



# TACKLING UNSAFE SPEEDS

Programme business case for a new speed management framework and safety camera system

30 JULY 2021

V2.0



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# EXECUTIVE SUMMARY

## Purpose of this business case

This Programme Business Case (PBC) outlines the case for investment in the Tackling Unsafe Speeds (TUS) Programme to help progress New Zealand's road safety strategy – Road to Zero 2030. The TUS Programme comprises three component programmes: the Speed Management, Safer Speeds Around Schools, and Safety Camera System programmes.

It is estimated that the TUS Programme will directly reduce deaths and serious injuries (DSIs) on New Zealand roads by 4% by 2030 (baselined against 2018 statistics). This is a significant contribution to the savings required to meet the Road to Zero target of a 40% reduction in DSIs by 2030. It is also a key enabler to the nearly 20% of DSI savings that will be delivered by the Speed and Infrastructure Programme.

This PBC identifies the programmes of work that deliver on the tackling unsafe speeds aspects of the Road to Zero Strategic Case. It describes the problems, identifies alternative options, and sets out the expected costs and benefits.

The PBC seeks from the Board:

- approval of funding to complete the implementation of Speed Management for the 2021–24 NLTP cycle
- approval of funding for Safer Speeds Around Schools for the 2021–24 NLTP cycle subject to the completion of a satisfactory implementation and endorsement of the proposed approach to manage:
  - the implementation of infrastructure initiatives through the Speed and Infrastructure Programme 2021–24 funding mechanisms endorsed by the Board in April 2021
  - a national publicity and education campaign through the National Road Safety Promotional Programme, endorsed by the Board in June 2021
- approval and funding to complete the high-level design, procurement process, and a detailed business case (DBC) for the Safety Camera System programme for the 2021–24 NLTP cycle.

The three component programmes vary in terms of value, timeframe, and implementation stage, so the treatment and level of detail of each in this PBC varies accordingly.

## Background

In December 2019, Cabinet agreed in principle to the TUS Programme:

- implementing a simpler and more effective regulatory framework for speed management, which includes requiring road controlling authorities (RCAs) to work with regional transport committees to develop, consult on, and implement speed management plans
- transitioning to lower speed limits around schools to improve safety and enable more children and young people to walk or cycle to school safely
- adopting a new approach to safety cameras that includes significant increased investment in additional safety cameras and ownership and operation of the camera network being transferred from New Zealand Police to Waka Kotahi.

In 2019, the government published Road to Zero, New Zealand's Road Safety Strategy 2020–2030. This strategy sets out a vision for a New Zealand where no one is killed or seriously injured in road crashes.

In August 2019, the Board wrote to the Minister and Ministry for Transport, stating:

The Transport Agency is fully committed to playing its part in achieving the trauma reduction target ultimately agreed by Government, whether this is 40%, 50% or 60%. If 40% is set, we would welcome opportunities to explore greater levels of ambition as implementation progresses – for instance, developments in technology may enable more rapid progress.

In August 2019, the Board approved investment of ██████████ in a new change initiative from the National Land Transport Fund for 2019–2021 to progress the upgrade (or replacement) of the Police Infringement Processing System.

In February 2020, the Executive Leadership Team agreed that the funding approved for upgrading the Police Infringement Processing System be used to establish the TUS Programme. At the time, it was expected that a PBC would be developed for the Safety Camera System programme by June 2020 and the Speed Management programme would be completed by June 2021.

In August 2020, the Road to Zero Strategic Case proposed the PBC be broadened to encompass the whole scope of tackling unsafe speeds, and submission was deferred to November 2020.

The Speed Management programme subsequently commenced implementation. However, it encountered delays in Cabinet approving consultation on the new Land Transport Rule: Setting of Speed Limits (the Rule). This programme is now expected to be completed in 2023, so requires additional funding.

In April 2021, the Board endorsed the PBC for the Speed and Infrastructure Programme. This included a mechanism to package projects within the Speed and Infrastructure Programme's delivery programme 2021–24 and seek funding to progress and implement each package of safety improvements on the state highway and local road network. The Safer Speeds Around Schools programme will use this mechanism to package, prioritise, and implement the required infrastructure improvements.

In June 2021, the Board endorsed the PBC for the National Road Safety Promotional Programme, which will manage the Safer Speeds Around Schools national publicity and education campaign.

## Strategic and organisational context

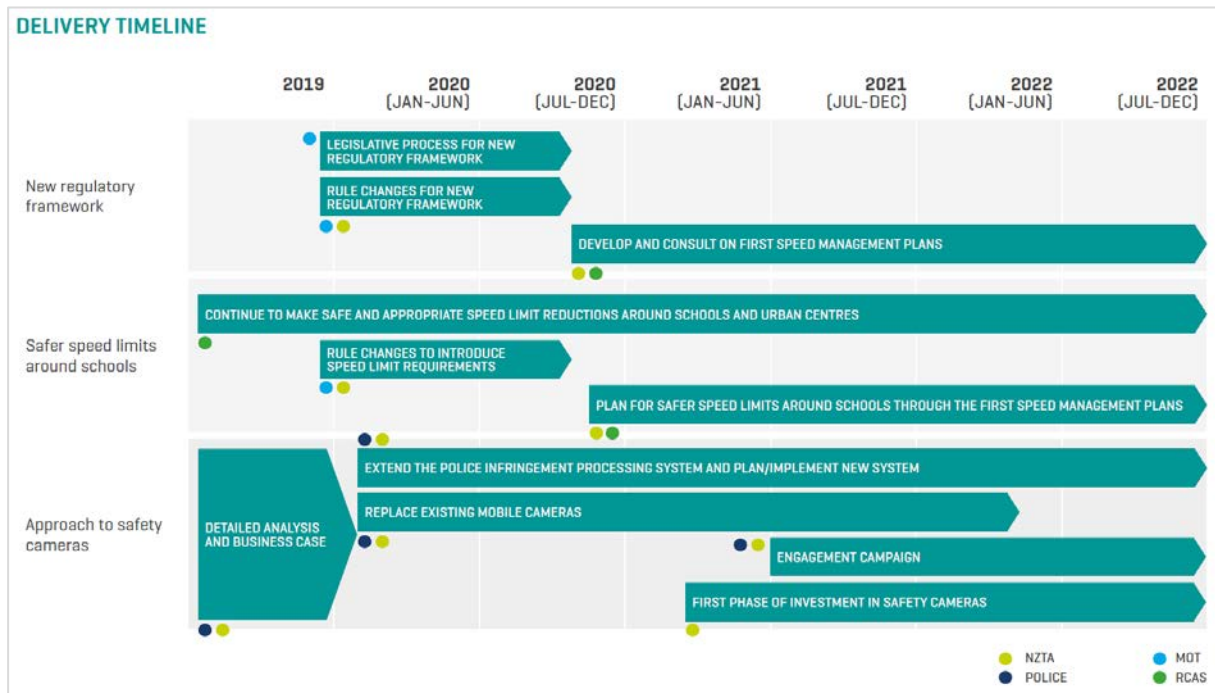
On average, one person is killed and a further seven people are seriously injured on the roads every day. Death and serious injury should not be the inevitable cost of travelling and accessing social and economic opportunities. This principle underpins the new national road safety strategy – Road to Zero. The strategy lays the groundwork for the longer-term vision – a New Zealand where no one is killed or seriously injured in road crashes – and includes clear and measurable outcomes to ensure safety interventions are driving reductions in DSIs.

This strategy sets out five priority areas, including tackling unsafe speeds, that require a sustained and integrated focus to improve national road safety from a 'safe system' perspective and deliver a 40% reduction in DSIs by 2030 (from 2018 levels). Enabling a safe system aligns with the Transport Outcomes Framework and the strategic priorities reaffirmed in the Government Policy Statement on Land Transport 2021. The statement sets the expectation that key elements of Road to Zero and its initial action plan will be invested in, including measures to support the TUS Programme.

Speed continues to be a major contributing factor to DSIs on New Zealand roads. In a crash, regardless of its cause, the speed of impact is the most important determinant of the severity of injuries sustained and the probability of death. International evidence shows a decrease in mean travel speed is associated with a decrease in the number and severity of crashes. The new approach to tackling unsafe speeds addresses problems with the speed management regulatory framework and unlocks an opportunity to make greater use of safety cameras to improve road user compliance.

The Road to Zero Initial Action Plan 2020-22 sets out specific initiatives that the TUS Programme will deliver. The delivery timeline is shown in Figure 1.

Figure 1 – Delivery timeline for the Tackling Unsafe Speeds Programme



Safety is also a core priority for Waka Kotahi. Enabling a safe system is one of four roles Waka Kotahi must perform to achieve its vision of a land transport system connecting people, products, and places for a thriving Aotearoa. The TUS Programme is fully aligned with the direction of the Waka Kotahi regulatory strategy – Tū Ake, Tū Māia – which is working towards reduced DSIs supported by good practice regulation.

## Benefits

Waka Kotahi modelling indicates that just over half the 40% reduction in DSIs could be achieved through a combination of infrastructure improvements (such as median barriers and intersection treatments), targeted speed limit changes on the highest-risk parts of the network, and increased levels of enforcement (by safety cameras and police officers).

The benefits of the TUS Programme will be:

- reduced speed-related DSIs (main benefit)
- reduced ongoing compliance costs for RCAs and the regulator through the introduction of coordinated and streamlined processes and consultation requirements for speed limit changes, resulting in less effort required to change limits
- improved road safety outcomes for all parties as a result of a consistent whole-of-network approach to speed management, including lower speed limits around schools
- safer active road use and associated health and wellbeing benefits
- more-effective enforcement of speed limits through an expanded safety camera network.

The TUS Programme will deliver:

- a new regulatory framework and processes for speed management (including transitioning to lower speed limits around schools) and the provision of support and tools
- the foundations for a new safety camera system, including the transfer of the ownership and operation of safety cameras [REDACTED] to Waka Kotahi and the implementation of the capabilities required to operate and optimise a new approach to using safety cameras to reduce inappropriate speed
- the expansion of the safety camera network over multiple phases.

## Options for programme delivery

Recommended options have been identified for each component programme. Together, these options deliver the changes necessary to deliver TUS to help improve road safety and reduce the number and severity of crashes.

The total investment required is an estimated **\$920.1M** over the next 20 years (see Table 1).

Table 1 – Tackling Unsafe Speeds – options summary, by the three component programmes

Category	Recommended option			Total
	Speed Management	Safer Speeds for Schools	Safety Camera System	
<b>Monetarised costs and benefits</b> (over 20 years discounted at 5%)				
Whole-of-life costs (\$m)	\$920.1M			
Monetised benefits (\$m)				
Net present value (\$m)	\$920.1M			
Benefit–cost ratio	–	–	0.77 to 1.86	<b>0.68 to 1.56</b>
<b>Non-monetary benefits</b> (✓ = minimal impact ✓✓ = moderate impact ✓✓✓ = major impact)				
More roads with safe and appropriate speed limits	✓✓✓	n/a	n/a	
Reduction in compliance costs for RCAs and the regulator	✓✓	n/a	n/a	
Potential increase in students walking or cycling to school	n/a	✓✓–✓✓✓	n/a	
Fewer crashes and lower risk of injury involving students around schools (within 250m)	n/a	✓✓–✓✓✓	n/a	
Improved driver behaviour and compliance	Enables	✓✓	✓✓✓	

## Speed Management programme

Speed Management is a critical enabler of other programmes of work. While it enables benefits such as faster speed limit changes, improved safe and appropriate speeds, and integrated speed, infrastructure and enforcement, it does not deliver DSI reductions itself. Much of the scope and the pace of implementation is dictated by the proposed Land Transport Rule: Setting of Speed Limits, and the fact a significant portion of the delivery is already under way.

The recommended option will:

- will implement the Rule and provide support to RCAs, Waka Kotahi as an RCA, the coordinators of RCA plans (proposed as regional transport committees), and certification processes
- establish a National Speed Limit Register
- enhance and update the MegaMaps tool to support RCAs
- develop a single speed management geospatial tool for the whole country based on system principles.



## Safer Speeds Around Schools programme

The new Rule will require RCAs to reduce speed limits (variable or permanent) to 30km/h (or 40km/h by exception) around all urban schools and to a maximum of 60km/h around all rural schools. The requirement is for all schools to have these limits in place by 2030, with an interim target of 40% of schools to be changed by 2024.

Waka Kotahi will work in partnership with RCAs and schools to ensure appropriate treatments are in plan. The potential school-specific treatments include basic signage and markings, basic signage and markings plus additional electronic variable speed limit signs and supporting infrastructure such as speed humps, chicanes and road narrowing to calm traffic.

A 'constrained' option that represents the 'minimal viable product' to achieve the 40% target is recommended. This option is recommended over a preferred option that would benefit more schools, but is not considered affordable. The constrained option will not provide any further treatments to schools that are already compliant with the new Rule.

For the time being, it has been assumed 100% financial assistance will be provided. This estimate will be refined as part of the preparation of the programme's implementation plan.

It is proposed that this programme will be managed by establishing a funding allocation with individual projects implemented using the low-cost low-risk investment pathway that is linked to this pathway. This approach has been successfully used for other national programmes such as the Innovating Streets Programme and Urban Cycleway Programme.

## Safety Camera System programme

The options analysis for the Safety Camera System programme focuses on three areas of choice:

- optimal safety camera network infrastructure, including camera types, numbers, location, and deployment approach
- supporting operating model (people, processes, and technology) to effectively and efficiently manage and operate the safety camera network
- pace of delivery.

This programme's preferred delivery option (Progressive) takes a measured approach to progressively rolling out new technologies (such as average-speed cameras) and the capabilities required to support them. This progressive approach enables Waka Kotahi to evaluate and learn as it delivers, which is necessary since much is still uncertain about the optimal safety camera network for New Zealand and legislation changes are required to enable new technologies and automation. This option will deliver an estimated [REDACTED] safety camera sites, lowering DSIs by 120–140 annually and achieving a 2.9–5.3% DSI saving by 2030. The one-time change, technology (excluding the safety cameras), and integration cost is [REDACTED].

The alternative options take more cautious and more aggressive approaches to the scale of the network expansion and pace of delivery.

A cautious approach will deliver [REDACTED] safety cameras, lowering DSIs by 85–95 annually and achieving a 2.0–3.6% reduction in DSIs by 2030. It will provide breathing space for a slower transfer and expansion of the existing camera network, but does not deliver the pace of DSI reduction required to achieve the Road to Zero target. The one-time change, technology, and integration cost is [REDACTED].

An aggressive approach would deliver the same number of cameras and DSIs reductions as the progressive approach but would deliver them faster. However, rapid delivery makes change management more challenging, so carries a high level of delivery risk. The one-time change, technology, and integration cost is [REDACTED].

All three options (Cautious, Progressive, Aggressive):

- allow Waka Kotahi to incorporate safety cameras into broader speed management planning processes and give Waka Kotahi the ability to coordinate and optimise its interventions
- take a targeted approach to the placement of safety cameras based on an assessment of risk on potential DSI savings
- build a new Waka Kotahi camera management and operations capability supported by modern technology systems (and using existing New Zealand Police and Ministry of Justice functions where it is mandated or otherwise makes sense)
- provide communications and engagement campaigns for safety cameras
- provide input into the development of speed management plans, which enable best practice application of speed limits, enforcement and infrastructure on New Zealand's roads.

The estimated DSI reductions for the three options are shown in Table 2. The benefit–cost ratio for all options is similar.

Table 2 – Safety Camera System – benefit–cost ratios by option

	Option A Cautious	Option B Progressive	Option C Aggressive
Whole-of-life costs (over 20 years discounted at 5%) (\$m)	\$ 92(000)		
Long-run DSIs saved per year (from year 9)	85–95	120–140	120–140
DSI percentage reduction at 2030	2.0–3.6%	2.9–5.3%	2.9–5.3%
Benefit–cost ratio	\$ 92(000)		
Present value cost per DSI (20-year whole-of-life cost / 20-year DSIs) (\$m)	\$ 92(000)		

## Public education

The TUS Programme has a strong focus on using public education to change driver behaviour about travelling at a safe speed.

Speed management and safety cameras are proven measures to deliver step changes in improved road safety performance. Speed Management is a key enabler of the work of Road to Zero, creating and establishing the mechanisms for faster speed limit changes that are safe and appropriate for the road, traffic movement, and place. Safer Speeds Around Schools implements those speed changes with recognisable road changes to signal driver behaviour changes. Safety Camera Systems is a key enforcement mechanism to support safe speeds and recognisable road conditions. Bringing the public along on this journey is critical to the success of TUS and Road to Zero.

Public education will be important to successfully deliver the key elements of TUS. The primary aim will be to communicate on why speed measures are important and generate support. TUS aligns with the overall Road to Zero focus with strong linkages to the social licence and behavioural change workstream. Work will be done through the ongoing speed campaign under the National Road Safety Promotional Programme, as well as campaigns focusing on Safer Speeds Around Schools and changing public attitudes towards safety cameras and increased visibility of the network, to build social licence.

Existing work to create recognisable ‘road-calming’ features by the Innovating Streets for People workstream will be leveraged as part of both education and effective implementation, especially for Safer Speeds Around Schools. Engaging and interactive educational material on the Waka Kotahi website will require a fit-for-purpose learning management system.

In addition, the functional model that describes how the new business functions required by TUS is based on Tū Ake, Tū Māia, our regulatory strategy for 2020–2025. This strategy uses the “the Es” model – educate, engage and enforce – to achieve behavioural change.

The foundational pou in Te Ara Kotahi, our Māori Strategy, include priorities to improve Māori road safety and to engage effectively with Māori to explore opportunities to collaborate on initiatives that will improve Māori road safety.

## Strategic dependencies and enablers

Three key strategic and policy linkages have been factored into this business case.

- The new Land Transport Rule: Setting of Speed Limits 2021 enables the new Speed Management regulatory framework and the targets for Safer Speeds Around Schools. Public consultation has been completed. Feedback received through that process may result in substantive changes to the draft Rule, which will have implementation implications.
- A flexible, evidence-based approach to signage of safety cameras, using a blended approach of highly visible fixed cameras and less visible mobile safety cameras to enable general deterrence. This approach is being developed with the Ministry of Transport, and the Minister is being briefed on the proposed approach.
- Legislative changes to enable the use of average-speed (point-to-point) cameras have been agreed in principle and are scheduled to be introduced through the second Regulatory Systems Transport Amendment Bill and come into effect in [REDACTED].

Four key strategic and policy changes have not been factored into this business case, but could support greater DSI reductions if they were progressed:

- Demerit points for camera offences have potential to reduce the proposed effectiveness of safety cameras. Demerit points do not apply to safety camera offences [REDACTED].  
[REDACTED] The evidence suggests that demerits are a much stronger driver of behavioural change than financial penalties on their own.
- Hypothecation of funding from infringements (such as safety cameras) would enable infringement fees to be used to support funding of road safety outcomes and would assist in reducing public perceptions that safety cameras are revenue generating. Waka Kotahi recently briefed the Minister, recommending consideration of hypothecation and associated legislative changes.
- Automation of offence processing could result in significant efficiencies, but needs to be enabled by legislation changes. Waka Kotahi is working with the Ministry of Transport to identify the changes required and the best way to achieve them.
- A wider range of DSI-related offences could be enforced using the latest safety camera technology. These offences include mobile phone use, not wearing seatbelts, driving in an emergency stopping lane, tail-gating, and failing to comply with level-crossing obligations. Waka Kotahi is working with the Ministry of Transport to explore legislation changes to enable this.

The Safety Camera System programme is also investigating opportunities to share common capabilities across the Tolling Systems Replacement and National Ticketing Programme. The results of this investigation will be included in the DBC that will be submitted to the Board in April 2022.

## Risks

A Treasury risk profile assessment gives the TUS Programme an indicative risk rating of high. This rating reflects the size of the potential investment, the need for integrated change management across multiple agencies, and the **significant requirement** for new capabilities (people, processes, and systems). TUS will deliver brand new functions in Waka Kotahi, which requires a new operating model and new capabilities, as well as new technology systems and integration challenges.

Other significant risks include:

- further delays to the approval of the proposed Land Transport Rule: Setting of Speed Limits due to consultation and government decision making processes
- regional transport committees may lack the delivery and financial capacity and capability to deliver the proposed Rule
- available funding is constrained, which affects the programme's ability to achieve its objectives and realise benefits
- potential damage to the public perception of Waka Kotahi, because it is now seen as the speed enforcer, and adverse reactions to speed reductions by the community.

## Next steps

The TUS Programme represents a new approach to tackling unsafe speeds and will require regular review points to ensure it is achieving the desired outcomes as initiatives are implemented and monitored and the programme's understanding improves.

The Speed Management programme will seek funding for future NLTP cycles through approval of the TUS PBC setting out the approach and funding required (July 2021).

The Safer Speeds Around Schools programme will seek funding for future NLTP cycles through:

- approval of the TUS PBC setting out the high-level approach and indicative funding required (July 2021)
- approval of the Safer Speeds Around Schools implementation plan confirming the funding required and setting out the detailed approach (Q4 2021).

The Safety Camera System programme will seek endorsement and/or approval at key decision points before it proceeds to a subsequent phase:

- approval of the TUS PBC setting out the high-level approach, to undertake the RFP process and to develop a DBC in line with the approach documented in the PBC (July 2021)
- approval of the Safety Camera System DBC, setting out the detailed preferred solution, costs, and timelines (April 2022)
- approval to drawdown funding to commence Safety Camera System operations (July 2022)
- approval of an addendum to the DBC for Safety Camera System Phase 2 (March 2024)
- approval of an addendum to the DBC for Safety Camera System Phase 3 (March 2027).

# 1 INTRODUCTION

## 1.1 Purpose of this programme business case

This Programme Business Case (PBC) outlines the case for investment in the Tackling Unsafe Speeds (TUS) Programme to help progress New Zealand's road safety strategy – Road to Zero 2030. The TUS Programme comprises three component programmes: the Speed Management, Safer Speeds Around Schools, and Safety Camera System programmes.

It is estimated that the TUS Programme will directly reduce deaths and serious injuries (DSIs) on New Zealand roads by 4% by 2030 (baselined against 2018 statistics). This is a significant contribution to the savings required to meet the Road to Zero target of a 40% reduction in DSIs by 2030. It is also a key enabler to the nearly 20% of DSI savings that will be delivered by the Speed and Infrastructure Programme.

This PBC identifies the programmes of work that deliver on the tackling unsafe speeds aspects of the Road to Zero Strategic Case. It describes the problems, identifies alternative options, and sets out the expected costs and benefits.

The PBC seeks from the Board:

- approval of funding to complete the implementation of Speed Management before the end of the 2021–24 National Land Transport Programme (NLTP) cycle
- approval of funding for Safer Speeds Around Schools for the 2021–24 NLTP cycle and endorsement of the proposed approach to manage:
  - the implementation of infrastructure initiatives through the Speed and Infrastructure Programme 2021–24 funding mechanisms endorsed by the Board in April 2021
  - a national publicity and education campaign through the National Road Safety Promotional Programme, endorsed by the Board in June 2021
- approval and funding to complete the high-level design, procurement process, and a detailed business case (DBC) for the Safety Camera System programme for the 2021–24 NLTP cycle.

The three programmes vary in terms of value, timeframe, and implementation stage, so the treatment and level of detail of each in this business case varies accordingly.

## 1.2 Background

In 2019, the government published Road to Zero, New Zealand's Road Safety Strategy 2020–2030. This strategy sets out a vision for a New Zealand where no one is killed or seriously injured in road crashes.

In August 2019, the Board wrote to the Minister and Ministry for Transport, stating:

The Transport Agency is fully committed to playing its part in achieving the trauma reduction target ultimately agreed by Government, whether this is 40%, 50% or 60%. If 40% is set, we would welcome opportunities to explore greater levels of ambition as implementation progresses – for instance, developments in technology may enable more rapid progress.

In August 2019, the Board approved investment of \$92,000 in a new change initiative from the National Land Transport Fund for 2019–2021 to progress the upgrade (or replacement) of the Police Infringement Processing System.

In February 2020, the Executive Leadership Team agreed that the funding approved for upgrading the Police Infringement Processing System be used to establish the TUS Programme. At the time, it was expected that a PBC would be developed for the Safety Camera System programme by June 2020 and Speed Management would be completed by June 2021.

In August 2020, the Road to Zero Strategic Case proposed the PBC be broadened to encompass the whole scope of tackling unsafe speeds, and submission was deferred to November 2020.

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In April 2021, the Board endorsed the PBC for the Speed and Infrastructure Programme. This included a mechanism to package projects within the Speed and Infrastructure Programme's delivery programme 2021–24 and seek funding to progress and implement each package of safety improvements on the state highway and local road network. The Safer Speeds Around Schools programme will use this mechanism to package, prioritise, and implement the required infrastructure improvements.

In June 2021, the Board endorsed the PBC for the National Road Safety Promotional Programme, which will manage the Safer Speeds Around Schools national publicity and education campaign.

### **1.3 Cabinet decisions the Tackling Unsafe Speeds Programme will deliver on**

In December 2019 Cabinet made many of the strategic decisions for a new approach to tackling unsafe speeds.<sup>1</sup> This PBC determines the preferred delivery option to successfully implement those decisions:

- a new approach to safety cameras and compliance, including:
  - a significant increased investment in additional safety cameras
  - cameras to be in areas of highest risk and their locations sign-posted
  - the transfer of ownership and operation of the safety camera function from New Zealand Police to Waka Kotahi as part of its wider speed management function
- a new regulatory framework for speed management, including:
  - development of national and regional speed management plans
  - establishment of a publicly available register of all speed limits
  - transition to lower speed limits around schools.

### **1.4 Road to Zero context**

The Road to Zero Implementation Plan sets out the approach for achieving the overall Road to Zero outcomes, and specifically notes the following actions for delivery through the Safety Camera System programme:

- establish a strategy and framework to support the transfer of ownership and operation of the safety camera network and offence processing, and the expansion of the safety camera network
- prepare business cases for the transfer of safety camera management and offence functions and expansion of the camera network
- transfer ownership and operation of the safety camera network and offence processing from New Zealand Police to Waka Kotahi
- procure and implement a new offence processing system
- procure and install safety cameras for the first stage of network expansion
- undertake public communications to encourage behavioural change and shift the public perception of safety cameras as a revenue-gathering tool
- undertake public communications to support the reduction of speeds around schools.

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1 CAB-19-MIN-0575 refers.

## 1.5 Summary

This PBC:

- formalises a nine-year multi-phase programme of work to deliver the Speed Management, Safer Speeds Around Schools and Safety Camera System programmes.
- seeks approval for the Speed Management programme's total whole-of-life cost (WoLC) investment of [REDACTED] over 20 years
- seeks approval for the Safer Speeds Around Schools programme's total WoLC investment of [REDACTED] over 20 years subject to completion of a satisfactory Implementation Plan
- seeks approval in principle for the Safety Camera System programme's total WoLC investment of [REDACTED] over 20 years
- seeks approval to formally approach the market to better understand solutions for the safety camera system
- seeks approval to develop a single-stage business case for the first phase of the delivery of the Safety Camera System programme, including the:
  - transfer of responsibility from New Zealand Police to Waka Kotahi
  - establishment of the capability and functions necessary to support manage and operate the safety camera system
  - initial expansion of the safety camera network.

