



Peka Peka to North Ōtaki Expressway

Preliminary Construction Traffic Management Plan

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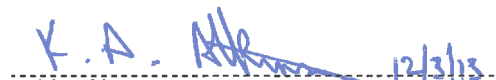
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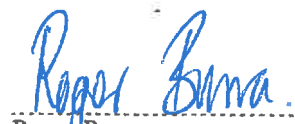
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Glossary

AADT	Annual Average Daily Traffic
CAD	Computer Aided Design
COPTTM	Code Of Practice for Temporary Traffic Management
CTMP	Construction Traffic Management Plan
Designation	The area designated under the Resource Management Act 1991 for use as an expressway or other such public work within a district plan.
EED	Engineering Exception Decision
GWRC	Greater Wellington Regional Council
ITA	Integrated Transport Assessment
KCDC	Kāpiti Coast District Council
KPIs	Key Performance Indicators
MOTSAM	Manual of Traffic Signs and Markings
NZTA	NZ Transport Agency
RCA	Road Controlling Authority
SSTMP	Site Specific Traffic Management Plan
STMS	Site Traffic Management Supervisor
TCD Manual	Traffic Control Devices Manual
TMC	Traffic Management Co-ordinator
TTM	Temporary Traffic Management
VMS	Variable Message Sign

Executive Summary

The Peka Peka to North Ōtaki Expressway forms part of the Wellington Northern Corridor, running from Wellington Airport to Levin. This corridor is one of the seven Roads of National Significance (RoNS) named in the Government Policy Statement (GPS) on Land Transport Funding 2009/10-2018/19, which focuses on supporting New Zealand's productivity and economic growth.

This document outlines procedures, requirements and standards necessary for managing the transport effects arising from the construction of the Project, and forms part of the suite of environmental controls within the Construction Environmental Management Plan (CEMP, Volume 4).

This document provides an appraisal of the types of traffic impacts that are anticipated and how these will be managed, while a related document (Technical Report 6, the Integrated Transport Assessment in Volume 3), provides an initial appraisal of the expected scope and magnitude of the transport effects during construction and outlines methodologies to mitigate these effects.

This document will be a 'live' document and will be updated and revised as the construction methodology is developed and refined. The construction methodology will not be finalised until detailed construction planning is complete, at which time there will be a more comprehensive understanding of the effects of the Project. In addition, traffic patterns will continue to change between now and the commencement of construction on site. Mitigation measures will be fully developed closer to construction to allow them to be most reflective of the prevailing conditions and meet the needs of the stakeholders, affected parties, and the construction team.

At this stage of the project the construction methodology and timing have not been fully finalised. The CTMP will be supported by Site Specific Environmental Management Plans (SSEMPs) which will outline the requirements, methodologies and standards for managing traffic for the area covered by the SSEMP.

The active governance of traffic management activities will occur through on-going assessment of traffic in accordance with the resource consent and notice of requirement conditions.

Requirements for traffic management auditing are established in the Code of Practice for Temporary Traffic Management (COPTTM) and the Project will be monitored and tracked over time on the basis of audit scores. Existing highway network travel time will be monitored through the duration of the Project to monitor performance of temporary traffic management (TTM) on the highway, with the agreement of NZTA. The perceptions of stakeholders will also be monitored through regular surveys. The survey form, interval, and target audience will be agreed with the NZTA and KCDC.

Contents

Glossary	i
Executive Summary	ii
1 Introduction	4
1.1 Purpose & Scope.....	4
1.2 Description of the Project	4
1.3 Relevant Legislation & Guidance	5
2 Environmental Impacts Summary	7
2.1 Summary of Traffic Management Activities.....	7
2.2 Summary of Effects and Mitigation	7
3 Implementation and Operation	11
3.1 Traffic management procedure governance.....	11
3.2 SSTMP development.....	11
3.3 SSTMP Approval Process.....	16
3.4 Monitoring.....	17
3.5 Reporting	18
3.6 Training.....	18
3.7 Complaints.....	18
4 Roles and Responsibilities	19
5 Post-Construction Transition Phase	20
6 Review of the Construction Traffic Management Plan	21
Figure 1-1 - Construction Sections	5
Table 2.2: Impact and Mitigation of Traffic Control Activities.....	8

1 Introduction

This Construction Traffic Management Plan (CTMP) forms part of a comprehensive suite of environmental controls within the Construction Environmental Management Plan (CEMP) for the construction phase of the Peka Peka to North Ōtaki Expressway Project (the Project). The CTMP addresses the potential transport effects associated with the construction of the Project.

