Temporary Traffic Management in Auckland

Opportunities to Incentivise Better Performance

14 June 2024

Building a better working world

Executive summary

Scope

EY has been commissioned to provide an independent assessment of Temporary Traffic Management (TTM) practices in Auckland. Our review focusses on the mechanisms currently in place, the disruption caused by TTM, and the steps that the client should consider to resolve the findings.

Existing Situation

The current system is defined by risk-aversion, a lack of contractual control over TTM subcontractors, asymmetry of information in the TTM system (between TTM subcontractors and everyone else), and the current legislative and regulatory environment. Almost all actors are incentivised to remove risk associated with roadworks with very little consideration for the impacts of removing that risk on business and household disruption, financial costs, or urban amenity.

Road Controlling Authorities do not consider that they are able to challenge contractor provided TTM solutions. TTM contractors have little incentive to work cheaper or faster. Most main contractors take the path of least resistance and fail to challenge their TTM subcontractors even where it may be warranted, with the fees and fines available to Auckland Council to mitigate this unilateral tendency toward 'more TTM' being insufficient to drive alternative behaviour.

Following direction from the Mayor and Councillors, Auckland Transport (AT) has taken some steps to mitigate this situation: taking a more proactive approach to 'abandoned' TTM equipment; introducing meaningful fees for private developers who use the road corridor; considering how fixed price contracting can be better used to control TTM costs; and trialling – though ultimately abandoning – a disruption assessment tool to support trade-offs. However, these steps have not been enough.

Auckland and New Zealand stands apart from its peers – and best practice – in its almost singular focus on reducing risks to those working in and using the road corridor, coupled with a weak and irresponsive fee and cost recovery regime, leading to overkill in TTM practices. Virtually every other comparable jurisdiction charges more, enforces more vigorously, and charges for time and disruption. Current legislation makes this virtually impossible for local councils in New Zealand; change that supports a balanced approach to TTM while maintaining safe environments for road workers and road users is essential to changing the TTM dynamic.

Action Plan

Legislative Settings

Fundamentally, it will be changes in legislative settings flowing through to changes in commercial and financial incentives that is expected to make the difference in altering the TTM dynamic, forcing those that cause disruption to bear the costs of disruption, and making the market reconsider how it approaches traffic management in contracting and delivery.

This means for the action to be effective will involve working with Central Government to grant Auckland Council greater latitude to set fees, fines, and other TTM costs in a way that moves the market. This could include:

- Lane rental schemes that charge based on duration and disruption.
- Increased penalties for exceeding the permitted traffic management plan duration.
- Increasing penalties for unapproved works and for abandoned TTM equipment.

Immediate Steps for Auckland Council

There are also immediate, less impactful, steps that Auckland Council can take without legislative change. Based on international evidence, discussions with AT and utilities, and our assessment of existing cost structures, fees, and contractual relationships, we consider that there are immediate steps that Auckland Council should take to begin addressing traffic management disruption.

1. **Take leadership in coordinating roadwork activities and TTM.** Auckland Transport should take a leading role and support the coordination of plans from the Council, utilities, and private developers. This would result in those needing road corridor access working more closely together and coordinating their TTM needs. This could result in reducing the number of TTM requests, streamlining approvals, and delivery.

Executive summary

2. **Immediately recommence work on the Disruption Assessment Tool**. This work was commenced by AT, but abandoned as it became too complicated for use. This tool has the potential to force better consideration of trade-offs between disruption for businesses and road works.
3. **Instruct the greater use of 'super-weekends'** (and similar) to mitigate long-term disruption. Short-term road closures are highly disruptive, but ultimately less disruptive than ongoing works. Short, sharp intense works can be planned for, and can reduce project delivery costs (often by 20-30%).
4. **Investigate compensation mechanisms** for businesses and households affected by long-term road-corridor disruption. Establishing a compensation fund (or similar) will serve to compensate for impacts, but more critically – depending on funding methods – will introduce real costs for disruptive TTM.

Enforcement

To drive the most comprehensive change in the medium-term, the full extent of TTM activities need to be captured, with or without legislative change. But there is a balance between enforcing all informal temporary road uses and providing Aucklanders – who ultimately pay for our roads – with the temporary use of sidewalks near their homes. No one wins when lemonade stands require road cones.

Knowing where commercial and utilities users are creating disruption does matter. As we seek to reduce disruption and price it correctly, enforcement matters even more. There are practical, technological steps that can identify abandoned sites and unapproved TTM. Where these are found, fines are a necessary response to make sure people stay the TTM regime that fights disruption. Auckland Council can consider:

1. **Balancing TTM enforcement with reasonable 'informal' use of the road corridor by developing an enforcement hierarchy** that targets the most disruptive TTM in the highest volume corridors.
2. **Deployment of imaging technology (e.g., space based or mobile cameras) to understand the extent of TTM** and determine where there is unapproved TTM or non-compliant activity in the road corridor.
3. **Investigating the level of fines that would be required to drive compliance with TTM regulations.** Early work on this critical enforcement tool will allow Auckland to act quickly to change the TTM dynamic, following any change in legislation.

Commercial Models

There are also modest improvements that can be made in Auckland Council's commercial approach to TTM. As a major purchaser of TTM services, Auckland Council Group has some influence over the behaviour of TTM providers.

The real drivers of TTM costs are often opaque to those contracting them, and unpicking the parts is time consuming and requires expertise. Commercial models that put skin in the game for purchasers, main contractors, and TTM providers can benefit all parties - allocating costs and effort to the areas that add the most value, generates the safest outcomes, and causes the least disruption. This could include:

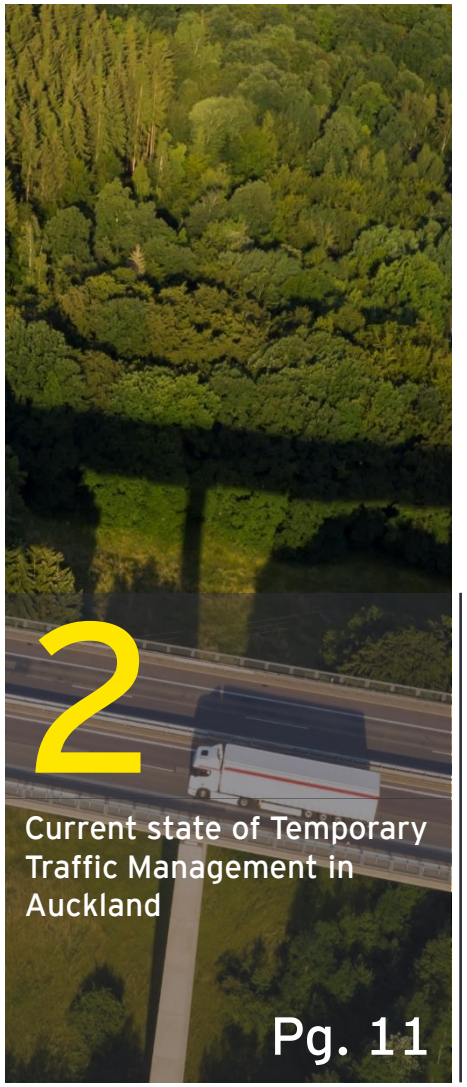
1. **The use of pain/gain share contracting models.** These models establish a long-term, transparent contracting mechanism between the client and provider. Cost-overruns are shared, but so are cost savings. Appropriate application of these models can drive more efficient behaviours from both AT and the TTM contractor.
2. **Consider if greater control over TTM solutions could be gained through internal TTM provision** by establishing an AT-internal TTM business units or other entities (e.g., CCTO) to serve Auckland Council Group.
3. **Introduce a cooperative and contestable fund** for those providers who work collaboratively to deliver a joint planning and delivery approach to utilities maintenance and TTM, reducing disruption.

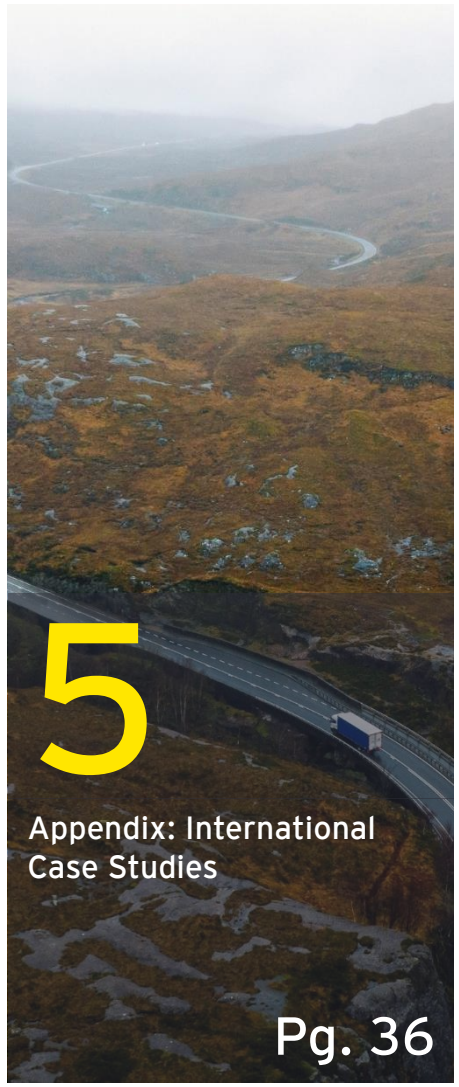
Conclusion

The current TTM situation did not get this way overnight. It cannot be fixed overnight either. But there are slower and faster ways to change: when left to local Councils alone, change will be real, but slow. Real progress requires – and demands – a coordinated response with central government providing local government the tools they need to create the right incentives within the TTM system.

TTM is critically important to a functioning city where development happens. Utilities work, traffic flows, and everyone is kept safe. This report begins to show the way.

Contents





1 Introduction to the Temporary Traffic Management System

The Purpose of this Report

In New Zealand, Temporary Traffic Management (TTM) is used to secure the safety of all road corridor users during activities such as construction and repairs, utilities maintenance, residential and commercial construction, events, and emergency responses.

Under the *Health and Safety at Work Act 2015* (HSWA) work activities are to be assessed for risk, and reasonable practical controls need to be put in place to protect workers, with the responsibility for this falling to a 'Person Conducting a Business or Undertaking' (PCBU). For TTM, a PCBU is any entity that is controlling or impacting road workers or users. There are overlapping duties of care regarding PCBU responsibilities for roadworks between the Road Controlling Authority (RCA), the contracting/ road maintenance functions of AT, and TTM providers as the primary PCBU delivering TTM services. TTM is the primary treatment for mitigating risks to road workers and road users when activities are being undertaken on and around the road corridor.

TTM measures for sites and activities where needed are outlined in a Traffic Management Plan (TMP). TMPs are required for any activities that change the normal operating conditions of the corridor. TMP approval is always required before work begins – except in emergencies where corridor access is required immediately. It is the responsibility of the local RCA to assess and approve TMPs, monitor and enforce how TTM is implemented to give effect to a TMP, and grant access to the road corridor for conducting works and implement TTM for sites and activities. Auckland Transport (AT) holds the RCA role for the Auckland region.

While a key function of TTM is to ensure the safety of road workers and road users, it can also contribute to disruption, including traffic disruption, as well as negative social and economic impacts on surrounding households, businesses and communities.

The purpose of this report is to provide the Office of the Mayor of Auckland with:

- An independent assessment of TTM practices in Auckland, particularly AT's current approach to managing disruption from TTM in Auckland's road corridors.
- A review of the different mechanisms in place for Auckland to minimise disruption, as well as the disruption that can be caused by TTM systems and regulations.
- An assessment of both AT's current TTM practice and direction of travel as AT transitions from the Code of Practice for Temporary Traffic Management (CoPTTM) to the New Zealand Guide to Temporary Traffic Management (NZGTTM).
- A suite of options that may be available to Auckland Council to better manage disruption and reduce risk from TTM, and ultimately improve the experience of Auckland transport network users.