## 2 STRATEGIC CASE

This section sets out the strategic and organisational context of the TUS Programme, the problem statements underpinning Cabinet's decisions, the objectives and benefits expected from this investment, and the changes needed to implement a new safety camera system and speed management approach.

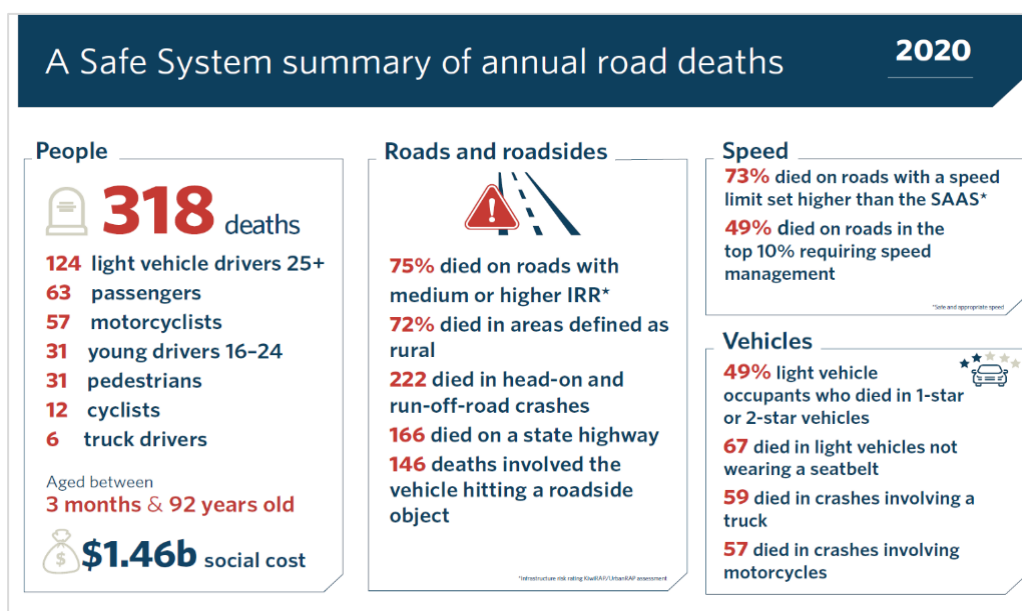
### 2.1 Strategic and organisational context

New Zealanders and visitors travel on New Zealand's roads every day for work and leisure. On average, one person is killed and a further seven people are seriously injured on the roads every day.

New Zealand currently ranks in the bottom quarter of the OECD member countries for road safety.

A summary of annual road deaths recorded in 2020 is illustrated in Figure 2. In 2020, 318 people were killed on New Zealand roads and thousands more seriously injured. DSIs should not be an inevitable cost of travelling on New Zealand roads.

Figure 2 – Road Safety outcomes 2020



Source: Waka Kotahi internal reporting, December 2020.

The government has adopted the national road safety strategy, Road to Zero 2020–2030 (see Figure 3). Road to Zero charts a course to build the safest road system possible and work towards a bold vision – zero DSIs on the country's roads. As a step towards Vision Zero, Road to Zero sets an interim target of a 40% reduction in DSIs by 2030 (from 2018 levels). Steady progress towards this target would mean an estimated 760 fewer people killed and 5,600 fewer people seriously injured. (Note that this reduction in deaths and serious injuries is based on a linear rate of progress, which may not accurately reflect the actual or forecast delivery of the various Road to Zero initiatives.)

To achieve Vision Zero, we must create a safe transport system – one that recognises humans make mistakes and is designed so these mistakes do not cost people their lives. This 'safe system' approach is based on principles that guide how we approach and improve road safety, including that we:

- promote good choices but plan for mistakes
- design for human vulnerability
- have a shared responsibility for improving road safety
- strengthen all parts of the road transport system.



Figure 3 – Road to Zero strategic framework



Safety is a core priority for Waka Kotahi. Enabling a safe system is one of the four roles Waka Kotahi must perform to achieve its vision of a land transport system connecting people, products, and places for a thriving Aotearoa (as outlined in Te kāpehu | Our compass – see Figure 4).

Enabling a safe system aligns with the Transport Outcomes Framework and the strategic priorities reaffirmed in the Government Policy Statement on Land Transport 2021/22 – 2030/31 (see Figure 5). The policy statement sets the expectation that key elements of the Road to Zero strategy and action plan will be invested in, including measures to support the TUS Programme.<sup>2</sup>

Figure 4 – Te kāpehu | Our compass –Waka Kotahi strategic direction

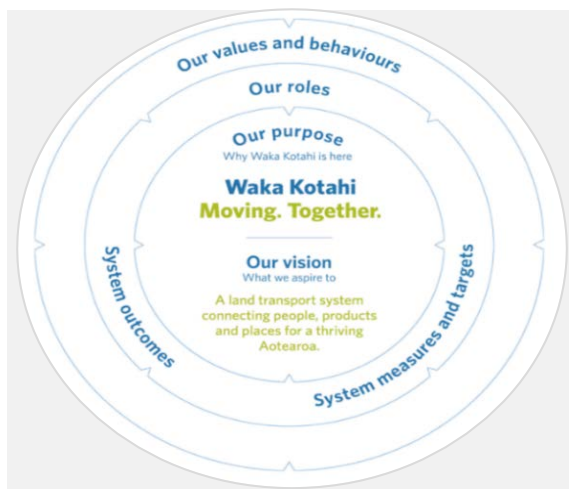
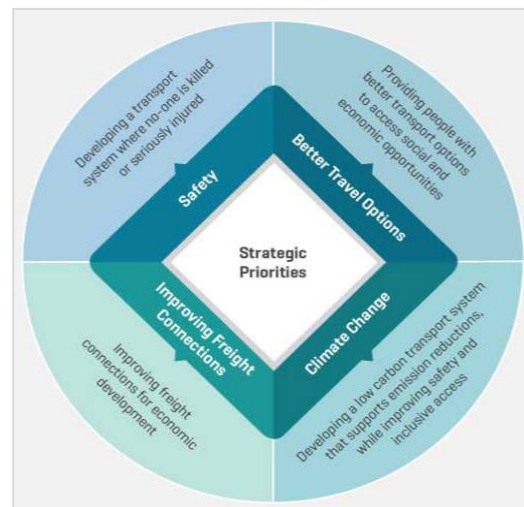


Figure 5 – Government Policy Statement on Land Transport 2021/22 – 2030/31



2 New Zealand Government. 2020. *Government Policy Statement on Land Transport 2021/22–2030/31*. Wellington: Ministry of Transport, p 17. [www.transport.govt.nz/assets/Uploads/Paper/GPS2021.pdf](http://www.transport.govt.nz/assets/Uploads/Paper/GPS2021.pdf)

Faster travel speeds reduce the ability to avoid or recover from mistakes and exponentially increase the level of harm to everyone involved in a crash. Impact speed affects the severity of every crash. In the event of a crash, there are physical limits to the amount of force human bodies can take before they are injured, and chances of survival or avoiding serious injury decrease rapidly above certain impact speeds. For a pedestrian on foot, wheeled pedestrian, cyclist, or motorcyclist hit by a car, this impact speed is around 30–40km/h. In a side-impact collision involving two cars, it is around 50km/h, whereas in a head-on crash involving two cars, it is around 70–80km/h. Reduced speeds also reduce stress for other road users, including passengers, and help other people feel safe to walk, bike, or travel with children.

To create a safe system and achieve Vision Zero, we need to work towards a road network that limits exposure to crash forces above safe system speeds. Approximately 87% of the road network length (including state highway and local roads) does not have a 'safe and appropriate speed' for the condition of the road.

Road to Zero sets out five priority areas that require a sustained focus to drive national road safety performance, lays the groundwork for longer-term goals and aspirations, and includes clear and measurable outcomes (see Figure 6). The Road to Zero action plan for 2020–2022 identifies immediate priority actions for each of the five areas, one of which is to introduce a new approach to tackling unsafe speeds as a critical way to improve road safety.

Figure 6 – Road to Zero focus areas



Speed continues to be a major contributing factor to DSIs on New Zealand roads. In 2016, travelling too fast for the conditions was the second-highest contributing factor to causes of fatal and serious injury crashes. In the event of a crash, regardless of its cause, the speed of impact is the most important determinant of the severity of injuries sustained and the probability of death.

Strong evidence exists that a decrease in the mean travel speed on a road is associated with a decrease in the number of crashes, as well as the severity of those crashes.<sup>3</sup> At lower speeds, vehicles have shorter braking distances and people have more time to react and take action to avoid a crash. When crashes do occur, lower travel speeds mean the crash impact energy is lower, reducing the severity of the impact. Tackling unsafe speeds has also been a dominant focus in other international jurisdictions that have made significant and sustained road safety gains.

3 International Transport Forum. 2018. *Speed and Crash Risk* (research report). Paris: OECD Publishing. [www.itf-oecd.org/sites/default/files/docs/speed-crash-risk.pdf](http://www.itf-oecd.org/sites/default/files/docs/speed-crash-risk.pdf)

Small reductions in speed can have significant impacts in the number of crashes that occur. Many empirical studies have assessed the extent to which a change in average speed on a road affects the number and severity of crashes on that road. The relationship between speed and road safety can be described in terms of a power function and a change in mean speed affects serious crashes. To present the power function of Nilsson, this means a 1% change in speed results in about a 2% change in injury crash frequency, 3% change in severe crash frequency, and 4% change in fatal crash frequency.

Road to Zero sets the precedent that any level of harm is no longer acceptable on New Zealand roads.

The new approach addresses current problems with the speed management regulatory framework and unlocks an opportunity to make greater use of safety cameras to improve road user compliance.

## 2.2 Problem statements

Table 3 summarises the key problems and evidence statements that underpinned Cabinet’s decisions. For the evidence in relation to changing the regulatory framework for speed management and safety cameras, see the 2019 Regulatory Impact Statement for tackling unsafe speeds.<sup>4</sup>

Table 3 – Problem statements and associated evidence underpinning Cabinet decisions

Opportunity or problem statement	Evidence
The process for setting speed limits lacks clarity and is cumbersome	Speed limits often do not reflect the nature of the road Transparency and accountability around speed management is lacking Some RCAs defer speed management changes, because they view such change as too hard Speed limits are inconsistent across the road network
Speed limits around schools are often not the recommended safe and appropriate speed limits	Only 20% of schools have speed limits that align with current guidance
Opportunity exists to adopt a new approach to safety cameras and increase the number of cameras per capita to discourage excessive or inappropriate speeds and improve compliance with posted speed limits	New Zealand has relatively few cameras compared with other jurisdictions Research highlights New Zealand could improve its approach Safety cameras have proven effective at improving safety outcomes in other jurisdictions (for example, France and Sweden) Incorporating investment and transition of safety cameras into Waka Kotahi broader planning supports speed management

Source: Ministry of Transport. 2019. *Regulatory Impact Summary: Tackling unsafe speeds*. [www.treasury.govt.nz/publications/risa/regulatory-impact-assessment-tackling-unsafe-speeds](http://www.treasury.govt.nz/publications/risa/regulatory-impact-assessment-tackling-unsafe-speeds)

In addition, as the Road to Zero Action Plan 2020–22 has been adopted and Speed Management programme planning has progressed, the problems in Table 4 have been identified.

4 Ministry of Transport. 2019. *Regulatory Impact Summary: Tackling unsafe speeds*. [www.treasury.govt.nz/publications/risa/regulatory-impact-assessment-tackling-unsafe-speeds](http://www.treasury.govt.nz/publications/risa/regulatory-impact-assessment-tackling-unsafe-speeds)

*Table 4 – Speed Management – implementation problems*

Opportunity or problem statement	Evidence
How best to introduce a new regulatory framework for speed management to improve how speed management changes are planned for, consulted on and implemented?	RCA's find the current process for setting speed limits resource intensive, time consuming, and complex. This leads to confusion, delays, and some road controlling authorities putting off making speed management decisions that are sorely needed on the highest-risk roads.
What level of support should be provided to RCA's to help them prepare their initial speed management plans?	The current process does not encourage regional collaboration among RCA's, and speed management is often done on a road-by-road basis. This leads to communities having little visibility about speed management changes in their region.

The Safer Speeds Around Schools implementation problems are set out in Table 5.

*Table 5 – Safer Speeds Around Schools – implementation problems*

Opportunity or problem statement	Evidence
How best to transition to safer speeds around schools?	Current speed limits outside many schools do not make walking and cycling an appealing mode of transport. Increased rates of children walking and cycling to school may also have a range of co-benefits, including health and accessibility benefits
What are appropriate treatments (such as signage and physical infrastructure) that urban and rural schools to help change driver behaviour and lower speeds around schools?	Road to Zero and the Setting of Speed Limits Rule will require RCA's to reduce speed limits (either variable or permanent) to 30km/h (or 40km/h by exception) around all urban schools and to a maximum of 60km/h around all rural schools.
What level of funding assistance should be provided to RCA's to encourage them to make the changes that are required?	The requirement is for all schools to have these limits in place by 2030, with an interim target of 40% of schools to be changed by 2024. Many jurisdictions around the world, and some RCA's in New Zealand, have implemented safer speed limits outside schools, which generally have strong public support, good levels of compliance and positive safety and well-being outcomes.  In the past, such speed limit changes were not always supported by appropriate infrastructure investments.  RCA's, including Waka Kotahi, have limited resources and capability to implement speed management changes.  Infrastructure decisions and speed limit reviews are sometimes poorly coordinated.

As the Safety Camera System programme has been established, the implementation problems in Table 6 have been identified.

*Table 6 – Safety Camera System – implementation problems*

Opportunity or problem statement	Evidence
The most effective volume and mix of camera types and their use need to be fully understood to ensure the desired reduction in DSIs is achieved	Evidence exists on the type and use of cameras used overseas, but this evidence needs to be better understood in the New Zealand context.  The operational hours of cameras by New Zealand Police are determined by its ability to process infringement volumes (not by impact on driver behaviour).  Initial camera expansion will target high-risk areas, which will provide learnings and insight.

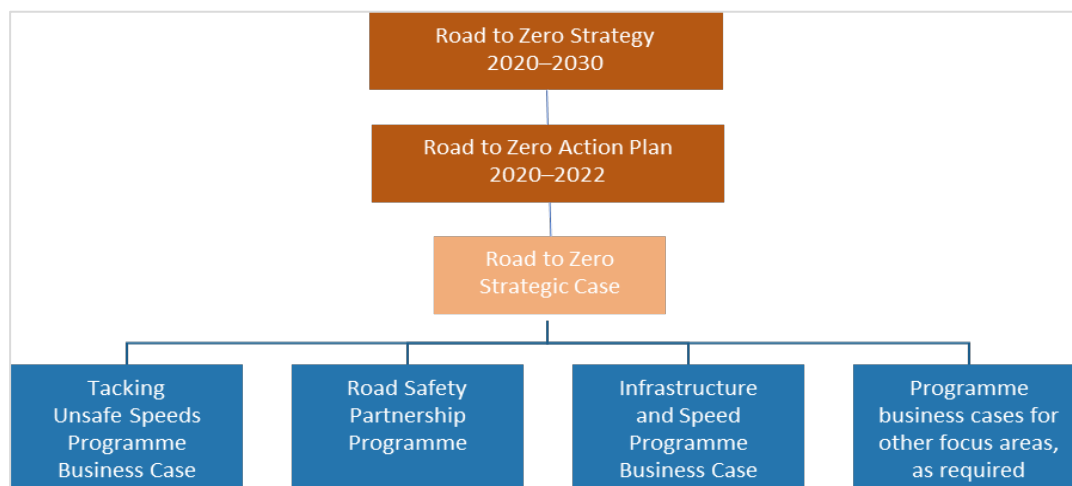
Opportunity or problem statement	Evidence
Waka Kotahi lacks the capability to assume accountability and management of the safety camera system	Waka Kotahi does not manage the operation or calibration of any safety cameras, or issue or process speed or red-light infringements, so it does not have the required people, process, or technology capabilities.
Waka Kotahi cannot transfer the existing infringement processing technology from New Zealand Police	New Zealand Police uses a bespoke, integrated system to issue and process infringements that is now at end of life and is not scalable for use as the Waka Kotahi solution.
The existing camera fleet does not readily integrate with newer technology	Extraction of data from the existing camera fleet is largely manual with data transferred via DVD to maintain a secure chain of evidence.  The existing camera fleet does not enable the likely future direction, including straight-through processing and additional infringements.
There is no consistent consultative process or technology for capturing speed management plans	Speed limit reviews are ad hoc, and approaches to speed limit setting both within and across regions are inconsistent  Responses to community requests for safer speed limits are slow (or do not happen), and progress on addressing the highest risk parts of the network is limited.  In some cases, public buy-in to speed management changes is limited.

## 2.3 Strategic alignment

### Integrated response to Road to Zero

The TUS Programme forms part of an integrated response to Road to Zero where partner programmes align and complement each other to deliver the actions required to contribute to the overall target. Each partner programme is framed by the Road to Zero Strategic Case that sets out the case for investment in delivery of the partner's components of Road to Zero. This interrelationship is shown in Figure 7.

Figure 7 – Strategic context for Road to Zero programmes



The Road to Zero Strategic Case:

- documents the strategic context:
  - Road to Zero outcomes – Vision Zero and the 40% DSI reduction target by 2030
  - the Transport Outcomes Framework and Government Policy Statement on Land Transport

- overviews the contributions from the five Road to Zero priority areas and consequent decisions:
  - the integrated intervention logic model and government decisions
  - the contribution of the priority area towards the 40% DSI reduction target by 2030
  - the breakdown of the priority area within the Road to Zero activity class (approx. \$10 billion)
  - an indicative business case approach for remaining priority area activities.

## Alignment with Tū Ake, Tū Māia, the regulatory strategy

The programme will give effect to several organisation strategies that set the context for and development approach for the programme. These strategies will guide the development of programme outcomes and objectives, and the way in which we work both through development and into implementation and operation. Equally the programme contributes to various strategic outcomes across Waka Kotahi, and Government.

This programme is also fully consistent with the direction of the Waka Kotahi regulatory strategy, Tū Ake, Tū Māia, which is working towards ‘reduced DSIs supported by good practice regulation’. The programme fits within the key functional area Network Management (shown in Figure 8).

Figure 8 – Tū Ake, Tū Māia



## Alignment with New Zealand Police strategies

The TUS Programme also aligns with New Zealand Police’s Prevention First strategy (‘Taking every opportunity to prevent harm’, including on the road<sup>5</sup>) and the achievement of the targets on the New Zealand Police strategy map – Our Business.<sup>6</sup>

<sup>5</sup> For more information about Prevention First, see the NZ Police website, <https://www.police.govt.nz/about-us/programmes-initiatives/prevention-first>

<sup>6</sup> New Zealand Police works with the community to make New Zealanders be safe and feel safe, including actively preventing crime and crashes. Our Business summarises what New Zealand Police does, why, and how. It is available from the New Zealand Police website (<https://www.police.govt.nz/about-us/publication/our-business>).

## 2.4 Objectives, benefits, and indicators

### Investment objectives

The TUS Programme's overarching purpose is to reduce the number of DSIs on New Zealand roads by supporting improvements in road safety.

The programme's investment objectives are to effectively and efficiently implement:

- the government's new approach to safety cameras and compliance
- a new regulatory framework for speed management, including reducing speeds in highest-risk areas and around schools and supporting RCAs to transition to safer speed limits.

### Benefits and outcomes

The main benefit of the TUS Programme will be a reduction in speed-related DSIs. Research shows that 20–30% of all crashes have speed as a contributing factor, so significant scope exists to reduce the number of DSIs associated with speed through the programme's interventions. (A reduction in DSIs involving red-light running is also expected.)

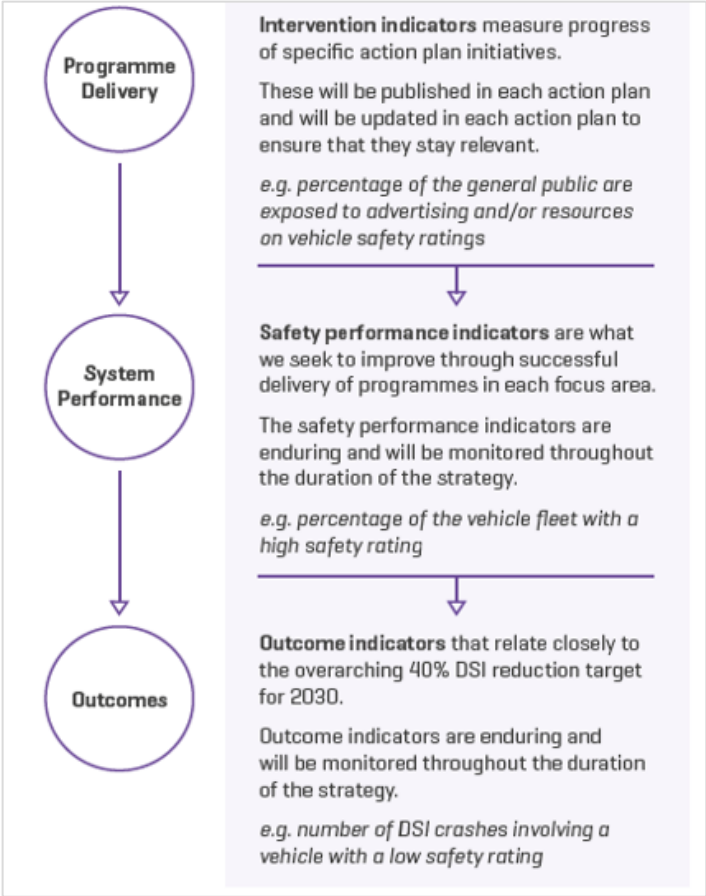
Waka Kotahi modelling indicates that just over half the Road to Zero intermediate target of a reduction in DSIs by 40% by 2030 could be achieved through a combination of infrastructure improvements (such as median barriers and intersection treatments), targeted speed limit changes on the highest-risk parts of the network, and increased levels of enforcement (by safety cameras and police officers).<sup>7</sup> Further evidence in support of this is in the Ministry of Transport's regulatory impact assessment.<sup>8</sup>

The system performance and safety outcomes indicators developed in the Road to Zero Outcomes Framework (Figure 9) create a results focus and will be used to monitor progress on the delivery of the programme to contribute to the 40% DSI reduction.

For all programmes of work, sitting between the outcomes and the benefits are performance indicators – measures that determine if the results of the time and money invested are creating the expected results.

For TUS, these performance indicators will be in place from the start of the

Figure 9 – Road to Zero outcomes framework

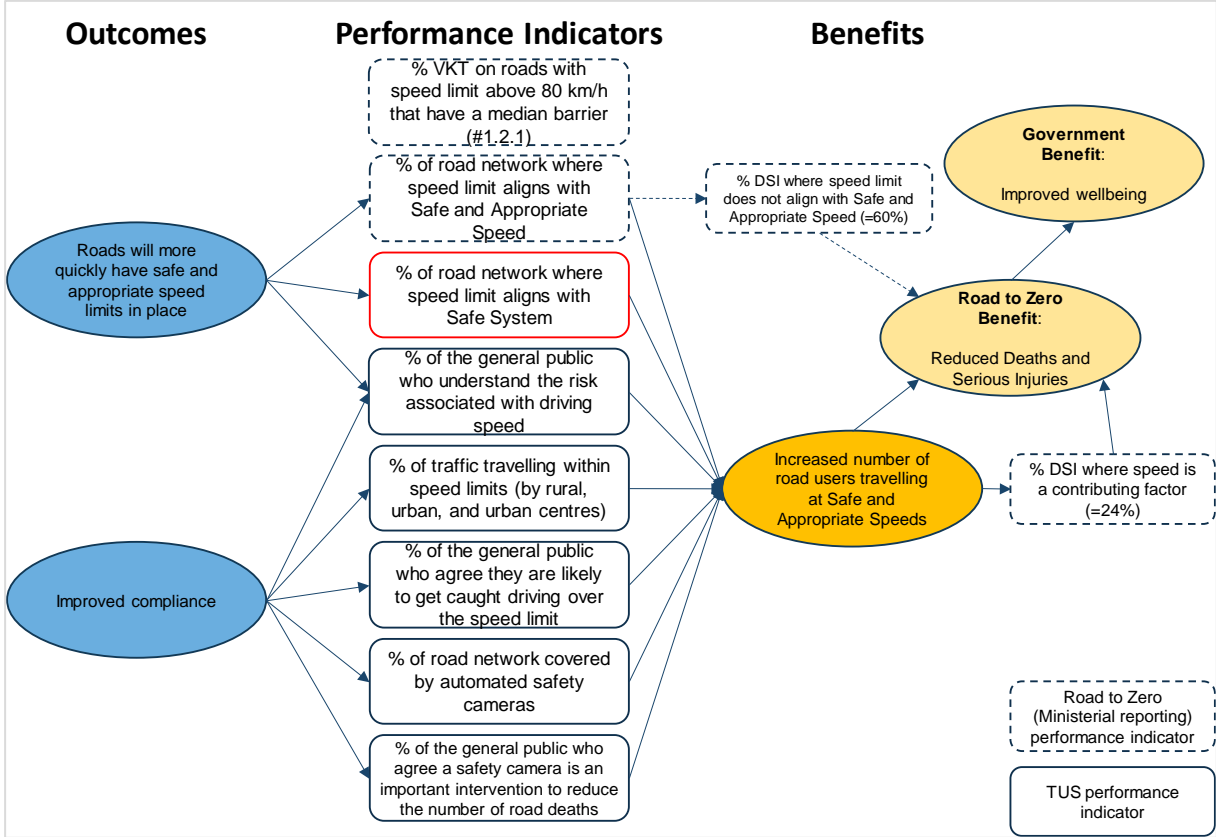


7 A further quarter of the target could be achieved by lifting the safety performance of the vehicle fleet, with the remaining quarter achieved through other interventions, including improvements to driver licensing and increases to penalties for safety offences.

8 Ministry of Transport. 2019. *Regulatory Impact Summary: Tackling unsafe speeds*. [www.treasury.govt.nz/publications/risa/regulatory-impact-assessment-tackling-unsafe-speeds](http://www.treasury.govt.nz/publications/risa/regulatory-impact-assessment-tackling-unsafe-speeds).

work, so, unlike 'benefits realisation', they can be measured during execution. Performance indicators are at both workstream and Road to Zero programme levels (as shown in Figure 10).

Figure 10 – Tackling Unsafe Speeds performance indicators



### 2.5 Changes needed

The TUS Programme will deliver a new regulatory framework and processes for speed management (Speed Management programme), including transitioning to lower speed limits around schools (Safer Speeds Around Schools programme) and the provision of support and tools.