1.1 Purpose & Scope

This CTMP identifies the minimum standards necessary for management of temporary traffic control on the Project. It should be noted that all temporary traffic management (TTM) will be in accordance with the Code of Practice for Temporary Traffic Management (COPTTM). Procedures for planning, implementing and maintaining TTM are outlined in COPTTM. This CTMP is intended as a framework for the development of particular traffic management practices and procedures to minimise the impact on the environment.

Some specific details influencing the transport effects of the Project will not be available until a contractor has been appointed and they have commenced detailed construction planning. These items cannot be finalised before consent for the Project has been achieved, so this document does not prescribe or limit the activities that will be required for construction of the Project. Instead, it develops procedures under which TTM will be implemented to the satisfaction of stakeholders and road controlling authorities (RCAs).

It is expected that the methodologies and mitigation measures specified in this document will be refined following the appointment of a contractor at a time closer to commencement of construction.

This report should be read in conjunction with the Integrated Transport Assessment (ITA) report (Technical Report 6, Volume 3), and remainder of the CEMP (Volume 4). The ITA aims to estimate and appraise the impacts of the possible temporary traffic management activities and the proposed mitigation measures. The CEMP provides a more detailed description of the construction activities involved in the Project and procedures for how these will be managed.

The CTMP will be updated, with the necessary approval from the NZTA, throughout the course of the Project to reflect material changes associated with changes to the construction methodology, regulatory environment and requirements for implementation of traffic control.

1.2 Description of the Project

At this stage of the Project details of the construction methodology and timing have not been fully finalised. At this time it has been assumed the Project will be constructed in sections in a format similar to that shown in Figure 1-1.

The majority of the Project will be constructed off-line, apart from at tie-ins to the existing network, reducing the need for temporary road closures and traffic diversions.

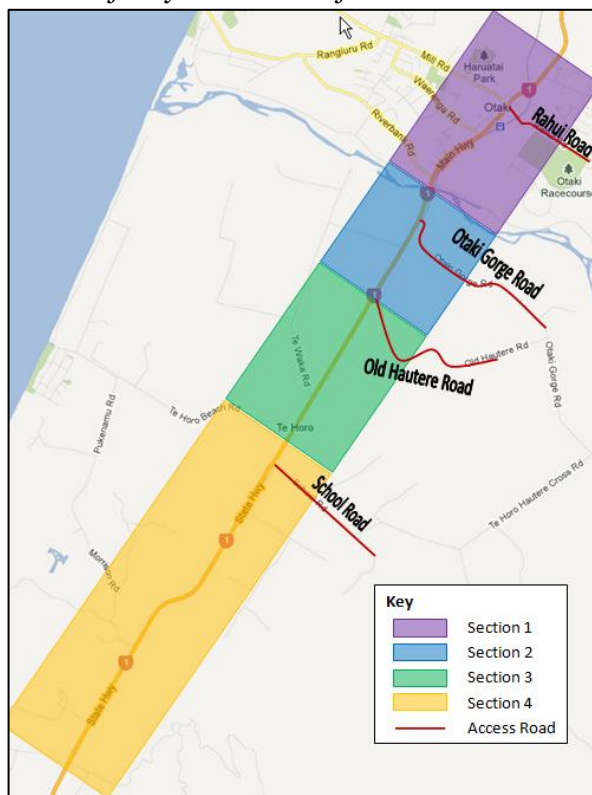


Figure 1-1 - Construction Sections¹

In addition to access along internal haul routes, access will be provided into each section via the existing road network, which may include either State highway or local roads. Local roads where access may be required include:

- Rahui Road;
- Ōtaki Gorge Road;
- Old Hautere Road; and
- School Road.

During construction there may also be additional traffic on the network. The effect of this additional traffic has been assessed as part of the ITA.

For a full Project description (Construction & Operation) reference should be made to Part D, Chapters 6, 7 and 8, Volume 2, of the AEE.

1.3 Relevant Legislation & Guidance

TTM is governed by New Zealand legislation, in particular, the Land Transport Act 1998. Land Transport Rules made pursuant to that act, which relate to TTM, include:

- Land Transport (Road User) Rule 2004
- Land Transport Rule: Traffic Control Devices 2004
- Land Transport Rule: Setting of Speed Limits 2003

NZTA's Traffic Control Devices Manual (TCD Manual) (currently under development) provides guidance on industry good practice, including, where necessary, practice mandated by law in relation to the use of traffic control devices. Part 8 of the TCD Manual incorporates the previously stand-alone document relevant to TTM, the Code of Practice for Temporary Traffic Management (COPTTM). The TCD Manual will also eventually supersede other standalone documents relevant to TTM, such as the Manual of Traffic Signs and Markings (MOTSAM). The NZTA's State Highway Geometric Design Manual (Draft) also provides design standards and procedures for the state highway work.