The above assessment is informed by:

- A series of stakeholder interviews including AT representatives (Corridor Access Approvals, Major Projects, Procurement, Enforcement, and Transformation), utility service providers, and businesses that interface with construction and the TTM sector.
- A review of TTM practice in overseas jurisdictions.
- Data provided by AT and NZTA.

Temporary Traffic Management System Actors

TTM systems control road user movements through or past a worksite, or other activity on or surrounding the road corridor, to achieve maximum safety and minimum inconvenience for both the road worker and road user.

A TTM system is required for virtually all cases where works occur within the road corridor (the figure on the following page illustrated the different components of the road corridor), except in emergency situations.

TTM System Actors

Multiple actors have interests in the TTM system. Some of these actors regulate and have oversight or responsibility for TTM, and others require access to Auckland's road corridor to either conduct civil works, deliver an event, or respond to emergencies. Table 1 below sets out the key actors in the TTM system and their role either as a TTM regulator, purchaser or provider.

Table 1: Key actors in the TTM System

Entity	Role
NZTA Waka Kotahi	Primary developer of both the Code of Practice for Temporary Traffic Management (COPTTM) and New Zealand Guide to Temporary Traffic Management (NZGTTM), and Road Controlling Authority for New Zealand's state highway network. Makes system-level changes and provides guidance that influence RCA actions. Ensures road signage and operations are consistent between RCAs and across New Zealand.
Worksafe	New Zealand's primary workplace health and safety regulator. Recently published 'Keeping Healthy and Safe while Working on the Road or Roadside' which outlines principles on how TTM should be procured and delivered with the health, safety and wellbeing of workers and road users at the centre.
Auckland Council	Auckland's local democratic body, being the unitary authority for the Auckland region. The Council delivers a range of services for Aucklanders both directly and through council-controlled organisations (CCOs).
Auckland Transport (AT)	A CCO responsible for Auckland's transport network, undertaking maintenance and renewals of assets, developing new roading and public transport infrastructure, and providing a range of public transport services. AT procures and undertakes roadworks and TTM both directly and through contractors.
Civil contractors	Contractors involved with construction, maintenance and renewals of structures, building, roads, bridges, utilities, water courses, water supply projects, wastewater plants, water distribution and storm drainage. Can include emergency works, as well as planned maintenance and construction.
Event organisers	Submit unique Corridor Access Requests (CARs) and TMPs tailored to their respective events. Can have a noticeable localised impact on the transport network but generally only for relatively short periods of time.
Emergency responders	Traffic incident response crews as well as police, paramedics and FENZ. Submit retrospective TMPs and Corridor Access Requests after the emergency event.
TTM subcontractors	Services procured by Main Contractors and Principals (lead contracting entity) to plan, implement and operate TTM systems for activities in and surrounding the road corridor.

Key:

TTM Regulator | TTM Purchaser | TTM Provider

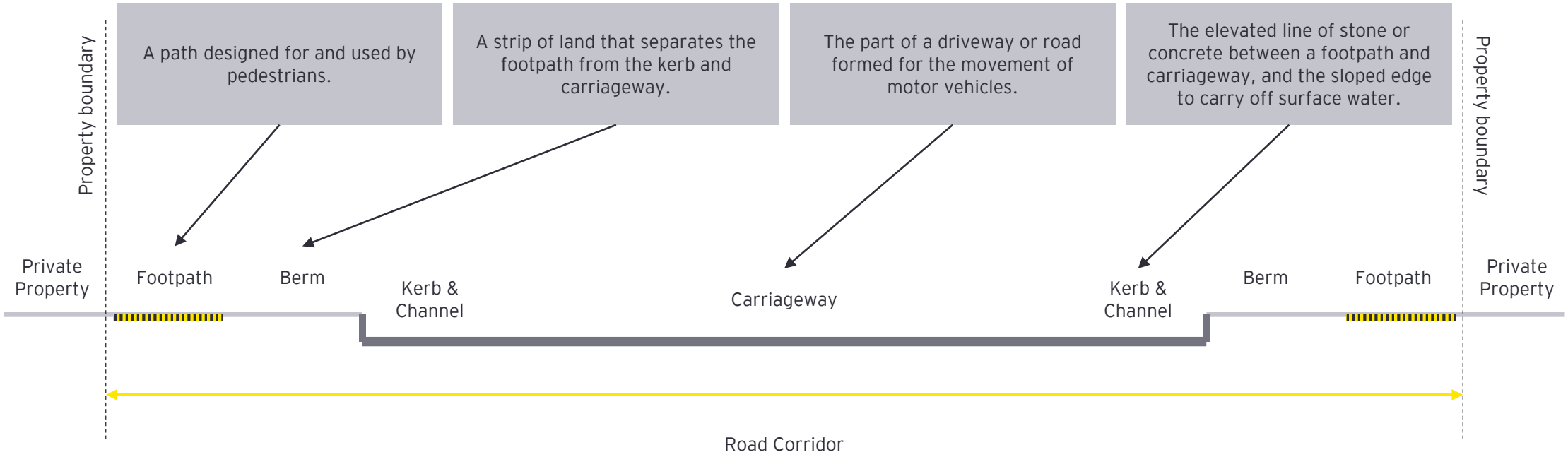
The Road Corridor

Roadworks and associated TTM can cause significant disruption to road users, businesses, and adjacent residents. TTM is often thought to only affect the carriageway where cars and vehicles flow, but can affect the corridor, which encompasses all area up to property boundaries.

Any area within the road corridor that is undergoing construction or temporary disruption must have TTM in place.

Figure 1 shows a stylised view of a typical road corridor, broken down by section. When works occur in the road corridor, regardless of the section it is occurring in, TTM systems must be implemented. Property-boundary-to-property-boundary consideration must be given when evaluating how to best manage disruption.

Figure 1: Road corridor features



The Impacts of Temporary Traffic Management on Residents and Transport System Users

TTM can control road user movements across the entire span of the road corridor – including the carriageway, kerbs and channels, verges and footpaths – with impacts on road, property, and business access.

A range of actors are affected by TTM, with potential impacts ranging from minor to major depending on the extent of the TMP and duration of the TTM solution. Impacts are often broader than travel disruption and can include social, economic and financial impacts. It is important that the RCA's corridor management systems recognise the full breadth and scale of the impacts associated with TTM solutions. A stylised assessment of the impacts on users from TTM is shown in Table 2.

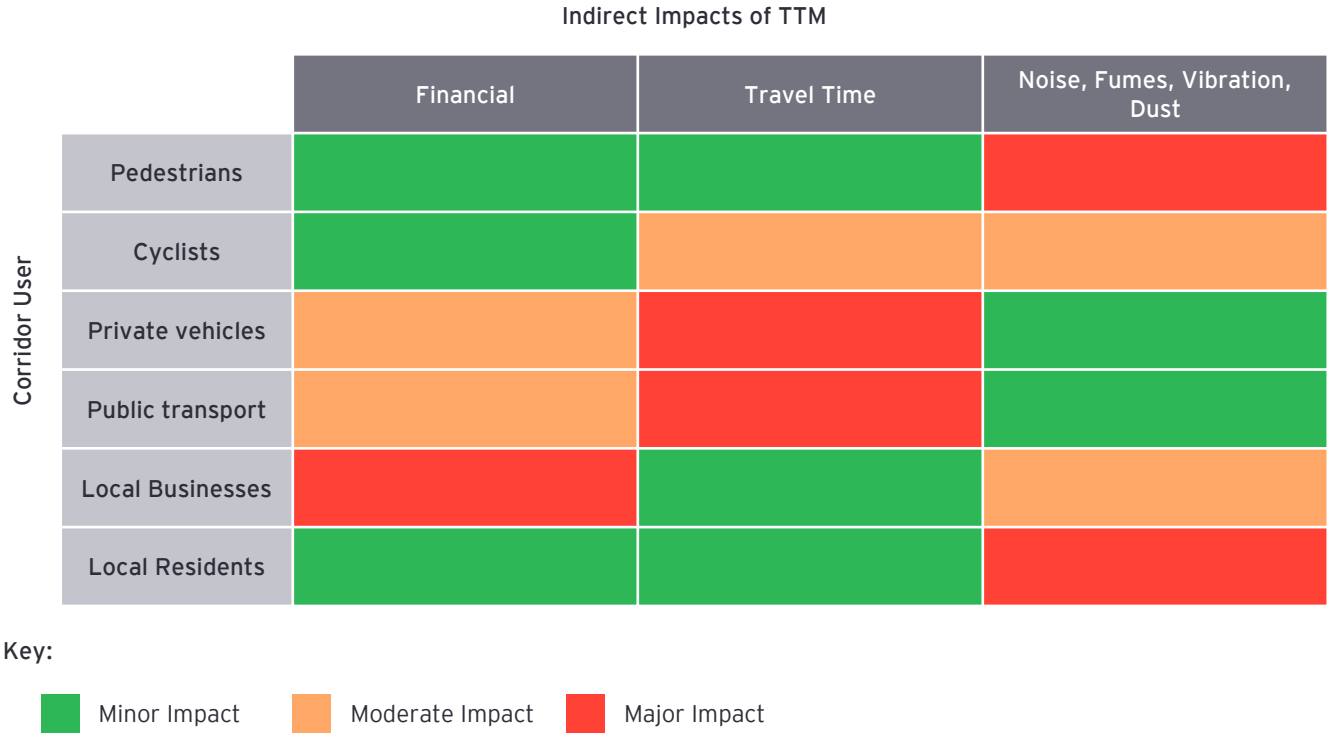
Indirect impacts from TTM by type of user

TTM affects a range of users in different ways. While TTM has historically focused on minimising safety risk to road users, indirect impacts from the TTM worksite itself can occur, such as financial costs to households and businesses, as well as impact on amenity values through noise, fumes and vibration. The table to the right provides an overview of the types of impacts experienced by various corridor users from TTM.

Potential user experiences based on closure

The scale of impact experienced by the corridor user will depend on the type of corridor closure as well as the duration and timing of closure/disruption. For example, shoulder/footpath closure may only impact pedestrians and cyclists whereas a full corridor closure is likely to impact a wider group of users and result in greater social and economic costs.

Table 2: Heatmap of indirect impacts of TTM on corridor users



The Temporary Traffic Management Industry's Commercial Drivers and Behaviours

The TTM industry's commercial structure, when combined with the behaviours its regulatory settings drive, creates incentives to grow both the cost and the scale of temporary traffic management to an unruly size. Ultimately, the impact is borne by Aucklanders every day, whether it be through user experience of the transport network, or the utilities, rates and other bills Aucklanders pay which fund the disruption.

State of the industry

New Zealand is currently awash with small-medium sized businesses offering TTM services, acting as contractors and subcontractors for both small and large-scale works and events. The current industry model has created a habit and incentive for lead contractors to outsource temporary traffic management design and delivery to companies who provide it as their core source of revenue.

To become qualified to design, operate and manage TTM worksites, it requires significant work experience and passing increasingly difficult assessments. These challenges, coupled with the investment that TTM equipment requires, encourages contractors to outsource on an as-needed basis to minimise cost and over-investment. While New Zealand's biggest utility and construction contractors often have their own TTM service, it is becoming increasingly difficult and costly to maintain, pushing the threshold for subcontracting TTM further down.

The commonly used contract models

The most common contract that TTM providers currently use is a time-and-materials contract. This model allows for TTM providers to 'overkill' TTM solutions relevant to the size and scope of the worksite, as they profit from having staff and equipment deployed for as long as possible.

Currently, there is little-to-no pushback from either the lead contractor or RCA on the TTM solution as maximising safety is generally seen as the only priority. It is ultimately residents who fund the 'overkill' of TTM services, whether that be through utilities bills, rates funding, or undertaking events and construction projects.

Improving efficiency in the market

The current state of the TTM industry shows that there are insufficient incentives for both the provider and purchaser of TTM to improve the scale and complexity of TTM solutions. Going forward, RCAs and lead contractors need to use their roles to actively influence the level of TTM services being delivered versus what is required.