The Road to Zero Implementation Plan confirmed the benefits and scope of Speed Management, and it subsequently commenced implementation. It was due to be completed during the 2018–21 NLTP period, but it experienced delays and will now be completed during the 2021–24 NLTP period. While there is no scope change, the change in implementation period means the programme is now seeking, through this PBC, new funding for the new NLTP period.

Safer Speeds Around Schools is dependent on Speed Management to ensure RCAs have identified the specific speed limits that need to be reduced and the infrastructure required to support those reductions. It is proposed that the supporting campaign will be delivered through the existing Waka Kotahi communications and engagement function and that infrastructure changes will be delivered through the Speed and Infrastructure Programme.

Once the RCAs have advised the speed limits to be changed and the requirements are understood, the scope can be agreed and the detailed approach confirmed.

The changes the Safety Camera System programme will deliver include the foundations for a new safety camera system, including transfer of the ownership and operation of safety cameras (Section 10(1)(b)) from New Zealand Police to Waka Kotahi, and implementation of the capabilities required to operate and optimise a new approach to using safety cameras to reduce inappropriate speed and the expansion of the safety camera network over multiple phases.



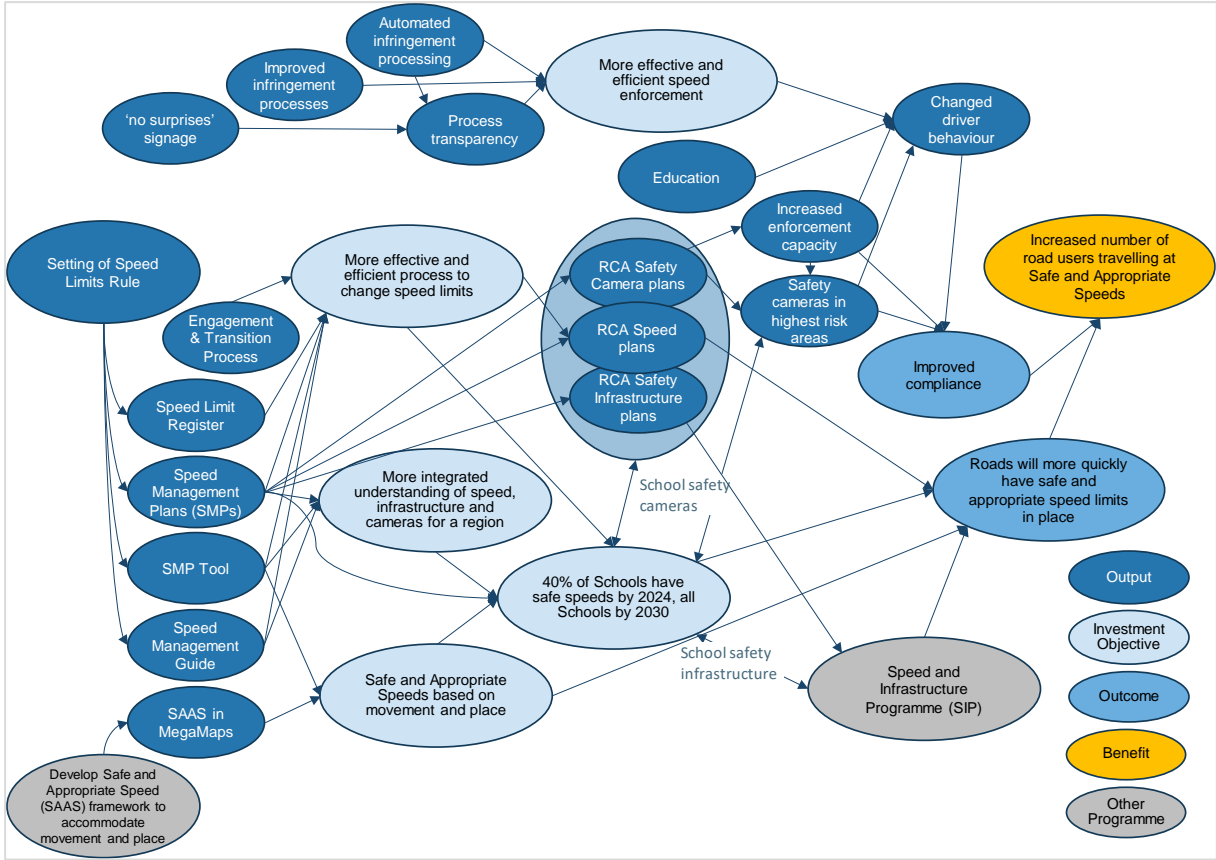
To support the transfer of the ownership and operation of safety cameras, the Safety Camera System programme will establish a new operating model (for people, systems/technology, and processes) within Waka Kotahi to manage and process information efficiently and to share data with partners to support more effective road safety outcomes. Waka Kotahi and New Zealand Police need to facilitate an integrated change management process and work closely to enable a smooth transition and to facilitate any integration required.

The three TUS component programmes (Speed Management, Safer Speeds Around Schools, and Safety Camera System) provide a somewhat complex set of outputs that deliver both 'investment objectives' and outcomes for the TUS component of Road to Zero. In combination, they deliver the benefit of an increased number of road users travelling at safe and appropriate speeds (see Figure 11).

While the Setting of Speed Limits Rule is key to how the TUS work is implemented, there is work that supports and furthers the outcomes independently of the Rule being in place.

- A new safe and appropriate speed framework (the One Network Framework – ONF) to consider movement and place as part of setting a new speed limit and being implemented in the MegaMaps software will provide a more intuitively correct speed limit result. Supporting this with early components of a speed management guide (which will lead RCAs through the process of changing a speed limit) will enable the safety conversation (not accepting a toll of deaths and serious injuries as inevitable) to be started.
- The resistance to reducing speed limits should not be underestimated, so the sooner education begins on the death toll and harm from inappropriate speeds, then the sooner driver behaviour will change.

Figure 11 – Outputs and benefits to be delivered



## Public education

The TUS Programme has a strong focus on using public education to achieve a change in driver behaviour to travel at a safe speed.

Speed Management is a key enabler of the work of Road to Zero, creating and establishing the mechanisms for faster speed limit changes that are safe and appropriate for the road, traffic movement, and place. Safer Speeds Around Schools implements those speed changes with recognisable road changes to signal driver behaviour changes. The Safety Camera System programme will implement a key enforcement mechanism to support safe speeds and recognisable road conditions. Bringing the public along on this journey is critical to the success of TUS and Road to Zero.

- Public education will be important to successfully deliver the key elements of TUS. The primary aim will be to communicate on why speed measures are important and generate support. The TUS Programme aligns with the overall Road to Zero focus on using public education to achieve a change in driver behaviour to travel at a safe speed, with strong linkages to the social licence and behavioural change workstream. Work to build and maintain our social licence will be done through the ongoing speed campaign under the National Road Safety Promotional Programme, as well as specific campaigns focusing on Safer Speeds Around Schools and changing public attitudes towards safety cameras and the increased visibility of the network.
- Existing work to create recognisable ‘road-calming’ features by the Innovating Streets for People workstream will be leveraged as part of both education and effective implementation, especially in Safer Speeds Around Schools. Engaging and interactive educational material on our website will require a fit-for-purpose learning management system.
- In addition, the functional model that describes how the new business functions required by TUS is based on Tū Ake, Tū Māia, our regulatory strategy 2020–2025. This strategy uses the “the Es” model – educate, engage and enforce – to achieve behaviour change.
- The foundational pou within Te Ara Kotahi, our Māori Strategy, include priorities to improve Māori road safety and to engage effectively with Māori to explore opportunities to collaborate on initiatives that improve Māori road safety.

## Speed Management programme

Setting of speed limits can take longer than desired. The process for setting a speed limit is governed by the Land Transport Rule: Setting of Speed Limits (the Rule), of which there have been numerous versions. The current Rule was set in 2017 to align with the previous national road safety – Safer Journeys. The starting point for creating speed limit changes faster is to create a new and better designed Rule.

Speed Management will create and implement a change in the Rule. This work has four components:

- the Rule change
- the process the sector will use (and transition support for that process)
- the technology that enables a safe speed to be chosen
- a new national register of speed limits.

The mechanism that will be used to propose, consult on, approve, and implement a set of speed changes for a set of roads is called a speed management plan.

Each speed management plan will consider the speed for a road, the infrastructure (current and proposed), and safety cameras – the combination of these giving an integrated view of how the road will be made safer.

Each road in New Zealand has a Safe and Appropriate Speed, which is currently determined by the road itself (size, shape, and construction) with a set of calculations giving a classification, which is mapped to a speed.

A related programme of work is changing the way a Safe and Appropriate Speed is determined, by considering not only the road but also movement (volumes of traffic and modes of transport) and place (environmental factors such as location of schools, shops and hospitals). This will also give a classification, which is mapped to a speed.

A very large proportion (over 80%) of New Zealand roads do **not** meet the Safe and Appropriate Speed under either the current or future classification system. Broadly, to meet the Safe and Appropriate Speed for a road means lowering the speed limit to meet the road conditions or lifting the road conditions to meet the speed limit; changing the speed limit is considerably faster than changing the road conditions.

Speed Management will provide data on the Safe and Appropriate Speed and the gap with the current speed limit. The expectation is that, by 2050, all roads will meet the Safe and Appropriate Speed (either from speed reductions or infrastructure improvements).

Speed Management will also provide a tool (the Speed Management Planning Tool) for developing and managing speed management plan through the process.

The current, interim, and future states for Speed Management are set out in Table 7.

*Table 7 – Speed Management – current, interim and future states*

Current state	Interim state (Rule change enacted to the start of the 2024–27 NLTP)	Future state
Waka Kotahi and territorial authorities are responsible for reviewing and setting speed limits in their capacity as RCAs	Regulatory process for setting speed limits with procedural and consultation requirements is set out in the Land Transport Rule	Regulatory process for setting speed limits with procedural and consultation requirements is set out in the Land Transport Rule
RCAs must make a bylaw to set speed limits and maintain a register of bylaws	RCAs must follow the framework outlined under the Land Transport Rule: Setting of Speed Limits	Waka Kotahi develops a public state highway speed management plan and works collaboratively with other RCAs and regional transport committees to develop regional speed management plans
RCAs maintain their own speed management policy	Waka Kotahi provides speed management guidance and tools (MegaMaps) and resources to support other RCAs	RCAs consult on the plans as a whole and implement proposals set out in the finalised plans
RCAs maintain their own register of speed limits	Waka Kotahi has begun developing a national speed limit register	Formal introduction of a new speed limit is through Waka Kotahi approval and publication in a national register

**Safer Speeds Around Schools programme**

The Rule as consulted proposes specific new requirements for Safer Speeds Around Schools, principally that all schools will have a reduced speed limit by 2030.

The speed management plan process that Speed Management develops will be used to create speed management plans that initially focus on schools. However, before creating a speed management plan a ‘tool kit’ of changes available to schools is needed. Once a speed change is approved for a school, a mechanism inside the Speed and Infrastructure Programme may be needed to enable the timely implementation of changes to schools.

The approach proposed is to trial for each school a set of changes appropriate to the school (such as pedestrian crossings, signage, or road shape changes), over a variety of appropriate feeder streets. Following the trial and consultation, the changes agreed will be implemented using the Speed and

Infrastructure Programme protocols but with Safer Speeds Around School funding (and local contributions).

The Setting of Speed Limits Rule will require RCAs to reduce speed limits (either variable or permanent) to 30km/h (or 40km/h by exception) around all urban schools and to a maximum of 60km/h around all rural schools.

The requirement is for all schools to have these limits in place by 2030, with an interim target of 40% of schools to be changed by 2024.

The Road to Zero Action Plan states that the Safer Speeds Around Schools programme will:

- develop a plan for all schools to be treated with lower speed limits over the next 10 years by 2022
- implement 40% of schools with speed limits in compliance with the Rule to achieve reductions in actual speeds in areas where speeds limits have been lowered by 2024
- ensure RCAs consider safer speed limits in urban centres with high numbers of active mode users
- establish guidance for the treatment of speed limits around schools
- undertake public communications to support reduction of speeds around schools.
- develop and deliver communications and engagement plan (to be completed through the Waka Kotahi communications and engagement function)
- provide appropriate funding to qualifying RCAs to implement the supporting infrastructure (to be facilitated through the Speed and Infrastructure Programme mechanism, once established).

*Table 8 – Safer Speeds Around Schools– current, interim and future states*

Category	Current state	Interim state (2024)	Future state (2030)
Number of schools	About 2,500 schools of which about: <ul style="list-style-type: none"> <li>• 500 are rural</li> <li>• 2,000 are urban</li> </ul>	Incremental change	Incremental change
Percent with speed limits that comply with the rule	17–20%	40%	100%


## Safety Camera System programme

The vision for the new safety camera system is to support people to travel safely.

The delivery model will be based on Tū Ake, Tū Māia, our regulatory strategy 2020–25. The three Es of educate, engage and enforce (shown in Figure 8) describe a balanced and proportionate regulatory approach to achieve the desired changes in compliance and ultimately a reduction in DSIs.

To implement the new approach to safety cameras and compliance, we need to make changes to the safety camera network, offence processing and collection, and our engagement and communications approach. The gap between the current and future states is summarised in Table 9.

Table 9 – Safety Camera System – current and future states

Category	Current state	Future state
<b>Roles and responsibilities</b>	<p>New Zealand Police is responsible for its safety camera network and the handling of all associated offences, including prosecution.</p> <p>New Zealand Police personnel carry out most safety camera functions (apart from camera maintenance).</p> <p>Cameras implemented by RCAs such as the red-light cameras implemented by Auckland Transport are responsibility of the RCA (with New Zealand Police undertaking the associated offence processing).</p> <p>New Zealand Police also currently provide the infringement processing functions for Auckland Transport’s red-light cameras</p>	<p>Waka Kotahi is responsible for the safety camera system to allow better integration with the speed management planning process. It changes public perception about the importance and relevance of safety cameras (that is, they are not primarily a revenue-gathering tool).</p> <p>New Zealand Police retains responsibility for officer-issued infringements.</p> <p>RCA-implemented cameras are the responsibility of the RCA (with Waka Kotahi undertaking associated offence processing).</p>
<b>Public attitudes</b>	<p>Two-thirds of the public perceive safety cameras as being used to improve safety and are used fairly, but a residual perception exists that cameras are used mainly for enforcement and revenue-generation purposes.</p>	<p>A step change occurs in the prevailing culture and attitudes around speed.</p> <p>Waka Kotahi works closely with its partners, including iwi, hapū, and local communities supported by marketing programmes to build awareness, understanding, and support for the need for interventions such as safety cameras to reduce DSIs.</p>
<b>Camera network</b>	<p>About 135 fixed camera sites and mobile safe speed cameras operate across the country under an “anytime, anywhere” model.</p> <p>There is no overt signage about the location of cameras. Camera sites are selected based on historical crash data, behavioural data, and predictive analysis.</p> <p>Safety cameras have a broader range of functions than can be used.</p>	<p>The safety camera network is expanded significantly over the nine years of the programme with up to an estimated  safety camera sites across fixed, red-light, average speed, and mobile safety cameras.</p> <p>High-risk sites are chosen based on a combination of historical data about harm and predictive modelling of underlying risk factors.</p> <p>Cameras are more visible, with average and fixed speed cameras clearly signed.</p> <p>A broader range of safety camera functions are used.</p>
<b>Camera management</b>	<p>The management of cameras is largely manual with data transferred via DVD to maintain a secure chain of evidence.</p> <p>About 71 full-time equivalents (FTEs) operate the mobile cameras.</p>	<p>Camera management is more automated, with secure electronic transmission of data.</p> <p>Incident verification is more automated with the potential to use advanced automation technologies artificial intelligence to pre-process images.</p> <p>Achieving efficiencies must be balanced with retaining robustness, integrity, and trust and confidence in the system.</p>

Category	Current state	Future state
<b>Offence processing</b>	<p>Incidents are verified manually through a highly robust process, so infringement notices are often issued (via physical post) days or weeks after the incident was detected.</p> <p>About 96 FTEs process about 1 million safety camera infringements annually, as well as officer-issued infringements.</p> <p>The Police Prosecution Service has an estimated 11 FTEs handling about 1,100 safety camera prosecutions annually.</p>	<p>The number of infringements rises significantly (estimated at three times current volumes – although expected to eventually reduce with increased compliance over time).</p> <p>Provided the necessary legislative change occurs, Waka Kotahi retains contact details of road users and has processes and technology capabilities to issue notices electronically.</p>
<b>Enabling technology</b>	<p>The Police Infringement Processing System (PIPS) and related systems are at or approaching end of life and overdue for replacement.</p>	<p>Modern technology platforms incorporate innovation to support new ways of working that are more efficient and maximise the potential of automation, while complying with security and privacy standards. This enables the integration of technologies from different suppliers and ensures capability to support future technologies as they emerge.</p>

### **Enabling technology**

Waka Kotahi will be guided by the following principles when acquiring fit-for-purpose technology platforms.

- Incorporate innovation that can support new ways of working that are efficient and maximise the potential of automation.
- Invest in cloud-based or ‘as a service’ technology solutions with a proven track record, wherever practicable.
- Be supplier-agnostic to enable integration and operation of different supplier camera technologies and downstream processing.
- Be able to scale to accommodate additional cameras, their capabilities, and the processing of increased volumes of incidents and interventions.
- Provide the flexibility to accommodate additional types of infringements that Waka Kotahi may consider issuing, in the future, as part of its regulatory and network management functions.
- Provide or enable innovative and responsive ways of communicating with customers in real-time or near real-time, to support driver behaviour change.
- Comply with New Zealand and Waka Kotahi security standards, including review and approval by the Technical Architecture Governance Group of Waka Kotahi.
- Comply with New Zealand privacy standards and requirements.

In terms of security, Waka Kotahi recognises that:

- technology-enabled systems, applications, and services must be designed and supported with appropriate levels of resilience, redundancy, and security
- systems may need to integrate with and may affect existing systems in and between Waka Kotahi and New Zealand Police
- secure data sharing between the two organisations will be required on an ongoing basis.

In terms of privacy, Waka Kotahi recognises that:

- the data and digital images captured by cameras, their storage, and their use all have privacy implications, especially in relation
- new issues will arise with new technologies that can be used for other than current safety-related purposes (such as average speed and mobile phone use detection)
- it must engage with the Office of the Privacy Commissioner, undertake Privacy Impact Assessments, and implement recommendations.

A conceptual view of the future state architecture is in in Appendix B.

### ***Security considerations***

The programme includes the development or inclusion of technology-enabled systems, applications and services that need to be designed and supported with the appropriate level of resilience, redundancy, and security. These systems will need to integrate with and may affect existing systems in and between Waka Kotahi and New Zealand Police. (There will be a requirement to exchange data between the two organisations on an ongoing basis.)

All technology enabled will comply with New Zealand and Waka Kotahi security standards, including review and approval by the Technical Architecture Governance Group of Waka Kotahi.

### ***Privacy considerations***

The data and digital images captured by the cameras, their storage and their use will have privacy implications that need to be considered and addressed. Although some of the issues related to speed management with the current cameras have been addressed, new technologies can be used for other safety-related purposes (such as average speed and mobile phone use detection) that operate in a different way.

The programme will engage with the Office of the Privacy Commissioner, undertake requisite Privacy Impact Assessments, and implement recommendations so privacy issues are properly addressed as part of programme delivery.

### ***Future proofing***

IT systems and infrastructure will be future proofed to enable Waka Kotahi to trial and adopt both proven and currently unproven technologies:

- **Mobile point-to-point cameras** – could be a game changer and enable us to manage corridor speeds rather than spot speed. Indicatively, they have potential to provide the lowest cost and network coverage when compared with traditional cameras. They will also remove the “kangaroo effect” of spot speed assets where drivers slow down abruptly before the camera and speed up again after passing the camera.
- **Smart cameras** – include a sophisticated camera and software that can perform processing at the roadside. In the past, a typical camera was only able to capture images. Now, with the smart camera concept, a camera will have the ability to generate specific information from the images it has captured. The built-in intelligent image processing and pattern recognition algorithms allow these cameras to detect motion, measure objects, read vehicle number plates, and recognise human behaviours. Smart cameras deployed at intersections can analyse the entire trajectory of vehicles and only create incidents for verification that are genuine offences, unlike the many false positives that are generated from the current fleet of red-light safety cameras.
- **CCTV and video analytics** – unlike smart cameras that have sophisticated software to identify specific offences at the roadside, Auckland Transport opted for CCTV cameras that live-stream video to a video-analytics platform to perform a variety of network management and road safety functions, such as detecting traffic violations and identifying congestion issues and parking problems. Auckland Transport also uses video analytics to remotely enforce traffic rules on special vehicle lanes.

- **Mobile trailers** – unstaffed mobile trailers are used across Australia and several European jurisdictions as another tool to address road safety risks. These could be particularly useful as average-speed cameras to lower median speeds at roadworks, for example. At the request of Waka Kotahi, the New Zealand Police is already building trailer prototypes for testing. Therefore, potential exists to incorporate trailers relatively quickly depending on testing evaluation.
- **Intelligent speed adaptation** – is an in-vehicle system that uses information on the position of the vehicle in a network in relation to the speed limit in force at that location. Intelligent speed adaptation can support drivers in helping them to comply with the speed limit everywhere in the network.
- **Event data recorders (Eroads)** – use GPS vehicle tracking where the speed of the vehicle across its entire route is monitored and can be used to understand whether the vehicle was speeding. Eroads can also provide immediate feedback to drivers if they are travelling over the posted speed limit.
- **Electronic vehicle identification** – uses infrastructure to vehicle technology that can uniquely identify a vehicle based on an electronic tag rather than a safety camera having to view the vehicle and licence plate. It is not capable of detecting other unsafe road uses such as distracted driving or not wearing a seat belt. An example is radio frequency identification (RFID).
- **Distracted driving and non-use of restraints identification** – a sensor system records the speed of vehicles and a specialised camera captures a high-resolution image of the vehicle, driver and registration plate. The image can be used to provide evidence, for example, that a driver is using a mobile phone or not wearing a seatbelt. Camera-based enforcement can be invasive, as images are purposely taken of the driver and passenger compartment. Privacy issues could include how images are stored, accessed (and by whom), and disposed of.

### ***Functional model***

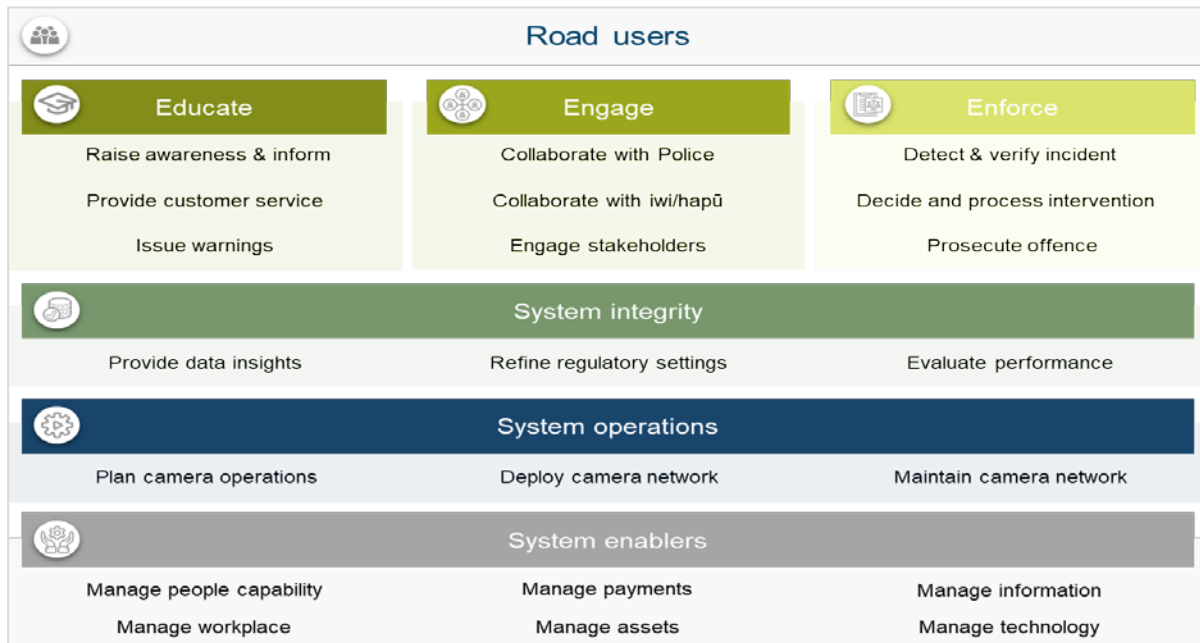
A functional model that describes the high-level processes and functions has been developed to guide the delivery of the new safety camera system (see Figure 17). The interface with road users is guided by the high-level regulatory tools described in Tū Ake, Tū Māia.

The three Es describe a balanced and proportionate regulatory approach to achieve our regulatory purpose.

- **Educate** – information and guidance should be provided so people know what is required of them and why it is important – making ‘getting it right’ easier. Education can vary from broad campaigns to our frontline staff working directly with individuals. In the future, it may include sending targeted messages to drivers in real-time on the roadside or in-vehicle.
- **Engage** – engagement will occur with a wide variety of stakeholders, including iwi, hapū, communities and industry groups. Partnerships will be formed and maintained with Māori, road control authorities, New Zealand Police, and the Ministry of Justice and resources will be pooled to improve the regulatory settings for the right outcomes.
- **Enforce** – when people take risks that are unacceptable, we will respond with enforcement. The variety of interventions available include infringement notices, traffic offences, and prosecutions. We will make proportionate, considered, and transparent decisions in context. We will assess the level of risk, the attitudes and behaviours of those who don’t comply, and what is in the public interest.



Figure 12 – Functional model – three Es for a balanced and proportionate regulatory approach



The three Es will be supported by functions designed to maintain the integrity of the road transport system. Decisions are based on good data and insights so that we are well informed when we respond to risk. Insights will be used to drive fit-for-purpose changes to the system, including legislation, rules, and standards. We continually reflect and learn so we can keep up with change and be innovative in how we can best achieve the right regulatory outcomes.

At a practical level, we need to operate the safety camera network, which in future may include a wider variety of approved vehicle surveillance equipment. We need to plan and schedule our operations based on our knowledge of risk. We will deploy a variety of mobile and fixed surveillance equipment and be flexible to redeploy them to new locations in a timely manner if the risk profile or our approach changes. Importantly, equipment will need to be maintained and calibrated to ensure the integrity of enforcement actions.

All the above will be supported by enabling functions such as having the required people capability, specialised training, and accommodation. Payment management will also include management of unpaid fines through the Ministry of Justice and/or debt collection. We will proactively manage our physical and information assets, including data sharing, privacy and security, and the underlying technology.

## 2.6 Scope

Key activities that are in scope for the TUS Programme are detailed in Table 10. Note that any activities not listed as in scope can be assumed to be out of scope.