The primary standard (which forms part of the TCD Manual) that will be adhered to in planning, coordinating and implementing TTM for the Project is COPTTM (including the local road supplement and Road Controlling Authority (RCA) specific procedures).

¹ Note this is indicative and the appointed contractor will determine final construction methodology and construction sections.

Where it is not possible to adhere to this standard, the COPTTM's prescribed Engineering Exception Decision (EED) process will be followed. An EED will be in the form of a written decision, which will be made following consideration of all factors, including the safety of all concerned. An EED will require RCA agreement prior to being implemented.

The NZTA's Project team will liaise early with RCAs before completing the construction methodology. This will allow for responsive traffic management methodologies that reflect the requirements of the RCAs and the need for flexibility over timing and the construction methodology.

It should be noted that while the TCD Manual and COPTTM generally provide comprehensive guidance, there are likely to be circumstances where other manuals will be required for guidance on specific areas. The Austroads Guide to Traffic Management is the likely source of additional guidance. This document will be employed where design of traffic signals, road layouts, signage or other traffic engineering elements require more detailed analysis. The relevant designation and consent conditions granted for the Project will also form part of the requirements for implementation of this CTMP.

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2 Environmental Impacts Summary

This section provides a description of the expected traffic management activities for the Project and an overview of the anticipated effects of these activities. The construction methodology will be further refined when a contractor is appointed to construct the Project. This report therefore reflects the best understanding of expected traffic management methodologies for the required construction works, and is based on similar construction activities implemented throughout the country.

2.1 Summary of Traffic Management Activities

A preliminary assessment of the transport effects associated with construction activity was completed as part of the ITA. The appointed Contractor will programme works within the specified hours agreed with the RCAs before tenders are called.

Below are transport effects and TTM activities that have been identified at this stage of the Project. These assumptions and proposed mitigation will be updated or superseded as the construction methodology is developed and finalised.

2.1.1 Additional Vehicle Movements

- a) Worker arrivals and departures – light vehicles (minor in relation to SH1 AADT); and
- b) Additional HCVs, which will be used to move materials and large loads (such as bridge beams).

2.1.2 Site Access

At this stage it has been identified that site access will be via:

- SH1
- Rahui Road
- Ōtaki Gorge Road
- Old Hautere Road
- Te Horo

Final details will be confirmed by the contractor and will be part of the SSEMPs.

The introduction of construction traffic to local roads will have a negative effect on safety and performance where local roads intersect with the state highway. Additional HCVs will also affect delays, particularly with right turning movements out of local roads, if site access off local roads, and not the state highway.

2.2 Summary of Effects and Mitigation

TTM will be implemented in accordance with COPTTM, in order to minimise the effect on safety and level of service experienced by road users. Table 2.1 broadly sets out impacts that are anticipated to arise from TTM activities for the Project and proposed mitigation measures and procedures which are likely to be adopted to manage the effects. The table is not an exhaustive list.

Table 2.1: Summary Traffic Control Activities, Transport Effects and Mitigation

Traffic Control Activity	Effect	Possible Mitigation Measures
Footpath closure / detour	<ul style="list-style-type: none"> - Minor inconvenience to pedestrians and residents along route - Minor increased exposure of pedestrians to traffic 	<ul style="list-style-type: none"> - Public notices - Letter drops to any affected residents in advance of works taking place - Provision of warning and advisory signage prior to and during the closure - Provision of pedestrian crossings and refuges or controlled crossing points, where required - Liaise with stakeholders and interested parties - Provide convenient pedestrian detour routes in advance of the closure to provide safe passage
Cycle lane closures / path closures/ detours	<ul style="list-style-type: none"> - Minor inconvenience to cyclists along route - Minor increased exposure of cyclists to traffic 	<ul style="list-style-type: none"> - Public notices - Letter drops to affected residents in advance of works in the area - Provision of convenient detour routes well in advance of the closure to provide safe and convenient cycle routes - Install signage prior to construction commencing to allow cyclists to alter their travel patterns - Install warning signage in advance of shoulder closures to alert motorists of cyclists - Install a temporary speed limit
Property access restrictions	<ul style="list-style-type: none"> - Minor inconvenience to residents 	<ul style="list-style-type: none"> - Personal visit by Project team to advise and discuss impacts of the closure with affected residents and businesses - Letter drops to affected residents and businesses in advance of works in the area - Provision of temporary car parking in an area within the length of the traffic control site - Provision of metal-plate crossings into properties where feasible and safe - Scheduling of works during holiday or low-demand periods of the year
Shoulder closures	<ul style="list-style-type: none"> - Reduced safety - Increased side friction - No room for incident management, breakdowns etc. 	<ul style="list-style-type: none"> - Install a temporary speed limit and relevant TTM as per COPTTM
Lane closure: - alternating flow operation - one-direction closure	<ul style="list-style-type: none"> - Inconvenience to road users - Reduced traffic capacity through site - Increased side-friction - Construction visibility causing rubber necking - Reduced capacity across a link due to stop-go operations - Diversion of traffic away from the closure 	<ul style="list-style-type: none"> - Public notification in local (Kāpiti Observer) and regional publications (Dominion Post) where necessary - Letter drops to residents and/or businesses (where necessary), which are located within the closure length, along detour routes, or along approaches to the corridor that may experience congestion or queues - Installation of barriers along site to isolate from public - Installation of screens to reduce 'rubber necking' - Use of Variable Message Signs (VMS) - Use of temporary traffic signals