The current inefficiencies in the market structure are not any single system actor's fault, as the following factors direct their actions and system behaviours:

- A prescriptive, rules-based code of practice providing little incentive for pushback or negotiation surrounding TTM.
- Health and safety laws and regulations driving purchasing agencies and lead contractors to outsource their risk mitigation to TTM subcontractors.
- Strict legislation which only allows negligible fees and fines to be set by local government.
- The same rules-based approach forces a rigid hierarchy of qualified workers in TTM, which small contractors lack.
- Workers are discouraged from progressing through traffic management qualifications as failure rates increase with more complex assessments.
- Procurement incentives are rarely used as a means of boosting efficiency.
- Corridor access processes do not require consideration of how construction (and by extension TTM) disruption will be minimised throughout the activity.

These factors are what make temporary traffic management in New Zealand an industry resistant to change. The following sections of the report explores these factors and the interrelating themes in further depth.

2 Current state of Temporary Traffic Management in Auckland

The Temporary Traffic Management System: Overview

The TTM system is made up of several components, as shown in Figure 2. Together, this system creates a set of reinforcing and countervailing incentives which will be explored throughout this section.

In general, the TTM system encourages a system of high costs, high regulation and high disruption. In particular, the policy and regulatory settings have a safety-first approach that focuses TTM system actors on minimising risk to road corridor users at the expense of considering the disruption caused to nearby properties and the transport network as a whole. As this section will explore in more detail, New Zealand's current TTM regulatory environment limits flexibility and innovation within the TTM system.

Financial drivers and incentives also shape the TTM system, with lead contractors and subcontractors seeking to maximise revenue. In general, New Zealand also has low enforcement penalty costs – anecdotal evidence suggests that this may be taken into account when weighing the cost of compliance versus cost and impact of enforcement measures.

Figure 2: TTM System Components

TTM System Components

Policy & Regulation	Sets the 'rules of the game'. *Primary policies and regulations are: HSWA 2015, CoPTTM, NZGTTM and LGA 2002.*
Industry Model & Costs	Governs the flow of revenue and main beneficiaries of TTM. *Key actors in the industry are: TTM regulators, purchasers and providers.*
Contracting Mechanisms	Determines how TTM services are procured and paid for. *Contracting models are generally lump sum/ fixed price or time and materials.*
Corridor Management	Coordinates the transport network and access to the road corridor. *Key actors: AT (as the RCA) and NZTA.*
Fees & Fines	Determines charges to undertake activities in the road corridor.
Enforcement & Monitoring	Maintains compliance and manages poor contractor behaviour.

The Temporary Traffic Management System: Overview

As is described on the following pages 14-24, several components of the TTM system are reinforcing high TTM costs and disruption. The way in which each system component contributes to the incentives that drive increased TTM and disruption is summarised below.

		Health & Safety	Cost of Works	Time
Policy & Regulation	Regulatory and policy drivers drive a safety-first approach to TTM with little consideration for other system impacts.	↑↑↑	↑	↑
Industry Model & Costs	TTM is increasingly outsourced by contractors to TTM subcontractors due to the increasing complexity and specialisation of TTM. This is contributing to increased TTM costs through higher contracting costs as well as an increased difficulty ensuring that the TTM solution is right-sized due to information asymmetries between AT, the principal and TTM subcontractor.	↑	↑↑	↔
Contracting Mechanisms	The specialisation of TTM subcontractors means that practically most principals and contractors seeking TTM services are price takers. It is difficult to audit the appropriateness of the approach. Most TTM contracts are on a time and materials basis, further reducing incentives for cost control.	↔	↑	↓
Corridor Management	The Corridor Access Request (CAR), as well as the TMP approval and review process takes a safety-first approach, with some consideration being given to the disruption of vulnerable users and traffic impacts, but none being given for business or households. In practice, CoPTTM provides much of the guidance creating a high 'baseline' for TTM.	↑↑	↑	↑↑
Fees & Fines	The existing Fee and Fine regime is very limited compared with overseas jurisdictions. It does not serve to create meaningful, countervailing incentives against TTM that induces higher costs and greater disruptions.	↑	↑	↔
Enforcement & Monitoring	Fines are insufficient to modify adverse behaviour, leaving the RCA with few mechanisms of enforcement aside from issuing Stop Work Orders (SWO) or warnings. This has the effect of increasing risk-aversion and/or introducing more time and disruption to the system.	↑↑	↑	↑

Key:

↓ Minor decrease ↔ No impact ↑ Minor increase ↑↑ Moderate increase ↑↑↑ Major increase

The Temporary Traffic Management System: Regulation and Policy

The TTM system has regulatory drivers which incentivise a prescriptive, 'more is more' approach to TTM.

The two key regulatory drivers are CoPTTM and HSWA. CoPTTM was developed by NZTA and is a compliance-focused approach to TTM. The HSWA and the CoPTTM together have fostered a prescriptive, rules-based approach to TTM which prioritises safety and promotes risk aversion within the TTM system. This has resulted in TTM solutions that are not always appropriately sized and often generates unnecessary disruption to users.

There are behavioural and economic incentives on system entities (including Road Controlling Authorities, lead contractors and TTM contractors) to reduce health and safety risk through providing TTM solutions.

The following pages outline the different regulations and policies which drive the risk-based decision-making within New Zealand's TTM system and comments on their impacts on disruption and cost of construction projects.

Key Observations:

- For AT, the approvals process for Traffic Management Plans is focused primarily on ensuring CoPTTM has been followed accordingly – taking a health and safety-focused approach. There can be significant individual and contractor penalties for failing to follow approved TTM plans (including loss of certification).
- There is little room for considering broader types of disruption from construction works, including loss of business, within the regulatory framework. Where disruption is considered, it is from a traffic and vulnerability perspective.
- The narrow focus of regulation and policy drives TTM solutions that are extremely safe, conservative, risk-averse and often disruptive.

Regulation/ Guidance	Description	Legal/ Compliance	Disruption	Cost of TTM
Code of Practice for Temporary Traffic Management	Provides guidelines and standards which are used for managing traffic during temporary activities in and around the road corridor. It outlines how to ensure the safety of road users, workers and the public while minimising disruptions to traffic flow and road users. Requires all corridor activities to have a Traffic Management Plan (TMP).	▸ Technically CoPTTM is only a 'guide' but in the absence of alternative guidance, regulators and industry have practically treated CoPTTM as prescriptive 'minimum' standards for TTM.	▸ CoPTTM follows a rules-based approach. Emphasis is placed on worker and user safety but there is little consideration to disruption as a result of works (e.g., loss of business). ▸ Initially developed for highways (high-speed, high volume road corridors), however now has a local roads supplement. The origins of CoPTTM may have contributed to an overly prescriptive set of guidelines.	▸ As an agreed framework, CoPTTM drives a 'one size fits all' Traffic Management approach, even where a less expensive, less disruptive bespoke approach might have been appropriate.

The Temporary Traffic Management System: Regulation and Policy

Regulation/ Guidance	Description	Legal/ Compliance	Disruption	Cost of TTM
Health and Safety at Work Act 2015	Introduced to ensure safe practices in workplaces and to encourage a culture of proactive risk management. Worksafe NZ is the primary workplace health and safety regulator and have released a guide alongside Waka Kotahi NZ Transport Agency on a best-practice risk-based approach to TTM.	▸ Significant legal consequences for non-compliance with HSWA, 2015. If a contractor breaches a health and safety duty which exposes their workers or others to a risk of death, serious injury or serious illness, individuals can be fined up to $300k and companies up to $1.5M. This promotes risk aversion.	▸ The primary incentive for PCBUs under HSWA, 2015 is to increase the size of the TTM solution to minimise risk. This is contributing to contractors over-engineering the TTM solution which can contribute to greater disruption.	▸ TTM costs are increased as PCBUs and TTM contractors seek to maximise the TTM solution to minimise risk without regard to costs.
National Code of Practice for Utility Operators' Access to Transport Corridors (the Code)	Applies to all RCAs and utility operators in New Zealand. Sets the procedures for utility operators' rights of access to road corridors and guidelines for managing infrastructure instalments. It ensures safety and coordination among utility providers to minimise disruptions.	▸ Provides utility entities with a 'right to access' the road corridor which means they cannot be prevented from entering the road corridor to undertake work. ▸ Outlines a set of processes and procedures for utility providers to abide by.	▸ Disrupted parties including businesses must be informed of planned works and contractors must seek to minimise disruption. However, the code does not place a large emphasis on the requirement for utility operators to mitigate disruption.	▸ The emphasis of the Code is providing utility operators with access to the corridor. TTM cost is an assumed cost of completing works.

The Temporary Traffic Management System: Industry Model & Costs

Understanding the structure of the TTM industry indicates why contractors may opt to employ third-party subcontractors to develop and implement TMPs and deliver traffic management services for their worksites. Controlling the size and scope of the TTM-as-a-service industry is critical for any work to minimise its impacts on Auckland roads. The current structure has led to an inflation of actors in the industry and subsequent inefficiencies.

Sub-contracting TTM is common practice, with many small-medium sized businesses in Auckland and nationwide providing TTM as an on-demand service for contractors. While some of the large contractors have in-house TTM capability, it can be costly to manage and requires significant investment.

TTM is also becoming a specialised occupation, with site managers requiring many qualifications. Failure rates also increase as the qualification becomes more advanced. Traffic management cannot be undertaken by unqualified labourers or project managers, even for low-risk situations such as a suburban cul-de-sac or when being supervised by qualified personnel.

Further, the cost, time commitment and ladder-like nature of TTM qualifications pushes contractors to outsource TTM to businesses who offer the full-suite of traffic management services. Traffic management planners, in the current state, must have achieved all qualifications up to and including STMS-A/B/C – work experience is a mandatory component of the qualification. This is reflected in feedback from principals that workers are struggling to pass TTM qualifications as they become increasingly technical.

Increasing specialisation can create an environment where fewer people have the technical knowledge to challenge TTM solutions to ensure it is rightsized. The result is that some utilities, developers and contractors become price-takers of TTM.

The key TTM cost components are detailed on Table 4 on the following page including the associated incentives and behaviours within the current TTM system.

Table 3: Breakdown of roles and qualifications within TTM industry

Role/ Qualification[1]	Prerequisites *(Non-practising (NP) certificates are separate theory components)*	Cost and Time to Achieve[2]	No. of warrant holders[3]	Key Responsibilities
TTM Worker	None	$500-600, 1 day	Not available	Assisting in maintaining a TTM site.
Traffic Management Operative (TMO)	TMO (Non-practising)	Cost varies, 1 day	Not available	Managing the TTM site when STMS is away and making changes.
STMS-U (Universal)	TMO or TMO (Non-practising)	$500-800, 1-2 days	Not available	Leading TMOs and risk assessments.
STMS-A/B (Practising)	STMS U & Cat A/ B (Non-practising),	Cost varies, 2 days	4,307	Implementing TMPs on Cat A&B roads.
STMS-C (Practising)	STMS U & Cat C (Non-practising)	Cost varies, 2-days	353	Implementing TMPs on Cat C roads.
STMS-M (Mobile)	STMS-M (NP) & A/ B/ C, for type of road in TMP	Cost varies, 2 days	219	Leading mobile operations within non-static TTM worksites.
TTM Planner (TTMP)	STMS-A/ B/ C, for type of road in TMP	$900-1000, 2 days	Not available	NZTA-approved to submit TMPs to RCAs.

1. *These qualifications provide NZQA unit standards towards the NZ Certificate in Temporary Traffic Worksite Management.*
2. *Pricing and course duration estimates based on available online information from the following TTM training providers: Parrallax, 50fifty, Chevtrain, Trugroup, Civil Construction Training Ltd.*
3. *Data provided by NZTA. Figures do not distinguish between practising and non-practising qualification holders.*

Key Observations:

- The increasing complexity and specialisation of TTM is contributing to TTM frequently being outsourced to TTM sub-contractors.
- The increasing separation of contractors and TTM sub-contractors and growth in the TTM-as-a-service industry is likely contributing to increased TTM costs through higher contracting costs as well as the increased difficulty with ensuring that the TTM solution is right-sized due to information asymmetries between AT, principal and TTM subcontractor.

