

Construction Traffic Management Plan

BPW005 Peacocke Wastewater Pumpstation (N4)



Document History and Status

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Quick reference guide to conditions

Consent	Condition Number	Condition Requirements	Comments	CTMP Reference
Southern Links Designation Conditions	12.1	A Construction Traffic Management Plan (CTMP), shall be prepared by a suitably qualified and experienced person in accordance with the NZTA Code of Practice for Temporary Traffic Management and after consultation with the Territorial Authority Chief Executive or nominee. The CTMP shall be submitted to the Territorial Authority Chief Executive or nominee, for certification that the plan satisfies this condition no later than forty (40) working days prior to the commencement of any stage during Construction Works. Construction of any relevant stage of the Project shall not commence until the Requiring Authority has received the Chief Executive's or nominee's written certification of the CTMP for that stage of works.		3.1
	8.6 (d)	[The CCCP shall, as a minimum, include:] Methods for communicating in advance any temporary traffic management measures, and permanent changes to road networks and layouts to the community, stakeholders, directly affected, and affected in proximity parties;		2.3
	9.3 (e)	An outline construction programme of the works indicating, in particular, construction hours, likely time periods for partial or complete road closures, and anticipated traffic diversion effects;		N/A
	12.2	The objective of the CTMP is to provide a framework to be adopted by the Requiring Authority to ensure that the adverse traffic and access related effects of the construction of the Project will be avoided, remedied or mitigated.		2.3
	12.3	When requesting certification of a CTMP, the Requiring Authority shall provide the certifying Territorial Authority with a letter from each other Territorial Authority whose roads are affected by the Project's construction traffic confirming that the Requiring Authority has adequately consulted with that Territorial Authority in relation to Condition 12.5(i) and any effects on that Territorial Authority's road network and included adequate measures to manage such effects		3.1
	12.4	The CTMP shall have regard to and where appropriate implement any relevant actions identified in the minutes arising from Community Liaison Group meetings (Conditions 3.3 and 3.14).		3.5
	12.5	The CTMP shall describe the measures that will be undertaken to avoid, remedy or mitigate the local and network wide construction traffic effects of construction of the		3

		<p>Project. In particular (but not limited to), the CTMP shall describe:</p> <ul style="list-style-type: none"> a) Measures to maintain vehicle access to roads and property to defined and approved levels of service. The CTMP shall identify notification thresholds and processes for communicating with affected parties and shall consider whether there are specific user needs that require specific responses. b) Measures to maintain access for emergency vehicles, and methods to ensure that emergency service providers are regularly informed of the timing and sequencing of works, road closures and alternative routes. c) The manner in which service providers are regularly informed of the timing and sequencing of works, road closures and alternative routes. d) The timing and sequencing of any road closures that will be required and the nature and duration of any traffic management measures that will result, including any temporary restrictions, detours or diversions; e) Measures to ensure safe interaction between Project-related construction traffic and local road traffic where any temporary or existing local roads cross the Southern Links corridor. f) Measures to ensure safe access to the Project site. g) Measures to monitor the performance against agreed levels of service of all access points to the Project site, and all key state highway and arterial local road intersections used by Project-related construction traffic, and the procedures to be followed where intervention is deemed necessary in order to maintain acceptable and reasonable operating conditions on local roads and on the State Highway network. h) Measures to ensure that any staging of Construction Works will adequately avoid, remedy or mitigate traffic-related adverse effects. i) Measures to be adopted to identify routes to be used (and roads to be specifically avoided) for Project-related Heavy Commercial Vehicles (HCVs) for shifting bulk materials (such as earth fill or pavement materials or water) (Bulk HCVs) and implement temporary traffic management controls in accordance with the Code of Practice for Temporary Traffic Management (COPTTM). j) Measures to ensure the use and reinstatement (to a mutually agreed standard) of local roads to be used as haul roads. The CTMP shall also describe the assessment and monitoring of road conditions and implementation of mitigation works. 		
	13.1	<p>The Requiring Authority shall ensure there is no off-site Project-related Bulk HCV traffic:</p> <ul style="list-style-type: none"> a) on Sundays; or b) on public holidays or after 4.00 pm on working days prior to long weekends. 		3.2.2.1 (b)

	13.2	The maximum hours of work for off-site Project-related Bulk HCVs shall be 7.00am –7.00pm.		3.2.2.1 (b)
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1 Introduction

This Construction Traffic Management Plan (CTMP) forms part of a comprehensive suite of controls within the Construction Execution Plan (CMP) for the construction phase of the Peacocke Wastewater Pumpstation (N4) Project. The CTMP addresses the potential construction traffic effects associated with the construction of the Project.

1.1 Purpose

The CTMP outlines how the Brian Perry Civil (BPC) principal plans and processes are utilised to minimise the impacts of construction traffic associated with Contract 640/2020. The CTMP is required under the Southern Links Designation (A106) Condition 12.1.

This management plan is submitted to Hamilton City Client (HCC) as both Client and Regulatory Authority in accordance with the Southern Links Designation Conditions for certification.

This CTMP identifies the standards necessary for management of traffic control on the Project in accordance with the Designation Conditions.

The traffic impacts of the Project will not be fully understood until the detailed design is finalised and detailed construction planning has commenced, 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 traffic management will be implemented to the satisfaction of the Designation Conditions and road controlling authorities.

It is expected that the methodologies and mitigation measures specified in this document will be refined during the Site-specific Traffic Management Plan (SSTMP) development stage, at a time closer to commencement of construction.

Refer to Specific Traffic Management Plan (SSTMP) template in Appendix D.

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, 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 Project Description

The Project includes the Construction of a 330l/s capacity wastewater transfer pump station, called the Peacocke Transfer Station (commonly referred to as N4). This transfer pump station will transfer wastewater from the planned Peacocke development to the existing gravity main (Far Eastern Interceptor, FEI) via the new Northern Transfer Main. It further includes the construction of gravity and pressure sewer lines in residential streets and council reserve.

The Project forms part of the broader Southern Links roading project being undertaken jointly between the NZ Transport Agency and HCC to manage the anticipated transport implications of projected growth and development around the southern part of Hamilton City. These parties are working together to ensure that the future state highway routes will be well integrated with local roads, and the planned residential and industrial developments within this area. In this respect, the Southern Links project incorporates both sections of state highway extending through the rural land in Waipa and Waikato Districts around the outskirts of Hamilton City along with a proposed network

of arterial roads extending through the southern part of Hamilton City which has been designed to provide an integrated connection between the surrounding state highway lengths and the existing city roading network and also factoring planned development outcomes within this part of the city.