Traffic Control Activity	Effect	Possible Mitigation Measures
Short term road closure / detours	<ul style="list-style-type: none"> - Minor inconvenience to road users - Minor inconvenience to residents and businesses - Congestion on detour routes - Congestion on alternative routes 	<ul style="list-style-type: none"> - Personal visit by Project team to advise and discuss impacts of the closure with affected residents and businesses - Public notification in local (Kāpiti Observer) and regional publications (Dominion Post) where necessary - Advertising on radio or through internet where necessary - Letter drops to residents and/or businesses (where necessary), which are located within the closure length, along detour routes, or along approaches to the corridor that may experience congestion or queues - Use of VMS - Scheduling of works during holiday or low-demand periods of the year - Staging of works to require night time full-closures only - Consultation with NZTA/KCDC to develop detour routes and minimise bottle-necks on detours - Provision of barricades on the approaches to the closure to prevent public access and visibility to activities within the site - Extension of closures to intersections with arterial routes with access to residents only on the approaches to the works
Site access	<ul style="list-style-type: none"> - The arrival/departure of construction workers and HCV movements - Overweight and/or over dimension loads (minor effect – likely to be at night) - Reduced traffic safety due to additional vehicle and HCV manoeuvring - Minor impact on capacity of access routes arising from HCVs - Increased traffic on access routes resulting in congestion and delay, although would be a minor effect 	<ul style="list-style-type: none"> - Develop and distribute site access plans which specify permitted access movements, times and procedures - Implementing clear and consistent signage identifying site access locations - Construction phasing to facilitate movements out of the different sites, for example constructing the roundabout at the SH1/Ōtaki Gorge Road intersection to facilitate site access movements into and out of the site - Construction phasing to allow queues at site access, that may be restricted by the existing site geometry - Modifying the geometry of intersections to facilitate movements into and out of the site - Limiting site access movements/plant deliveries to off-peak periods or night time - Plant cleaning facilities at site access points - Frequent cleaning /sweeping of carriageway at access points - Consultation with NZTA and KCDC to agree HCV routes and operation procedures - Avoid peak traffic flow periods

Traffic Control Activity	Effect	Possible Mitigation Measures												
Temporary speed limit	<ul style="list-style-type: none"> - Minor inconvenience to road users - Slower operating speeds - Potential non-compliance with speed limit 	<ul style="list-style-type: none"> - Public notification in local (Kāpiti Observer) and regional publications (Dominion Post) where necessary; - Monitor and review use of Temporary Speed Limits to ensure they are appropriate for the environment. Additional travel time has been calculated for two existing speed environments to demonstrate the expected additional travel time, and are summarised below: <table border="1" data-bbox="1131 454 1982 614" style="margin-left: 20px;"> <thead> <tr> <th><i>Existing Speed Environment</i></th> <th><i>Temporary Speed Restriction</i></th> <th><i>Length of restriction</i></th> <th><i>Additional Travel Time</i></th> </tr> </thead> <tbody> <tr> <td>100 km/h</td> <td>70 km/h</td> <td>350m</td> <td>5.4 seconds</td> </tr> <tr> <td>80 km/h</td> <td>50 km/h</td> <td>270m</td> <td>7.3 seconds</td> </tr> </tbody> </table> - Speed controlling measures may be put in place including lane narrowing or introduction of horizontal curves. The NZTA's Project team will liaise with the Police regarding temporary speed limits and the enforcement of these. 	<i>Existing Speed Environment</i>	<i>Temporary Speed Restriction</i>	<i>Length of restriction</i>	<i>Additional Travel Time</i>	100 km/h	70 km/h	350m	5.4 seconds	80 km/h	50 km/h	270m	7.3 seconds
<i>Existing Speed Environment</i>	<i>Temporary Speed Restriction</i>	<i>Length of restriction</i>	<i>Additional Travel Time</i>											
100 km/h	70 km/h	350m	5.4 seconds											
80 km/h	50 km/h	270m	7.3 seconds											

3 Implementation and Operation

3.1 Traffic management procedure governance

The CTMP is a will be consulted on with key stakeholders prior to submission in order to ensure continuous improvement. Key stakeholders are expected to include the NZTA, the NZTA's Project team, Kāpiti Coast District Council (KCDC), KiwiRail, Public transport operators and emergency services.

