestion and encouraging more sustainable travel eg market rideshare scheme operating in area, advertising traveller information websites? Does project communications plan cover and promote TDM elements adequately? Can the project be marketed on a regional/national basis eg long distance cycle route? Possibility of collaborating with other agencies (e.g TLAs, health sector etc) on communication/ education work? Are different mediums of communication appropriate for scheme? Will communication/marketing be required in association with special large events?	Yes	Public engagement has been part of the scheme planning to ensure the public is aware of the scheme and associated issues. This will continue as the scheme develops towards lodgement with the EPA, detail design and construction.