The main pumpstation is located at 118 Peacockes Rd on a bare field bordering the residential suburb of Fitzroy. The peripheral pipeworks are located in the road reserves on Fitzroy Avenue, Waterford Rd, Peacockes Rd, and Plateau Dr.

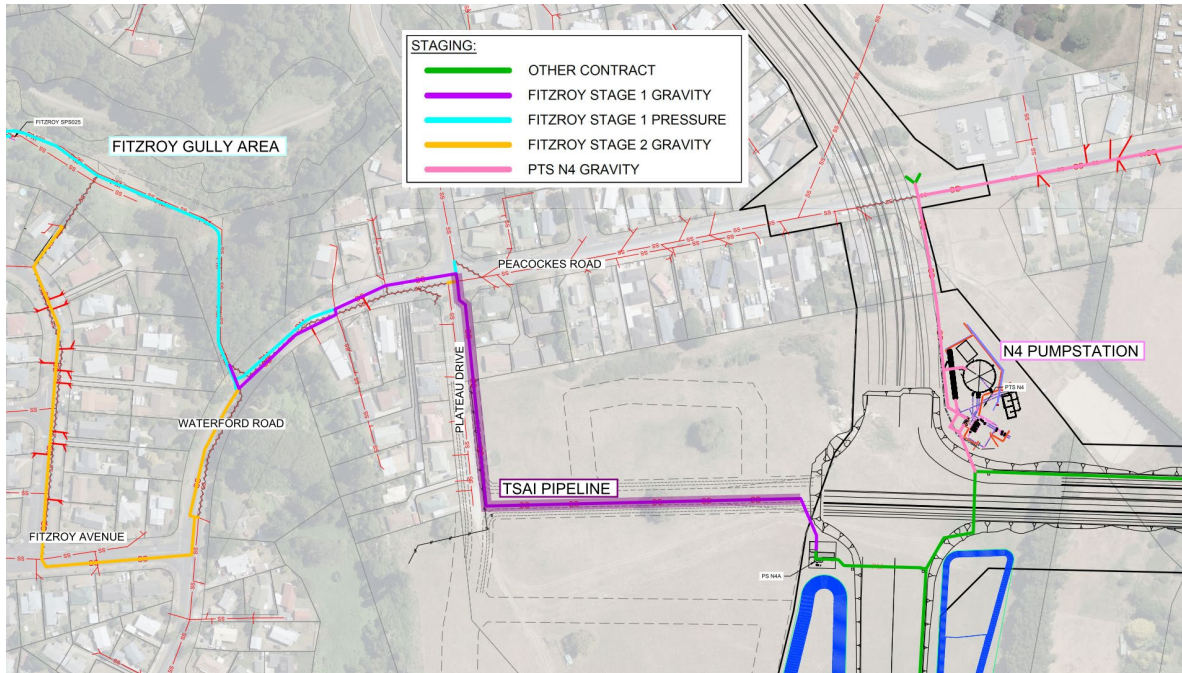


Figure 1: Project Location

1.3 Performance Standards

Temporary Traffic Management (TTM) is governed by New Zealand legislation, 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.
- The project shall adopt the following standards and guidelines insofar as they are relevant:
- NZTA Traffic Control Devices Manual (TCD); and
- NZTA Code of Practice for Temporary Traffic Management (COPTTM).

This document and the SSTMPs shall be consistent with the applicable version of the COPTTM. Where it is not possible to adhere to this standard, the COPTTM's prescribed Engineering Exception Decision (EED) process will be followed, which will include appropriate mitigation measures agreed with the District Council Road Asset Manager.

In managing construction activities, the Project Team will comply with the following standards:

Local traffic on local routes will not be held up by construction activities by any longer than 5 minutes. Adjacent construction sites (Peacocke Strategic Transport Project) will be communicated and consulted with prior to the implementation of a SSTMP that may impact their works or traffic.

Emergency services will be provided with unimpeded access along all local roads 24 hours per day, unless construction requires the temporary closure of a road, in which case, as part of the relevant SSTMP, an Emergency Action Plan must be developed and agreed with emergency services prior to any temporary closure so that an alternative access via a detour route is available for the duration of that temporary closure.

It should be noted that while the TCD Manual part eight (COPTTM) generally provides 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.

1.4 Document Structure

The remainder of this document is structured as follows:

- Section 2 outlines the traffic management activities, the anticipated impacts and mitigation measures expected
- Section 3 details the procedures that will apply for the operation and management, governance, development of site specific TMPs, approvals and monitoring of the traffic management throughout the life of the Project
- Section 4 details the post construction transition phase.

2 Environmental Impacts Summary

This section provides a description of the expected traffic management activities for the Project and an overview of the anticipated impacts of these activities. The construction methodology will be further refined as the design phases move through to detailed design and construction. 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 across the country.

2.1 Summary of traffic management activities

The project will be broken into two main areas of work: the Pumpstation Site (N4) and the peripheral pipelines in neighbouring residential areas.

The pumpstation site will be the main base for the project housing the site compound and main laydown area. The site will be accessed from Peacockes Road using the existing crossing. The compound crossing will require signage to warn residents and pedestrians of the increased construction activity at the SAP.

A separate laydown area will be constructed in the south west corner of the Tsai land with the access point from the end of Plateau Drive. This laydown will be used for pipe and material delivery, tool

and plant storage, temporary site amenities, parking and pre-assembly of materials. The utilisation of this laydown will minimise the footprint of construction activities in the road reserve.