Active governance of TTM activities will occur through an approval process of SSTMPs by NZTA and/or KCDC or their representative, through on-going monitoring and through the assessment of KPIs.

3.1.1 Site-Specific Traffic Management Plans (a subset of the overall TMP)

SSTMPs outline procedures and measures to be implemented so that safety is maintained for road users and Project staff. Each SSTMP outlines measures to be implemented so road users can negotiate safely through or past the site, as well as outlining safety procedures required to be followed by construction workers in the site.

The preparation and implementation of SSTMPs will be conducted so that a consistent approach is taken where practicable, and that adjacent activities are adequately planned and integrated in order to mitigate concurrent effects. An example of where this sort of consideration would be required is the signing and traffic control on the state highway for different site access points.

Each impact and mitigation measure will be considered in the development and documentation of each SSTMP. The Engineer to the Contract will review and if satisfied approve the proposed SSTMP. The SSTMP will then be provided to the TOC at the relevant RCA (NZTA and/or KCDC) for review and if satisfied accept.

3.2 SSTMP development

The process for the governance, planning, approval and implementation of TTM will be in accordance with COPTTM.

TTM impacts will typically be mitigated through the measures described in Section 2. The following sets out the general operational procedures for TTM activities for the Project.

3.2.1 SSTMP Structure

Each SSTMP will include:

- Text outlining the requirements, methodologies and standards being complied with and required/obtained approvals;
- Where applicable engineering exception decisions (EEDs) will be appended to the SSTMP;

- CAD drawings (or similar computer-generated) drawings will be employed for illustrating the layout of TTM, which will include all relevant road features that require consideration in managing the impacts of construction; and
- A communications strategy that outlines the proposed strategy for informing the public of the works. This may include public notifications in local newspapers, advertisements, radio communications, flyer or posters, variable message signs (VMS) strategies, information boards or driver information signage installed.

3.2.2 Specific Requirements

a) Network capacity

The main indicator of the impact of traffic management on the road network is the delay caused by the activity. COPTTM states each RCA can set what is deemed to be an acceptable delay on their network, and many RCAs set a maximum timeframe of five minutes.

Lane closures resulting in alternating flow will be avoided, where possible. If a lane closure is required, justification as to why this TTM method is necessary will be provided in each SSTMP. Any necessary restrictions and anticipated delays will also be specified in each SSTMP.

TMPs must address any delays anticipated by worksite activities, including simple calculations to determine if delays of more than the maximum time allowed by the RCA are likely (normally five minutes). The contractor/TMP applicant must supply this information for level 2 and level 3 roads.

The RCA must be informed if delays of more than the maximum time limit are likely. The RCA is responsible for verifying the calculations and determining, in negotiation with the contractor/TMP applicant, the appropriate action, e.g. allow the predicted delays to be imposed, restrict work hours, periodically pause work to allow queues to disperse.

Where substantial queuing is expected, and alternative routes are available, consideration should be given to the use of those routes.

In accordance with general NZTA practice the start and end of holiday periods will be avoided, however during holiday periods when traffic demands may be lower work may be programmed. Such opportunities will be investigated on a case by case basis, with an approach agreed with the relevant RCAs prior to the proposed activity.

b) Peak hour capacity

The effect of construction activities or TTM measures on traffic flows during peak hours will be mitigated where possible. The maximum traffic capacity through a worksite should be provided with due consideration of safety. Delays are unavoidable at times. However, disruption and peak hours should be avoided.

c) Lane delineation

In accordance with COPTTM, traffic lanes will be delineated using temporary signs and cones for short term traffic management activities which are generally only in place for a day. Long term

closures on high volume roads which are in place for a number of weeks will be delineated by remarking the existing lanes and installing safety barriers where appropriate.

d) Site access

Site access will be subject to the same restrictions as activities that impact upon the capacity of the network and peak hour activities. Each site access will be noted in the appropriate SSTMP covering the work site which will outline the systems and procedures required for safe operation.