The Temporary Traffic Management System: Industry Model & Costs

Table 4: Key costs and cost drivers of TTM

TTM Cost Components	Key cost drivers	Incentives and Behaviours
TMP solution design	Scope and level of safety measures utilised including use of traffic lights, barrier designs, cones, and number of TTM-qualified staff required on site.	Current incentive is to use a TTM solution which adheres to CoPTTM even if it is over-engineered as departure from the standard presents increased risk (e.g., loss of license). This is true for utility providers who have incentive to work under Global CARs and utilise standard plans (even when over prescribed) given the large volume of contracts.
TMP and RCA approval by AT	Length of time that AT takes to approve CARs and TMPs, and number of TMP iterations and the extent of negotiations around what TTM is required.	To ensure TMP adheres to CoPTTM and utilises prescribed solutions in order to obtain approval as quickly as possible. A right sized TTM solution may not be the result which contributes to increased TTM costs.
Establishment and disestablishment costs	Scale of TTM solution, and length of time to establish and disestablish.	As all TTM costs are typically passed on to AT or the principal, the incentive is to maximise the TTM solution and time spent establishing and disestablishing. This is driving increased disruption and TTM cost.
Labour	Number of staff on site including level of qualification and duration of time that they are on site as traffic attendants are typically charged at a daily rate, e.g.: ▸ $23-$30/ hour (Traffic Controller)*. ▸ $30-$35/ hours (Site Traffic Management Supervisor)*.	Where TTM is subcontracted, the TTM contactor profits from more staff and has no incentive to reduce the duration of TTM as labour costs are variable, with all labour costs being passed on to the lead contractor. This contributes to greater TTM costs and more disruption.
TTM equipment	Amount of TTM equipment used, and duration for which it is used. TTM equipment such as cones are typically charged per cone per week, e.g.,: ▸ $200,000 - $250,000 per unit (truck & equipment)*.	The TTM contractor profits from more equipment and has no incentive to reduce the duration of TTM (including disestablishing it quickly) as all equipment costs are passed on to the lead contractor. This contributes to greater TTM costs and more disruption.
Margin	Generally, TTM costs are passed on to the Principal with standard industry margin. ▸ Where TTM is subcontracted, the main contractor may add an additional margin often between 5-15%.	The lead contractor charges a standard margin on TTM costs. Where contractors pass the TTM cost on to AT or the principal with a margin, revenue is increased through a bigger TTM solution. This drives bigger TTM solutions and more cost.

** Cost are indicative based on market intelligence and desktop research circa April 2024.*

A different TTM delivery approach

AT has a number of levers it could pull to influence the TTM industry model in Auckland and drive change in how TTM services are delivered for Auckland Council Group's projects:

AT TTM business unit
AT could establish a business unit to deliver TTM services for Auckland Council Group projects. Doing so would require a feasibility study to consider establishment and operational costs compared to possible savings realised by going to market.

Council-Controlled Trading Organisation
Like above, there is value in AT investigating the commercial viability of establishing a Council-Controlled Trading Organisation (CCTO). This would give AT far greater influence in how TTM services are delivered in Auckland impact the transport network, while also enabling any profit margin to be recycled back into the organisation.

Contractor Panel
While AT has a contactor panel, further consideration should be given regarding the extent to which competitive pricing can be driven through it. In particular, this could be achieved by identifying smaller, start-up TTM providers who have lower overhead costs. This requires ongoing, active market engagement by AT to identify opportunity to onboard providers who fit the above description.

The Temporary Traffic Management System: Contracting Mechanisms

The choice of contracting approach influences the cost and extent of TTM. The nature of the contract between the principal and main contractor is the key driver, as TTM is almost always contracted on a time and materials basis.

TTM Providers have Pricing Power

While TTM costs range in value depending on the size and nature of the project and TTM solution required, it is not uncommon for TTM costs to represent 25-30% of total project costs (and can sometimes range up to 40% of total project costs).

TTM is seen as complex and highly specialised. This means that significant deference is given to TTM providers – whether those services are directly provided or subcontracted. TTM providers are incentivised to provide solutions that minimise risk and that do not expose the TTM contractor or Site Traffic Management Specialist (STMS) to penalties. This drives low-risk, high cost solutions than may be optimally required.

Assurance by the principal or main contractor could provide countervailing pressure, but providing assurance over the solution proposed by the TTM and agreed by AT is complex and high-effort. Any cost savings found through the assurance process are likely to be eclipsed by the costs of assurance. This leaves the contracting method as a key lever for controlling costs.

Contracting Methods

Lump sum, fixed price contracts provide some incentive to optimise TTM solutions, as extra TTM costs reduces the margin of the main works. This incentive is particularly strong when TTM services are subcontracted to main contractors where it is usually done so on a Time and Materials basis. For some large utility companies in the Auckland region, lump sum contracts comprise more than 50% of their contracts by volume.

Time and Materials Contracts provide far less incentive to right-size TTM costs and effort. In fact, there is potential for this to magnify effort.

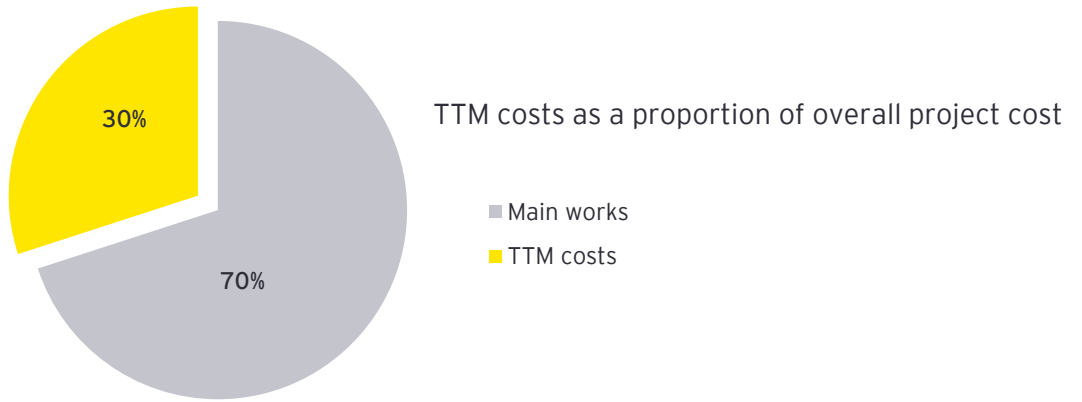
Increased TTM will increase the fee of the TTM subcontractor encouraging a low-risk, high duration approach. This can be further reinforced by the nature of subcontracting arrangements wherein main contractors may take a margin on the TTM contract (or own part of the TTM contractor), further lowering any incentive to reduce TTM costs. In fact, the incentive to 'over engineer' the TTM solution becomes 'swamping' – it is also driven by the desire to minimise risk and prioritise safety obligations or face penalties under HSWA and from AT (including removal of licence to operate, and financial penalties for negligence).

A contractor panel has been established for AT to procure TTM services for its projects. This can help AT to access TTM services at agreed fixed rates versus going to market. It is important to continually benchmark these rates against what is available in the market to maintain a level of commercial tension.

Summary of Observations:

- The tendency to use Time and Materials for much of the volume of TTM services can drive overengineering of the TTM solution (with respect to both size and duration) to minimise risk and increase revenue.
- This effect is compounded by the specialised nature of TTM services, with significant deference being given to TTM specialists/subcontractors to provide the appropriate TTM solution.
- While acknowledging the difficulty in benchmarking and auditing TTM costs, there may be scope for AT, Auckland Council, and utilities to increasingly employ contracts that cap overall financial exposure to TTM.

Figure 3: Breakdown of TTM costs as a proportion of overall project cost.



The Temporary Traffic Management System: Corridor Management, Access

AT (as the RCA for Auckland) holds the corridor management function for the region.

One of the primary roles of the corridor manager is to assess Corridor Access Requests (CARs) from parties undertaking works in and around the road corridor. A CAR is a permit that helps to ensure that all road worksites adhere to CoPTTM, and thus, are safe for workers and road users. One must apply for a CAR from AT at least 15 working days prior to commencing work. The CAR process being undertaken with the development of TMPs will determine how activities in the corridor can be performed safely and with little disruption.

In addition to standard CARs, global CARs are used where road access is required frequently by highly trusted organisations (most often by utilities). Global CARs are pre-approved by AT and typically used for routine services. Global CARs are designed to reduce the time and administrative burden associated with gaining access to the corridor for planned maintenance works. The key differences between a standard CAR and a global CAR are detailed below.

Standard CAR	Global CAR
► Submitted to AT Kerby least 15 days prior to commencing works. ► Must be submitted alongside a TMP designed by an NZTA-approved planner. ► Can be declined if deemed too disruptive or unnecessary.	► Pre-approved corridor access. ► Principal utility contractors are able to self-certify for Global CARs. ► Used for routine services such as powerline maintenance and pothole repairs, repetitive minor works and faults/emergency responses. ► AT predicts there are thousands of Global CARs annually.

Corridor management can contribute to the disruption caused by TTM rather than minimising it. This is driven by risk allocation behaviour: the principal procures services, with a level of risk attached, from main contractors, who then contract TTM providers as subcontractors. To treat the risks that the TTM subcontractors are contracted to mitigate by the main contractor, a high baseline of TTM measures are implemented to create a safe working environment and to reduce the risk born by main contractors and principals.

When is a CAR required?

- Undergoing any activity that will alter the surface of the road corridor (e.g., drilling, excavation).
- Placing any permanent or temporary structure below, on or above the road corridor (e.g., scaffolding, skip bins, pipes or wiring).
- Undergoing construction that temporarily encroaches on the road corridor.
- Parking heavy machinery such as cranes or cherry pickers.
- Flying drones over any part of the road corridor.

If the works alter the surface of the road, such as excavation, AT must be notified so a reinstatement inspection can be completed. Following this, a 2-year warranty period begins, where the contractor is liable for any faults caused by the excavation works. It is not until the end of this warranty period that the CAR is formally closed.

Key Observations:

- Standard CARs and TMPs for smaller organisations are often submitted by third parties. This operating model removes any incentive to design a less disruptive TMP as this would cost less and therefore generate less revenue for the TTM service provider.
- There have been cases where utility companies began work under a global CAR, considering the work urgent and unplanned, but were subsequently issued a stop work order or similar. This adds to the time and cost of repairs.

The Temporary Traffic Management System: Corridor Management, Approval & Review

The current TTM system comprises of a TTM approvals and review process that is primarily concerned with the extent to which TMPs support the safety of those in the road corridor. Disruption is a secondary consideration and is generally only considered from a traffic or vulnerable community perspective.

This does not support the creation of strong incentives for principals, contractors or TTM providers to design innovative, right-sized TTM solutions that could reduce the levels and types of disruption for users. The standard CAR request process is outlined below.

Hold project co-ordination meeting if applicable (large projects)

Escalate to senior group for decision-making where significant trade-offs need to be made.

Submit CAR alongside TMP to AT at least 15 days prior to work commencing

CARs pertaining to L2 corridors or traffic light intersections are escalated to the Auckland Transport Operations Centre (ATOC) for review, where they can request a traffic impact assessment.

CAR permit approved

Safety audits undertaken to ensure adherence to CoPTTM

Project Co-ordination Meeting

For a large-scale project, or a project where there is significant disruption, a project co-ordination meeting is held to discuss the impact of traffic management with involved parties (e.g., bus companies, traffic engineers). These projects can be escalated to a senior group to decide when there is no agreement, or when a cost/safety/disruption trade-off needs to be made ("NAC meeting").

Corridor Access Request Process

CARs are the standard process through which utility companies, civil contractors and other PCBUs request lawful access to the corridor to undergo specific activities which disrupt regular transport flow. As the RCA, AT is solely responsible for processing and scrutinising all CARs that concern the local Auckland road network.