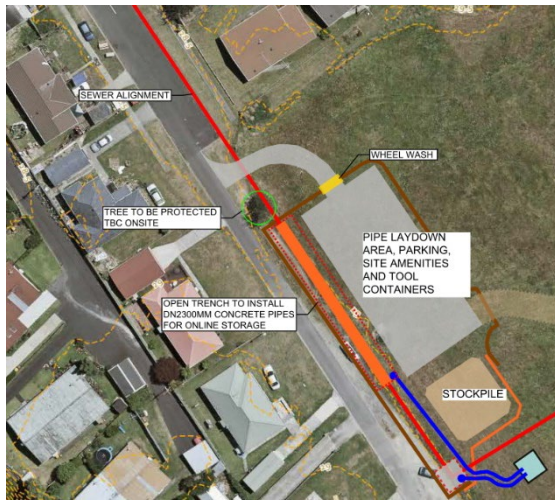


Figure 2: Tsai Land Laydown Area

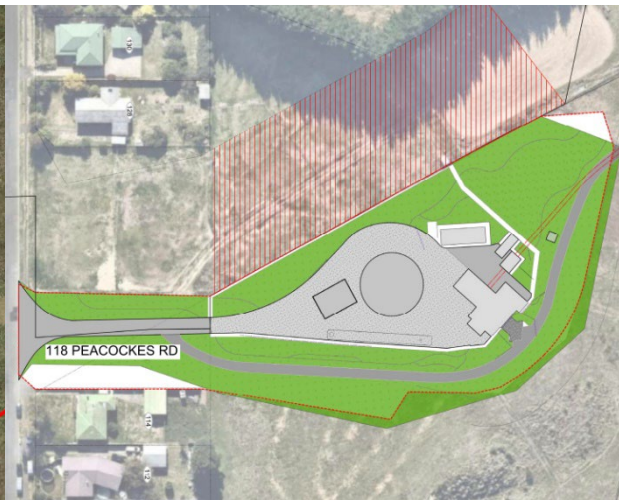


Figure 3: Pumpstation Site Location

2.1.1 Fitzroy Stage 1 Gravity

Fitzroy Stage 1 Gravity involves the installation of a DN300 PVC sanitary sewer from Waterford Road entrance to Sandford Park, along Waterford Road and to the end of Plateau drive. The final 40m section along Plateau Drive consists on a DN2300 reinforced concrete online storage tank. The installation of the DN300 will be predominantly installed using trenchless technology – Horizontal Directional Drilling (HDD) and Micro-Tunnelling. The initial section between MHA13 and MHA15 will be open trenched due to the proximity to the existing sewer and network services.

The pipeline will be installed in sections according to drill shots and manhole locations. The works will take several months in mid-2022.

The preference is to locate launch/retrieve pits in the road berm with minimal impact on the carriageways. Where the sewer is to be constructed within the sealed road, open trenched or crossing a lane, a full lane closure will be required. Residents access to their properties will be maintained at all times unless prior agreed for a temporary duration.

The construction of the online storage will require a section of Plateau Drive to be closed for approximately three months. The majority of the construction footprint is within the road berm. This is not expected to have a significant impact on traffic as Plateau Drive is a dead end and few residents. Accessways to residents will be maintained at all times.

2.1.2 Fitzroy Stage 1 Pressure (Fitzroy Gully Area)

A new DN125 pressure main is to be installed from the existing pumpstation within the Mangakotukutuku Stream Gully to Waterford Rd via the Sandford Park access track. The majority of this pipeline is outside of the road reserve.

There are multiple walking/cycling tracks through Sandford Park. The project preference is maintained access along these paths however sections may need to be blocked temporarily. The accessway track from Waterford Road will need to be closed during pipe installation due to the narrowness of the track.

The tie in to the Waterford Rd connection will be completed under a lane closure.

2.1.3 Fitzroy Stage 2 Gravity

Fitzroy Stage 2 Gravity consists of the replacement and reversal of the Fitzroy Avenue sanitary sewer. The DN150 PVC pipeline starts from between 111 and 113 Fitzroy Avenue, tracks along the road reserve towards Waterford Rd and connects into the Fitzroy Stage 1 Gravity section near the Sandford Park entrance.

Fitzroy Avenue is a typical residential street with houses and driveways on both sides. This section of pipe is planned to be installed via micro-tunnelling. Launch and retrieve pits will utilise a shoulder closure if the location is outside of the edge of seal but lane closures will be employed if required. Sections of open trenches and road crossings will require lane closures.

This segment of pipework installation will require monitoring and involvement from the Project Communications and Stakeholder Manager. Footpaths and shoulders will be maintained where possible. Residents access to their properties will be maintained at all times unless prior agreed for a temporary duration.

2.1.4 PTS N4 Gravity

The PTS N4 Gravity lines is the replacement and repurposing of the existing sewer alignment. A new DN225 sanitary sewer will be installed along 215m of Peacockes Road between the existing Water Treatment Plant and the 118 Peacockes Rd. The pipeline is approximately 4m below road level and will need to be open trenched due to the number and proximity of existing services. Trench shields will be employed to minimise the excavation footprint.

A SSTMP will be completed prior to works starting and will need to be completed with consultation with HEB as the PST SSTMP is located in close proximity. The preferred method will be a lane closure to allow resident and construction traffic to flow.

2.1.5 Peacocke Transfer Station Site

The main pumpstation and project compound will be located at 118 Peacockes Road. This will be accessed using the existing crossing currently utilised by HEB. This site access point (SAP) will service the laydown area, construction site and site compound. Construction activities will include heavy truck movements for the delivery and removal of materials, mobilisation of plant and crane and general daily trade vehicle traffic.

A SSTMP will be developed to manage the traffic movements at the N4 SAP. Consideration will be given to the PST Project traffic requirements, pedestrian and cyclists and residential traffic.

2.2 Summary of Impacts

The construction activities anticipated for the Project are routinely undertaken in the Waikato region by BPC, GT Civil, and Higgins hence the short-term traffic impacts of construction activities have become well understood. In addition, methods for managing and mitigating those impacts are well developed and have been implemented successfully on a range of maintenance and infrastructure projects throughout the region.

GT Civil are expected to conduct and oversee the traffic management (via a subcontractor) for the peripheral pipelines. BPC is expected to engage Higgins (or similar subcontractor) to complete traffic management works for the Pumpstation site.

The range of traffic control activities expected for the construction of the Project and identified impacts are shown in **Table 2.1** below. It has three components:

- **Traffic control activity.** This column lists the types of traffic control activities that may be implemented for construction of the Project.
- **Impacts.** This column outlines the impact of the traffic control activity on pedestrians, cyclists, residents, businesses, public transport, and general traffic.
- **Relevant Zone.** This column indicates which Zones are expected to experience each traffic control activity.