Site access points will be detailed on the SSTMP drawing. The site-specific requirements for site accesses will be outlined in the SSTMP, which may include the following:

- Required signage and delineation;
- Permitted entry / exit movements to / from the site access;
- Permitted hours of use;
- Entry/exit escort procedures to be implemented;
- Types of vehicles allowed, and any procedures relating to particular classes of vehicles (articulated trucks or oversized vehicles);
- Requirements for wheel washes (refer to Erosion and Sediment Control Plan); and
- Provision for manned accesses where required.

Entry and exit will be operated in a manner that will minimise disruption to road users. Accordingly, all drivers of vehicles using the access points will be specifically briefed.

e) Construction traffic movements

Truck movements to transport construction materials to site may affect the operation of some intersections. Some movements may require active traffic management, particularly for over dimensioned vehicle movements and movements on geometrically constrained roads. Construction vehicles are expected to use SH1 and avoid using residential streets and local roads, where possible.

All site based personnel, truck drivers in particular, will be made aware of the sensitive areas around the Project. Drivers will be required to take extra care while passing these areas and be extra vigilant of children or mobility impaired persons. This requirement will be included in regular safety briefings during the construction period.

f) Over-dimension vehicles

Over-dimension permits will be obtained from the Over-dimension Permit Issuing Agency (OPIA) for any over dimensioned vehicle movements related to the Project. Requirements will be stipulated on the Over-dimension Permit but could include that Over-dimension vehicles are:

- Not permitted when there are heavy traffic flows;
- Not permitted on public holidays or after 1600 hours on the day proceeding a public holiday;
and
- Not permitted Saturday and Sunday, 1000 hours to 1300 hours and 1600 hours to 1900 hours

The movement of any Over-dimensional loads will be undertaken in accordance with these limitations.

g) Traffic detours

All closures and associated detour routes will be implemented under an approved SSTMP. The RCA with roads affected by a detour will be consulted prior to finalisation of the SSTMP. Detour routes will follow major roads where possible, so that impacts on residential streets are minimised.

Where necessary, steps will be taken in order to improve the capacity of the detour route, by implementation of the following:

- Traffic modelling to determine the maximum theoretical capacity of intersection(s) along the detour route;
- Traffic management measures installed at the critical intersection to provide greater capacity; and/or
- Splitting of the detour routes depending on approach to the closure.

Prior warning for road users may be considered, which could include implementing a communications campaign via VMS boards, project information signs or advertising. This will attempt to reduce the demands on the road network so that delays are reduced. Alternative routes will be recommended at a cordon around the closure well in advance of the closure and in such a way to allow traffic to avoid following the prescribed detour route where an alternative route is a more convenient route to their intended destination.

The SSTMP will include measures that will be implemented to avoid, remedy or mitigate effects on access to and from businesses in the area. Details of any analysis, modelling, mitigation measures or communications will be appended to the SSTMP for approval by the affected RCAs.

h) Passenger transport services

The effect of construction activities or TTM measures on passenger transport services will be mitigated where possible.

Activities that will impact upon passenger transport services will be identified at the construction planning stage, such as where traffic management measures are impinging upon bus stops and access to the Ōtaki railway station. This will allow for the maximum possible available time to arrange for changes to be made to services, or for methodologies to be developed that minimise impacts.

Consultation with affected parties will determine the best way forward to mitigate impacts. This consultation will be undertaken as part of the SSTMP development process, with the following parties, where appropriate:

- Kāpiti Coast District Council (KCDC);
- NZTA;
- Greater Wellington Regional Council (GWRC);
- NZTA's representatives;

- KiwiRail; and
- Public transport operators.

Any impacts, mitigation or communications relating to passenger transport services will be outlined in the SSTMP for approval by the relevant RCA.

i) Property access, off-road parking and manoeuvring areas

The impact of construction activities or TTM measures on property access, off road parking or manoeuvring areas will be mitigated where possible. Communications with the affected residences or businesses will be undertaken as part of the SSTMP process.

The impacts of such activities will be mitigated where possible, through the use of:

- Temporary access ways using metal plates or other methods;
- Construction methodologies that allow access during critical time periods; and/or
- Provision of alternative access ways, parking or manoeuvring areas for the duration of the works.

Activities that may impact on access and their associated mitigation measures will be outlined in the SSTMP for approval by the relevant RCA.

j) Pedestrian, mobility and cycling access

Pedestrian facilities will be maintained where current facilities exist. Where access is impeded as a result of construction works, safe and clearly identifiable alternative access arrangements will be implemented, such as:

- Temporary access in accordance with COPTTM;
- Temporary diversions (such as the other side of the road);
- Safety fences for restricted access zones;
- Hoarding for long term work sites with excavations or other hazardous environments;
- Pedestrian bridges across uneven surfaces; and/or
- Pedestrian protection barriers for protection from traffic.