Traffic Management Plans

A TMP is a site-specific plan that covers the design, implementation, maintenance and removal of TTM. The plan details how road users will be directed around a work site, accident, or other temporary road disruption to minimise inconvenience while providing safe conditions for road users and workers. All TMPs currently need to adhere to CoPTTM.

Safety Audits

NZTA worksite safety audits are undertaken to ensure TMPs are following CoPTTM guidelines, and sites are then given a Site Condition Rating (SCR). If the TTM is not meeting the appropriate standard (e.g., incorrect signage, no qualified TTM personnel, no TTM plan), a TTM review panel may either look to educate contractors, or issue improvement or Stop Work Orders (SWOs).

Key Observations:

- Generally, AT only approves a CAR and TMPs if they follow CoPTTM and use prescribed safety solutions.
- Timely approval of the CAR and TMP is often dependent on adherence to CoPTTM which does not incentivise contractors to right-size the TTM solution and minimise disruption.
- CARs are typically processed within 15 working days, but can take far longer on Level 2 corridors or at traffic light controlled intersections where ATOC conducts a further review. ATOC often requires traffic impact assessments (which has an associated cost of $10,000+).
- CARs with ATOC involvement often take more than a month to process, with significant flow on impacts on schedule.
- Where traffic and disruption assessments are required, disruption is only considered from a traffic, vulnerable communities and safety point of view. Economic and financial disruption to households and businesses are not considered in the approval of the RCA and TMP.
- While AT has a process for escalating the review of CARs based on potential disruption to the transport network ('NAC' meetings), AT does not appear to have a documented decision-making framework or tool for assessing these trade-offs.

The Temporary Traffic Management System: Fees and Fines

Current Fee Schedule

Appropriate fee, penalty and benefit regimes can support efficient and effective TTM practices. Fees that reflect the scale of disruption can be used to create the right incentives in the system, improve compliance, and manage disruption.

The current fee schedule is largely governed by the guidance laid out in the Activities in the Road Corridor Bylaw 2022 (Part 7) and in accordance with the Local Government Act 2002. AT is limited in the fees it can charge contractors for CAR processing and non-compliance. Only "reasonable administrative costs incurred by AT doing business" can be passed on to contractors.

Compared to the scale of the project – and to all other comparable jurisdictions we have evidence for – the fees and penalties are trivial. Currently, as at the date this report was written, the highest fee AT can charge for non-compliance is $1,400 for unapproved works on a high-congestion roads. Delays, disruption, abandoned TTM equipment and other disruptive practices attract few fees, when such issues are detected or enforced at all.

Table 5 on the following page provides a comparison of fees and fines charged in Auckland compared to the rest of New Zealand. What this table ultimately shows is that, while there are some noticeable difference in percentage terms, ultimately the total cost of fees and fines across New Zealand are negligible when considered in relation to the construction project budgets they form a part of.

AT has begun to consider time-based fees for private businesses that use the road corridor for private activities. These fees can be significant and are based on 'fair market rental' of the road space. This is an important first step. However, without legislative change, for example allowing for lane rental or consideration of the disruptive effect of TTM to adjacent businesses or residences, alterations to fees and fines regulations will ultimately have little impact on broader system behaviour change.

Overseas Jurisdictions

Every other similar jurisdiction we examined charge significantly higher fees for TTM, and those fees are explicitly designed to limit the duration and magnitude of disruption. This is true in jurisdictions with both similar legislative frameworks to New Zealand (i.e., Sydney, Dublin) and those that are at least somewhat different (i.e., Singapore, Seattle). Fees are usually duration-based schemes and sometimes include an escalation factor, which can create important incentives to decrease the time the road is under disruption.

Benefit schemes are also employed overseas, where contractors benefit financially from minimising disruption or going above and beyond what was required. For example, contractors in Boston keep their contribution to the Disruption Impact Fund if fewer businesses lose revenue during construction, and contractors in Seattle gain refunds for voluntarily improving the carriageway above the initial requirements. Notably, Boston also compensates businesses and residents for disruption from that fund where major works occur.

Positive financial incentives are currently not being used by AT to reward efficient performance. However, this is an area that could be explored for Auckland (although again, legislative change would likely be required to enable fee collection and distribution).

Table 6 on page 23 compares AT TTM fees and benefits relative to other large cities in overseas jurisdictions.

Summary of Observations:

- The current TTM fee and benefit regime for AT and New Zealand as a whole, is small in value and limited in scale and scope by legislation. Its scope has an insufficient amount of influence on TTM planning or outcomes, and it does not support compensatory mechanisms if they were to be considered. AT has some small duration-based fees, such as road corridor rental for private development and fees meant to compensate for losses from parking meters during road corridor use, but in general these fees are either too small or of such limited scope that they do not drive better performance.
- Auckland is an international outlier: overseas jurisdictions implement higher fees, usually associated with the duration and scale of disruption. Some jurisdictions also provide for compensation – often from the contractor – for significant business losses or residential amenity damages as a result of roadworks. Refer to Appendix A for case studies of fees and benefits used.
- Legislative constraints restrict the scale of fees to "reasonable administrative costs incurred by AT doing business" as per the Activities in the Road Corridor Bylaw 2022 (part 7) and in accordance with the Local Government Act 2002. This restriction is not common internationally. Legislative change is needed to allow for greater innovation in fee application and compensation mechanisms.

The Temporary Traffic Management System: Fees and Fines (National Comparison)

Table 5: Comparison of Auckland Transport Roadworks Fees* to other Regions in New Zealand

Charge to Contractor	Auckland (AT)	Christchurch	Wellington	Tauranga	Upper Hutt	Notes
TTM Application Fee (e.g., 'major works', full road closure)	$225 NZD. (Plus additional fees e.g., site audits, progress inspections).	$260 NZD.	$170 NZD.	$332 NZD.	$270 NZD.	▸ Most city councils charge for CAR processing and TMP reviews separately. They have been combined here for ease of understanding.
Fee Structure for Temporary Road Use (high-congestion carriageway, daily charge)	**Duration:** flat rate (see Note 1). **Area:** single road. $225 NZD + (inspection costs).	**Duration:** flat rate. **Area:** single road. $678 NZD + (large excavation).	**Duration:** flat rate. **Area:** single road. Same as application fee (treated as lump sum).	**Duration:** periodically increases. **Area:** single road. $578 NZD (2-30 days duration).	**Duration:** flat rate. **Area:** single road. Same as application fee (treated as lump sum).	▸ Tauranga's road user fees increase depending on project severity. For example, works extending over 30-days requiring road closure costs $1,055. ▸ Most councils have a 'case-by-case' element to their pricing, where unique projects can negotiate pricing with the council.
Scale of fees for non-compliance in high-congestion areas	**Late completion:** $473 NZD (per day). **Unapproved works:** $1,399 NZD.	**Late completion:** $339 NZD. **Unapproved works:** $742 NZD.	**Late completion:** $440 NZD. **Unapproved works:** $400 NZD +	**Late completion:** $212 NZD. **Unapproved works:** 2x the original fee.	**Late completion:** $270 NZD. **Unapproved works:** $270 NZD.	▸ All councils in New Zealand are restricted by the Local Government Act 2002, where they can only recoup reasonable "administrative costs" from contractors.
Benefits to early completion	None.	None.	None.	None.	None.	▸ No cities in New Zealand currently offer incentives to complete works early.

**AT fees were updated October 2023. Prior to this, they had remained unchanged since 2016.*

Disclaimer: These fees are based on all available information on the organisation's respective webpages. Alternative fees may apply in particular circumstances, so these fees are not fixed.

The Temporary Traffic Management System: Fees and Fines (International Comparison)

Table 6: Comparison of Auckland Transport Roadworks Fees* to Overseas

Charge to Contractor	Auckland (AT)	Portland, OR (City of Portland)	Sydney (City of Sydney)	Seattle, WA (SDOT)	London (TfL Lane Rental Scheme)	Notes
TTM Application Fee (e.g., 'major works', full road closure)	$225 NZD. (Plus additional fees e.g., site audits, progress inspections).	$609 NZD. (Increases if extra blocks and parking meters must be closed).	$2,057 NZD.	$1,250 NZD.	$5,570 NZD.	▸ Major overseas cities tend to charge higher application fees than Auckland. ▸ Auckland's RCA fees may increase as AT transitions to NZGTTM, with more TMP scrutiny if AT and industry are not upskilled on what optimal TTM looks like.
Fee Structure for Temporary Road Use (high-congestion carriageway, daily charge)	**Duration**: flat rate (see Note 1). **Area**: single road. $225 NZD + (inspection costs).	**Duration:** per week. **Area:** per block. $666 NZD.	**Duration**: per day. **Area**: per lane, per block. $2,240 NZD.	**Duration**: per day. **Area**: per square foot. $190 NZD for e.g., 50 square metres, increases exponentially.	**Duration**: per day. **Area**: per lane segment. $5,250 NZD.	▸ Large cities such as Portland, Sydney, Seattle and London have a duration-based fee structure that seeks to limit the duration and scope of disruption from works. ▸ Note 1: AT charges duration-based fee cases of corridor use for private development, where AT charges a rental fee proportional to the value of the land being developed.
Scale of fees for non-compliance in high-congestion areas	**Late completion**: $473 NZD (per day). **Unapproved works**: $1,399 NZD.	Fees are doubled if non-compliance is found.	**Late completion:** $1,130 NZD. **Unapproved works**: $1,200 NZD.	**Late completion**: $1,700-$6,800 NZD. **Unapproved works**: $1,700-$6,800 NZD.	**Late completion**: $252 NZD + daily lane rental charge. **Unapproved works**: $1,050 NZD.	▸ TfL fees limited under The Street Works (Fixed Penalty) (England) Regulations 2007 however TfL considers prosecution for repeat offenders.
Benefits to early completion	None.	None.	None.	None.	Varied (see notes).	▸ Transport for London (TfL) offers rental charge discounts for consistently safe worksites, collaboration and innovation.

Key:
Duration based fees

**AT fees were updated October 2023. Prior to this, they had remained unchanged since 2016.*

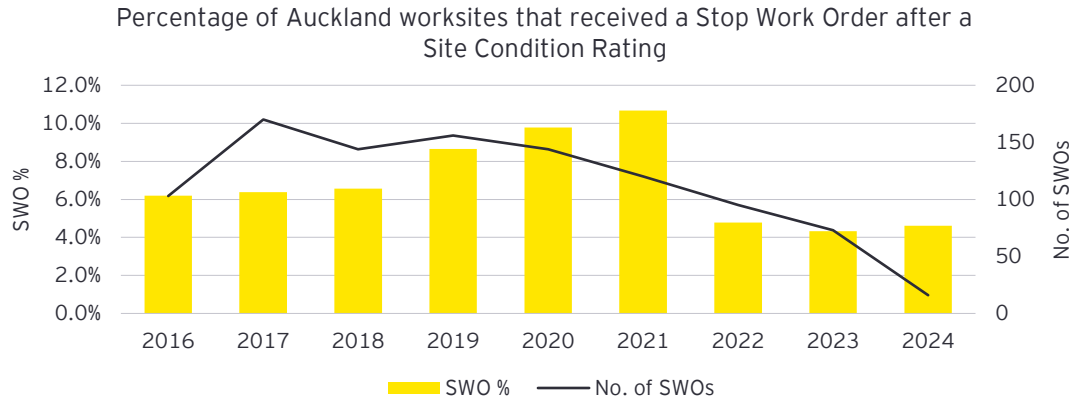
Disclaimer: These fees are based on all available information on the organisation's respective webpages. Alternative fees may apply in particular circumstances, so these fees are not fixed.

The Temporary Traffic Management System: Enforcement & Monitoring

Enforcement mechanisms are an important part of the TTM system, and remain critical for providing a safe working environment. There are few effective enforcement tools outside of Stop Work Orders (SWOs), as the fines available to the RCA are limited. When an enforcement action needs to be taken, it can cause significant disruption, with the contractor(s) being forced to cease work and vacate the site until the issues are resolved or road is reinstated. This can lengthen the duration of projects, and where road opening has already occurred, it can also increase the duration that TTM equipment remains on Auckland's roads. SWO are infrequent, but, when they do occur, they can be of considerable duration (2+ weeks on average).