2.3 Estimated Heavy Construction Vehicle Movements

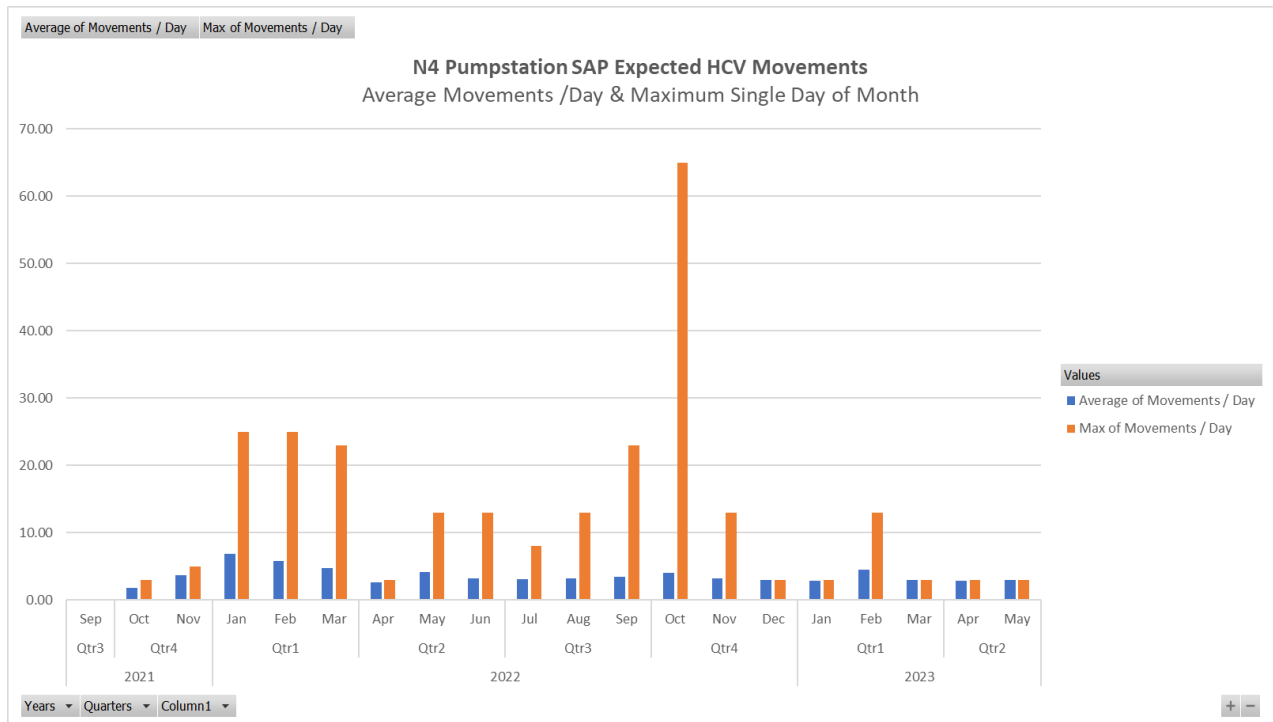


Figure 3: Estimated Truck Movements N4 SAP

The estimated truck movement through the N4 pumpstation site access point is shown in Figure 3. There is expected to be less than 10 HCV movements on average per day during the construction period. There will be isolated events throughout the project where there will be higher numbers of movements within a single day. These events could include large concrete pours, excavation of material to waste and importing of bulk aggregate.

Note: The maximum day in October 2022 is based on pouring the buffer tank foundation in one pour and as current IFC design. This will likely be reduced.

Where possible, heavy construction vehicles will be directed east along Peacockes Rd to minimise HCV traffic through the residential areas of Fitzroy. Suppliers will be asked to direct drivers via this route for high volume activities such as bulk aggregate deliveries or carting to waste.