If the facilities are required to be combined on one side of a road, justification as to why this is the case will be provided. Mitigation for combining pedestrian facilities on one side of a road may include pedestrian ramps pedestrian refuges, traffic calming, assisted crossing for school children, and/or temporary controlled/zebra crossings.

Long term closures or closures of significant pedestrian, mobility or cycling facilities will result in communications with the public, consideration of public events, school or stakeholder time tables.

Existing cycle lanes or shoulders used by cyclists will be maintained, where possible. If cycle lanes or shoulders are required to be reduced or cyclists are detoured, justification as to why this is the case will be provided. Effects on cycle access will be mitigated by either maintaining the existing traffic lanes through the construction area where cyclists are using the existing road or a temporary cycle route will be established where an existing cycle route cannot be maintained. Where lane

widths impact on cyclist safety, signage will be installed in advance of the area to enhance driver awareness.

Any impacts upon pedestrian, mobility or cycling access and associated mitigation will be outlined in the SSTMP for approval by the relevant RCA.

k) Traffic management communications

It is expected that communication campaigns will be undertaken for a wide variety of traffic management activities throughout construction of the Project. The overall strategy for communication management is outlined in the Stakeholder and Communication Management plan, which forms part of the CEMP.

Communication associated with traffic management activities will be undertaken on a case-by-case basis depending on the location and impact of the construction and traffic management activities. Communication may include some or all of the following, as part of a Project communication plan:

- Personal visit by a Project team member to advise and discuss impacts of the closure with affected residents and businesses;
- Letter drops to affected residents and / or businesses which are located:
 - within or adjacent to the construction site;
 - along detour routes;
 - along approaches to the corridor that may experience congestion or queues.
- Communication for changes to passenger transport services such as signage in buses, at bus stops or letter drops to residents;
- Flier drops to cars parked in affected areas in advance of works in the area;
- Use of VMS for recommending alternative routes during detours;
- Use of project signage or information boards;
- Public notification in local (Kāpiti Observer) and regional publications (Dominion Post); and
or
- Advertising on radio or through internet.

3.3 SSTMP Approval Process

The impact of specific traffic management measures on the road network will be assessed on a case-by-case basis, and where appropriate the relevant RCA will be contacted for acceptance of the SSTMP.

It is likely that some activities associated with construction of the Project will affect both RCA's roads. Where this is the case, the affected RCAs will be consulted in advance of submission of the SSTMP. Activities that will require consultation include:

- Traffic detours onto adjacent RCA roads;
- Lane or full road closures that may have a significant impact on the operation of an adjacent RCA road; and/or

- Activities that require installation of VMS boards or other communications (such as information signage, overhead VMS signage etc.) on adjacent RCA roads.

3.4 Monitoring

In accordance with COPTTM the STMS will be responsible for the day to day monitoring of TTM measures. The site layout, queues and delays will be monitored at each active site which is governed by an approved SSTMP.

In addition, the effectiveness of the mitigation measures described in Section 2 should be monitored by the development and on-going assessment of Key Performance Indicators (KPIs).

The three KPIs which are proposed for the Project are Traffic Management Auditing, SH1 Travel Times and Stakeholder Surveys. These KPIs are discussed below. The KPIs proposed in this section are a minimum requirement, and it is expected that further KPIs will be implemented.

3.4.1 Traffic management auditing

Traffic control measures will be subject to random audits by the relevant TMC. Additional audits will be carried out following major control changes. Regular internal audits will also be carried out by the NZTA's Project team.

The procedure for carrying out an audit of traffic management activities is prescribed in COPTTM. The audit team will generally be a two-person team, however may be expanded as appropriate to include road safety auditors, independent auditors or other external parties. The auditors will be required to provide their report to the Project team within one week of the site inspection. The audit scores will be made available to the relevant RCA.

3.4.2 SH1 Travel Times

The efficiency and safety of the road network during road construction is a key objective of the Project. Efficiency and safety can be measured by monitoring of travel times through the site.

The KPI proposed is to be based around the base journey time plus some reasonable delay expected for construction works. The surveys will be undertaken every two months while the roads are being affected and one week after TTM is altered on these roads. Consideration will need to be given to the consistency of comparing travel times so like is being compared with life (i.e. times, days, seasonal variations etc.).

3.4.3 Stakeholder Survey

The perceptions of those affected by the traffic management activities will also be monitored during construction. This will be done through consultation and liaison with the appropriate stakeholders.