Table 10 – Scope of the Tackling Unsafe Speeds Programme, by its three component programmes

In scope
<b>Speed Management</b>
Establishment of the national speed management framework
Deliver Speed Management awareness campaign
Facilitate national engagement process with road controlling authorities and regional transport committees and interested parties (including, but not limited to, iwi and schools)
<b>Safer Speeds Around Schools</b>
Secure funding for a safer speeds around schools campaign
Identification of, and agreement to, the infrastructure changes required to support safer speeds around schools
<b>Safety Camera System</b>
Establishment and implementation of Waka Kotahi safety camera system, including: <ul style="list-style-type: none"> <li>• transfer of service [REDACTED] from New Zealand Police</li> <li>• camera operation and management</li> <li>• end-to-end offence processing (that is, processing of infringements, as well as processing and prosecution of high-speed traffic offences detected by safety cameras)</li> <li>• processing of infringements generated after agreed cutover</li> <li>• agreed data sharing with New Zealand Police</li> </ul>
Initial expansion of existing network to agreed camera numbers and types
Delivery of an awareness campaign to support programme outcomes
Development of a business case for the next phase (building on the lessons from the first phase), including potential future expansion, additional infringement types and/or legislative changes
Out of scope
<b>Speed Management</b>
Development and/or implementation of regional speed management plans (RCAs)
<b>Safer Speeds Around Schools</b>
Delivery of safer speeds around schools campaign (National Road Safety Promotional Programme)
Changing speed limits requires infrastructure such as signs, markings and electronic signs. Additional measures may be required in some cases
<b>Safety Camera System (where it will be addressed)</b>
Ongoing delivery of officer-issued infringements (New Zealand Police)
Operation and management of existing safety cameras (existing RCAs)
Any further expansion of camera network beyond agreed numbers (subsequent phases)
Any awareness campaign requirements not related to the safety camera system

## 2.7 Dependencies, constraints, and assumptions

The following key strategic and policy linkages have been factored into this business case:

- The new Land Transport Rule: Setting of Speed Limits 2021 enables the new Speed Management regulatory framework and the targets for Safer Speeds Around Schools. Public consultation has now been completed and feedback received through that process may result in substantive changes to the draft Rule, which will have implementation implications.
- A flexible, evidence-based approach to signage of safety cameras, using a blended approach of highly visible fixed cameras and less visible mobile safety cameras to enable general deterrence. This approach is being developed with the Ministry of Transport and the Minister is being briefed on the proposed approach.
- Legislative changes to enable the use of point-to-point (average speed) cameras have been agreed in principle and are scheduled to be introduced through the second Regulatory Systems Transport Amendment Bill (RSTA 2) <sup>9(2)(iv)</sup> [REDACTED].

The following key strategic and policy changes have not been factored into this business case, but could support greater DSI reductions if they were progressed:

- Demerit points for camera offences have potential to reduce the proposed effectiveness of safety cameras. Demerit points do not apply to safety camera offences <sup>9(2)(iv)</sup> [REDACTED]. The evidence suggests that demerits are a much stronger driver of behaviour change than financial penalties on their own.
- Hypothecation of funding from infringements (such as safety cameras) would enable infringement fees to be used to support funding of road safety outcomes, and would also assist in reducing public perceptions that safety cameras are revenue generating. Waka Kotahi has recently briefed the Minister recommending consideration of hypothecation and associated legislative changes.
- Automation of offence processing could result in significant efficiencies, but would need to be enabled by legislation changes. Waka Kotahi is working with the Ministry of Transport to identify the changes that would be required, and the best way to achieve them.
- A wider range of DSI-related offences can be enforced using the latest safety camera technology, such as mobile phone use, not wearing seatbelts, driving in an emergency stopping lane, tail gating, failing to comply with level crossing obligations. Waka Kotahi is currently working with the Ministry of Transport to explore the legislation changes required to enable this.

Key dependencies and constraints for TUS initiatives and the assumptions underpinning them are summarised in Tables 11–13.

Table 11 – Key dependencies for Tackling Unsafe Speeds, by its three component programmes

Dependency	Programme or workstream providing dependency
<b>Speed Management</b>	
To develop guidance on speed management planning, consultation, and the National Speed Limit Register, Cabinet must approve the Setting of Speed Limit Rule.	Legislative and Policy Reform
To deliver a useable and agree framework by June 2021	One Network Road Classification and One Network Framework
<b>Safer Speeds Around Schools</b>	
RCA's identify speed limits that need to be reduced	Speed Management programme
The infrastructure required to support reduced speed limits is identified and delivered	Speed and Infrastructure Programme

Dependency	Programme or workstream providing dependency
Communications and engagement campaigns are delivered to support changes in speed limits around schools	Waka Kotahi communications and engagement function
<b>Safety Camera System</b>	
New Zealand Police to agree memorandum of understanding to undertake transfer and implementation of operations	Safety Camera System programme and New Zealand Police
New Zealand Police change programme to deliver handoffs for cutover as agreed	New Zealand Police
Ministry of Justice change programme to deliver handoffs to accept referrals once in business-as-usual as agreed	Ministry of Justice
Speed and Infrastructure Programme to deliver infrastructure changes required to support safer speeds around schools	Speed and Infrastructure Programme
Legislative amendments to enable: <ul style="list-style-type: none"> <li>• average-speed (point-to-point) cameras</li> <li>• automated issuing of infringements</li> <li>• sharing of information with the Ministry of Justice and New Zealand Police</li> </ul>	Ministry of Transport
Operation of average-speed cameras requires legislative change through the Regulatory Systems (Transport) Amendment Bill 2, which is expected to be in effect from [REDACTED]	Ministry of Transport

Table 12 – Key constraints for Tackling Unsafe Speeds, by its three component programmes

Constraint
<b>Speed Management</b>
The Setting of Speed Limit Rule sets out what Waka Kotahi must do (that is, the programme must deliver in accordance with the rule).
<b>Safer Speeds Around Schools</b>
Cabinet directed that speed limits around school should be assessed and amended as required.
<b>Safety Camera System</b>
Cabinet decided ownership and operation of the camera network will transfer from New Zealand Police to Waka Kotahi.
New Zealand Police will retain and administer officer-issued infringements.
The Road to Zero Executive Sub-Committee agreed: <ul style="list-style-type: none"> <li>• all existing camera types (red light, mobile speed, and static speed) are to be transferred</li> <li>• core safety camera operation and offence processing functions will not be outsourced</li> <li>• subject to agreement with New Zealand Police, Waka Kotahi will initially use the Police Calibration Service to calibrate the transferred safety cameras, but this will be reviewed as the safety camera network increases.</li> </ul>
Cabinet stipulated that safety cameras should be clearly signed as part of the investment in additional cameras to reduce excessive speeds on high-risk roads. The Road to Zero Executive Sub-Committee agreed the programme team will work with the Ministry of Transport to ask the Minister for flexibility regarding signage for mobile cameras.

Table 13 – Key assumptions and their potential impact if incorrect for Tackling Unsafe Speeds, by its three component programmes

Assumption	Effect if assumption is incorrect
<b>Speed Management</b>	
Legislation is passed in the agreed timeframe	Programme implementation will be delayed
Safety camera and infrastructure aspects of the speed management planning process are compatible with the Safety Camera System programme and Speed and Infrastructure Programme	May result in additional work for Safety Camera System programme and/or the Speed and Infrastructure Programme
Speed Management will deliver a best-practice process, not a minimum viable product	Implementation will be confused and the benefits of faster road speed changes will not be realised
<b>Safer Speeds Around Schools</b>	
Safer Speeds Around Schools will require Speed Management to implement the required supporting changes	Safer Speeds Around Schools will not be able to realise its benefits without Speed Management Plans and support to properly describe schools' changes within those Plans.
Associated infrastructure changes are delivered through the Speed and Infrastructure Programme	A new workstream duplicates Speed and Infrastructure Programme work will be developed that is likely to create staff conflicts internally and supplier conflicts externally as the Safer Speeds Around Schools programme and the Speed and Infrastructure Programme complete for resources.
<b>Safety Camera System</b>	
Waka Kotahi and New Zealand Police agree and implement a memorandum of understanding to facilitate the transition	Potential programme failure for both parties
Waka Kotahi leverages existing New Zealand Police solution as appropriate, including novating contracts and such like	Delays to procurement and the TUS Programme

### 3 ECONOMIC CASE

The economic case identifies the preferred TUS Programme that optimises value for money for the government and New Zealand.

This section explains the approach taken to determine the programme options, then identifies options and assesses them across estimated monetary and non-monetary costs and benefits and other criteria to determine a preferred way forward.

#### 3.1 Summary

The TUS Programme comprises three component programmes – Speed Management, Safer Speeds Around Schools, and Safety Camera System – that together will deliver the changes necessary to help improve road safety and reduce the number and severity of crashes.

The total investment required is an estimated [REDACTED] over the next 20 years (Table 14).

Table 14 – Tackling Unsafe Speeds Programme – investment required by component programmes

Category	Recommended option			Total
	Speed Management	Safer Speeds for Schools	Safety Camera System	
<b>Monetarised costs and benefits</b> (over 20 years discounted at 5%)				
Whole-of-life costs (\$m)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Monetised benefits (\$m)	-	-	[REDACTED]	[REDACTED]
Net present value (\$m)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<b>Benefit–cost ratio</b>	-	-	<b>0.77 to 1.86</b>	<b>0.68 to 1.56</b>
<b>Non-monetary benefits</b> ✓ = minimal impact ✓✓ = moderate impact ✓✓✓ = major impact				
More roads with safe and appropriate speed limits	✓✓✓	n/a	n/a	
Reduction in compliance costs for RCAs and the regulator	✓✓	n/a	n/a	
Potential increase in students walking or cycling to school	n/a	✓✓–✓✓✓	n/a	
Fewer crashes and lower risk of injury involving students around schools (within 250m)	n/a	✓✓–✓✓✓	n/a	
Improved driver behaviour and compliance	Enables	✓✓	✓✓✓	
<b>RECOMMENDATION</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	

## 3.2 Speed Management programme

The government has decided on the policy options for speed management, which are summarised below. The implementation options are then explained in the following section.

### Policy options

Waka Kotahi was involved in the development of the TUS Regulatory Impact Assessment. The policy options for Speed Management considered in the development of the TUS Cabinet paper are set out in Table 15.

These options were then assessed as summarised in Table 16, with **Option 3** identified as the preferred policy option. Option 3 is being implemented.

Table 15 – Policy options for tackling unsafe speeds

Option	Description
<b>Option 1:</b> Retain bylaw-making process and allow alternative pathway	<p>Retain the bylaw-making process as a legal speed-limit-setting process.</p> <p>Establish an alternative regulatory process for setting speed limits with procedural and consultation requirements set out in the 2017 Rule.</p> <p>For those RCAs that choose to use the regulatory process, formal introduction of a new speed limit would be through Waka Kotahi approval and publication on a national register (rather than through speed limit bylaws).</p> <p>RCAs could use either pathway for setting speed limits.</p>
<b>Option 2:</b> Remove and replace the bylaw-making process	<p>Remove the bylaw-making process for setting speed limits</p> <p>Establish a regulatory process for setting speed limits with procedural and consultation requirements set out in the 2017 Rule.</p> <p>Formal introduction of a new speed limit would be through Waka Kotahi approval and publication on a national register (rather than through speed limit bylaws).</p> <p>No further formal requirements for RCA planning and implementation processes for setting speed limits (that is, this would be carried out on an RCA-by-RCA basis unless coordinated otherwise).</p>
<b>Option 3:</b> Remove bylaw-making process and introduce regional planning requirements ( <i>preferred</i> )	<p>Remove the bylaw-making process for setting speed limits.</p> <p>Establish a regulatory process for setting speed limits with procedural and consultation requirements set out in an amended Setting of Speed Limits rule.</p> <p>Waka Kotahi would be required to develop a public national speed management plan and work collaboratively with territorial authority RCAs and regional transport committees to develop regional speed management plans.</p> <p>RCAs would consult on plans as a whole (rather than individual speed management proposals) and be required to implement proposals set out in finalised plans.</p> <p>Speed management plans would incorporate safety infrastructure changes and align with the land transport planning process.</p> <p>Formal introduction of a new speed limit would be through Waka Kotahi approval and publication on a national register (rather than through speed limit bylaws).</p>

Table 16 – Options assessment

	Status quo	Option 1 – Retain bylaw-making and allow new regulatory process	Option 2 – Remove bylaw-making process	Option 3 – Introduce a new planning process
Effectiveness – road users travel at safe and appropriate speeds	0	0 Expected to have minor impacts on safe and appropriate speeds	0 Expected to have minor impacts on safe and appropriate speeds	+ Expected to improve the process for consulting on and implementing speed limit changes leading to more roads having speed limits aligned with safe and appropriate speeds more quickly. Expected to see clearer prioritisation of speed limit changes.
Effectiveness – improve regional collaboration and consistency	0	- - Continued confusion as RCAs using different speed limit setting processes, including the bylaw-making process. Not expected to create or incentivise consistency of speed limits regionally or nationally.	+ Expect all RCAs to be using the same process for speed-limit setting. However, not expected to create more consistency or encourage regional collaboration	++ Should reduce the ad hoc changes that occur across RCAs in a region. The planning process requires regional collaboration and is intended to support a consistent approach being taken across the network.
Effectiveness – support schools proposal	0	0 Requirements around schools could be introduced but the bylaw process would likely continue to make these changes onerous.	+ Requirements around schools could be rolled out more efficiently by RCAs under the new process.	++ Requirements around schools would be supported by a planning process designed for broader scale change.
Cost and speed of implementation	0	0 Limited disruption and relatively minor changes to allow RCAs to use an alternative speed limit setting process.	- Some regulatory change required to the 2017 rule and legislation to remove bylaw-making process and establish new process. RCAs must become familiar with new process requirements.	- - Rule and primary legislation changes to remove bylaw-making process and establish new planning processes. Some disruption and complexity for RCAs in transitioning to the speed management planning process.
Ongoing compliance and administrative costs	0	+ Compliance costs for RCAs expected to be no higher than at present. RCAs have the option of choosing to use the alternative process, which should reduce compliance costs for some. Confusion may remain.	+ Process is expected to be clarified and more efficient than the existing process.	++ The proposed regulatory framework will place new planning requirements on RCAs, NZTA and regional transport committees. However, these are expected to streamline the process for planning, consultation and implementation, improving efficiency in the long term.
Key stakeholder support and public acceptance	0	- Does not address the primary concern that arose from stakeholder engagement about the confusion and mixed interpretation about the current process.	0 Clarifies the speed limit setting process but does not encourage regional collaboration. Some may view the proposal as imposing a new process for limited benefit.	+ Stakeholders have expressed general support for the new regulatory framework at a high level. This process will improve transparency and accountability of speed management for the public.
<b>Overall assessment</b>	<b>0</b>	<b>-</b>	<b>+</b>	<b>++</b>



## Implementation options

Much of the scope and the pace of implementation is dictated by the policy option and the proposed Land Transport Rule: Setting of Speed Limits (the Rule) and the fact a significant portion of the delivery is already under way. Therefore, fewer implementation options are available to Speed Management than to the other TUS component programmes.

Speed Management is a critical enabler of other programmes of work. While it enables benefits such as faster speed limit changes, improved safe and appropriate speeds, and integrated speed, infrastructure and enforcement it does not deliver DSI reductions itself.

The preferred option will deliver:

- preparation for the changes (in progress and nearing completion), including:
  - development of the new Rule
  - preparation of the Speed Management Guide and Speed Management Planning Tool
  - development of a speed register
  - enhancing the MegaMaps tool to provide information to RCAs to support the development of speed management plans
  - developing an interim (minimum viable product) speed management planning tool for RCAs
- support for the delivery of the changes (which begin once the new Rule is approved and end with the implementation of the 2024–27 NLTP), including:
  - support for the transition to the new Rule
  - support for RCAs to develop their speed management plans
  - support for the operation and population of the Register of Land Transport Records (Speed Register)
  - changes to the enterprise data warehouse to provide integration with MegaMaps and wider enterprise data warehouse outcomes for Road to Zero and Waka Kotahi
  - completion of the development of the Speed Management Planning Tool that will merge data from a variety of sources and will use workflow to both enable and remind actors to play their part in the process
- ongoing operational support:
  - for the transition to the new Rule
  - to RCAs to develop their speed management plans.

There are minor options to limit the scope and costs of speed management such as limiting the development of the Speed Management Planning Tool to a minimum viable product and limiting on/off transition support from the programme of two weeks' work by consultants to assist in the initiation, development, and processing of speed management plans. However, these options would not result in significant savings and could impact on the delivery of speed management plans.

The costs and benefits for the preferred option are set out in Table 17.

Table 17 – Speed Management preferred option – costs and benefits

Category	
<b>Monetised costs and benefits</b> (over 20 years discounted at 5%)	
Whole-of-life costs (\$m)	5,942,000
Monetised benefits (\$m)	–
Net present value(\$m)	5,942,000
<b>Benefit–cost ratio</b>	
Percentage reduction in DSIs at 2030	n/a
Number of DSIs saved	n/a
Cost per DSI saved	n/a
<b>Non-monetary benefits</b> (✓= minimal impact ✓✓= moderate impact ✓✓✓= major impact)	
More roads with safe and appropriate speed limits	✓✓✓
Reduction in compliance costs for RCAs and the regulator	✓✓
Improved driver behaviour and compliance	Enables
<b>RECOMMENDATION</b>	<b>Yes</b>

#### **More roads with safe and appropriate speed limits**

Roads will more quickly have safe and appropriate speed limits in place enabled by the national integrated speed management planning framework including changing the supporting technology, processes, and tools.

#### **Reduction in compliance costs for RCAs and the regulator**

There will be reduced ongoing compliance costs for both RCAs and the regulator because process and consultation requirements for speed limit changes will be coordinated and streamlined (less work on a per speed limit change basis and more straightforward to make changes across the region).

### **3.3 Safer Speeds Around Schools programme**

The government has already decided on the policy options for speed management. The policy options that were identified and evaluated are explained below. This business case examines the implementation options, which are explained in the following section.

#### **Policy options**

The TUS Regulatory Impact Assessment determined the options shown in Table 18 for addressing safer speeds around urban and rural schools.

The options for urban schools were then assessed as shown in Table 19 and for rural schools in Table 20. **Options 1d (urban) and 2a (rural)** were identified as the preferred policy options.

Table 18 – Safer Speeds Around Schools options

Option	Description
Urban option 1a	Allow 30km/h variable speed limits to be implemented around urban schools without having to meet all the current requirements set out in the 2017 Rule. Implementing 30km/h speed limits would be optional for RCAs.
Urban option 1b	Require 30km/h speed limits (variable or permanent) to be implemented around all urban schools in an agreed timeframe.
Urban option 1c	Require a maximum of 40km/h speed limits (variable or permanent) to be implemented around all urban schools in an agreed timeframe. RCAs would have the option of implementing 30km/h speed limits outside schools.
Urban option 1d (preferred)	Require 30km/h speed limits (variable or permanent) to be implemented around all urban schools in an agreed timeframe. RCAs would also have the option of implementing 40km/h speed limits where appropriate
Rural option 2a (preferred)	Require a maximum speed limit of 60km/h (variable or permanent) to be implemented outside all rural schools in an agreed timeframe. RCAs would have the option of introducing lower speed limits in areas where it was considered appropriate.
Rural option 2b	Require maximum speed limits (variable or permanent) around all rural schools to be the same as those around urban schools (this is dependent on the preferred option for lower speed limits outside urban schools but would reduce speed limits to a maximum of 40km/h).

Table 19 – Safer Speeds Around Schools – options for urban schools

	Status quo	Option 1a	Option 1b	Option 1c	Option 1d
Effectiveness - motorists travel at safe and appropriate speeds	0	+ This option would reduce mean travel speeds on roads outside some urban schools. It's uncertain how many RCAs would reduce speed limits to 30km/h. It has taken many years for roads outside around 20% of schools to have 40km/h speed limits	++ This option would reduce mean travel speeds on roads outside all urban schools, by ensuring 30km/h speed limits are in place. However, in some cases 30km/h may not be an 'appropriate' speed limit and could lead to some RCAs introducing minimal speed management treatments around some schools.	++ This option would reduce mean travel speeds on roads outside urban schools. RCAs would have the flexibility to determine where 30km/h and 40km/h speed limits are appropriate. It's uncertain how many RCAs would reduce speed limits to 30km/h.	++ This option would reduce mean travel speeds on roads outside urban schools. RCAs would have the flexibility to determine where 30km/h and 40km/h speed limits are appropriate. With 30km/h speed limits as the default this is expected to lead to the introduction of more 30km/h speed limits.
Effectiveness – improve access and mode shift	0	+ Where applied, this option is expected to improve access and encourage a shift to active mode use, if accompanied by consideration of the surrounding area	++ This option would improve access and may encourage a shift to active mode use. Effectiveness will rely on RCAs considering the broader environment around a school.	++ This option would improve access and may encourage a shift to active mode use. Effectiveness will rely on RCAs considering 30km/h speed limits and the broader environment around a school.	++ This option would improve access and may encourage a shift to active mode use. Effectiveness will rely on RCAs considering 30km/h speed limits and the broader environment around a school.
Cost and speed of implementation	0	0 RCAs only make speed limit changes they choose to make (no mandated changes). There will be no change in the cost of installing electronic 30km/h variable signage compared with 40km/h signage.	- - - There would be significant costs associated with implementing 30km/h speed limits. In some cases, expensive infrastructure treatments would be necessary to accompany 30km/h speed limits. Costs of new signage and engagement with the public. Some RCAs have recently incurred costs of introducing 40km/h speed limits outside schools and they would have to go through the speed limit change process again.	- - There would be significant costs associated with infrastructure, signage replacement and engagement with the public (although some areas already have 40km/h speed limits in place). RCAs will have flexibility to determine the most appropriate intervention (eg, 30km/h or 40km/h and whether infrastructure investment is appropriate).	- - There would be significant costs associated with infrastructure, signage replacement and engagement with the public (although some areas already have 40km/h speed limits in place). RCAs will have flexibility to determine the most appropriate intervention (eg, 30km/h or 40km/h and whether infrastructure investment is appropriate). More 30km/h speed limits will likely result in higher infrastructure costs and slower implementation.

	Status quo	Option 1a	Option 1b	Option 1c	Option 1d
Ongoing compliance and administrative costs	0	0 This option would reduce the administrative costs for RCAs wanting to reduce speed limits around urban schools to 30km/h (there would still be many implementation costs). There would be a minor increase in road user travel times.	- - Once implemented, there should be no increase in ongoing administrative costs for RCAs. There would be some increase in road user travel times, and perhaps ongoing compliance concerns in those areas where 30km/h not an 'appropriate' speed limit.	- Once implemented, there should be no increase in ongoing administrative costs for RCAs. There would be some increase in road user travel times.	- Once implemented, there should be no increase in ongoing administrative costs for RCAs. There would be some increase in road user travel times.
Key stakeholder support and public acceptance	0	- There is strong public and RCA support for speed limits no greater than 40km/h around all urban schools. This option is likely to receive opposition as there is no formal requirement for RCAs to change existing 50km/h speed limits.	+ There is strong public and RCA support for lower speed limits around urban schools, although some stakeholders consider 40km/h to be sufficient or more appropriate in some circumstances. A number of RCAs have recently incurred the cost of reducing speed limits to 40km/h.	++ There is strong public and RCA support for speed limits no greater than 40km/h around urban schools. Many consider 30km/h to be more appropriate and this option allows both where appropriate.	++ There is strong public and RCA support for speed limits no greater than 40km/h around urban schools. Many consider 30km/h to be more appropriate and this option allows both where appropriate.
<b>Overall assessment</b>	<b>0</b>	<b>+</b>	<b>+</b>	<b>++</b>	<b>++</b>

Table 20 – Safer Speeds Around Schools – options for rural schools

	Status quo	Option 2a	Option 2b
Effectiveness - motorists travel at safe and appropriate speeds	0	++ This option would likely reduce mean travel speeds on roads outside rural schools.	++ This option would likely reduce mean travel speeds on roads outside rural schools. However, discussion with stakeholders indicated concerns about compliance and the risks associated with motorised traffic travelling at a range of different speeds. This is more likely to occur if 40km/h or lower speed limits are introduced on rural roads.
Effectiveness – improve access and mode shift	0	0 This option could improve access and encourage more active modes, but this effect is expected to be minimal in many cases. Often rural schools do not have suitable infrastructure or broader roading environments to support this, or children live too far from school.	0 This option could improve access and encourage more active modes, but this effect is expected to be minimal in many cases. Often rural schools do not have suitable infrastructure or broader roading environments to support this, or children live too far from school.
Cost and speed of implementation	0	- There would be costs associated with new signage, infrastructure as needed and engagement with the public. RCAs would be required to plan for and implement all new speed limits outside rural schools as a priority through the proposed speed management plans.	- - There would be costs associated with new signage, infrastructure as needed and engagement with the public. Additional staggered speed limit reductions and/or infrastructure investment is likely to be needed in some cases to implement speed limits below 60km/h. RCAs would be required to plan for and implement all new speed limits outside rural schools as a priority in the first speed management plans.
Ongoing compliance and administrative costs	0	- Once implemented, there should be no increase in ongoing administrative costs for RCAs. There would be a minor increase in road user travel times.	- - Once implemented, there should be no increase in ongoing administrative costs for RCAs. There would be some increase in road user travel times.
Key stakeholder support and public acceptance	0	+ This option is expected to be largely supported by RCAs and received mixed but on balance positive views from the public.	0 This option will likely receive mixed and some strongly polarised views from the public and RCAs.
<b>Overall assessment</b>		<b>+</b>	<b>-</b>

## Implementation options

The Setting of Speed Limits Rule will require RCAs to reduce speed limits (either variable or permanent) to 30km/h (or 40km/h by exception) around all urban schools and to a maximum of 60km/h around all rural schools. The requirement is for all schools to have these limits in place by 2030, with an interim target of 40% of schools to be changed by 2024.

About 2,500 schools in New Zealand (Education Counts website lists 2,536 schools, as at 1 July 2020) would need to be treated by 2030. Treating 40% of schools by 2024 means treating about 1,000 schools during the 2021–24 NLTP period. This includes about 20% (500) rural schools and 80% (2000) urban schools.

An estimated 20% of schools (about 500), mostly urban, already have speed limits that would be deemed to comply with the proposed Rule.

Given the constrained funding environment, RCAs are at risk of not delivering to the level of ambition sought through their contribution to the Road to Zero infrastructure and speed management programme outcomes where revenue is constrained and standard financial assistance rates (FARs) are applied for local share. § 9(2)(f)

Evidence from the Safe Network Programme during NLTP 2018–21 indicates that TEFARs resulted in a significant uplift in the level of ambition from local authorities, which led to better delivery of road safety outcomes through improved safe system–aligned interventions. Many RCAs have requested the continuation of the TEFAR as part of the Road to Zero activity class under the 2021–24 NLTP.

Waka Kotahi will work in partnership with RCAs and schools to ensure appropriate treatments are in plan to ensure effective speed management treatments are implemented.

Potential school-specific treatments are:

- only basic signage and markings
- basic signage and markings plus additional electronic variable speed limit signs
- supporting infrastructure such as speed humps, chicanes, and road narrowing to calm traffic.