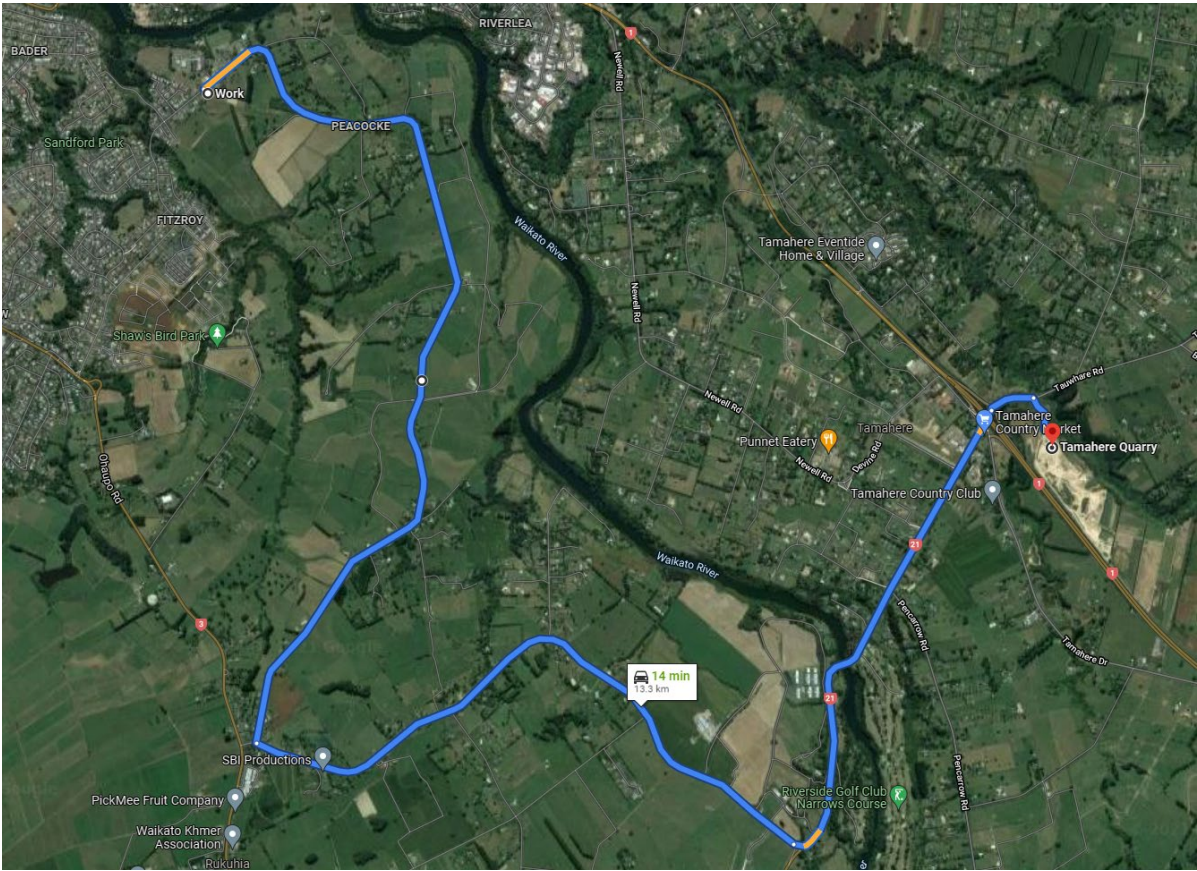


Figure 4: Possible Low Impact HCV Route

Table 2.1 Impact of Traffic Control Activities by Sector

Potential Traffic Control Activity	Possible Impacts	Relevant Zone				
		Fitzroy Stage 1 Gravity	Fitzroy Stage 1 Pressure	Fitzroy Stage 2 Gravity	PTS N4 Gravity	N4 Site Access Point
Footpath closure / detour	<ul style="list-style-type: none"> Inconvenience to pedestrians and residents along route; Disconnection of access to bus stops. Increased exposure of pedestrians to traffic 	✓	✓	✓	✓	□
Cycle lane closures / path closures/ detours	<ul style="list-style-type: none"> Inconvenience to cyclists along route Increased exposure of cyclists to traffic 	✓	✓	✓	✓	✓
Property access closures	<ul style="list-style-type: none"> Inconvenience to residents along route. 	✓	✓	✓	✓	✓
Shoulder closures	<ul style="list-style-type: none"> Reduced safety No room for incident management, breakdowns etc. Increased severity of recurrent and non-recurrent congestion 	✓	✓	✓	✓	✓
Lane closure - alternating flow operation Lane closure - contra-flow operation	<ul style="list-style-type: none"> Inconvenience to road users Reduced traffic capacity through site as a result of: Fewer lanes than existing corridor; Increased side-friction resulting from narrowed lanes and reduced shoulders; Construction activities visible to motorists resulting in 'rubber necking'; Reduced capacity across a link due to stop-go operations. Diversion of traffic away from the closure onto inappropriate routes such as residential streets, past schools or other sensitive facilities. 	✓	✓	□	✓	✓
Site access	<ul style="list-style-type: none"> Truck movements reducing traffic capacity through a closure; Reduced traffic safety due to truck manoeuvring in or out of the closure; 	✓	✓	✓	✓	✓

Potential Traffic Control Activity	Possible Impacts	Relevant Zone				
		Fitzroy Stage 1 Gravity	Fitzroy Stage 1 Pressure	Fitzroy Stage 2 Gravity	PTS N4 Gravity	N4 Site Access Point
	<ul style="list-style-type: none"> Impact on capacity of access routes arising from higher proportion of trucks Increased traffic on access routes resulting in congestion and increased travel times 					
Temporary speed limit	<ul style="list-style-type: none"> Inconvenience to road users; Slower operating speeds; Potential non-compliance with speed limit. 	✓	✓	✓	✓	✓

2.4 Summary of Mitigation Measures

Traffic management measures will be planned and implemented to a level appropriate for the activity or work site. In accordance with COPTTM, traffic management measures will be implemented in order to fully consider the safety and level of service provided as the travelling public approaches, passes through and continue beyond the Project area.

The following sets out broadly the proposed mitigation measures and the procedures which will be adopted to manage the impacts identified in Section 2.2 above.

The range of traffic control mitigation measures expected to be implemented are summarised in **Table 2.2** below. It has three components:

- **Traffic control activity.** This column lists the types of traffic control activities that may be implemented for construction of the Project.
- **Impacts.** This column outlines the impact of the traffic control activity on pedestrians, cyclists, residents, businesses, public transport, and general traffic.
- **Typical mitigation measures.** This column outlines the types of measures that will be considered in development of SSTMPs and management of the Project.

Table 2.2 Impact and Mitigation of Traffic Control Activities

Traffic Control Activity	Impact	Typical Mitigation Measures
Footpath closure / detour	<ul style="list-style-type: none"> • Inconvenience to pedestrians and residents along route; • Disconnection of access to bus stops. • Increased exposure of pedestrians to traffic. 	<ul style="list-style-type: none"> • Letter drops to affected residents in advance of works in the area; • Provision of warning and advisory signage prior to and during the closure; • Provision of pedestrian crossings and refuges or controlled crossing points; • Project team to advise interested parties/ stakeholders of closures in heavily trafficked areas; • Provision of convenient pedestrian detour routes well in advance of the closure to provide safe and convenient crossing; • Provision of temporary pedestrian access to property within the construction corridor.
Cycle lane closures / path closures/ detours	<ul style="list-style-type: none"> • Inconvenience to cyclists along route • Increased exposure of cyclists to traffic 	<ul style="list-style-type: none"> • 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 adjacent the cycle lane 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 closures	<ul style="list-style-type: none"> • Inconvenience to residents and businesses along route. 	<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 • No room for incident management, breakdowns etc. • Increased severity of recurrent and non-recurrent congestion 	<ul style="list-style-type: none"> • Install a temporary speed limit • Install Signage in Advance of shoulder closure

Traffic Control Activity	Impact	Typical Mitigation Measures
<p>Lane closure - alternating flow operation</p> <p>Lane closure - contra-flow operation</p> <p>Lane closure - one-direction closure</p>	<ul style="list-style-type: none"> • Inconvenience to road users; • Reduced traffic capacity through site as a result of: <ul style="list-style-type: none"> • Fewer lanes than existing corridor; • Increased side-friction resulting from narrowed lanes and reduced shoulders; • Construction activities visible to motorists resulting in 'rubber necking'; • Reduced capacity across a link due to stop-go operations. • Diversion of traffic away from the closure onto inappropriate routes such as residential streets, past schools or other sensitive facilities. 	<ul style="list-style-type: none"> • Public notification in local and regional publications where necessary; • Letter drops to residents and / or businesses (where necessary), which are located: <ul style="list-style-type: none"> • within the closure length; • along detour routes; • along approaches to the corridor that may experience congestion or queues. • Installation of concrete / water-filled barriers along site to isolate the site from public; • Installation of sight screens to reduce 'rubber necking'; • Installation of secondary detour routes where necessary; • Review and optimisation of traffic signals on detour and alternative routes where necessary; • Use of Variable Message Signs (VMS) for recommending alternative routes. Where possible, alternative routes will be recommended at a cordon around the closure, well in advance, in such a way to avoid traffic following the prescribed detour route where an alternative is a more convenient route to their intended destination. Install such signage in advance of the closure (i.e. a month prior, to inform road users). • Provision of access via a temporary corridor or narrow lane within the closure for residents and businesses within construction corridor, where possible.
Road closure / detours	<ul style="list-style-type: none"> • Inconvenience to road users; • Inconvenience to residents and businesses within closed road segment; • Congestion on detour routes; • Congestion on alternative routes; • Diversion of traffic away from the closure onto inappropriate routes such as residential streets, past schools or other sensitive facilities. • Disconnection of bus routes; • Disconnection of access to bus stops. 	<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 and regional publications where necessary; • Advertising on radio or through internet where necessary; • Letter drops to residents and / or businesses (where necessary), which are located: <ul style="list-style-type: none"> • within the closure length; • along detour routes; • along approaches to the corridor that may experience congestion or queues. • Installation of secondary detour routes where necessary; • Use of VMS for recommending alternative routes. Where possible, alternative routes will be recommended at a cordon around the closure, well in advance, in such a way to avoid traffic following the prescribed detour route where an alternative is a more convenient route to their