- AT staff regularly conduct TTM safety audits at TTM sites around the Auckland region to assess whether a site adheres to the TMP and is safe given any unique conditions. The audit process is detailed further on this page.
- SWOs are not issued frequently – around 4% of sites that received a Site Condition Rating (SCR) in 2023 received a SWO - but they can cause significant disruption to projects and the road network, as TTM equipment often needs to be left onsite.
- SWOs have been trending down since 2021 which may reflect AT's increasing awareness of the disruption caused by SWOs.

Figure 4: Proportion of sites receiving SWO, Number of SWO (per annum)



Source: Auckland Transport

Audit process*

- Verified TTM auditors will make site visits where TTM is in use.
- Generally, auditors will initially drive through worksite to get an overall feel of the worksite and notice any immediate faults.
- If concerns arise, a formal audit process will begin.
- The TTM auditor will complete a Site Condition Rating Form (SCR), which involves comparing the TMP from the CAR to the TMP in practice.
- Using a point-scoring system, the auditor will determine whether the site condition is 'acceptable', 'needs improvement', or is 'dangerous'.
- If a site is determined dangerous, auditors may issue a SWO until the TTM is improved.
- SWO ends when the TTM site is compliant with the TTM plan, or site is reinstated.

Utilising technology to monitor compliance and disruption

Given the scale of Auckland's transport network, a majority of roads are not actively monitored for disruptions and TTM compliance. This makes it difficult to accurately determine the full scale of disruption to corridor users. Utilising the Internet of Things and existing technology systems would support AT to monitor compliance of sites and identify non-compliant activities. This may involve utilising satellite technologies, fixed cameras, and mobile cameras operating on the network (such cameras as on buses).

** Process as outlined by NZTA in their Safety audit procedure training material.*

Key Observations:

- Within the current regulatory system, the use of SWOs is a key tool which AT has available to ensure TTM contractors comply with TTM guidelines and regulations.
- However, SWOs can contribute to disruption as contractors are required to vacate the site until the site is compliant contributing to the number of 'unattended' roadworks Aucklanders see and experience on the road network.
- While the number of SWOs has been trending down in recent years, this does not necessarily mean that there is a reduction in the level of disruption on Auckland's transport network.
- Investigation of technologies available to monitor TTM compliance and disruption would support AT's wider efforts to ensure an efficient TTM system.

3

Transforming TTM in Auckland

New TTM System: A Risk-based Approach

The approach to TTM is changing in New Zealand. Waka Kotahi New Zealand Transport Agency has released the New Zealand Guide to Temporary Traffic Management (NZGTTM). The guide is an industry led, risk-based model and will replace the CoPTTM which has been used as best practice guidelines for the last 20 years. NZGTTM is intended to enable a more flexible approach to TTM, supporting TTM contractors to design TTM solutions based on their risk assessment of individual site. The intended effect is that contractors will 'right size' the TTM solution to decrease disruption to the transport network.

There are reasons to be sceptical. Absent wider structural change, many of the same incentives in the system: risk aversion, certainty bias, incomplete pricing and profit motive will remain. In fact, without CoPTTM or other guidance from AT or other regulators there is at least a theoretical risk that TTM will become more disruptive and complex as contractors 'shadow-box' regulator expectations.

Risk based approach

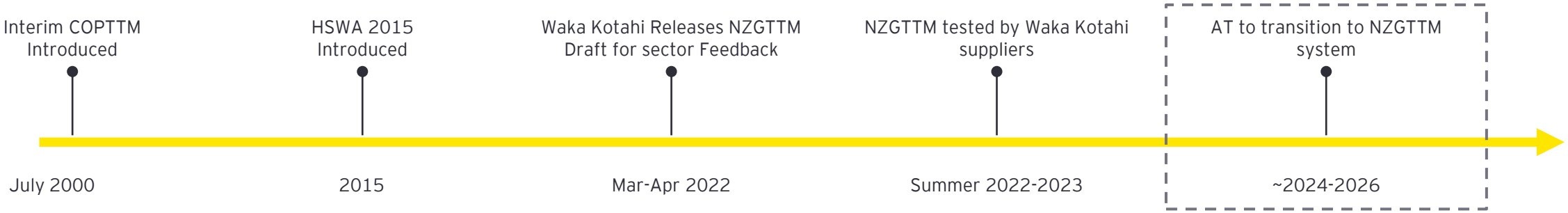
- The NZGTTM is an outcome-based approach where contractors can devise a TTM solution based on their own risk assessment.
- It takes an outcome based, safety first approach to risk management.
- AT will continue to have a role in assessing CARs and determining whether the proposed TTM approach is likely to mitigate risk.

Transition Phase

- The NZGTTM will replace CoPTTM in the next two years, allowing time for the industry to transition.

Initiatives

- AT has several trials and initiatives underway aimed at reducing TTM disruption and easing the transition to NZGTTM.
- These initiatives are outlined in the TTM Transformation Programme Update November 2023 to Elected Members.



Improving TTM Practices: AT Initiatives

Summary of AT Initiatives

AT has several initiatives underway which aim to improve the TTM system in Auckland and support the transition to NZGTTM.

These initiatives can be grouped into three key areas – initiatives focused on TTM cost reduction, initiatives focused on improving TTM practices and initiatives to manage the transition to NZGTTM. These are covered over the next 3 pages.

1. Cost Reduction

AT has identified several cost reduction initiatives as part of the TTM transformation programme. This includes partnering with CCOs to realise cost savings, critical evaluation of CARs to reduce TTM and disruption and a set of initiatives put together by AT Project Delivery team to reduce TTM related costs. However, there are notable gaps.

Namely, AT is lacking an approval process with a robust assessment framework that considers the full breadth of impacts across user groups and TTM trade-offs including the economic, financial and social impacts on surrounding households and businesses.

Further, across all the identified cost reduction initiatives, an uplift in AT capacity and capability will be required, given the increasingly specialised nature of TTM and inability to implement a robust decision-making framework to date. Changes to the procurement approach alone are unlikely to be sufficient to change the incentives in the system given the large volume of contracts and fragmented structure of the industry. Additional commercial levers such as an enhanced fee and benefit regime will be required.

2. Improving TTM Practices

Initiatives which focus on improving TTM Practices include the 'clean-up' of TTM that may have been left behind and walk-abouts to identify opportunities to optimise live worksites - these are both resource intensive.

Desired outcomes might be better achieved by creating the system incentives for the TTM contractors to optimise their TTM and remove their TTM after the works are completed. Technology has a role in improving the approvals process and efficiency, however no immediate opportunities have been identified by AT.

3. Managing Shift to TTM

AT's initiatives which support the transition to the NZGTTM system include AT asking their large contractors to trial NZGTTM for selected projects, workshopping the transition with TTM industry members, an assessment of how risk is to be managed in the absence of CoPTTM and how the transition may affect legal and safety risks.

These initiatives are important steps to assess the potential gaps in the absence of CoPTTM and to support the industry in its transition. AT will play a heightened role in a new TTM system governed by NZGTTM and an uplift in resources to manage this shift. Robust approvals and decision-making process that prioritises CARs and assesses the full range of impacts will be required.

Improving TTM Practices: AT Initiatives

The initiatives that have been identified by AT as part of the TTM transformation programme are set out below. This includes partnering with CCOs to realise cost savings, critical evaluation of CARs to reduce TTM and disruption, as well as a set of initiatives put together by AT Project Delivery team to reduce TTM related costs.

The specific initiatives described in slides 28-30 are directly linked to 'Industry Transition' and 'Enabling AT' initiatives outlined in the TTM Transformation Programme.

There are notable gaps. AT does not currently have an approval process with a robust assessment framework that considers the full breadth of impacts across user groups and TTM trade-offs including the economic, financial and social impacts on surrounding households and businesses. Legislative barriers mean that it lacks the ability to charge meaningfully for TTM disruption.

Industry is seeking greater guidance about what will be acceptable under the new NZGTTM regime. Moving forward, AT should take the opportunity to step into the void that the removal of the prescriptive COPTTM will leave, becoming a system leader in regard to corridor management, the application of TTM regulations and disruption mitigation.

Category	Initiatives & Gaps	Assessment of Initiatives/ Gaps
1. **Cost Reduction**	a. AT will partner with Eke Panuku and Watercare as well as utility companies to help them realise any cost saving opportunities. *(Links to: Industry Transition 1)*	► This initiative seeks cooperation between CCOs and utility companies to develop ideas on how AT can assist them in reducing TTM. ► **Key Gap**: utilities companies and CCOs are looking to AT to provide leadership about how they can best coordinate with Council and AT to generate greater efficiencies. They do not consider that they have sufficient visibility of overall network activity to provide this guidance.
	b. AT teams to critically evaluate CARs to influence site-specific TTM plans to minimise disruption and costs where it is possible. This initiative included the implementation of a "Disruption Assessment Tool" which assesses project priority based on level of disruption and the monetary value associated with impacts caused by disruption. This proved too complex to employ in practice and will not be implemented. *(Links to: Enabling AT 9)*	► The Disruption Assessment Tool represented a sound effort on the part of AT to consider a wider range of disruption. Due to its complexity, however, it is not being used. ► The Tool is limited in that it is practically difficult to implement, does not provide strong guidance for monetisation, and does not include direct economic disruption to commercial entities and households. ► **Key Gap:** AT should seek to resurrect the Disruption Assessment Tool and consider how to use the tool as part of its TTM assessment process. ► **Key Gap**: AT should consider how best to incorporate private/business disruption in a future version of the Disruption Assessment Tool, potentially using this to inform pricing in a future regime.
	c. AT Project Delivery team to lead a set of initiatives to reduce TTM related costs including analysing procurement approach, construction methodology, and reducing TTM requirements. (Links to: Enabling AT 10)	► The volume of TMPs/CARs across Council, utilities and the private sector coupled with complex contracting arrangements may limit the ability to affect change through procurement alone. Other levers (e.g., pricing mechanisms) are more likely to be effective in creating appropriate systemic incentives to control costs and minimise disruption. ► **Key Gap**: AT lacks a robust framework for prioritising the scrutiny and approval of CARs/TMPs based on the level of disruption or risk. Focussing on enforcement and management of highly disruptive works could focus effort and lead to solutions that are better tailored. ► **Key Gap**: reducing TTM requirements for low-risk activities can increase compliance, allow for better system monitoring and reduce TTM costs. A revised framework could include different pathways for the assessment of CARs/TMPs based on project risk and disruption.

Improving TTM Practices: AT Initiatives

AT's initiatives that are focused on improving TTM practices are set out below. Initiatives include the 'clean-up' of TTM that may have been left behind and walk-abouts to identify opportunities to optimise live worksites – these are both resource intensive. Desired outcomes might be better achieved by creating the system incentives for the TTM contractors to optimise their TTM and remove their TTM after the works are completed. Technology has a role in improving the approvals process and efficiency however no immediate opportunities have been identified by AT.