The preferred option that reflects the intent of the draft Rule as well as feedback that has been received through consultation on the Rule is:

- treats urban schools on lower-speed residential streets with low-cost signs and markings at around § 9(2)(f)(i) per school
- treats urban schools on higher-speed arterial roads with low-cost signs and markings plus additional electronic variable speed limit signs at around § 9(2)(f)(ii) per school
- treats rural schools with low-cost signs and markings plus additional electronic variable speed limit signs at around § 9(2)(f)(iii) per school
- makes allowance for additional higher-cost infrastructure measures to treat around 25% of schools at around § 9(2)(f)(iv) per school
- makes allowance for further changes and treatments for schools that already have speed limits that would be deemed to comply with the proposed Rule.

However, this **preferred option is not considered affordable** so a constrained option that represents a 'minimal viable product' to achieve the 40% action plan target is recommended. The constrained option will not further remedy the estimated 500 schools that are already compliant with the new Rule. The preferred option assumed (based on consultation feedback) that 75% of these schools would wish to further remediate their speeds. Further options exist to manage affordability issues by weighting delivery towards later NLTP periods.

Table 21 shows the number of schools by treatment type for the first phase and total programme for both options.

Table 21 – Safer Speeds Around Schools – number of schools by treatment type, by option

School type	Treatment	Preferred option		Constrained option (Recommended)	
		Total schools	Phase 1 2021–24 NLTP	Total schools	Phase 1 2021–24 NLTP
Urban schools on lower-speed residential streets	Basic signage and markings	825	275	638	150
Rural schools plus urban schools on higher-speed arterial roads	Basic signage and markings plus additional electronic variable speed limit signs	826	275	638	150
Schools needing infrastructure measures	Above plus supporting infrastructure	424	100	424	100
<b>Total number of schools treated</b>		<b>2,075</b>	<b>650</b>	<b>1,700</b>	<b>400</b>
Plus schools expected to be included in the Speed and Instructure Programme (rural schools on state highways) or low-cost low-risk pathway		300	100	300	100
Plus schools compliant with rule and could benefit with further changes/treatments		-	125	375	375
Plus schools compliant with rule and already deemed sufficiently treated <sup>1</sup>		125	125	125	125
<b>Total number of schools</b>		<b>2,500</b>	<b>1,000</b>	<b>2,500</b>	<b>1,000</b>
<i>% of total schools</i>		<i>100%</i>	<i>40%</i>	<i>100%</i>	<i>40%</i>
<b>Estimated cost</b> (excluding programme management and governance costs)					

1 An estimated 500 schools are already compliant and have speed limits at or below 60km/h (rural) or below 50km/h (urban). The preferred option assumes (based on consultation feedback) that many of these schools will wish to further remediate their speeds.

With ongoing monitoring and evaluation by RCAs, it may be found that the assumed level of supporting infrastructure could be reduced over time as the new Rule takes effect and safer speeds around schools become more widespread. The above assumptions also reflect the specific treatment of schools through a methodology that may change over time with the new Rule. The Speed Management Guide that supports the new Rule is expected to incorporate the One Network Framework (ONF), which has potential to incorporate a wider rollout of safer speed limits on local roads and streets. This could reduce the level of treatment required at individual schools. For example, area-wide lower residential speed limits would likely incorporate schools on affected streets.

With greater certainty and simplicity associated with the treatment of schools on rural local roads, the focus during the early phases of NLTP 2021–24 will be on delivering for these schools. Given that these schools would generally require electronic variable speed limit signs, cost efficiencies could be met through potential national procurement or negotiated rates for associated technology and IT equipment.

A public perception is likely that investment in Safer Speeds Around Schools is being targeted to major urban and metro centres with smaller rural councils missing out on investment and benefiting from road safety strategic outcomes. An early focus on Rural schools, as proposed, will both mitigate this risk and allow faster implementation in NLTP 2021–24.



The benefits of the above funding and delivery approach are that it:

- supports a regional spread of investment ensuring regional equity
- § 9(2)(g)
- prioritises investment in local roads, with rural roads targeted initially
- gives local authorities, suppliers, or contractors delivery certainty
- gives Waka Kotahi greater delivery certainty of meeting the 40% implementation target
- supports procurement and cost-efficiency innovations sought by Road to Zero
- allows for further embedment of the speed rule and One Network Framework for establishing safe speeds limits for urban roads which schools will benefit from.

The costs and benefits for the preferred option are shown in Table 22.

Table 22 – Safer Speeds Around Schools preferred option – costs and benefits

Category	
<b>Monetarised costs and benefits (over 20 years discounted at 5%)</b>	
Whole-of-life costs (\$m)	\$ 9(2)(b)(ii)
Monetised benefits (\$m)	–
Net present value (\$m)	\$ 9(2)(b)(ii)
<b>Benefit–cost ratio</b>	–
<b>Non-monetary benefits</b> (✓ = minimal impact ✓✓ = moderate impact ✓✓✓ = major impact)	
Increase in students walking or cycling to school	✓✓ – ✓✓✓
Fewer crashes involving students around schools (within 250m)	✓✓ – ✓✓✓
Improved driver behaviour & compliance	✓✓
<b>RECOMMENDATION</b>	<b>Yes</b>

**Non-monetary benefits**

*Increase in students walking or cycling to school*

The TUS Regulatory Impact Statement noted that over the last few decades the proportion of children walking or cycling to school declined from 54% in 1989/90 to 31% in 2010–2014. While walking was once the most common way to get to school, now less than a third of children walk or cycle. The societal benefits of increasing the number of children who walk or cycle to school makes it important for New Zealand’s transport policy to support a return to high levels of active travel to school.

More appropriate speed limits and appropriate treatments may make parents feel it is safer for their children to walk or cycle to school, thus increasing the number of children doing so. Further analysis will be undertaken to establish a baseline and quantify the level of the improvement.

*Fewer crashes involving students around schools*

The TUS Regulatory Impact Statement noted that although few road safety–related incidents occurred around schools (compared with other areas of the network), at least 120 crashes each year involve school-aged children outside schools.

More-appropriate speed limits and appropriate treatments should reduce both the number and severity of crashes involving school-aged children. Further analysis will be undertaken to establish a baseline and quantify the level of the improvement.

*Improved driver behaviour and compliance*

Lower speed limits around schools will be a visual demonstration to New Zealanders of a shift to a safe system and the Vision Zero approach. It is likely to be widely supported and have wider influences on changing driver behaviour.

### 3.4 Safety Camera System programme

The purpose of the options for the Safety Camera System programme is to provide decision-makers with choices for the strategic direction of the programme.

The approach used to identify the programme options was to:

- determine the high-level components required to successfully implement an end-to-end safety camera system and identify the options for each of these
- identify a list of options across these high-level components, including safety camera coverage, types of camera technology, camera management and operations (including offence processing), and delivery pace
- assess the list of options against the investment objectives and critical success factors (strategic fit and business needs, potential value for money, supplier capacity and capability, potential affordability, and potential achievability)
- short list three options for further evaluation and apply a cost–benefit analysis to identify the preferred way forward
- receive endorsement of the short-listed options from the Road to Zero Executive Sub-Committee on 28 April 2021.

These choices were then developed using the framework illustrated in Figure 13, demonstrating how these components could be addressed from a ‘do nothing’ option through to a fully future-proofed option. The potential options were then expanded as shown in Figure 14.

Figure 13 – Safety Camera System – options framework

WHAT			
Camera Coverage	Limited	Targeted at risk	Saturated
Level of Enforcement	Restricted	Optimised	Continuous
HOW			
Types of Cameras	Current technology	Current and new technology	All new technologies
Camera Management and Operations	Limited automation	Partially automated & integrated	Fully automated & integrated
	Current needs	Current needs and enable future	Future needs
WHO			
Delivery	Solely NZP	Hybrid	Solely WK
WHEN			
Implementation approach	Cautious	Optimise	Aggressive

Figure 14 – Safety Camera System – dimensions of choice

<b>Dimensions</b>			
<b>WHAT</b>			
<b>Camera Coverage</b>	Limited – use existing camera network	Targeted at risk – add additional cameras on the highest risks parts of the network	Saturated – saturate the whole network with additional cameras
<b>Level of Enforcement</b>	Restricted – use existing approach of only issuing infringements during set periods	Optimised – expand existing approach over bigger periods	Continuous – issue infringements over all periods
<b>HOW</b>			
<b>Types of Cameras</b>	Current technology – transfer all existing camera fleet from Police	Current and new technology – transfer only supported camera fleet from Police and augment with new technology	All new technologies – transfer none of existing fleet and replace with new technology
<b>Camera Management and Operations</b>	Limited automation – replicate existing Police model with high level of manual intervention and no limited integration to NZTA systems	Partially automated & integrated – automate where appropriate and integrate with key NZTA systems	Fully automated & integrated – fully automate to provide ‘straight-through’ processing and fully integrated to all NZTA systems
	Current needs – implement a tactical solution to meet existing needs only	Current needs and enable future – implement a future proofed solution that enables future solutions but doesn’t commit to them	Future needs – implement a solution that meets all future needs, (no offramps if needs change and is dependent on external factors e.g. leg change)
<b>WHO</b>			
<b>Delivery</b>	Solely WK – WK delivers all aspects with internal resources	Hybrid – WK delivers core aspects in-house and outsources remainder to third parties	Solely third parties – WK outsources all aspects to third parties
<b>WHEN</b>			
<b>Implementation approach</b>	Cautious – low risk and slow pace of change to implement expanded service	Progressive – medium risk and pace to implement full expanded service by 2030	Aggressive – high risk and fast pace to deliver full expansion

The options were then assessed against five criteria to determine how realistic each was:

- a new approach to cameras (as directed by Cabinet)
- strategic alignment (for Waka Kotahi and the government)
- value for money
- capability in the market (that is, whether suitable vendors available)
- achievability.

### Choice for decision makers

The main areas of choice for decision-makers are the:

- optimal safety camera network infrastructure, including camera types, numbers, location, and deployment approach
- supporting operating model (including people, processes, and technology) to effectively and efficiently manage and operate the safety camera network
- pace of delivery.

At this stage, much is unknown or uncertain about the optimal safety camera network. For example, although the programme knows some types of safety cameras are more effective than others, it does not yet know the best mix of cameras for the New Zealand context (see Table 23). The approach will evolve as the programme evaluates the effectiveness and deployment of different safety cameras.

Table 23 – What is known or needs to be learnt about the safety camera system

	Key questions	What we know	Where we need to build knowledge
<b>Safety camera network</b>	<p>Where to locate cameras?</p> <p>How many cameras?</p> <p>What types of cameras?</p> <p>What up-time (or other thresholds) for the cameras?</p> <p>Whether to sign mobile cameras?</p>	<p>Taking risk-based approach to location selection makes sense and is supported by regulatory good practise</p> <p>Some types of cameras are more effective than others</p> <p>There is a (yet undefined) relationship between enforcement effort and end DSI outcomes</p>	<p>What is the optimal number of locations?</p> <p>What is the best mix of cameras types?</p> <p>What is the impact and therefore how best to use signage?</p> <p>What is the optimal level of enforcement effort?</p>
<b>Camera management and operations (including offence processing)</b>	<p>What is needed to support the manage and operate the cameras (including offence processing)?</p> <p>What is needed to transfer responsibility from New Zealand Police to Waka Kotahi?</p>	<p>The capabilities and functions needed (via the Programme Blueprint)</p> <p>Investment in modern technology platforms is needed – the current New Zealand Police system is manually intensive and at the end of its life</p> <p>Legislative change is required to capture opportunities to fully automate processes</p> <p>The transition of ownership and operation from New Zealand Police to Waka Kotahi must be carefully managed</p>	<p>What is most appropriate technology platform?</p> <p>What is most appropriate organisational design?</p>

The programme considers choices around the regulatory framework and processes are limited. Cabinet has already made the strategic decisions about the new regulatory approach to speed management, which should place no additional burden on the National Land Transport Fund and should lead to more efficient management over time.

The programme investigated a joint offence processing solution with New Zealand Police. While an interoperable platform might be beneficial, the systems requirements for offences detected manually by officers are fundamentally different to offences detected electronically by cameras. Both agencies have materially different solution requirements, service workarounds, and timelines that negatively affect their ability to successfully undertake the joint procurement and implementation of such a solution.

### Shortlisted programme options

Finally, all the viable component options were assessed and distilled down to three programme options with potential to deliver the investment objectives and benefits:

- **Option A: Cautious** – cautiously expand the camera network (smaller scale) and the capabilities required to support it
- **Option B: Progressive** – progressively expand the camera network (larger scale) and the capabilities required to support it using an iterative approach to monitor, learn, and refine
- **Option C: Aggressive** – rapidly expand the camera network (larger scale) and support capabilities.

All three options have components in common. They:

- allow Waka Kotahi to incorporate safety cameras into broader speed management planning processes and give Waka Kotahi the ability to co-ordinate and optimise our interventions
- take a targeted approach to the placement of safety cameras based on an assessment of risk on potential DSI savings
- build a new Waka Kotahi camera management and operations capability supported by modern technology systems (and using existing New Zealand Police and Ministry of Justice functions where it is mandated or otherwise makes sense)
- provide communications and engagement campaigns for school speed limits and for safety cameras
- provide input into the development of speed management plans that enable best practice application of speed limits, enforcement and infrastructure on New Zealand's roads.

Given that infringement volumes are likely to initially rise substantially as more cameras are operationalised, consideration will also be given to how best to manage volumes and the level of resources necessary. This consideration will be undertaken in conjunction with our operational partners (such as New Zealand Police and the Ministry of Justice) and take into account that infringement volumes are expected to eventually fall as driver behaviour changes.

## **Findings from the options assessment**

### ***Preferred way forward – Option B: Progressive***

The preferred way forward for the Safety Camera System programme is **Option B**, the progressive option. It starts with the progressive adoption of new camera technologies and takes a measured approach to rolling out new technologies, enabling Waka Kotahi to evaluate and learn as it delivers. The investment in safety camera system capability will ensure the system is scalable over time to deliver wider outcomes. This option delivers the required legislative change and new regulatory framework for speed management.

Should Option B be considered unaffordable, Option A is the next alternative.

Option C is not recommended because it offers poor value for money and carries a very high level of delivery risk.

### ***Summary of the options assessment***

The full options assessment is summarised in Table 24 with discussion in the sections following. Costs and benefits are ranged to reflect the level of uncertainty at this stage.

Table 24 – Safety Camera System – options assessment

Category	Option A Cautious	Option B Progressive	Option C Aggressive
<b>Monetarised costs and benefits (over 20 years discounted at 5%)</b>			
Whole-of-life costs (\$m)	\$ 9(2)(0)(0)		
Monetised benefits (reduction in social costs due to fewer DSIs) (\$m)	\$ 9(2)(0)(0)		
Net present value (\$m)	\$ 9(2)(0)(0)		
<b>Benefit–cost ratio</b>	\$ 9(2)(0)(0)		
DSI percentage reduction at 2030	2.0–3.6%	2.9–5.3%	2.9–5.3%
DSIs saved over 20-year period	1,127–1,753	1,614–2,511	1,798–2,797
Cost per DSI saving (\$m)	\$ 9(2)(0)(0)		
<b>Monetarised costs and benefits – rank</b>	<b>3rd</b>	<b>2nd</b>	<b>1st</b>
<b>Non-monetary benefits</b> (✓= minimal impact ✓✓= moderate impact ✓✓✓= major impact)			
Improve driver behaviour & compliance	✓✓	✓✓✓	✓✓✓
<b>Non-monetary benefits – rank</b>	<b>3rd</b>	<b>1st=</b>	<b>1st=</b>
<b>Other criteria</b>			
Affordability	Yes	Yes	Unlikely
Confidence of delivery	Yes	Yes	Unlikely
<b>RECOMMENDATION</b>	<b>Possible</b>	<b>Preferred</b>	<b>No</b>

## Monetary costs and benefits

### Approach

The modelling of the safety camera network expansion for each option is based on analysis undertaken by Abley, a consultancy that specialises in developing transport strategies and infrastructure that support safer travel, improved access and mobility, to target placement of safety cameras based on an assessment of risk on potential DSI savings. For the time being, a standard camera mix of 40% red light, 26% fixed speed, 12% mobile and 22% average speed has been assumed across all options. Future detailed business cases will explore and recommend different camera mixes.

The costs and benefits have been informed by engaging with potential providers, subject matter experts and the New Zealand Police. Costs and benefits have been ranged to account for the uncertainty that exists at this stage. See Appendix C for detailed cost assumptions.

### Key cost areas

The key drivers of costs are the number of cameras and sites. Table 25 outlines the costs by main category for each option.

Table 25 – Safety Camera System – composition of main cost areas

Cost category	Option A Cautious (\$m)	Option B Progressive (\$m)	Option C Aggressive (\$m)
Programme and technology	\$ 92(0)(0)		
Camera network & operations	\$ 92(0)(0)		
Enforcement	\$ 92(0)(0)		
<b>Total</b>	<b>\$ 92(0)(0)</b>		

## Monetary benefits

The main benefit of expanding the safety camera network is a reduction in DSIs. The estimated reductions for Options A to C are shown in Table 26. The benefit–cost ratio ranges for all options are similar –within 0.49 to 1.44.

A ‘DSI equivalent’ (weighted average) monetised value of \$1.244 million per DSI was determined for the economic analysis. This is based on current statistical values published by the Ministry of Transport and using 2018 crash data, which has a ratio of 1 fatality to every 7.9 serious injuries.

Table 26 – Safety Camera System – benefit–cost ratios, by option

	Option A Cautious	Option B Progressive	Option C Aggressive
Long run DSIs saved per year (from year 9)	85–95	120–140	120–140
DSI percentage reduction at 2030	2.0–3.6%	2.9–5.3%	2.9–5.3%
<b>Benefit–cost ratio</b>	<b>0.79 to 1.91</b>	<b>0.77 to 1.86</b>	<b>0.75 to 1.82</b>
Present value cost per DSI (20-year whole-of-life cost / 20-year DSI) (\$m)	0.4–0.9	0.4–0.9	0.4–1.0

## Non-monetary benefits

In terms of the non-monetary benefits, all options will enable roads (particularly those around schools) to more quickly have safe and appropriate speed limits in place and have been rated as having a major positive impact because they all will establish the national integrated speed management planning framework including changing the supporting technology, processes, and tools. Table 27 sets out the non-monetary options for the Safety Camera System programme.

Table 27 – Safety Camera System – options assessment – non-monetary benefits, by option

Benefit	Option A Cautious	Option B Progressive	Option C Aggressive
Enable roads (particularly those around schools) to more quickly have safe and appropriate speed limits in place	✓✓✓	✓✓✓	✓✓✓
Improve driver behaviour and compliance	✓✓	✓✓✓	✓✓✓
<b>Rank</b>	<b>3rd</b>	<b>1st=</b>	<b>1st=</b>

Note: ✓ = Minimal positive impact    ✓✓ = Moderate positive impact    ✓✓✓ = Major positive impact

Option A has been rated as having a moderate impact on improved driver compliance because the safety camera network will be moderately expanded and is constrained by largely manual camera management and offence processing functions.

Option B and C has been rated as having a major impact on improved driver compliance and compliance because the safety camera network will be significantly expanded, supported by

capabilities and functions that can be extended in time to other forms of infringements (such as not wearing a seat belt and using a mobile phone).

**Other criteria**

Options were also assessed against affordability and delivery confidence (see Table 28).

*Table 28 – Safety Camera System – other criteria, by option*

Criterion	Option A Cautious	Option B Progressive	Option C Aggressive
Affordability	Yes	Yes	Unlikely
Confidence of Delivery	Yes	Yes	Unlikely

The programme considers:

- Options A and B are affordable because they are within previously indicated ranges
- Option C is unlikely to be affordable in the current climate.

The programme is confident that Options A and B are deliverable and would achieve the programme’s investment objectives because both options are delivered in a staged manner that allows the pace and scope of the programme to be adjusted to manage risks.

Option C is considered challenging to deliver because it depends on legislative change to allow full automation of processing and the aggressive expansion of the camera network may not be supported by providers and contractors.

**3.5 Investment prioritisation assessment and appraisal summary**

The completed investment prioritisation assessment for the TUS Programme is set out in Table 29.

The completed appraisal summary table is set out in Table 30.



Table 29 – Investment prioritisation

Proposed 2021-24 NLTP Priority Order						
GPS alignment	Scheduling	Efficiency				
		VL* (BCR<1.0)	L (BCR 1.0-2.9)	M (BCR 3.0-5.9)	H (BCR 6.0-9.9) (PV of Costs for end of life replacement)	VH (BCR>=10.0)
VH	H	7	2	1	1	1
VH	M	8	3	2	2	1
VH	L	9	4	3	2	2
H	H	9	5	4	4	3
H	M	10	6	5	5	3
M	H	10	7	6	6	4
M	M	10	9	8	6	5
H	L	11	8	8	6	5
M	L	11	10	10	9	8
L	H/M/L	12	12	12	12	12

Table 30 – Appraisal summary

Appraisal Summary Table - Tackling Unsafe Speed						
<b>Date:</b>	27/05/2021	<b>Evaluation Period: (baseline and forecast year) e.g 2020 - 2060</b>	20 years	<b>Option Name:</b>	Preferred Option B: Progressive	
<b>Problem/opportunity statement:</b>	Opportunity exists to adopt a new approach to safety cameras and increase the number of cameras per capita to discourage excessive or inappropriate speeds and improve compliance with posted speed limits	<b>Investment objectives:</b>	To effectively and efficiently implement the government’s new approach to safety cameras and compliance	<b>How project gives effect to GPS:</b>	3-5% of the 40% target DSI reduction for RTZ	
					<b>How project gives effect to local community outcomes:</b> Safer speeds, less harm, greater community wellbeing	
<b>Transport Outcomes</b>	<b>Non-Monetised Impact:</b> (description in numerical or narrative terms)				<b>Long Run Monetised Impact:</b> (description in dollar terms in real terms, non-discounted)	
<b>Name of Benefit</b>	<b>Name of Measure:</b>	<b>Baseline:</b>	<b>Do Minimum Impact (pa):</b>	<b>Preferred Option Impact (pa):</b>	<b>Do Minimum Impact (\$m pa):</b>	<b>Option Impact (\$m pa):</b>
<b>Healthy and safe people</b> (Please copy the row below to add an additional benefit or measure, and delete rows as appropriate)						
1.1 Impact on social cost and incidents of crashes	1.1.3 Deaths and serious injuries	2858	93	136	115.7	169.2
<b>1. Summary of Non-Monetised Impacts (Description)</b>	<b>2. Summary of Financial Impacts (20 year WOLC)</b>		<b>3. Summary of Monetised Option Impacts (20 year PV)</b>			
Summary description of non-monetised measures and impacts	Capital Costs (at mid point)		\$ 2021	Total Monetised Benefits, <u>excluding</u> Wider Economic Benefits (WEBs)	\$0	
				Total Monetised Benefits, <u>including</u> Wider Economic Benefits (WEBs)	\$1,485m	
	Operating Costs (at mid point)		\$ 36709	Total Monetised Benefits (costs)	\$1,485m	
				BCR (excluding WEBs)	0.0	
	Total Financial Costs		\$ 30205	BCR (including WEBs)	1.2	
<b>Rationale for selecting preferred option</b>						
Best value for money for lowest overall risk, supports government policy and investment objective						

## 4 COMMERCIAL CASE

This section outlines the commercial considerations for each of the three component programmes of the TUS Programme for procurement and acquisition of the required capabilities to support the preferred options:

- Speed Management (see section 4.1)
- Safer Speeds Around Schools (see section 4.2)
- Camera Safety System (see section 4.3).

### 4.1 Speed Management programme

#### Required capabilities

The three key capabilities that needed to be sourced for Speed Management were the:

- MegaMaps geospatial tool
- National Speed Limit Register
- Speed Management Planning Tool.

#### Procurement strategy and plan

The first two capabilities (the MegaMaps geospatial tool and National Speed Limit Register) were procured in accordance with Waka Kotahi procurement policies.

The Speed Management Planning Tool is in the procurement process currently, via an RFQ through approved panels.

### 4.2 Safer Speeds Around Schools programme

#### Required capabilities

Using a national procurement approach and/or negotiated rates for equipment supply could achieve significant cost efficiencies, for example:

- variable speed limit signs (electronic signage) of approximately \$92,000 per school
- static speed limit signage of approximately \$92,000 per school
- raised table zebra crossing
- threshold treatments
- corridor signage
- pavement marking
- traffic cones
- professional services (for example, project management and design).

#### Procurement strategy

Safer Speeds Around Schools will use the Speed and Infrastructure Programme procurement strategy, which sets out the framework for how Waka Kotahi will manage the various procurement activities needed to support the delivery of the Speed and Infrastructure Programme.

The strategy guides procurement planning and decision making and sets out a framework within which procurement can be managed and measured. The strategy is intended to be permissive and

encourage innovation in pursuit of safety outcomes. The Board endorsed the Speed and Infrastructure Programme procurement strategy in February 2021.

It is understood RCAs perceive the Safer Speeds Around Schools work to be government mandated.

██████████  
██████████ Regardless, the proposed funding will enable the required 40% (or more) of schools to have reduced speed limits by 30 June 2024, in line with the draft Rule.

- For most schools a low investment is required to create visible indicators of a lower speed, with 25% of schools needing a higher infrastructure investment.
- Rural schools have simpler requirements and will only require only a variable speed sign (noting that addressing rural schools first will also help to reduce a perception that smaller rural schools are not receiving the same attention as urban schools).
- Urban schools tend to be more complex and having time to review and assess this complexity would allow both community engagement and effective and efficient implementation.
  - Urban schools have more changes resulting from ONF implications on wider urban development.
  - Over time schools will be treated through the wider speed management planning process (that is, some urban schools are likely to be treated as part of a wider regional plan).
  - Overall planning and tracking of the percentage of schools completed needs to be within a separate programme of work.
  - Funding needs to be ring-fenced for Safer Speeds Around Schools.
- High community (and therefore council) support exists for making speed changes around schools.
- About 17–20% of schools have reduced speeds already, so under the draft Rule would not require further treatment. However, some of those schools, and councils where the school speed is already 40km/h, would like to reduce the speed to 30km/h.

Safer Speeds Around Schools will be clear with RCAs about what is in and out of scope, are the drivers, and is the rationale for decision making. ██████████

██████████, and the programme will actively manage the process to avoid any over-subscription in the 2021–24 NLTP period, including:

- leveraging the lessons learned and engagement model from the Innovating Streets Programme
- working with those councils and schools that are willing – interest in changing speeds is much higher than it was 2–3 years ago
- providing certainty of procurement at a national level to enable cost reductions (for items such as electronic signs and raised-platform crossings), especially with a national three-year (and potentially 10-year) forward view
- recognising that delivery through Network Outcome Contracts does not always provide the cost savings that direct negotiation can, particularly when ‘variation’ costs for contract add-ons are accounted for
- identifying alternative funding sources as a contingency in the event of cost overruns.

## Procurement plan

The Board endorsed the Speed and Infrastructure Programme procurement plan in February 2021.