Traffic Control Activity	Impact	Typical Mitigation Measures
		<p>intended destination. Install such signage in advance of the closure (i.e. a month prior, to inform road users).</p> <ul style="list-style-type: none"> • Scheduling of works during holiday or low-demand periods of the year; • Staging of works to require night time or weekend full-closures only; • Consultation with HCC / Council 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. • Provision of access via a temporary corridor or narrow lane within the closure for residents and businesses within construction corridor, where possible.
Short term closures for installation of long-term closures / traffic control measures	<ul style="list-style-type: none"> • Congestion through closure as discrete closures are required for installing long-term (i.e. greater than 24 hour) closures; 	<ul style="list-style-type: none"> • Installation of long term work sites that require temporary barriers etc. to occur during night time or off-peak periods.
Site access	<ul style="list-style-type: none"> • Truck movements reducing traffic capacity through a closure; • Reduced traffic safety due to truck manoeuvring in or out of the closure; • Impact on capacity of access routes arising from higher proportion of trucks • Increased traffic on access routes resulting in congestion and increased travel times 	<ul style="list-style-type: none"> • Provision of site accesses at the end of the closure only; • Development and distribution of site access plans which specify permitted access movements, times and procedures; • Limiting site access movements / plant deliveries to off-peak periods or night time; • Consultation with Council to agree Heavy Commercial Vehicle routes and operation procedures; • Avoid peak traffic flow periods where possible;
Temporary speed limit	<ul style="list-style-type: none"> • Inconvenience to road users; • Slower operating speeds; 	<ul style="list-style-type: none"> • Public notification in local and regional publications where necessary; • Monitor and review use of Temporary Speed Limits to ensure the speed limit is appropriate for the environment.

Traffic Control Activity	Impact	Typical Mitigation Measures
	<ul style="list-style-type: none"> Potential non-compliance with speed limit. 	<ul style="list-style-type: none"> Speed controlling measures may be put in place, such as: lane narrowing or introduction of horizontal curves. The Project team will liaise with the Police and work towards temporary speed limits which can be enforced.

3 Implementation and Operation

Section 3 sets out the general operational procedures for Temporary Traffic Management activities for the entire Project.

3.1 Operation / Management procedures

Traffic Management impacts will typically be mitigated through the measures described above in Section 2.3. The mitigation measures will be governed by this document and implemented through the Traffic Management Plan (TMP) process.

3.1.1 Traffic management procedure governance

This CTMP is envisaged to remain a working document throughout the Project and inform all associated traffic management activities.

The active governance of traffic management activities will occur through the approval process of SSTMP(s) by HCC and Council Manager and through on-going monitoring by the BPC, GT Civil and Higgins.

Planning for effective traffic management must begin during the initial stages of construction planning. Following programming of construction tasks, associated traffic management requirements will need to be identified for each task.

The process will allow for a 'no-surprises' approach to traffic management planning where temporary traffic management requirements feed back into the construction planning process at an early stage. SSTMP(s) shall be prepared in consultation with Council and following consultation with affected key stakeholders. Results of the consultation and responses from key stakeholders to any matter must be specified in the relevant SSTMP.

The following will be key stakeholders for consultation on relevant SSTMP(s):

- Fitzroy residents (where applicable)
- HEB Construction Ltd
- Emergency services (police, fire and ambulance);
- Public health services;
- Schools, childcare centres and other educational activities with frontage or access to roads where construction work in relation to the Project will take place;
- HCC in respect of public transport services;

3.1.2 Site Specific Traffic Management Plans

SSTMPs are documents that outline the procedures and measures to be implemented so that safety is maintained for road users and Project staff throughout every activity associated with the Project. Each SSTMP will therefore outline the measures to be implemented so that road users may negotiate the site safely, and it will also outline the procedures required to be followed by construction or road workers in order to maximise the safety of the site.

The relevant SSTMP must be identified at the construction planning stage for implementation along with work site mobilisation. If a SSTMP has not been developed previously, the need will be flagged for development

and the programme of works adjusted accordingly. The process employed for development and approval of SSTMPs is outlined in Section 3.2.

A SSTMP will be prepared so that every construction activity which impacts the road network is conducted using an approved methodology, with the agreed mitigation measures in place and to the correct standard. Every Work Pack which impacts on the road network will have an appended SSTMP.

Each SSTMP will be given a unique identifying number for ease of reference. A 'live' register of SSTMPs will be kept to monitor and report on the progress of each SSTMP.

3.1.3 Approval process

The CTMP (this document) shall be reviewed by the Council Manager for certification, at least 40 working days prior to commencement of construction. Construction work shall not start until receiving the Council Manager's signed certification of the CTMP. Once certified the CTMP will outline the proposed procedures, requirement and standards necessary for managing the traffic effects of construction to achieve the outcomes and standard required.

The Requiring Authority may make minor changes to a SSTMP if the request to make the change is made at least two working days prior to implementing the change and the Manager certifies that change. For the purpose of this condition, 'minor change' shall be defined in the relevant Management Plan and shall generally refer to either physical work of less than one day duration or a small change to design detail or construction methodology that the Manager considers will result in an improved environmental outcome.

The Requiring Authority shall maintain a record of minor changes to SSTMPs and provide a copy of this record to the Manager within 2 working days of each update. If the proposed change to a SSTMP is more than minor, the Requiring Authority shall submit the change for certification to the Manager 5 working days prior to the Work commencing.

The SSTPM is a living document and needs to react to changes as they arise.

The anticipated dates by which SSTPMs will be submitted to the Manager for certification prior to the commencement of Work at each applicable stage of construction.

The purpose of this programme is to assist the Council in planning for resources to certify these management plans within the appropriate timeframes.

The Requiring Authority will provide the Manager with an updated programme of construction sequencing and/or SSMPs if changes occur in the programme. The updated programme shall be submitted at least 20 working days before any changes in sequencing occurs.

3.2 SSTMP development

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.

Each SSTMP will comply with each of the relevant standards outlined in Section 1.3 and consents. Care will be taken in identifying the safety requirements of both road users and construction workers.