3.5 Reporting

3.5.1 Reporting by the NZTA's Project Team to RCAs

The NZTA's Project team shall inform the NZTA, KCDC and/or the appointed representative of the following:

- Any problems they foresee with traffic management on site and any problems they have regarding the management of traffic on other contractor's sites;
- Any instances where the requirements or limits imposed by this CTMP or SSTMPs are breached or exceeded, probable causes and actions required to be taken to mitigate, remedy or isolate the impact arising from the non-compliance;
- The traffic management KPI monitoring results and improvement initiatives on a quarterly basis;
- Any complaints received during the previous period regarding traffic and the remedial actions taken; and
- Provide the road controlling or regulatory authorities a copy of the CTMP if any significant revisions of the CTMP are made.

3.5.2 Reporting by the RCAs to NZTA's Project Team

The NZTA, KCDC and/or the appointed representative shall inform the NZTA's Project team of any complaints received regarding traffic as soon as practical after receipt of the complaint.

3.6 Training

All training requirements will be in accordance with COPTTM.

3.7 Complaints

Complaints will be managed through the process included in the CEMP. Any complaints received relating to traffic management activities will be reported to NZTA and KCDC or their appointed representative. Responses may involve any one or combination of the following:

- Adjustment of traffic management equipment or road furniture on site;
- Revision of an SSTMP; and/ or
- Revision of the CTMP.

4 Roles and Responsibilities

This section provides guidelines on the expected roles and responsibilities; however these shall be formally agreed between the NZTA, KCDC, the NZTA's Project team and other parties as part of the procurement process, either as specified in the Project agreement or CEMP's Requirements.

The NZTA's Project team shall be responsible for ensuring that planning and implementation of traffic management is conducted in accordance with this CTMP.

Each SSTMP will be approved by the Engineer to the Contract and accepted by KCDC, NZTA, or both depending on which RCA's network is affected by the scope of the SSTMP.

The RCAs will have the opportunity to comment on whether the construction and traffic management activities are being conducted in accordance with this CTMP through stakeholder meetings.

The NZTA's Project team shall be responsible for documentation of traffic management activities and their compliance with this CTMP, which will be available to NZTA or the appointed representative upon request. All traffic management activities shall be documented as required by this CTMP in an appropriate SSTMP which will be available upon request by NZTA or KCDC.

Traffic management auditing shall be undertaken by the TMC and the results of these audits shall be provided to NZTA and KCDC or their appointed representative immediately following the audit or following rectification of 'needs improvement' or 'dangerous scores' as required by COPTTM.

Monitoring of the impacts arising from construction and traffic management methodologies shall be undertaken by the NZTA's Project team in accordance with this CTMP, and the results of this KPI monitoring shall be shared with NZTA and KCDC or their appointed representative as appropriate.

5 Post-Construction Transition Phase

Once the majority of construction work has been completed on the Project and practical completion has been awarded, temporary traffic management procedures will return back to each RCA's traffic management requirements.

6 Review of the Construction Traffic Management Plan

The CTMP is expected to be reviewed over the duration of the Project. The review of the CTMP will be reported to the key stakeholders group and any required changes agreed. The foreseen events which may trigger a review of the CTMP are as follows:

- The issue of a change/update to the COPTTM. COPTTM is currently under review as part of changes to the traffic control devices manual and as such changes to the CTMP may be necessary to maintain consistency between the Project TTM procedures and traffic control regulations and guidelines.
- Changes to other Key Stakeholders. Any major change to NZTA or KCDC may give rise to new specifications or requirements.
- Stakeholder feedback. Changes to construction methodology.

This CTMP will be reviewed by the NZTA's Project team and NZTA Project Manager or the appointed representative prior to commencement of construction and at regular defined intervals. The NZTA's Project team will record decisions made and reasons for them and will make subsequent changes to CTMP in agreement with the NZTA Project Manager. The Project team will be informed of any changes to this CTMP through the regular Project communications processes. The review will consider the following:

- any significant changes to traffic management processes;
- key changes to roles and responsibilities within the Project and the implementation of this Plan;
- changes in industry best practice standards;
- changes in legal or other requirements (social and environmental legal requirements, relevant policies, plans, standards, specifications and guidelines);
- results of: inspection and maintenance programmes, and logs of incidents, corrective actions, internal or external assessments; and
- public complaints.

Reasons for making changes to the CTMP will be documented. A copy of the original CTMP document and subsequent versions will be kept for the Project records, and marked as obsolete. Each new/updated version of the CTMP documentation will be issued with a version number and date to eliminate obsolete CTMP documentation being used.



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