The use of consistent suppliers via standing arrangements will be balanced with creating opportunities for competition and building depth within regional professional service markets. The Speed and Infrastructure Programme is committed to developing and maintaining healthy professional services markets, especially at a regional level.

## Approach to Procurement Planning

The planning phase of procurement is where many of the strategic decisions are made that ultimately influence the success of the project, and extent of value possible from any contract. This is especially important for physical works, where most of the funding is spent, risk is highest, and the extent of client control lowest.

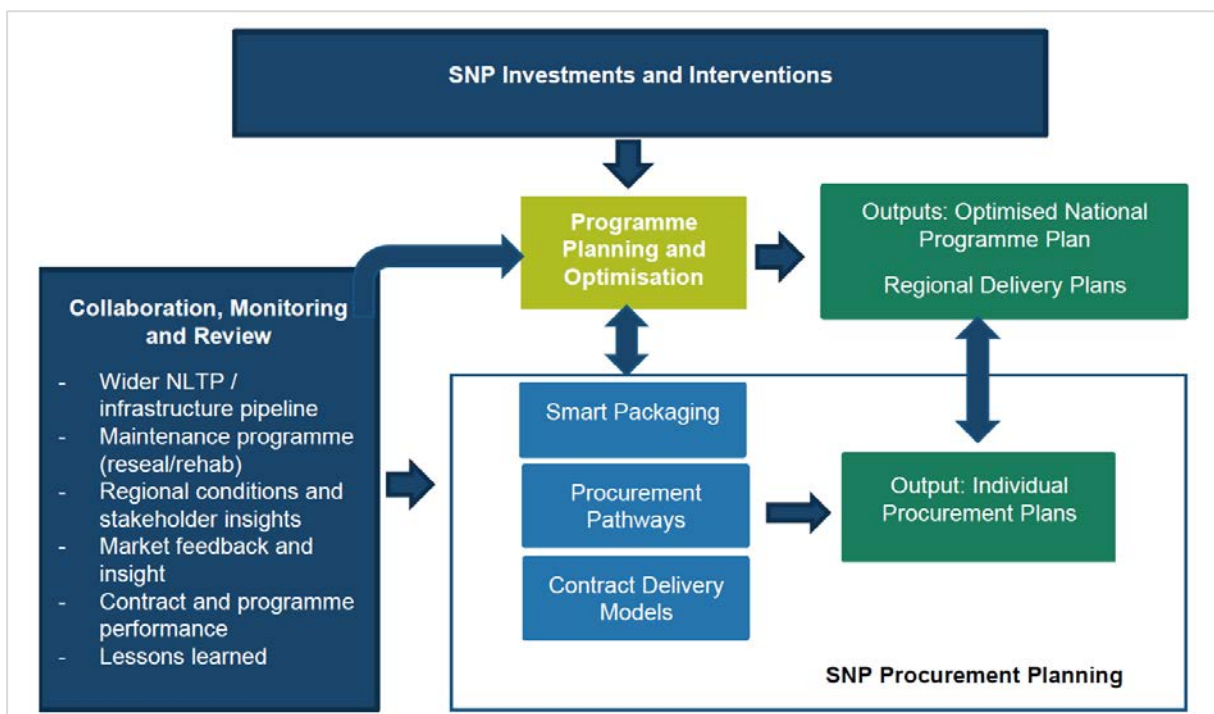
Key decisions are required within the planning phase of procurement, specifically including the:

- scope of work to package into a procurement activity
- procurement pathway to follow
- selection, if necessary, of the contract delivery model (for example, the form of contract) that will provide best value for money
- the supplier selection method to be used.

The pathways and guidance presented in the strategy are intended to apply to projects or physical works investment packages valued at no more than \$50m. Investments over this level generally require a business case (including a commercial case that should reconcile or align with the framework strategy, where relevant).

Figure 15 illustrates that planning for physical works procurement will be managed at a programme-level. The Speed and Infrastructure Programme approach to programme optimisation will ensure the physical works requirements from each subprogramme are identified and aligned with each other (and the wider infrastructure programme), to take consideration of smart packaging options and procurement pathways, which will directly inform regional delivery plans and individual procurement plans.

Figure 15 – Programme-level planning for physical works procurement



## Contract delivery models

Unless utilising a procurement pathway that provides an existing contract delivery model, the default approach to contracting for low-cost low-risk or SSI physical works within the Speed and Infrastructure Programme is a traditional contract delivery model, using Waka Kotahi's pro-forma version of NZS 3910:2013. Variants to the pro-forma contract should be considered only where there are non-

standard requirements, and the Speed and Infrastructure Programme should strive to utilise standard and consistent versions of the agreement.

A traditional contract delivery model involves a 'design then construct' approach. Alternatives to this, such as Early Contractor Involvement, a collaborative contract (such as an alliance), or a tailored contract delivery model should only be considered in extenuating circumstances, for example for a project under \$50m where the detailed business case (commercial case) identifies this as a preferred option or where significant complexities or risks are involved in integrating design and construction. In these cases, the Speed and Infrastructure Programme will apply the guidance set out in the Contract Procedures Manual (SM021) and the Infrastructure Procurement Strategy. In all cases, the procurement pathway and contract delivery model, and the justification for selection, must be documented as part of procurement planning and approved by the appropriate delegation holder.

### ***Procurement responsibilities***

In accordance with the internal Procurement Policy and the Programme Management Plan for the Speed and Infrastructure Programme, the following accountabilities and responsibilities apply to procurement activity managed by the Speed and Infrastructure Programme (including Safer Speeds Around Schools). More detailed descriptions of responsibilities are set out in those documents.

- **Accountability:** The General Manager for Transport Services is accountable for the planning, management, and outcomes of all procurement activity within the Safe Network Programme, as well as the risks, benefits, and overall performance of Speed and Infrastructure Programme contracts.
- **Procurement Sponsor:** Procurement Sponsors are responsible to the General Manager for the conduct and outcome of sourcing processes, including making best value for money judgements or recommendations on behalf of Waka Kotahi. The role of Procurement Sponsor is typically determined in accordance with the Delegations Framework, however for practical purposes within the Safe Network Programme, the Portfolio Manager will assume these responsibilities – and utilise the Delegations Framework for formal contract decisions and approvals exceeding a Portfolio Manager's delegation.
- **Contract Owner:** Each contract entered by the Speed and Infrastructure Programme must have a designated Contract Owner. Contract Owners must be an employee of Waka Kotahi and are responsible for the overall conduct and outcome of the relevant contract. The Speed and Infrastructure Programme Portfolio Manager is required to ensure that all Speed and Infrastructure Programme contracts are assigned to an appropriate Contract Owner, or for fulfilling these responsibilities directly.
- **Programme Governance/Steering Team:** In support of the Speed and Infrastructure Programme investment objectives, Transport Services has established a specialist programme team with dedicated resourcing and governance structure, including a programme steering team. In a procurement context, the programme's steering team is responsible for supporting the programme's Portfolio Manager to implement this strategy, fulfil the above responsibilities, and provide assurance to the General Manager.
- **Centre of Excellence:** Under the Senior Manager Procurement, the Procurement Centre of Excellence (Enterprise Procurement Team) in Corporate Support is responsible for the overall performance of the procurement function of Waka Kotahi, including providing access to expert procurement and commercial advice.
- **Procurement Lead:** The Speed and Infrastructure Programme Portfolio Manager and the Enterprise Procurement Team will agree on the appointment of a Procurement Lead for the Safe Network Programme. Noting the scale, complexity, and ongoing value of the programme's procurement – this role is a critical enabler of success.

## 4.3 Safety Camera System programme

### Required capabilities

The Safety Camera System programme requires a variety of capabilities, spanning camera hardware, technology systems, and supporting services to enable the establishment, management, and operation of the safety cameras and offence processing functions within Waka Kotahi. The capabilities are listed in Table 31.

Table 31 – Safety Camera System – required capabilities

Capability	Type	Scope
Safety cameras	Technology hardware and services	Safety cameras: <ul style="list-style-type: none"> <li>• average-speed</li> <li>• static</li> <li>• red-light</li> <li>• mobile</li> </ul> Maintenance and support services
Mobile safety camera enforcement	Services	Deployment hours <ul style="list-style-type: none"> <li>• vehicles and fit-out</li> <li>• traffic camera operators</li> </ul>
Safety camera testing, calibration and certification	Services	Calibrations services: <ul style="list-style-type: none"> <li>• Gazette testing</li> <li>• calibration</li> <li>• camera and site certification</li> </ul>
Safety camera management technology system	Technology systems and services	Safety camera management system Safety camera management services <ul style="list-style-type: none"> <li>• management</li> <li>• monitoring</li> <li>• reporting</li> <li>• data download – event data (incidents/survey)</li> </ul>
Offence processing technology system	Technology systems and services	Offence processing system Offence processing services <ul style="list-style-type: none"> <li>• data entry</li> <li>• verification</li> <li>• adjudication</li> <li>• payments</li> <li>• customer services</li> </ul>
Civil engineering works (design & construction)	Services	Civil engineering works: <ul style="list-style-type: none"> <li>• site designs</li> <li>• construction</li> <li>• construction supervision</li> <li>• safety audit</li> </ul>
Specialist programme services	Services	Services for quality assurance, probity, procurement, and so on

The following capabilities are out of scope for the Safety Camera System programme:

- products and services that are being or may be procured to support work on the new regulatory framework
- business process outsourcing options that fully outsource people and process components for the safety camera management and offence processing capabilities (but not calibration and prosecution services)
- additional and specialist TUS Programme resources, who will be sourced using standard Waka Kotahi HR processes such as by engaging experts from the Safe Networks Programme supplier panel to support subsequent business case development.

## Procurement strategy

While there are no fundamental barriers to securing the required capabilities, the Safety Camera System programme will undertake the requisite due diligence and procurement processes to ensure the acquired capabilities meet business needs and requirements, deliver value for money, and balance implementation risk.

The capabilities will be procured in accordance with the procurement policy, principles, manual, and guidelines of Waka Kotahi, which are in line with the Government Procurement Rules. The Enterprise Procurement team, which leads the procurement function in Waka Kotahi, will support the programme.

The acquisition of the required capabilities will be structured to leverage the most appropriate procurement approach (see Table 32).

Table 32 – Safety Camera System – procurement approach

Procurement approach	Description
Novation of existing contracts	Subject to commercial negotiations, novate existing New Zealand Police contracts to Waka Kotahi to secure required products and services
Inter-agency agreements (Waka Kotahi, New Zealand Police)	Subject to legal and financial due diligence, establish inter-agency agreements to secure required assets, infrastructure and provision of services
Market procurement process	Undertake market procurement processes to select fit for purpose future proofed required technology systems and services
Internal Waka Kotahi supply agreements	Leverage internal Waka Kotahi supply agreements to acquire required specialist services to support key delivery activities

§ 9(2)(j)

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risks identified under any Conditions of Contract. Where a conflict of meaning or ambiguity exists around risk allocation, the Conditions of Contract have precedence.

Table 34 – Safety Camera System – risk allocation

Risk	Risk description	Principal retains risk	Supplier retains risk	Comment
<b>Requirements &amp; architecture not adequately defined</b>	<p>If requirements and architecture are not adequately defined, then:</p> <ul style="list-style-type: none"> <li>the selected solution will not deliver required functional and technical capabilities</li> <li>the solution will not be properly configured, leading to operational issues</li> <li>solution delivery will not meet business acceptance criteria</li> </ul>	Yes		The principal is responsible for defining requirements and architecture to enable the supplier to understand the functional and technical capabilities required and to deliver a solution configured to meet business requirements.
<b>Supplier implementation delivery does not meet agreed stage gates or acceptance criteria</b>	If supplier implementation delivery does not meet agreed stage gates, then cost and timeframe overruns will occur	Yes	Yes	Both the principal and supplier retain risk in respect to their accountabilities in enabling agreed stage gates to be met.
	If supplier implementation delivery does not meet agreed acceptance criteria, then cost and timeframe overruns will occur		Yes	The supplier is responsible for delivering a solution that meets the principal's requirements and passes agreed business and technical acceptance criteria. In this regard, the supplier retains the risk.
<b>Agreed service levels are not met</b>	Supplier does not deliver to agreed service levels which has an impact on principal's business operations		Yes	The supplier is responsible for the delivered solution and services meeting agreed service levels.
<b>Agreed warranty conditions are not met</b>	Supplier does not address issues with delivered solution after the solution is operationalised during the agreed warranty period and its conditions		Yes	The supplier retains the risk to resolve issues with the solution after it is operationalised under an agreed warranty period.
<b>Security and/or privacy is breached</b>	Supplier does not implement adequate security controls and /or processes that lead to loss of information and privacy breaches	Yes	Yes	The supplier is responsible for ensuring appropriate security procedures and controls are in place within the domains under its management to protect the principal's information.

Risk	Risk description	Principal retains risk	Supplier retains risk	Comment
<b>Intellectual property is not protected</b>	Intellectual property is not appropriately protected leading to loss of capability	Yes	Yes	The principal and supplier retain risk to ensure management of intellectual property is agreed and protection mechanisms are in place.

## 5 FINANCIAL CASE

This section outlines for the preferred option the:

- cost assumptions for the estimated capital and operating expenditure
- indicative funding requirements.

### 5.1 Financial summary

#### Programme approach to contingency

Contingency has been considered for each of the three component programmes. The level of contingency has been determined with reference to Waka Kotahi practice and the level of uncertainty.

- Speed Management – a contingency of 15% has been applied in recognition that this programme is well into delivery, so there is little uncertainty.
- Safer Speeds Around Schools – no contingency has been applied at this stage in recognition that planning is in its early stages and the costs are based on initial estimates.
- Safety Camera System – a contingency of 40% has been applied to reflect the overall risks of the programme, including reliance on the delivery of technology solutions.

At this stage of the TUS Programme, no quantitative risk analysis has been completed.

#### Programme benefits

In accordance with the Waka Kotahi Monetised Benefits and Cost Manual, the economic efficiency evaluation of transport projects concentrates on transport benefits, with any downstream financial benefits considered transfers. Therefore, from an economic perspective, revenue from infringement fees is considered a transfer payment between those motorists who pay fees and the government, so is not considered in the cost–benefit analysis.

Payment of monies in response to an infringement notice will go directly into the government's consolidated fund, which does not change current practice. Waka Kotahi will not retain or receive money from safety camera infringement notice fees.

#### Funding requirements

The TUS Programme comprises a mix of functions that can be described as opex 'business-as-usual' functions or specific capital investments. In some cases, these business-as-usual functions currently exist (such as speed management planning, albeit in a different form) or will exist following the transfer of the safety camera functions from New Zealand Police (such as safety camera planning, management, deployment, and offence processing).

Therefore, the total cost of ownership of the overall TUS Programme comprises:

- **programme costs** – the cost of implementing the change programme
- **capex costs** – the required capital investments for such things as the infringement system and safety camera expansion
- **ongoing opex costs** – the ongoing operational costs (including costs to continue to run and process offences from the existing fleet of safety cameras).

The Waka Kotahi Funding and Fees Review programme developed the costing and pricing model for the TUS Programme. This model was used to develop an initial assessment of the costing for the speed management plans, national speed register, offence processing, and support function processes. Adopting this model provides consistency with the cost and pricing approach used by other

Waka Kotahi regulatory functions, and the outputs from these models are incorporated into the total cost of ownership in this business case.

The programme outputs have been through an independent quality assurance process and presented to the Regulatory Services Governance Group.

While Funding and Fees modelled the whole-of-organisation costs for speed management functions (both as an RCA and the regulator), the total cost of ownership includes only the costs of undertaking the regulatory functions, while the costs of being an RCA are included in Waka Kotahi infrastructure and speed implementation programmes (such as the Safe Networks programme).<sup>9</sup>

Table 35 provides a breakdown by initiative within the TUS Programme for the 2021–24 NLTP cycle. As above, contingency allowance has been set to 40% across the programme.

Table 35 – Tackling Unsafe Speeds – funding summary, by the three component programmes

Category	2021/22	2022/23	2023/24	3-year total
<b>Operating (\$m)</b>				
Speed Management				
Safer Speeds Around Schools				
Safety Camera System				
<b>Total operating</b>				
<b>Capital (\$m)</b>				
Speed Management				
Safer Speeds Around Schools <sup>1</sup>				
Safety Camera System				
<b>Total capital</b>				
<b>Total funds required for 2021–24 NLTP</b>				
<b>Current provision for 2021–24 NLTP</b>				

1 Based on the proportion of schools located on state high

### Funding sources

Currently, all speed management functions are funded through the NLTP, with the speed management planning elements of the programme funded through the Transport Planning activity class and the safety camera elements funded through the Road to Zero activity class.

Cabinet has supported funding for the TUS Programme on the basis that the activities support Road to Zero, so it is expected that it will continue to be funded through the NLTP over the 10 years of the Road to Zero strategy.<sup>10</sup>

The Government Policy Statement includes a new programme-based activity class – the Road to Zero activity class. Investment through this activity class will be targeted towards interventions that are key to achieving the target reductions in deaths and serious injuries.

This activity class includes:

- funding for the ongoing speed management functions

9 [Redacted]

10 New Zealand Government. 2020. *Government Policy Statement on Land Transport 2021/22–2030/31*. Wellington: Ministry of Transport, p 17. [www.transport.govt.nz/assets/Uploads/Paper/GPS2021.pdf](http://www.transport.govt.nz/assets/Uploads/Paper/GPS2021.pdf)

- speed management infrastructure costs
- speed limit reduction costs to the highest risk parts of the network and around schools
- the government contribution to speed management changes on local roads (including education campaigns and support).
- a substantial increase in the safety camera network (including offence processing systems).

These items have been identified at a high level to contribute to the Road to Zero intermediate target of a 40% reduction in DSIs by 2030 (from 2018 levels). Therefore, the programme has been submitted for inclusion in the 2021–24 National Land Transport Programme, with all proposed capex and opex elements funded through the proposed new Road to Zero activity class.

The TUS Programme will be submitted into the National Land Transport Programme for assessment and moderation around June 2021 alongside all other nationally delivered programmes.

The Government Policy Statement sets out investment expectations for government commitments to be met through future National Land Transport Programme (at p 36):

‘Road to Zero’ charts a new approach to road safety for the next 10 years to 2030, with a vision of a New Zealand where no-one is killed or seriously injured in road crashes. The strategy builds on the safe system approach introduced in the previous ‘Safer Journeys’ strategy 2010–2020, with a focus on infrastructure improvements and speed management; vehicle safety; work-related road safety; road user choices and system management. Road to Zero introduces a target of a 40% reduction in deaths and serious injuries over 10 years (from 2018 levels).

Investment expectations for Road to Zero are \$10 billion from the National Land Transport Fund (over 2021/22 to 2030/31).

The programme total cost of ownership is within this investment expectation, as set out in the Road to Zero Portfolio Management Board Paper (February 2021), but will progress through more detailed assessment and prioritisation as described above to confirm its overall affordability within the activity class.

## 5.2 Speed Management programme

The scope and cost breakdown for the Speed Management programme is shown at a high level in Table 36.

Speed Management has two phases: Preparation (the current phase) and Interim.

Preparation includes development of the new Rule, work that anticipates the content of the Rule (the Speed Management Guide and Speed Management Planning Tool), and work that is effectively independent of the Rule (that is, the National Speed Limit Register and MegaMaps).

The Interim phase starts on or about the signing of the Rule and will end with the implementation of the 2024-27 NLTP.

Costs have been incurred against plan for many Speed Management tasks. For example, rule development has incurred about \$30(2)0(0)0 of a total required investment of \$30(2)0(0)0.

Costs for the Interim phase include:

- transition costs (two people for a week supporting 68 RCAs and 17 regional transport committees to develop and manage speed management plans)
- extension of the National Speed Limit Register to include backlog features and to build a more general Register of Land Transport Records)
- extension of MegaMaps to the Waka Kotahi enterprise data warehouse requirements
- full development of the Speed Management Planning Tool when the Rule and its implications are better understood.

Table 36 – Speed Management – funding summary

Cost	2021/22	2022/23	2023/24	3-year total
<b>Operating (\$m)</b>				
Programme costs				
Speed management planning process				
Technology enablement				
National Speed Limit Register				
National Speed Limit Register migration				
<b>Total operating</b>				

Table 37 – Speed Management – indicative funding required by NLTP period

Cost category	NLTP period								
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
<b>Operating (\$m)</b>									
Cash operating									
<b>Total cash operating</b>									
Depreciation									
Capital charge									
<b>Total operating</b>									
<b>Capital (\$m)</b>									
<b>Total capital costs</b>									
Total funding required by NLTP period									
<b>Total potential funding required</b>									

### 5.3 Safer Speeds Around Schools programme

As there is substantial pressure on the National Land Transport Fund and the Road to Zero activity class, local authorities' ability to deliver safer speeds around schools will be limited due to programmes and investment levels already confirmed for the current NLTP period (2021–24). Based on the current indicative level of investment in their respective regional land transport plans, it is estimated that we would realise only 24% of the 40% action plan target.

§ 9(2)(j)

In determining the scenarios for delivering to the Road to Zero Target of 40% of schools by 2024, the following assumptions have been used to estimate the level of funding assistance that will be required.

- New Zealand has about 2,500 schools (the Education Counts website lists 2,536 schools at 1 July 2020), of which about:
  - 20% (500) are rural schools (estimate based on available information)
  - 80% (2,000) are urban schools.

A 40% target would mean treating 1,000 schools by 2024.

- An estimated 20% of schools already have speed limits that would comply with the proposed Rule, with most of these being schools on urban streets and roads: about 20% (500) schools should 'comply' with the proposed Rule, – although some may require additional treatments.
- The Speed and Infrastructure Programme will address a significant number of schools with state highway frontage as part of the corridor approach of the state highway Speed Management programme.
- Through co-design of the local road programme, 100 schools have been identified for investment through the low-cost low-risk programme for speed limit changes as part of area-wide treatments, predominately on urban local roads.

Table 38 – Safer Speeds Around Schools – indicative funding required, by NLTP period

Cost category	NLTP period								
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
<b>Operating (\$m)</b>									
Programme management	= 9(2)(b)(i)								
RCA assistance									
<b>Total cash operating</b>									
Depreciation									
Capital charge									
<b>Total operating</b>									
<b>Capital (\$m)</b>									
<b>Total capital costs</b>	= 9(2)(b)(i)								
Total funding required by NLTP period									
<b>Total potential funding required</b>	= 9(2)(b)(i)								

Treating 40% of schools by 2024 means treating about 1,000 schools during the 2021–24 NLTP period (as shown in Table 39).

Table 39 – Safer Speeds Around Schools – assumed number of schools treated by NLTP cycle

Category	2021/24	2024/27	2027/30
Safer Speeds Around Schools programme	400	650	550
Schools included in Speed and Infrastructure Programme	100*	100*	100*
Compliant schools	500	-	-
<b>Total schools treated (cumulative)</b>	<b>1,100</b>	<b>1,850</b>	<b>2,500</b>
<b>Proportion of total schools treated</b>	<b>40%</b>	<b>74%</b>	<b>100%</b>

\* Estimated number of schools already included in the Speed and Infrastructure Programme; that is, schools on rural state highways likely to be treated under that programme. Discussions with that programme indicate some schools are already proposed by RCAs on local roads under the programme.

Note that the 500 schools identified as 'already compliant' have speed limits at or below 60km/h (rural) or below 50km/h. However, it has been assumed (based on consultation feedback) that 75% of these schools wish to do further remediation work.



It is assumed all schools will need signs and markings, 37.5% will need advanced electronic signage, and 20% will need supporting infrastructure treatments (see Table 40).

Table 40 – Safer Speeds Around Schools – signage and infrastructure costs – constrained scenario

	2021/24 (\$m)	2024/27 (\$m)	2027/30 (\$m)
Rural schools (signage)	\$ 9(2)(b)(i)		
Urban schools (signage)			
Supporting infrastructure			
<b>Total</b>			

## 5.4 Safety Camera System programme

### Development and implementation assumptions

The cost of the proposed Safety Camera System programme is greatly influenced by the timing of implementation. This is because a key driver of the overall cost is the operational cost in validating and processing infringements. The programme will deliver (from July 2021 to June 2024) the first of three phases of camera expansion. Subsequent phases may be delivered as business as usual.

### Key operating assumptions

The modelling to determine the financial forecast is based on four key operating assumptions.

- Waka Kotahi takes over the operation of the safety camera network in 2023/24.
- As the new function is integrated into the business and new teams and processes are embedded, a period of decreased productivity, leading to increased operational costs, is likely. It is anticipated that the full effect of efficiency gains will be realised only from year 7 of the programme.
- The intended gains from implementing a more efficient system over time depend entirely on the technology solution and enabling legislation.
- As additional safety cameras are deployed, a corresponding increase in compliance with road user rules is expected. Therefore, the increase in the number of infringement notices issued compared with the increased number of safety cameras is non-linear. Increased compliance will be enabled through increased saturation of cameras on the network (leading to an increased general deterrence effect), clear signage, an effective ongoing education and media campaign, and a shorter time between notification of an infringement and driver feedback ('swiftness of deterrence'). A modification factor has been determined to model how infringement numbers may reduce as the desired change is realised.

For detailed financial assumptions, see Appendix D.

The total cost of ownership was developed using the programme approach to contingency noted above. Total funding required for the nine-year period of the programme is \$ 9(2)(b)(i) (as detailed in Table 42).

Total costs for the nine-year period of the programme are \$ 9(2)(b)(i) with a 22% contingency allowance of \$ 9(2)(b)(i) taking the total possible funding required to \$ 9(2)(b)(i)

Table 41 – Safety Camera System – indicative finding required, by NLTP period

Cost category	Three-year NLTP periods (\$m)								
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
<b>Funding required (\$m)</b>									
<b>Operating</b>	\$ 912,610								
<b>Cash operating</b>									
Technology & vendor									
Camera network									
Enforcement									
<b>Total cash operating</b>									
Depreciation									
Capital charge									
<b>Total operating</b>									
<b>Capital</b>									
Programme & change									
Technology & vendor									
Camera network									
Signage									
<b>Total capital costs</b>									
<b>Total capital and operating (including non-cash)</b>									
Contingency									
<b>Total capital and operating (including non-cash)</b>									

## 6 MANAGEMENT CASE

This section sets out how the TUS Programme (through its three component programmes) will be set up and run to ensure successful delivery. For more detailed information, see the Safety Camera System and Speed Management Programme Plans.