A SSTMP will describe the measures that will be taken to manage the traffic effects associated with the construction of specific parts of the Project prior to construction of the relevant part (s) of the Project commencing. The purpose of the SSTMP is to identify the specific construction traffic management methods proposed to address the particular circumstances, local traffic and community travel demands, and environmental context of each sector or stage of the Project in order to comply with the outcomes and standards outline in section 1.3 and required under Condition. In particular, SSTMP(s) will describe, where appropriate:

- (i) Temporary traffic management measures required to manage impacts on road users during proposed working hours;
- (ii) Assessment of delay associated with the proposed closure(s) and detour(s);
- (iii) The capacity of any proposed detour route(s) and their ability to carry the additional traffic volumes likely to be generated as a result of the construction of the Project and any known safety issue associated with the detour route, including any mitigation measures the Requiring Authority proposes to put in place to address any identified safety issue;
- (iv) Measure to maintain existing vehicle access to adjacent properties and businesses;
- (v) Measure to maintain safe and clearly identified pedestrian and cyclist access on roads and footpaths adjacent to the construction works. Where detours are necessary to provide such access the Alliance will provide for the shortest and most convenient detour which is reasonably practicable to provide, having regard to safety;
- (vi) Measure to maintain passenger transport services and facilities;
- (vii) Any proposed temporary changes in speed limit;
- (viii) Provision for safe and efficient access of construction vehicles to the from construction site(s);
- (ix) Measures that will be undertaken by the Alliance to communicate traffic management measures to affected road users and stakeholders; and
- (x) Address effects of construction traffic on schools and other educational and community facilities from feedback from the Community Liaison groups.

At the completion of works under discrete traffic management closures the site must be made safe for the travelling public once all traffic control measures are lifted from the site, so that no hazard has been introduced or left behind as a result of the work. This philosophy does not explicitly limit the type of activity that may be conducted under either form of closure, however it limits the construction methodologies such that the safety and level of service provided to the travelling public is maintained at all times.

Where it is not possible to adhere to COPTTM Standard for the SSTMP, the prescribed Engineering Exception Decision (EED) process will be followed, which will include appropriate mitigation measures agreed with the Road Asset Manager.

The process and triggers for requiring the EED process will be included with the SSTMP.

The following sets out the general operational procedures for Temporary Traffic Management (TTM) activities for the Project.

3.2.1 SSTMP structure

Each SSTMP will include:

- SSTMP Proforma. This is the text of the document, which outlines the requirements, methodologies and standards required in observing the SSTMP and the required approvals required/ obtained. Details included in each SSTMP Proforma will vary depending on the activity requiring traffic control;
- Engineering Exception Decisions. All EEDs applicable will be appended to the SSTMP.
- CAD drawings. CAD (or similar computer-generated) drawings will be employed for illustrating the closures defined by the proforma, and will include all relevant road features that require consideration in managing the impacts of construction.

- Communications strategy. The communications strategy will outline 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. The Stakeholder and Communications Management Plan (SCMP) will be appended as reference where relevant.

3.2.2 Specific requirements

3.2.2.1 Network capacity

The main indicator of the impact of traffic management on the road network is the delay caused by the activity.

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. Single lane operations will be used outside of peak flows on road with relatively low traffic volumes to set up long term temporary arrangements.

The impacts of construction activities or TTM measures on road network traffic capacity will be mitigated so as not to exceed the 2 minute delay trigger on local roads.

The impact of traffic management will be considered in each SSTMP, with queue modelling, delay estimates or traffic modelling conducted where appropriate in order to satisfy the relevant RCA that the impacts should not exceed the 2 minute delay trigger and will be appropriately mitigated.

Rectification measures will be tracked in the updated SSTMPs to demonstrate changes made to meet compliance.

Works may also be programmed for holiday periods during which traffic demands are reduced and there are a higher proportion of discretionary trips on the network if it is deemed necessary to meet the 2 minute delays target. Such opportunities will be investigated on a case by case basis, with an approach agreed with council prior to the proposed activity. However, in accordance with general NZTA practice the start and end of holiday periods will be avoided.

(a) Peak Hour Capacity

The effect of construction activities or TTM measures on traffic flows during peak hours will be mitigated to meet the 2 minute delay trigger on local roads. Activities that may impact on the capacity of the adjacent carriageway (as outlined above) will be restricted depending on the type of activity and the level and traffic characteristics of the affected carriageway.

(b) Hours of Work

Normal operation hours for construction vehicles will be as stated in 7.00am to 6:00pm. There is to be no bulk HCV construction traffic offsite outside of 7:00am to 7:00pm, on Sundays, Public Holidays, or after 4:00pm on working days prior to public holidays.

(c) Lane Delineation

Each SSTMP will specify how traffic lanes will be delineated for each traffic management activity which affects the road alignment. 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. Remarking of lanes will be in accordance with MOTSAM and generally replicate the original arrangement.

Temporary lane and shoulder widths will be specified in each SSTMP.

(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 required to have an approved SSTMP (or 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 installed as detailed on the SSTMP drawing. The site specific requirements for installation and use of 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 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

A significant amount of construction vehicle movements will be required, particularly truck movements to transport fill, aggregate and concrete to/from site during construction of the Project. The construction traffic movements are expected to reduce the available capacity of some roads and intersections. Some movements may require active traffic management, particularly for over dimensioned vehicle movements and movements on geometrically constrained roads. Where possible, trucks will be requested to travel via Peacockes Road towards Tamahere to avoid travelling through the residential areas of Fitzroy.

Construction vehicles are expected to use major roads, and will avoid using residential streets where possible. Normal operation hours for construction vehicles will be as stated in 7.00AM to 7:00PM. Refer to the Construction Noise and Vibration Management Plan for Details.

Night works would generally occur between the hours of 8pm to 6.30am. Night works will only be scheduled for construction activities which would impact on normal day-time traffic operations such as service shutdowns or tie-ins. The Project will notify relevant parties of these works at least five days prior to commencement.

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 safety briefings once detailed planning is underway.

An over dimension permit will be obtained from the Over dimension Permit Issuing Agency (OPIA) for any over dimensioned vehicle movements related to the Project.

(f) Local Road Condition Surveys

Carriageway condition surveys will be undertaken of the local roads affected by the Project, which will consist of photographic / video documentation of the carriageway including roughness, rutting defects and surface condition.

Pre-condition surveys will be undertaken prior to the commencement of works and will be submitted to the Council Manager and Roading Asset Manager. Following the completion of construction of the Project post-construction surveys will be undertaken. The results of the surveys will be compared and where damage to the carriageway and footpaths has occurred as the result of construction traffic, repairs will be arranged by the Project Team.

In addition, regular inspections (nature, extent and frequency as agreed with the Council Road Asset Manager) of the road network affected by the Project construction will be undertaken to ensure all potholes and other damage resulting from the construction and identified and repaired as soon as practicable.