Category	Initiatives & Gaps	Assessment of Initiatives/ Gaps
2. **Improving TTM Practices**	a. Clean-up of redundant TTM equipment on the network. *(Links to: Enabling AT 4)*	► This is a live initiative and is important in managing abandoned sites but walk-arounds are not necessarily cost-effective. ► The limited capacity of AT to check all sites for abandoned equipment means it may prove more effective to introduce a meaningful a fee regime – with occasional audits – to encourage contractors to remove TTM when it is not needed.
	b. Weekly city centre walkarounds from AT to identify opportunities to optimise live worksites and notify contractors for change if required. *(Links to: Enabling AT 5)*	► This appears to be an effective initiative, although as in (2a) its scope is limited by the capacity of AT to visit worksites.
	c. Three Strike System: drive better compliance of contractors on ATs network, so three instances of poor performance could lead to restricted access to network. *(Links to: Enabling AT 6)*	► The three-strike system has been developed but implementation has been delayed. ► The three-strike system could create an incentive to have compliant work sites, but it may have the ultimate impact of increasing TTM disruption particularly as the focus is primarily on the 'safety' of the site.
	d. Identify and prioritise opportunities where technology could enable better decision making and efficiency. *(Links to: Enabling AT 11)*	► This initiative is in the early stages and neither resourcing nor technological approaches have yet been identified. ► **Key Gap**: there may be opportunities to leverage imaging technology to identify the extent of TTM in place, identify unauthorised TTM and find sites where TTM equipment has been 'abandoned'. This would support enforcement and TTM disruption.
	e. Land rental fees for in Auckland for 'private use' of the road corridor for things such as events or private development. *(NB: Not included in TTM Programme Update)*	► This initiative has been implemented and represents a positive step for AT toward charging for road use in a way that discourages unnecessary TTM/disruption of the road reserve. ► The expansion of this initiative to cover works undertaken in the road reserve is limited by legislation. ► **Key Gap:** AT should continue to investigate contractual and fee-based means to send appropriate price signals about the disruption TTM causes. ► **Key Gap:** Auckland Council and AT should consider the legislative changes that might be required to allow for a more complete pricing regime that sets appropriate incentives.

Improving TTM Practices: Transitioning to NZGTTM

AT's initiatives which support the transition to the NZGTTM system are detailed below. These include AT asking their large contractors to trial NZGTTM for selected projects, workshopping the transition with TTM industry members, and an assessment of how risk is to be managed in the absence of CoPTTM and how the transition may affect the legal and safety risks. These initiatives are all important steps to assess the potential gaps in the absence of CoPTTM and to support the industry in its transition. AT will play a heightened role in a new TTM system governed by NZGTTM and an uplift in resources to manage this shift and a robust approvals and decision-making process that prioritises CARs and assesses the full range of impacts will be required.

Category	Initiatives & Gaps	Assessment of Initiatives/ Gaps
3. **Managing Shift to NZGTTM**	a. AT (as the PCBU) is asking its construction contractors to trial the use of NZGTTM for select larger projects to understand how the process will work on AT's end and where time and effort is required at the client end for transitioning to the new system. *(Links to: Industry Transformation 1)*	▸ Contractor trials will allow AT an opportunity to clarify its role in a post-CoPTTM world. It will also highlight where work may be required to smoothly transition to the new system. Encouraging contractors to provide feedback on these trials and having trials across a range of projects will be important.
	b. AT workshops with TTM industry members to codesign the transition to risk based TTM. *(Links to: Industry Transformation 3)*	▸ Input from TTM industry members will allow for a two-way conversation about how to best transition to NZGTTM. The outcome of these sessions may be that an uplift in capacity and capability at AT is required to develop initiatives and implement solutions for problems identified in workshops. ▸ **Key Gap**: industry is seeking greater leadership – not co-design – from AT. Industry is looking to AT to provide baseline guidance on what is expected under NZGTTM, articulate expectations and 'rules of the game'.
	c. Assessment of change (if any) to legal and safety risks for the directors and the officers with the move from CoPTTM to NZGTTM. *(Links to: Enabling AT 7)*	▸ Assessing how guidelines may change under the new system is important and will ensure safety and legal risks are acknowledged and addressed under NZGTTM.


4
Findings and Actions

Findings

The current system is defined by risk-aversion, a lack of contractual control over TTM subcontractors, asymmetry of information in the TTM system (between TTM subcontractors and everyone else) and a disabling legislative and regulatory environment. There are strong incentives to remove risk associated with roadworks, and very little consideration of the impacts of removing that risk on business and household disruption, costs, or urban amenity.

This is a system that operates exactly as it is designed – for better or for worse. There are no 'bad actors', but because the incentives are unilateral, the scale and cost of TTM also moves uniformly upward. This section summarises the key findings for each part of the system, and then provides actions that Auckland Council and its partners can take to begin to change traffic management dynamics.

Corridor Management

- Auckland Council Group (Council, AT and Watercare) account for over 30% of CARs (excluding demand from Global CARs), but do not appear to use their collective purchasing power to coordinate capital programmes to complete multiple projects at once to reduce overall corridor demand.
- Disruption is not considered on a broad basis (i.e., disruption to businesses and residents), instead it is focused on traffic, PT and disruption to vulnerable road users.

Policy & Regulation

- Existing regulations (CoPTTM and HSWA particularly) foster prescriptive TTM approaches that take a risk averse approach and do not support innovation.
- The AT approvals process for Traffic Management Plans is focused primarily on ensuring COPTTM has been followed accordingly. Where disruption is considered, it is from a traffic and vulnerability perspective.
- Regulations and incentives move to minimise risk by maximising risk treatments, leading to overzealous TTM solutions which do not consider trade-offs, resulting in 'overkill' TTM.

Fees & Fines

- Legislative constraints restrict the scale of fees to "reasonable administrative costs incurred by AT doing business".
- Fees in Auckland and New Zealand in general, are much lower than comparable jurisdictions and have little impact on behaviour incentivisation.
- Fees are modest, not duration-based and not proportionate to the scale of impact, limiting incentives to optimise TTM solutions or shorten duration.
- Positive financial incentives and disruption compensation mechanisms are note generally used to reflect or spread the true economic cost of TTM.

Findings

Contracting Mechanisms

- TTM contracts are typically issued on a time and materials basis and little financial risk is carried by the TTM contractor. The subcontractor's priority is to minimise HSWA compliance risk – and increase profits – by maximising the TTM solution.
- Under fixed price contracting, a more competitive TTM solution might be forthcoming, but contractors are incentivised to employ relatively conservative TTM approaches to reduce risk and delays due to variations to the TTM solution.

Industry Model

- The increasing complexity of TTM and training requirements of TTM operators means the development and delivery of TTM solutions – and the risk they are being implemented to treat – are often outsourced to sub-contractors.
- This structurally bakes in a high baseline level of TTM services into construction delivery methodologies and risk management approaches.
- The increasing separation of contractors and TTM sub-contractors and growth in the TTM-as-a-service industry is contributing to increased TTM costs through higher contracting costs and difficulty in right-sizing the solution.

Enforcement & Monitoring

- Fines for TTM enforcement in New Zealand are negligible compared to similar jurisdictions, with the cost of incurring the fine generally being cheaper than the cost of adhering to the rules being enforced.
- Stop Work Orders, the most effective and direct enforcement management tool creates more disruption and can lead to significant works delays and increased costs.
- Technology is used only to a minimum extent for monitoring construction and TTM disruption in the Auckland transport network, providing an opportunity to increase its use to monitor and enforce desired system behaviours.

AT TTM Transformation Programme

- AT is making progress implementing levers currently available to minimise TTM disruption, such as utilising 'Super Weekends', with further improvement to come as more TTM Transformation Programme initiatives are rolled-out.
- While AT is working to understand the corridor management system impacts of a shift from COPTTM to NZGTTM, AT would benefit further from developing its role and the outcomes it wants to achieve as a TTM system regulatory leader.
- An uplift in AT capacity and capability will be required to manage the added complexity an industry-led TTM approach will bring as NZGTTM is implemented.

Actions

The action plan detailed below contains 25 proposed actions the Council may wish to consider and direct Auckland Council Group to act on. While these proposed actions may go some of the way towards supporting a better functioning TTM system in Auckland, to achieve a genuine shift in system behaviours and performance will require legislative change by Central Government.

Each action is labelled as having a high, medium or low impact (relative to the other actions). These are indicative signals of where to direct effort alongside lobbying for legislative change.

TTM system component	#	Action	Action Owner(s)	Impact (H/M/L)
Policy & Regulation	1	Advocate to Central Government to remove the legislative barriers stopping Auckland Council from introducing fees and fines that incentivise innovative traffic management solutions and can change in response to market conditions.	AT	HIGH
	2	Direct that AT support the shift from CoPTTM to NZGTTM by taking sector leadership and providing stronger guidance about what acceptable TTM approaches are under NZGTTM in Auckland.	Council, AT.	HIGH
	3	Engage with similar jurisdictions (e.g., the United Kingdom) to understand how to manage the tension between a safety-based approach and the level of disruption created by TTM.	Council, AT.	MEDIUM
Industry Model & Costs	4	Direct AT to investigate the extent to which its contractor panel can drive more competitive pricing of TTM services, including through alternative contracting ('gain/pain share') models, and identifying how AT can benefit from newer TTM businesses with fewer overhead costs.	AT	MEDIUM
	5	Reward innovative TTM solutions (under NZGTTM) through reduced fees.	AT	LOW
	6	Undertake a feasibility assessment to determine if any material, long-term cost savings can be realised by establishing an AT-internal TTM business unit or other entity (e.g., CCTO) to serve Auckland Council Group.	AT	LOW
Contracting Mechanisms	7	Direct Auckland Council Group to continue to find opportunities to 'package' procurement of TTM services to reduce overall cost.	AT, Council, Watercare, Eke Panuku.	HIGH
	8	Investigate if NZGTTM allows for sharing of TTM resources across sites (particularly TCs and STMSs).	AT	MEDIUM
	9	Introduce regular, random audits of major TTM contracts to test whether they are providing a value-for-money service that appropriately balances health and safety risk with cost control.	AT, Council, Watercare, Eke Panuku.	MEDIUM
	10	Introduce a cooperative and contestable fund for those providers who work collaboratively to deliver a joint planning and delivery approach to utilities maintenance and TTM, reducing disruption.	AT, Council, Watercare, Eke Panuku.	MEDIUM
	11	Provide contestable funds for contractors who demonstrate an innovative approach to TTM.	AT, Council, Watercare, Eke Panuku.	MEDIUM
Corridor Management	12	Direct that work be undertaken to consider a simpler, more transparent and streamlined approach to disruption management tool that better considers the economic, financial, social and all-of-network impacts of road works when granting CARs.	AT	HIGH

Actions

TTM system component	#	Action	Action Owner(s)	Impact (H/M/L)
Corridor Management	13	Direct Auckland Council Group to coordinate capital programmes, where sensible to do so, with a focus on reducing total time in the road corridor.	Council, AT, Watercare, Eke Panuku.	HIGH
	14	Establish a framework to coordinate utilities and Auckland Council Groups' CAR requests to minimise overall time spent completing works.	AT, Council, Watercare, Eke Panuku, utility providers.	HIGH
	15	Direct greater use of 'Super Weekends' and similar use of full road corridor closures to reduce total time of disruption and total TTM costs.	AT	HIGH
	16	Establish data collection and analysis of TMPs as they are submitted and as they are implemented to determine the likelihood of similar future TMPs running overtime or experiencing non-compliance.	AT	LOW
Fees & Fines	17	Direct AT to further investigate how the true cost of managing the road corridor can be reasonably reflected in CAR and TMP fees.	AT	HIGH
	18	Direct AT to investigate how charges and payments can be used within the current legislative framework, to add real cost to disruption and compensate those that are disrupted by TTM.	AT	HIGH
Enforcement & Monitoring	19	Undertake analysis to determine the full suite of technologies currently used in and around the Auckland transport network road corridor which have monitoring capabilities.	AT	HIGH
	20	Based on the findings of Action 18, trial actively monitoring TTM sites in the road corridor with available technologies, producing a proof of concept for remote compliance and enforcement.	AT	MEDIUM
	21	Consider deploying imaging technology (e.g., space based or mobile cameras) to determine where there is unapproved TTM or non-compliant activity in the road corridor.	AT	LOW
TTM Transformation Programme	22	Direct Auckland Council and AT to bring TTM providers together with utilities and private developers to develop joint planning and information sharing about road corridor use. This action could be aligned to Action 10, making contestable funding available to providers who coordinate and provide joint information to AT to support coordination of roadworks.	AT, Council, Watercare, Eke Panuku, utility providers.	HIGH
	23	Investigate establishment options for a fixed financial compensation scheme for local businesses heavily disrupted by TTM.	AT	HIGH
	24	Technology should be used to automate the approvals process where possible and create a simple disruption assessment tool that can easily be implemented by AT.	AT	HIGH
	25	Establish an industry group where experiences about what works can be shared within the market, building knowledge and consensus about TTM best practice in the Auckland transport network.	AT	MEDIUM

5

Appendix: International Case Studies

Case study: Seattle City Council, voluntary improvements scheme

Context

Seattle's growth as the commercial and technological hub of the Pacific Northwest has put pressure on the city's transport network in recent years.