### 6.1 Overview

The TUS Programme is high risk and delivering to the required timeframes will be challenging. To be successful, the programme must:

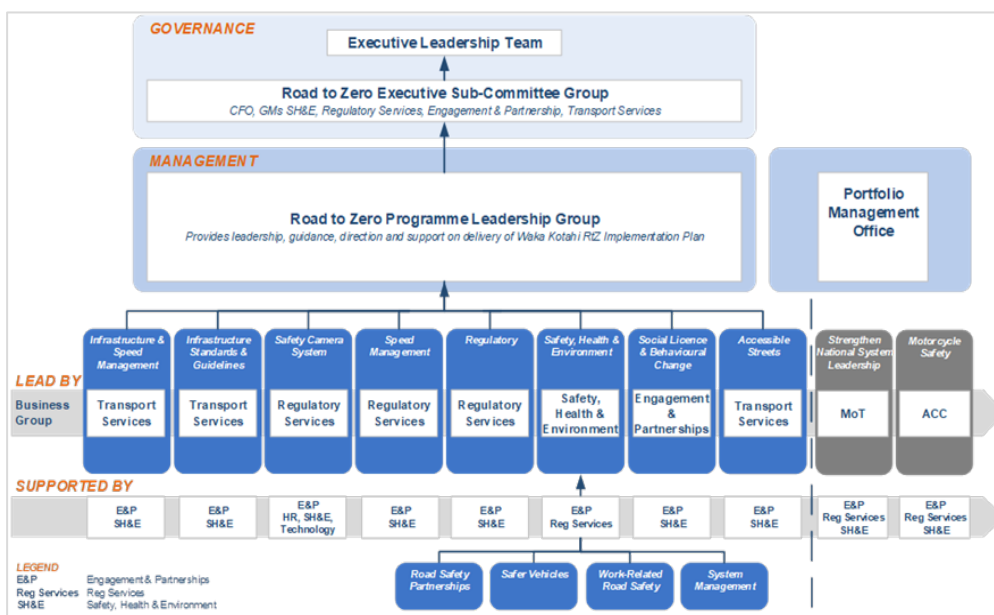
- have a clear focus on delivering the agreed programme outcomes and objectives
- establish strong governance and programme management arrangements
- acquire and develop the capability to successfully deliver a change programme of this nature
- take a robust approach to change management
- have strong assurance arrangements to challenge and provide assurance that the programme can be successfully delivered
- provide opportunities for Waka Kotahi and the government to monitor programme progress and review investment decisions.

### 6.2 Programme governance and management

The Road to Zero strategy's success is reliant on sound governance, strong programme and project management, and effective and cohesive partnerships. Waka Kotahi is part of a cross-government team, led by the Ministry of Transport, which has been tasked with improving road safety outcomes for the community, adopting the 'Vision Zero' philosophy and framework in New Zealand, and implementing Road to Zero.

To complement the cross-government Road to Zero governance framework, Waka Kotahi has established an internal portfolio management approach to provide strong governance and workstream management. This is in acknowledgement of the priority of the Road to Zero Strategy outcomes and the complexity and breadth of actions assigned to Waka Kotahi under the Road to Zero Action Plan, as these actions span all business groups and involve external stakeholders. Figure 17 shows the Waka Kotahi Road to Zero portfolio governance and management framework.

Figure 16 –Governance and management framework for the Waka Kotahi Road to Zero portfolio



Waka Kotahi has established a Road to Zero Executive Sub-committee of the Executive Leadership Team (ELT) that is collectively responsible, on behalf of Waka Kotahi, for ensuring the delivery of outcomes that contribute to achieving the full Road to Zero strategy.

The sub-committee is chaired by the General Manager, Engagement and Partnership. Its purpose is to provide oversight and assurance to the wider ELT and Board across all workstreams responsible for delivering the Road to Zero strategy, as well as to assist in achieving outcomes, prioritising, managing risk, overcoming obstacles, and harnessing opportunities. Further, the sub-committee aligns with the executive priority areas that ELT has already subscribed to.

Table 42 – Road to Zero Executive Sub-committee (sponsoring committee)

Role	Job title
Chair	General Manager, Engagement and Partnership
Member	General Manager, Regulatory Services
Member	General Manager, Safety Health & Environment
Member	General Manager, Transport Services
Member	Chief Financial Officer

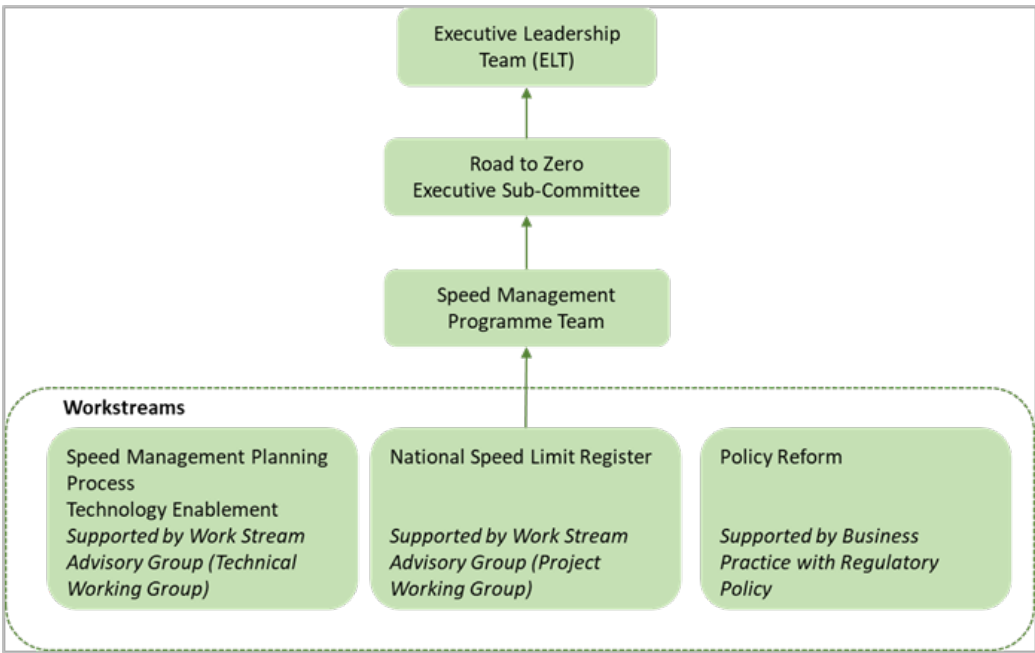
A Programme Leadership Group of senior managers from across Waka Kotahi business groups has also been established. The Road to Zero Portfolio Director leads this group, which provides leadership, guidance, direction, and support on delivery of Road to Zero programmes, projects, and business-as-usual activities.

Additionally, a portfolio management office has been established to embed and link key supporting organisational functions, such as programme management, change management, and strategic communications within the Road to Zero portfolio.

### Speed Management programme

Speed Management’s Senior Responsible Officer and Sponsor is the Deputy General Manager Regulatory Services (see Figure 18). The sponsoring committee is the Road to Zero Executive Sub-committee.

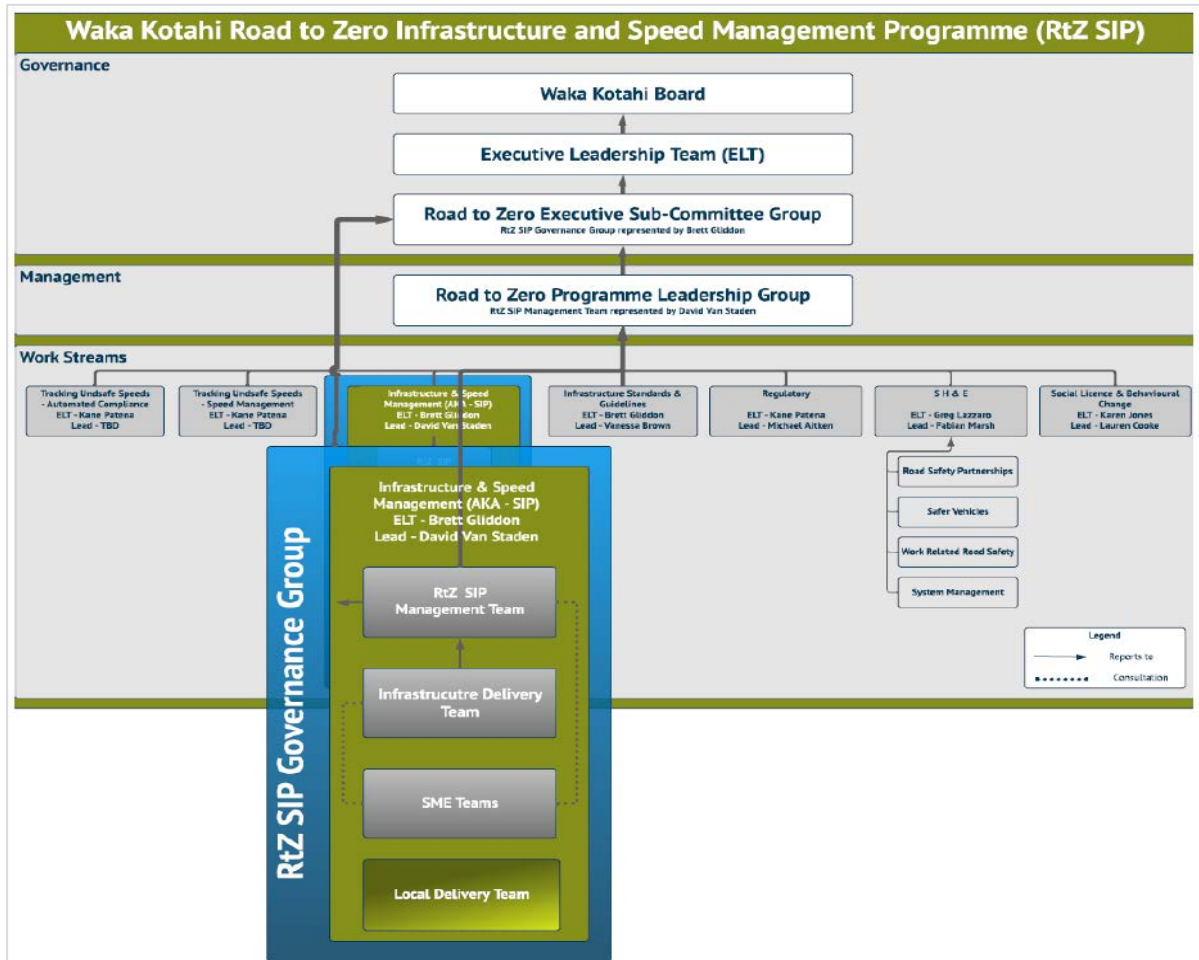
Figure 17 – Speed Management – programme governance and workstream structure



## Safer Speeds Around Schools programme

Safer Speeds Around Schools will use the Speed and Infrastructure Programme governance structure as outlined in the latter programme's PBC (Figure 19).

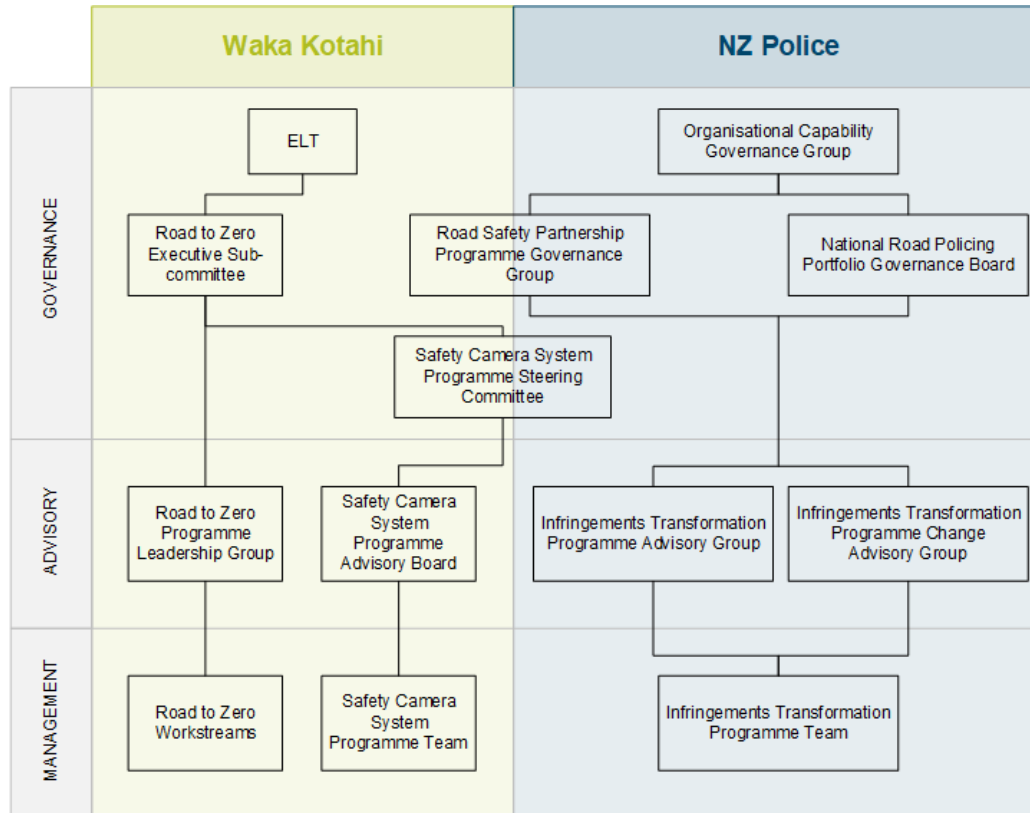
Figure 18 – Safer Speeds Around Schools – Speed and Infrastructure Programme governance structure



## Safety Camera System programme

The Safety Camera System programme’s governance, advisory, and management structure, including the relationship with New Zealand Police and its equivalent structure, is set out in Figure 20. The programme’s Sponsor is the General Manager, Regulatory Services and the Business Owner is the Deputy General Manager, Regulatory Services.

Figure 19 – Safety Camera System – programme governance, advisory, and management structures



The Programme Steering Committee is chaired by the Business Owner, under authority delegated by the Sponsor (see Table 44 for a list of members). The committee is responsible for successfully introducing the safety camera system into Waka Kotahi and ensuring the system delivers agreed business benefits. It is a forum for resolving issues and risks that affect the programme.

Table 43 – Safety Camera System – programme Steering Committee

Role	Job title
Business Owner (chair)	Deputy General Manager Regulatory Services
New Zealand Police Sponsor	Assistant Commissioner – Deployment & Road Policing
New Zealand Police Business Owner	Co-Director Road Safety Partnership / Programme Lead, Infringement Transformation Programme
Waka Kotahi Senior Supplier	Chief Technology Officer
Waka Kotahi Member	Senior Manager, Road Safety

The Programme Advisory Board is chaired by the Programme Director. (See Table 45 for board membership.) Its purpose is to get the “right people” together to make sure an appropriate variety of perspectives are incorporated, particularly from people likely to be involved in or have experience relevant to the operation of safety cameras and the processing of offences. The board doesn’t have decision-making authority, but advises the steering committee on key deliverables and decisions.

Table 44 – Safety Camera System – Programme Advisory Board

Group	Job title
Programme (chair)	Programme Director, Safety Camera System
Corporate Support	Manager, Business Operations
	Financial Services Analyst
	Principal Counsel, Regulatory
Engagement & Partnership	Practice Manager, Communications & Engagement
	Senior Manager, Education & Advertising
People	Acting Manager, Business Partnering
Regulatory Services	Manager, Planning & Programmes, Commercial Licensing
	Manager, Debt Management, Commercial Licensing
	Senior Manager, Customer Services
	Manager, Intelligence
	Manager, Network Safety
Safety, Health and Environment	Principal Advisor, Road User Choices
Transport Services	Lead Advisor Safety, Programme & Standards
	Senior Manager, Maintenance & Operations
Te Aukaha   Digital and Workspace	Product Manager, Design & Delivery
	Principal Advisor, Land Transport Security
New Zealand Police	Co-Director Road Safety Partnership / Programme Lead, Infringement Transformation Programme
	Manager, Police Infringements Bureau

## 6.3 Programme structure

### Speed Management programme

The Speed Management programme structure is illustrated in Figure 21.

Figure 20 – Speed Management – programme structure



Speed Management delivery will be through five workstreams:

- Policy Reform
- Speed Management Planning Process
- Speed Management Committee establishment
- Speed Management Technology enablement
- National Speed Limit Register.

The programme's resourcing requirements are summarised in Table 46.

*Table 45 – Speed Management – indicative resourcing requirements*

Role	FTE (approx)	Duration (approx)
Programme manager	1.0	2.0 years
Programme coordinator	1.0	2.0 years
Project manager / lead	3.0	2.0 years
Project coordinator	1.0	1.0 years
Policy Analyst	0.5	1.0 years
Editor	1.0	1.5 years
Business analyst	0.5	2.0 years
Technical writer	1.0	1.5 years
Subject-matter expert	1.0	1.5 years
Learning & development advisor	1.0	1.5 years
Change advisor	1.0	2.0 years
Communications and engagement advisor	0.5	2.0 years
eLearning Developer	1.0	0.5 years
IT trainer	1.0	1.0 years

## **Safer Speeds Around Schools programme**

The Safer Speeds Around Schools Programme Manager sits in the Speed and Infrastructure Programme. The Speed and Infrastructure Programme is a continuous programme of activity with a flexible and scalable resourcing model. An important lesson from the 2018–21 Safe Network Programme is the requirement for additional Waka Kotahi Local Road Programme resources.

To support this, the Speed and Infrastructure Programme PBC recommended the development of a centre of excellence and/or pool of resources (safety experts, funding application support, tools, and materials) to provide sufficient support to Waka Kotahi and local partners (see Table 47). Resourcing for local government is dynamic, and the capability requires changes, making it difficult to manage.

For Safer Speeds Around Schools, it is important to be clear on the process, respective roles, and ownership of each step in the process. Implementation will be over about 2,500 schools, and needs to be planned carefully to be effective and efficient. The goal is a large-scale rollout without large-scale costs – a 10% cost saving adds up over this many implementations.

It is recommended that Safer Speeds Around Schools is managed by establishing an allocation of funding. Individual school projects (or packages of schools) would be implemented via the low-cost low-risk investment pathway. This is considered appropriate as all projects would fall below the low-cost low-risk threshold of \$2m.



Table 46 – Speed and Infrastructure Programme centre of excellence resourcing

Role Requirement	Description
SIP team establishment	Largely made up of contractors that need to be converted to Waka Kotahi FTE and required these roles to be replaced. <ul style="list-style-type: none"> <li>• Safe System Engineers</li> <li>• Investment Advisors</li> <li>• Programme Planners</li> <li>• Business Analysts</li> <li>• Area Programme Managers</li> </ul>
SME Support for the Programme	Waka Kotahi has a range of SME that support the programme with advice and effort and their availability is a risk to delivery. <ul style="list-style-type: none"> <li>• Road Safety Engineers</li> <li>• Investment Assurance Advisors</li> <li>• Partnership Investment Advisors</li> <li>• Project Managers</li> <li>• Communications and Engagement Advisors</li> </ul>
External support for the programme	This SIP PBC recommends the development of a Centre of Excellence and/or pool of resources (safety experts, funding application support, tools, and materials) to provide sufficient support Waka Kotahi and Local Partners.

Through the Safer Speeds Around Schools Programme Manager, investment criteria can be established for RCAs to ensure the schools and interventions proposed are strategically aligned with Road to Zero strategic outcomes, the TUS PBC, and, ultimately, the guidance for treating schools that will be set out in the Speed Management Guide. Programme controls would then be established to ensure RCAs submit their respective Safer Speeds Around Schools projects and programmes using the existing low-cost low-risk spreadsheets for endorsement or approval by the Safer Speeds Around Schools Programme Manager before the release of funds.

Additional support to the Safer Speeds Around Schools Programme Manager will be provided through the Road to Zero Speed and Infrastructure Programme Local Roads team and the Speed and Infrastructure Programme Area Programme Managers, as they are tasked with providing support for RCAs to develop their programmes, as well as tensioning the outcomes sought by Road to Zero.

## Safety Camera System programme

Figure 22 sets out the Safety Camera System programme structure, including its key projects and activities. The programme’s resource requirements are in Table 48.

Figure 21 – Safety Camera System – programme structure



Table 47 – Safety Camera System – indicative resourcing requirements

Role	FTEs (approx)	Duration (approx)
Programme director	1.0	2.5 years
Programme coordinator	1.0	2.5 years
Project manager / lead	8.0	2.5 years
Project coordinator	2.0	2.0 years
Business analyst	5.5	2.0 years
Technical writer	4.0	1.5 years
Subject-matter expert	3.0	2.0 years
Human resources advisor	3.0	2.0 years
Learning & development advisor	1.0	1.5 years
Change advisor	2.0	2.0 years
Communications and engagement advisor	2.0	2.0 years
Principal advisor, advertising	1.0	2.0 years
Technical / design engineer	3.0	2.0 years
Quality engineer	3.0	2.0 years
Change and release analyst	2.0	2.0 years
Security architect	1.0	2.0 years
User interface / user experience specialist	1.0	2.0 years
Data analyst	0.5	2.0 years
IT trainer	3.0	1.5 years

## 6.4 Programme and project methods

The TUS Programme will follow the Programme Management Framework of Waka Kotahi. This framework defines how programmes/projects are to be managed and delivered and is based on proven methods such as MSP (Managing Successful Programmes). The framework will be used to ensure programme/project deliverables meet customer need in a cost-effective and timely manner. Delivery approaches will be determined by workstream/project leads.

## 6.5 Programme risks

A Treasury risk profile assessment identified that the programme qualifies as a significant investment (based on the high degree of importance of the investment, its possible impact, and its proposed dollar value). The indicative risk rating has been assessed as High. In addition to the size of the potential investment, the need for integrated change management across two agencies, the significant requirement for new capabilities (people, processes, and systems), and a compressed delivery timeframe contribute to this rating.

The main strategic risks for each of the three component programmes are set out in Table 48, Table 49, and Table 50. All risks associated with the programme and its delivery are managed in PlanView.

Table 48 – Speed Management – main strategic risks

Description	Mitigations	Risk rating
SSLR approval by Cabinet delayed	Ensure work can get under way based on the draft Rule – especially the method for building speed management plans and consultation work for amending the guide.	High

Table 49 – Safer Speeds Around Schools – main strategic risks

Description	Mitigations	Risk rating
RCA's propose treatment of schools assuming higher levels of infrastructure and thus higher cost	Speed and Infrastructure Programme Schools Programme Manager to develop and refine programme of individual school treatments. Speed and Infrastructure Programme to continue to work with RCA's to develop school treatments based on guidance under the new Rule	Medium

Table 50 – Safety Camera System – main strategic risks

Description	Mitigations	Like- lihood	Conse- quence
<b>Change management – complex as it involves multiple agencies and new functions</b>			
The new operating models and new systems selected to deliver safety camera transfer will have an impact on current New Zealand Police employees. § 9(2)(m)(v)	Prioritise operating model development Develop a comprehensive and integrated change management strategy with New Zealand Police Collaborate with New Zealand Police on change and transition planning Invite the New Zealand Police Association to attend vision and blueprint workshops and support New Zealand Police to involve the New Zealand Police Association proactively and constructively. § 9(2)(m)(v)	Possible	Severe
This work programme introduces to Waka Kotahi brand new functions, technology systems, and integration and data-sharing requirements. If the design and implementation is not managed well, then the timeframe for transitioning to the new operating model may be delayed with both New Zealand Police and Waka Kotahi incurring additional costs	Prioritise operating model development Include in the programme team people with experience designing and implementing complex change programmes Use external organisations to provide advice and assurance as required	Possible	Severe

Description	Mitigations	Like- lihood	Conse- quence
<b>Resourcing – significant requirement for new capabilities (people, processes, and technology/systems)</b>			
If the programme is unable to secure the significant resources (internal or external) to deliver the programme (because of, for example, the large number of other internal and external programmes competing for the same types of resources), then planned deliverable timeframes will need to be extended, incurring additional cost	<p>Undertake robust programme management planning, including holding the necessary discussions to identify and release required people to the programme</p> <p>Formulate a resource plan</p> <p>Go to market, if required</p>	Likely	Severe
<b>Reputational – impact on ability to drive change</b>			
If starting the camera expansion programme immediately after the transfer from New Zealand Police is seen as controlling and/or revenue gathering, then negative media coverage, poor public and stakeholder perception, and damage to the Waka Kotahi brand may result.	<p>Undertake public awareness campaigns to change attitudes towards safety cameras</p> <p>Implement clear signage with fixed safety cameras to make it clear the focus is safety, not revenue generation.</p>	Possible	Severe
<b>Funding</b>			
If funding for expansion and ongoing operation of the safety camera network and offence processing is not available, then Waka Kotahi may have difficulty funding operations beyond GPS 2021.	Explore alternative funding sources (such as cost recovery through fees or a future Budget bid) in recognition that the new Road to Zero activity class is currently oversubscribed	Possible	Extreme
<b>Technology</b>			
<p>The technology the programme will implement will be new to Waka Kotahi, making for complex implementation and integration within Waka Kotahi and with external agencies (New Zealand Police and Ministry of Justice).</p> <p>If technology is not designed and implemented effectively, then the programme will be delayed and costs will exceed budgets</p>	<p>Ensure that the programme team includes people with experience designing and implementing complex change programmes</p> <p>Establish clear principles for technology decision-making</p> <p>Select technology that has a proven track record</p> <p>Use external organisations to provide advice and assurance as required</p>	Possible	Severe
<b>Privacy and security</b>			
<p>Some of the proposed technologies have different privacy profiles to those of current safety cameras and are not deployable in New Zealand.</p> <p>If these new technologies are not permitted, then the camera programme will be suboptimal.</p>	<p>Commence early engagement with the Office of the Privacy Commissioner</p> <p>Undertake relevant Privacy Impact Assessments</p>	Possible	Severe

## 6.6 Programme delivery timeframes

### Speed Management programme

The Speed Management programme is in flight. Its delivery strategy is to deliver change into the sector as soon as reasonably possible after the new Rule is signed off and with as much preparation as possible completed before the Rule is finalised. The programme accepts the inherent risk that changes to the draft Rule will incur rework in order to deliver quality outcomes without delay.

Speed Management has adopted a three-phased approach across its workstreams.

Phase 1: Preparation continues until December 2021. Phase 1 deliverables are:

- workstream project management plans specifying subsequent activities required to implement the legislative changes
- the Safer Speeds Around Schools Programme plan
- changes to primary legislation and rules
- the Register of Land Transport Records/National Speed Limit Register and supporting systems developed and implemented
- an updated Speed Management Guide
- sector workshops completed
- geospatial network enhancements
- stage 1 of the Speed Management Planning Tool.

Phase 2: Interim runs from December 2021 until June 2024. Phase 2 deliverables are:

- a new Rule in force
- the National Speed Limit Register deployed to production
- the first edition of Register of Land Transport Records established
- the updated Speed Management Guide (2nd edition) published
- the enhanced geospatial application deployed
- safety cameras integrated into interim speed management plans
- speed management plans certified by the Director
- state highways interim speed management plans certified by the Speed Management Committee
- stage 2 of the Speed Management Planning tool
- sector engagement commences
- Phase 1 of Safer Speeds Around Schools available through the Speed and Infrastructure Programme.

Phase 3: Operational starts from July 2024 until June 2027. Phase 3 deliverables are:

- the Register of Land Transport Records completed
- Phase 2 of Safer Speeds Around Schools transitions to the NLTP cycle
- Transition - Sector engagement is completed
- safety cameras are integrated into speed management plans
- full regional speed management plans certified by the Director
- state highways speed management plans certified by the Speed Management Committee
- transition into business-as-usual operations.