(g) Traffic Detours

All full 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. Detours will only be undertaken off peak when traffic flows are low.

Where necessary, steps may 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.

Pre-conditioning of road users will also be considered and where deemed necessary it will be implemented through 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 and other organisations in the area.

Details of any analysis, modelling, mitigation measures or communications will be appended to the SSTMP for approval.

(h) Passenger Transport Services

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

Activities that will impact upon passenger transport services will be identified at the construction planning stage, such as traffic management measures which impinge upon bus stops. 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.

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

(i) Property Access

The impact of construction activities or TTM measures on existing vehicle access to properties and businesses will be mitigated to maintain access. Communications with the affected residences will be undertaken as part of the SSTMP process and as outlined in the Stakeholder and Communications Management Plan. Entry to private properties required for construction purpose shall be undertaken as per the Property Entry Agreement.

The impacts of such activities may be mitigated using:

- 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 on each side of a road where current facilities exist, where possible. 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 detours that are as short as possible and as convenient as practicable, having regard to safety;
- 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.

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, the shortest and most convenient detours which are reasonably practicable will be provided, having regard to safety. Cycle access will be mitigated by maintaining the existing traffic lanes through the construction area where possible otherwise a temporary cycle route will be established where an existing route cannot be maintained. Where lane widths impact on cyclists' 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.

(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.

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 Stakeholder Communications 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 zone;
 - along detour routes; and
 - along approaches to the corridor that may experience congestion or queues.
- Communication of 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 project signage or information boards where necessary;
 - Public notification in local and regional publications where necessary; and / or

(I) Emergency Action Plan

Emergency services will be provided with unimpeded access along all local roads 24 hour per day, unless a road closure is required for bridge or wall construction, in which case, as part of the relevant SSTMP, an Emergency Action Plan must be developed.

The emergency action plan will outline the procedures, requirements and responsibilities of the Project team in the case of emergency, and will conform to the principles of CIMS (Coordinated Incident Management System) and related road network incident response plans identified by the RCA. In addition to the emergency action plan, each SSTMP will address site specific requirements in the case of emergency. The SSTMP will outline the following key issues, where applicable:

- Diversion routes in the case of delayed works;
- Secondary diversion routes in the case of incidents on diversion routes used under full closure SSTMPs; and / or
- Methodologies for reducing the risk of construction over-run, where applicable.

The emergency action plan will be used in the case of an emergency within the site, and will include procedures for co-ordination with the council/s, NZTA's representatives, NZ Police, NZ Fire Service, Ambulance Services, and Civil Defence. The Project team will liaise early with each of these organisations when developing the emergency action plan. Events that may require implementation of the emergency action plan include:

- Traffic accidents;
- Emergency services requiring access to or through the site;
- Natural disasters;
- Unplanned construction events;
- Emergency works;
- Significant traffic congestion on council roads or State Highways; and / or
- Inclement weather.

In the event of an accident the Project team will provide immediate assistance and where necessary contact the relevant emergency services. Full support to those organisations will be provided to manage traffic whilst the incident is being brought under control. An incident report will be completed for each incident or near-miss. Significant incidents will require input from a variety of Project team members and may involve reporting to emergency services or other external parties.

In an emergency event the STMS must ensure the traffic management staff protect their personal safety, the safety for continuing public access through the site then notify the necessary authority and then attend to the situation.

3.3 Monitoring

In accordance with COPTTM the STMS (assisted by other project staff) 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 the above section will be monitored by the following Key Performance Indicators (KPI):

- Traffic Management Auditing;
- Local route travel times; and
- Stakeholder Surveys.

These monitoring methods are discussed below.

3.3.1 Traffic management auditing

It is anticipated that traffic control measures will be subject to a random audit every two months by an independent party.

Internal audits will be carried out following major control changes. In addition, regular internal audits will also be carried out by the Project's Traffic Management team.

The procedure for carrying out an audit of traffic management activities is prescribed in COPTTM. COPTTM audit scores (the site condition rating) will be generated for a number of sites, which will then be weighted by the Annual Average Daily Traffic (AADT) volume of the road affected by TTM. The AADT volume weighting system will draw attention to the higher volume roads where safety is more of a concern and quality and consistency of traffic control is more critical.

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 TTM Manager within one week of the site inspection. The audit scores and finding will be made available to the HCC.

3.3.2 Reporting by the Project Team team to RCAs

The Project team shall inform HCC 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;
- Copies of the random audits undertaken within every two months period;
- The traffic management KPI monitoring results and improvement initiatives on a two month basis;

- A copy of the Complaints Register shall be provide ever month; and
- Provide a copy of the CTMP if any significant revisions of the CTMP are made.

3.3.3 Reporting by the RCAS to the Project team

HCC shall inform the Project team of the following:

- Any complaints received regarding traffic as soon as practical after receipt of the complaint.

3.4 Training

All personnel involved in Traffic Management activities will undergo NZTA's Traffic Controller (TC) training, as a minimum. Any personnel in control of traffic management operations on site will have undergone the NZTA training and be qualified as a Level 2/ 3 Site Traffic Management Supervisor (STMS). Any personnel involved in planning or monitoring traffic management operations on site will have undergone the NZTA training and be qualified as a Level 2/ 3 Site Traffic Management Supervisor (STMS) – Non Practicing (NP).

All site personnel will be briefed on their requirements to comply with the COPTTM relating to site personnel, in particular:

- Wearing of orange high visibility garments;
- The requirements of SSTMPs for each construction site; and
- The authority of the appointed STMS.

3.5 Complaints

At all times during construction work, the Project team will maintain a permanent register of any complaints received alleging adverse effects from, or related to, the exercise of this designation. The register for traffic management complaints will include:

- The name and address as far as practicable) of the complainant;
- Identification of the nature of the complaint;
- Location, date and time of the complaint and the alleged event;
- Weather conditions at the time of the complaint (as far as practicable)
- The outcome of the Project team investigation into the complaint;
- Measures taken to respond to the complaint; and
- Any other activities in the area, unrelated to the Project that may have contributed to the complaint.

An initial response to the complainant will be made within 24 hours of the complaint being received. This initial response will detail the immediate investigations and measures taken to resolve the issue. The complaint is to be closed out with a finalised response within 10 working days of receiving the complaint (refer to Section 7.1 of the CEMP).

The Project team shall also maintain a record of its responses and any remedial actions undertaken.

The SSTMPs will reference the complaints register, and address issues where relevant.

4 Post Construction Phase

Once the physical 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 original traffic management requirements.

Appendices

A1 Appendix A1 - SSTMP Templates

See attached separate document.