The Mayor's Downtown Activation Plan sets ambitious goals to revive the city's urban centres post-Covid, including increasing pedestrianisation and activating public spaces for community use.

These urban development goals will impact much of the inner city's transport assets and urban form, and so disruption management will be crucial.

Solution: Credit of contractor use fees for voluntary improvement

In February 2017, Seattle City Council adopted Ordinance 125251 which grants the Seattle Department of Transportation (SDOT) the ability to credit use fees (charges associated with permits and fees for corridor access) in exchange for voluntary transportation improvements.

If contractors go beyond minimum requirements and voluntarily improve existing cycleways, sidewalks and curb ramps, they can be reimbursed up to $300,000 in use fees.

Eligibility is determined by assessing the private cost to complete the improvement and comparing this to the SDOT cost. SDOT also determines whether the improvement is beneficial or redundant.

Effectiveness

The benefits for Seattle are two-fold: they reduce the overall cost of streetscape improvements for the city and reduce the number of times areas undergo construction – ultimately reducing total disruption to residents and businesses.

The city already has comparatively high corridor use fees, so the city 'benefits' whether the contractor elects to improve the transport asset or not.

Seattle also has a dynamic fee structure (shown in Table 7) which reflects the amount of disruption caused by roadworks.

Table 7: Breakdown of Seattle's road use fee calculations (US$).

Use Fee Model						
Density Factors	**Urban Centre**		**Urban Village**		**Neither**	
	US$1.10		US$0.70		US$0.20	
Mobility/Safety Factors						
Street Category	**Arterial**		**Non-Arterial**		**Alley**	
	$0.40		US$0		$0	
Modal Priority	**Transit Blocked**	**Transit Impacted**	**Bike Blocked**	**Bike Impacted**	**Ped Blocked**	**Ped Impacted**
	$0.20	$0	$0.20	$0	$0.20	$0.10
Use Fee Calculation						
*Summation of all uses by frontage: (Sum of all factors) * (sq. feet occupied/ 100) * (Duration in days) * (Escalation Rate)*						

Use Fee Model Escalation Rates					
Duration (days)	**Arterial**	**Non-Arterial**	**Duration (days)**	**Arterial**	**Non-Arterial**
0-30	x1	x0	**121-150**	x12	x2
31-60	x2	x1	**151-210**	x12	x4
61-90	x4	x1	**211-270**	x12	x8
91-120	x8	x2	**271+**	x12	x12
31D Permits	$0.70 per square foot				

Case study: Singapore lane charges and demerit system

Context

Singapore is a highly congested country, with 70% of its population living within eight kilometres of the Central Business District.

Singapore's vertical urban planning means that construction often requires use of flat and open transport corridors.

With transport links being the key to moving around Singapore's dense urban landscape efficiently, minimising disruption on roads is a priority for safety, economic and financial reasons.

Solution: Lane Charge Scheme

Unlike most (if not all) other countries, Singapore have a transparent fee structure within central government legislation – *Street Works (Works on Public Streets) Regulations 1995* (the Act).

Section 6A of the Act clearly lays out all relevant fees and charges associated with undertaking works in a public street and causing disruption as a result. The formula has been computed based on delay cost to motorists.

For example, the fees payable for works carried out in any period (apart from periods when there is no traffic) is calculated using the formula:

N * ($60 + $0.30 * L).

- *N = Number of hours during which the works (including reinstatement) are carried out.*
- *L = Total length (in metres) of each lane that was closed to regular traffic flow due to the construction.*

Solution: Demerit System

Acknowledging that the charges payable are insignificant for large contractors, Singapore enacted a universally-applicable demerit system to punish poor behaviour and excessive disruption on public streets.

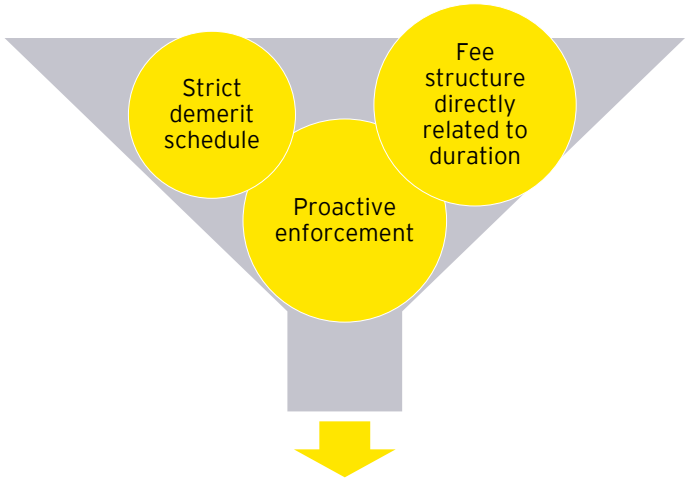
The Act clearly outlines faults caused by construction on public streets and the corresponding amount of demerit points awarded. If a contractor is awarded 200 or more demerit points within a month, they are deemed unfit for working on a public street and the city can charge for any reinstatement works required.

For example, failing to display adequate temporary traffic signs or other indication equipment to guide motorists and pedestrians results in 100 demerit points. Commencing works without approval results in 200 demerit points – an instant ban.

Effectiveness:

The Singaporean Ministry of Transport has reported a decrease in public complaints in relation to road conditions and traffic congestion arising from roadworks following the introduction of the lane charging and demerit system.

Figure 5: Core components of Singapore's lane charge and demerit system



Minimal disruption from roadworks and high rates of compliance

Case Study: City of Boston, disruption impact fund

Context

Boston is one of the oldest cities in the United States and faces challenges with aging infrastructure that is no longer reliable and fit for purpose.

- It is the tenth-most densely populated city in the United States with over 5,000 people per square kilometre.
- The city has and is still undergoing large scale infrastructure projects, e.g., 'Big Dig', 'Go Boston 2030', with goals to grow pedestrianisation and reduce travel time and emissions.

Solution: Disruption impact fund

Acknowledging the disruption the city would face in the coming decades, particularly due to the 'Big Dig' which began construction in 1991, the City of Boston introduced a 'Disruption Impact Fund' in 1990 to their municipal code (8-10.3):

> *All individuals, developers and general contractors performing any part of a major road construction project shall set aside an amount equal to one-half of one (.5%) percent of the expected total cost of the road construction work they are performing as a contingency fund for the reimbursement of damages to small businesses caused by disruption due to the project. This disruption impact fund shall be deposited with the Public Facilities Department prior to the start of construction.*
>
> *(Ord. 1990 c. 6 § 3)*

- The code states businesses that suffer a decline in gross receipts by at least 20% over a consecutive sixty-day period, and can reasonably attribute that decline to roadworks, may qualify for reimbursement.
- All businesses must apply for reimbursement by thirty-days after the corridor has been reinstated.
- Any remaining amount at the end of this period is returned to the contractor.
- Only small businesses are eligible, with less than 20 employees and annual revenue of less than $1m.

Effectiveness

The impact fund works as it creates a financial incentive for contractors undertaking roadworks to consider and minimise impact to local businesses. If their TMP and work method allow more businesses to operate as normal, they will receive more of the fund back.

Figure 6: Boston, Massachusetts, USA.

Case Study: Kent County Council, lane rental scheme

Context

In January 2012, the Department for Transport introduced the Street Works (Charges for Occupancy of the Highway) which authorised the piloting of Lane Rentals by Kent County Council and Transport for London. These lane rental powers are derived from the united Kingdom's Transport Act 2000 (Section 255).

The Lane Rental National Guidance provides flexibility for Councils to tailor the scheme to those locations within their road network that are the most critical/busiest and the time period for which charges apply.

Lane Rental complements the requirement for Notices and the Permit Regime which are intended to increase highway authorities' management and coordination of works to minimise disruption.

How is the Lane Rental Scheme applied?

- Kent County Council Lane Rental only applies to certain roads (i.e., those with the potential to cause the most disruption).
- A daily rate is charged if during busy periods or rush hours (range of £300 - £2,000).
- Different charges are applied for different roads.

Solution: Financial Incentive Structure

Lane Rental introduces incentives for companies to do their works differently and/or shorten the works time to minimise disruption to commuters and businesses.

Companies can avoid charges by:

- Working outside of traffic sensitive times.
- Working outside of term or seasonal times.
- Working at weekends or bank holidays during term time (note: the UK Govt are currently consulting on extending fines to these days as part of their Plan For Drivers, Jan 2024).
- Avoiding the reduction of lanes available to traffic.
- Working with other highway companies to share the collective charge.

Effectiveness

- The average occupancy time for urgent and emergency works that cause congestion on the Kent Lane Rental Scheme road network at traffic sensitive times dropped from 4 to 3 days within the 1st year of the scheme.
- A 2016 independent Evaluation of the 2 Lane Rental Pilot Schemes found that there was an overall reduction in disruption primarily driven by a move towards more out-of-hours working.

Figure 7: Kent, England.

Release Notice

Ernst & Young (“EY”) was engaged on the instructions of the Office of the Mayor (Auckland) to support Auckland to gain an updated understanding of the potential opportunities to develop an approach that minimises the impact of Temporary Traffic Management (TTM) on Auckland’s roads from construction and maintenance activity, in accordance with the engagement agreement dated 7 February 2024, and executed on 9 February 2024.

The results of EY’s work, including the assumptions and qualifications made in preparing the report, are set out in EY’s report dated 14 June 2024 ("Report"). The Report should be read in its entirety including this notice, the applicable scope of the work and any limitations. A reference to the Report includes any part of the Report.

EY has prepared the Report for the benefit of the Client and has considered only the interest of the Client. EY has not been engaged to act, and has not acted, as advisor to any other party. Accordingly, EY makes no representations as to the appropriateness, accuracy or completeness of the Report for any other party's purposes.

Our work commenced on 9 February 2024 and was completed on 14 June 2024. Therefore, our Report does not take account of events or circumstances arising after 14 June 2024 and we have no responsibility to update the Report for such events or circumstances arising after that date.

No reliance may be placed upon the Report or any of its contents by any party other than the Client (“Third Parties” or “you”). Any Third Parties receiving a copy of the Report must make and rely on their own enquiries in relation to the issues to which the Report relates, the contents of the Report and all matters arising from or relating to or in any way connected with the Report or its contents. EY disclaims all responsibility to any Third Parties for any loss or liability that the Third Parties may suffer or incur arising from or relating to or in any way connected with the contents of the Report, the provision of the Report to the Third Parties or the reliance upon the Report by the Third Parties.

No claim or demand or any actions or proceedings may be brought against EY arising from or connected with the contents of the Report or the provision of the Report to the Third Parties. EY will be released and forever discharged from any such claims, demands, actions or proceedings. In preparing this Report EY has considered and relied upon information provided to us by the Client and other stakeholders engaged in the process and other sources believed to be reliable and accurate. EY has not been informed that any information supplied to it, or obtained from public sources, was false or that any material information has been withheld from it. EY does not imply, and it should not be construed that EY has performed an audit, verification or due diligence procedures on any of the information provided to us. EY has not independently verified, nor accept any responsibility or liability for independently verifying, any such information nor does EY make any representation as to the accuracy or completeness of the information. Neither EY nor any member or employee thereof undertakes responsibility in any way whatsoever or liability for any loss or damage to any person in respect of errors in this Report arising from incorrect information provided to EY.

EY has consented to the Report being published electronically on the Client’s websites for informational purposes only. EY has not consented to distribution or disclosure beyond this. The material contained in the Report, including the EY logo, is copyright. The copyright in the material contained in the Report itself, excluding EY logo, vests in the Client. The Report, including the EY logo, cannot be altered without prior written permission from EY.

EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

ey.com