## Safer Speeds Around Schools programme

Safer Speeds Around Schools will be delivered in three phases aligned with NLTP periods. An implementation plan will be prepared that confirms costs and benefits, the implementation approach, and the resources that will be required. High-level milestones are set out in Table 51.

Table 51 – Safer Speeds Around Schools – milestones

Milestone	Date
Implementation plan completed	Q2 2021/22
Phase 1 commences	Q2 2021/22
Phase 1 completed – at least 40% have lower speed limits & appropriate treatments	Q4 2023/24
Phase 2 commences	Q1 2024/25
Phase 2 completed – at least 70% have lower speed limits & appropriate treatments	Q4 2026/27
Phase 3 commences	Q1 2027/28
Phase 3 completed – 100% have lower speed limits & appropriate treatments	Q4 2029/30

## Safety Camera System programme

The Safety Camera System programme represents a new approach to tackling unsafe speeds, and will require regular review points to ensure it is achieving the desired outcomes as initiatives are implemented and monitored and the programme's understanding improves.

The programme's high-level milestones are listed in Table 52 and are based on the next steps identified for the recommended option and decisions already taken.

Table 52 – Safety Camera System – high-level milestones

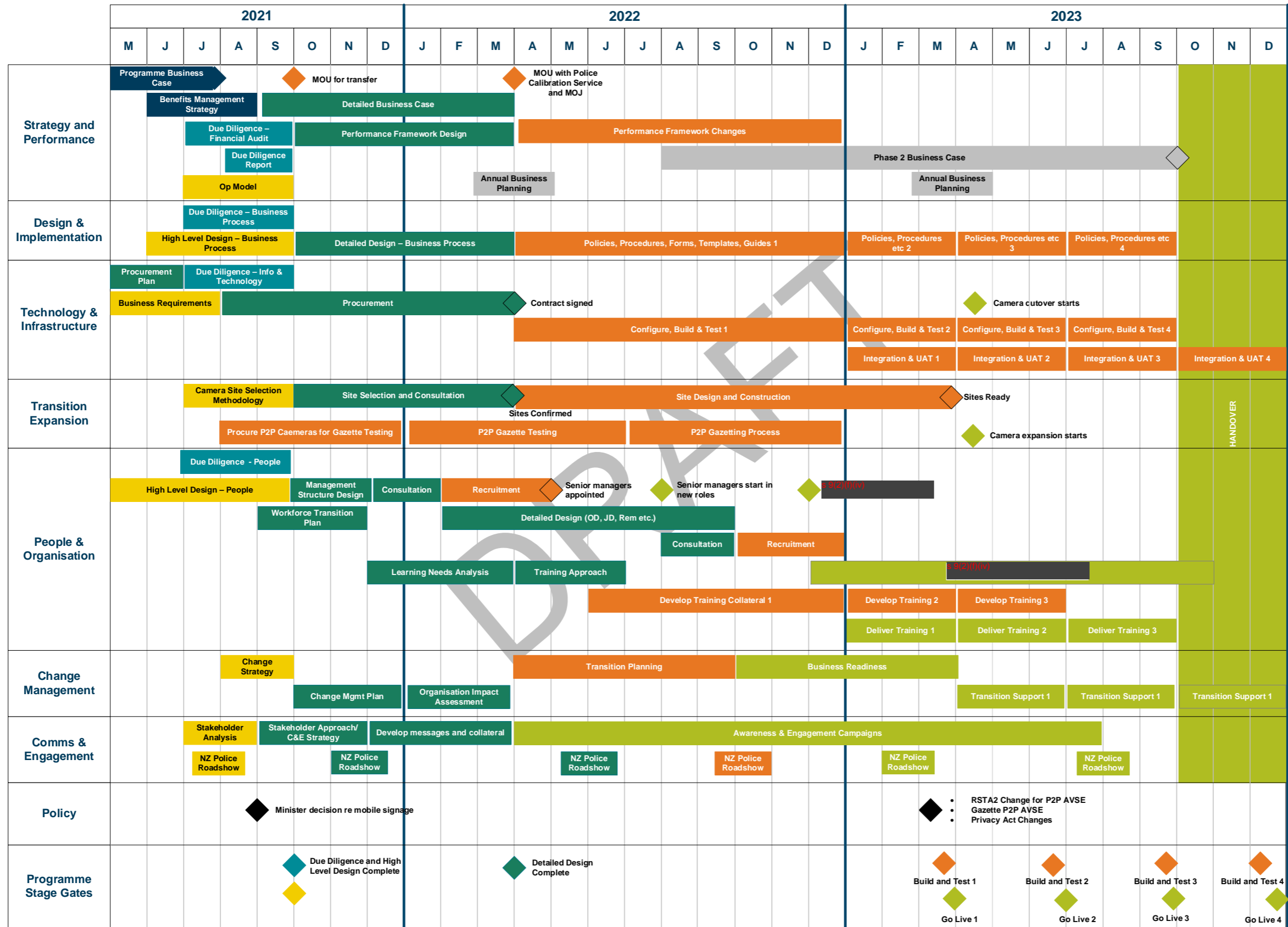
Milestone	Date
[REDACTED]	[REDACTED]
Detailed business case for phase 1 developed	Q3 2021/22
First transfer of cameras to Waka Kotahi	Q4 2022/23

The Safety Camera System programme's delivery strategy and approach will evolve based on ongoing evaluation and refinement of the effectiveness and deployment of safety cameras.

The programme is planned to be delivered through three 3-year phases that align with NLTP periods.

- Phase 1 will see the transfer of safety camera responsibility, establishment of the new operating model, and an initial expansion of cameras to [REDACTED] cameras (see Figure 25).
- Phase 2 will expand the camera network to [REDACTED] cameras.
- Phase 3 will complete the expansion of the camera network to about [REDACTED] cameras

Figure 22 – Indicative programme schedule, phase 1 years 1–3



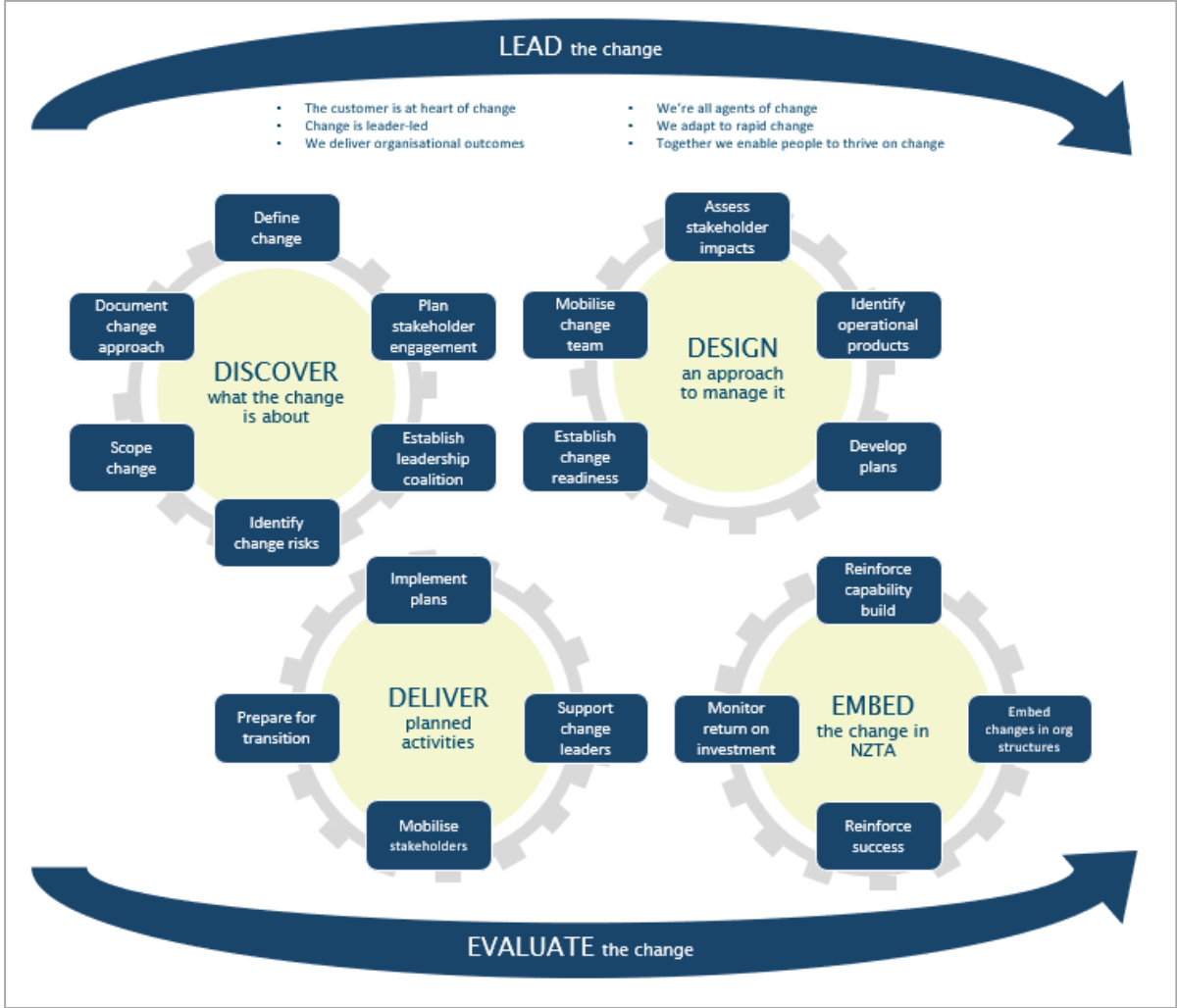
## 6.7 Organisational change management, stakeholder engagement, and communications

The programme team includes change advisors, a learning & development advisor and communication and engagement advisors. These specialists lead the development of programme-level strategy, planning and delivery for change management, organisational readiness, stakeholder engagement and communications.

### Change management principles

For effective change management, the programme will adhere to the six Waka Kotahi change principles that underpin the organisation’s change management framework – lead, discover, design, deliver, embed, evaluate (see Figure 26).

Figure 23 – Change management framework



Initiatives in this area are divided into:

- programme-level change and readiness
- programme-level stakeholder engagement and communications
- speed management planning process
- Waka Kotahi internal change and readiness programme



An approach, frameworks and tools will be used to guide and support the change process for Waka Kotahi to engage and communicate with a variety of stakeholders. Activities will include:

- developing and implementing the change management and communication strategy
- preparing key messages
- assessing readiness
- undertaking change impact assessments and analysis
- preparing stakeholder matrices and planning engagement
- preparing roadmaps and timelines
- planning resistance management
- planning the transition.

A full change strategy and plan will be developed once this business case is approved and more is understood about the future operating model.

### High-level change impact assessments

A high-level change impact assessment has been completed to identify the extent and impacts of the change required. This assessment will underpin the high-level change and communication approach and will form the basis of strategy, planning and interventions. Table 53 summarises impacts by organisation and internal function.

Table 53 – Impacts by organisation and internal function

Area	New Zealand Police					Waka Kotahi					
	Police Infringement Bureau	Calibrations	Traffic camera operators	Prosecutions	Executive	Regulatory Services	Transport Services	Safety, Health & Environment	Corporate Services	Executive & Board	Workplace & Technology
Policy implementation	Low	Low	Low	Low	Low	High	Medium	Medium	Low	Medium	Low
Speed management planning	Low	Low	Low	Low	Low	High	High	High	Low	High	Low
National speed limit register	Low	Low	Low	Low	Low	Medium	Medium	Low	Low	Medium	Medium
Speed management technology enablement	Low	Low	Low	Low	Low	High	Medium	Medium	Low	Medium	High
Operating model	High	High	Low	Low	High	High	Low	Low	Medium	High	Low
Safety cameras	High	High	Low	Low	High	High	Medium	Medium	Low	High	High
Offence processing	High	Low	Low	Low	High	High	Low	Low	Medium	High	High

Key    Low impact    Medium impact    High impact

## Stakeholder engagement and communication approach

A coordinated, programme-level approach will be taken to stakeholder engagement and communications so messages are timely, coordinated, complete and consistent. Without this, the programme runs the risk of stakeholders receiving multiple and, potentially, mixed messages that do not reflect the broader outcomes of the programme. It may be appropriate, at times, to work with the broader communication and engagement approach of Waka Kotahi, such as existing National Land Transport Programme or Road to Zero communications and channels, and the Ministry of Transport.

An initial assessment of external stakeholders' impact and influence has been completed. A Communications and Engagement Plan will be developed as the starting point for ongoing engagement.

## Māori engagement

The programme will be developed in such a way as to honour the Waka Kotahi commitment to Māori and Te Tiriti o Waitangi. We will explore opportunities to collaborate with Māori in a meaningful way in line with our Māori strategy, Te Ara Kotahi.

Speed Management is using Ministry of Transport to support the Rule consultation process including the explicit requirement to consult with Māori.

## 6.8 Quality assurance

Quality assurance will be managed in accordance with the enterprise quality assurance framework and following the three lines of defence assurance model (see Table 54). The governance group will monitor quality, and the Programme Director will escalate issues with meeting quality targets to the governance group.

Table 54 – Three lines of defence (from the Assurance Plan, v0.6, 14 May 2021)

Line	Role	Responsibilities
1	Programme	Manage effective internal controls and execute risk control procedures on a day-to-day basis.
2 – internal assurance	Risk Assurance	Facilitate and monitor the implementation of effective risk management practices by the programme.
	Enterprise Portfolio Management Office	Support and assure the delivery of the programme through practice management frameworks and guidance. Provide assurance services including assurance plan reviews, project health checks, assistance with establishing project controls, pre-independent quality assurance assessments, and assistance with other external assurance activity
	Investment Assurance	Provide assurance to National Land Transport Programme investment decision makers that business cases provide a compelling case for investment and meet the requirements of the Waka Kotahi Business Case Approach
3 – external assurance	Procurement	Provide compliance and probity assurance during business case and procurement phases.
	Independent quality assurance	Provide assurance to the Steering Committee that the programme is effectively coordinating and facilitating the organisation, direction, and implementation of underlying projects so strategic outcomes and business benefits can be achieved.
	Independent probity audit	Ensure the procurement process meets probity standards.

The programme's Assurance Plan will guide regular assurance activities as well as health checks and independent quality assessments throughout the programme's life cycle. Independent assurance activities are listed in Table 55.

The plan will support the programme to meet the quality standards of Waka Kotahi. The programme will follow Waka Kotahi Project Control Framework and be consistent with both the infrastructure project methodology (as an NLTP-funded programme) and the technology project methodology (such as architecture and design approval stage gates).

*Table 55 – Independent assurance activities (from the Assurance Plan, v0.6, 14 May 2021)*

Activity	Audience	Timing	Line of defence	Provider	Status
Programme Business Case review	Sponsor Business Owner	Jul 2020	2 – investment assurance 3 – independent quality assurance	Transport Services Investment Assurance Finance IQANZ	Complete
Independent Quality Assurance (IQA)	Sponsor Business Owner	Oct 2020	3 – independent quality assurance	IQANZ	Complete
Programme Business Case review	Steering Committee Delegations Committee Chief Financial Officer Executive Leadership Team	May 2021	2 – investment assurance	Transport Services Investment Assurance Finance	Scheduled
Procurement Plan probity review	Steering Committee Chief Technology Officer	Jun 2021	3 – independent probity audit	McHale Group	Date to be confirmed
Due diligence / high-level design IQA review	Steering Committee	Sep 2021	3 – independent quality assurance	IQANZ	Date to be confirmed
Detailed design IQA review	Steering Committee	Mar 2022	3 – independent quality assurance	IQANZ	Date to be confirmed
Procurement process probity review	Steering Committee Chief Technology Officer	Mar 2022	3 – independent probity audit	McHale Group	Date to be confirmed
Detailed Business Case review	Sponsor Business Owner Delegations Committee Chief Financial Officer Executive Leadership Team	Mar 2022	2 – investment Assurance	Transport Services Investment Assurance Finance	Date to be confirmed
Build and test interim IQA review	Steering Committee	Sep 2022	3 – independent quality assurance	IQANZ	Date to be confirmed
Go live 1 IQA review	Steering Committee	Mar 2023	3 – independent quality assurance	IQANZ	Date to be confirmed
Go live 2 IQA review	Steering Committee	Jun 2023	3 – independent quality assurance	IQANZ	Date to be confirmed
Go live 3 IQA review	Steering Committee	Sep 2023	3 – independent quality assurance	IQANZ	Date to be confirmed

## 6.9 Risk management

The TUS Programme follows Waka Kotahi risk policies and Risk Manual, which will be applied as outlined in the Enterprise PMO Risk Framework.<sup>11</sup> These policies and the manual are based on ISO 31000 Risk Management Principles and Guidelines.

Risk management in Waka Kotahi follows a five-stage process: context establishment, risk identification, risk analysis, risk evaluation, and risk response. The main strategic risks for the programme are listed in Table 48, Table 49, and Table 50 (on p 83).

## 6.10 Benefits realisation

The approach to benefits realisation will align with the Road to Zero Outcomes Framework and portfolio office requirements.

### Measuring DSI reductions

DSI reductions will be the main benefit of the TUS Programme and need to be measured in the wider context of the Road to Zero strategy.

Each year, a Road to Zero annual monitoring report will be published that identifies progress towards the target of a 40% reduction in DSIs by 2030 (from 2018 levels). The monitoring report will break the target down into the benefits to be delivered by each key initiative, including the TUS Programme, and measures progress against key indicators.

Considerable effort has been and will continue to be invested by the Road to Zero portfolio to improve access to data to enable:

- establishment of a baseline against which progress can be measured
- measurement of benefits where interventions have been implemented
- a contrast with performance in areas where interventions have not been implemented.

### Speed Management programme

For the Speed Management programme, a benefits management plan consistent with internal guidance will be prepared to measure the effectiveness of the new regulatory framework, including:

- RCA adoption of the National Speed Limit Register
- RCA development and implementation of speed management plans
- RCA adoption of the Speed Management Planning Tool
- the use of MegaMaps to monitor speed limit alignment to the Safe and Appropriate Speeds framework.

Measures that have been established and will be publicly reported through the Road to Zero annual monitoring report are listed in Table 56.

Table 56 – Speed Management – measures established

Indicator	2019/20 baseline	Targets
Kilometres of highest-risk roads addressed through speed management	119km	3,500km by 2024 10,000km by 2030
Percentage of road network where speed limits align with the Safe and Appropriate Speed	9.9%	15.5% by 2024 21.2% by 2030

11 Further details are at <https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/project-management/project-risk-management/>

## Safer Speeds Around Schools programme

For the Safer Speeds Around Schools programme, the main benefit measure is the proportion of schools that have a speed limit within the agreed guidelines by 2024 and by 2030.

The effectiveness of the national publicity and education campaign will be evaluated by the National Road Safety Promotional Programme.

Measures that have been established and will be publicly reported through the Road to Zero annual monitoring report are listed in Table 57.

Table 57 – Safer Speeds Around Schools – measures established

Indicator	2019/20 baseline	Targets
Percentage of rural schools with 60km/h speed limits or lower	Not available	40% by 2024 100% by 2030
Percentage of urban schools with 30–40km/h speed limits	Not available	40% by 2024 100% by 2030

## Safety Camera System programme

For the Safety Camera System programme, a benefits management strategy and plan consistent with internal guidance will be prepared to measure the effectiveness of the new safety camera system.

Safety cameras can run in “survey mode” where the camera records the speed of every vehicle that passes without taking a photo. Once a new camera site is identified, the baseline DSI rate at that site will be known. When a camera is installed at a new site:

- it can initially operate in survey mode to establish a baseline measure
- it can then be switched to enforcement mode and start detecting offences and issuing infringements
- the level of offending can be measured over time
- the camera can be operated in survey mode periodically to monitor whether speeds are reducing
- the DSI rate can be measured over time, relative to the baseline DSI rate.

Measures that have been established and will be publicly reported on through the Road to Zero Annual Monitoring Report are listed in Table 58.

Table 58 – Safety Camera System – measures established





Indicator	2019/20 baseline	Targets
Mobile speed camera deployment activity (hours)	62,090 hours	100,000 by June 2021
Percentage of traffic travelling within speed limits	Not available	Under development
Mean speed of vehicles	Not available	Under development
Percentage of road network covered by automated safety cameras	Not available	Under development
Percentage of the public who agree they are likely to get caught when driving over the posted speed limit	62%	Under development
Percentage of the public who agree safety cameras are an important intervention to reduce the number of road deaths	65%	Under development

# APPENDICES

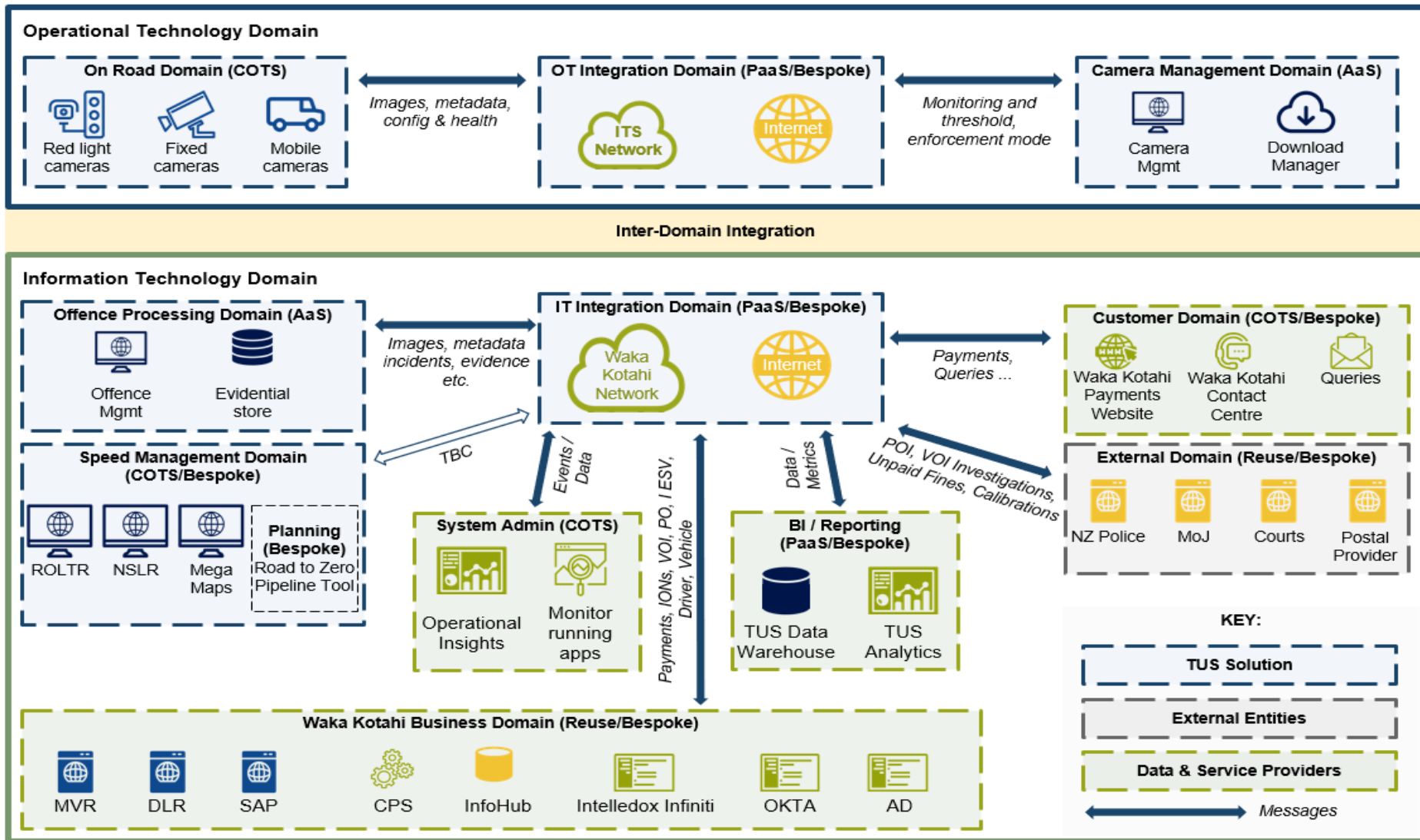
## Appendix A Safety cameras – an overview

Table 59 describes the main types of safety cameras – red-light or dual function red-light/speed cameras, average-speed (point-to-point) cameras, static (fixed) cameras, and mobile cameras.

Table 59 – Description of camera types and their predicted effectiveness

Type of camera	Description
<p>Red-light or dual function red-light/speed safety cameras</p> 	<p>A red-light camera system typically uses radar or laser to track and capture vehicles running a red light. The primary radar or laser scans and tracks vehicles as they approach the intersection. If a vehicle crosses the stop line during a red-light phase, a camera photographs the rear of the vehicle. A second radar or laser (used for validation) ensures the photograph taken is of the breaching vehicle.</p> <p>Dual function cameras are capable of recording vehicles that run red lights or speed through intersections or both.</p> <p>Predicted effectiveness in reducing DSIs per year: 26%</p>
<p>Average-speed (point-to-point) safety cameras</p> 	<p>Average-speed safety cameras calculate and record a vehicle's average speed between two points along a stretch of road.</p> <p>Infringement notices are issued only if the average speed over the entire distance exceeds the legal limit. This gives an accurate reading of whether drivers are speeding over a sustained distance, rather than just at a single point.</p> <p>Predicted effectiveness in reducing DSIs per year: 48%</p>
<p>Static (fixed) safety cameras</p> 	<p>Static (fixed) safety cameras are the ones most people currently experience.</p> <p>These cameras use a dual radar or laser system. Signals reflect off vehicles and back to the camera. One radar or laser identifies speeding vehicles by measuring vehicle speed three times in quick succession and taking the middle speed. The second identifies the lane the vehicle is in and double-checks the speed reading. If the vehicle is speeding, the camera takes a picture.</p> <p>The camera is also able to differentiate between vehicles such as heavy trucks and cars, which have different speed limits. An infrared flash enables number plate information to be captured in the dark.</p> <p>Predicted effectiveness in reducing DSIs per year: 15%</p>
<p>Mobile safety cameras</p> 	<p>Mobile safety cameras are cameras that are housed inside a van, allowing the system to be mobilised across the network.</p> <p>The cameras include a radar or laser system that measures vehicle speed and a flash for night-time photography.</p> <p>Traffic camera operators run the camera equipment from inside the vehicles and can observe any images taken and adjust image quality when required. They cannot alter any of the settings or the speed at which a camera system takes a photograph.</p> <p>Predicted effectiveness in reducing DSIs per year: 11% (rural) – 23% (urban).</p>

## Appendix B High-level future state technology architecture context



Source: Waka Kotahi. 2021. *Programme Blueprint: Safety Camera System* (version 1.0, final), p 20.

## Appendix C Safety Camera System programme – financial assumptions by option

Assumptions	Option A: Cautious	Option B: Progressive	Option C: Aggressive	Source and notes
<b>Global assumptions</b>				
Investment horizon (years)	10	10	10	
Discount rate for net present value & whole-of-life costs (WOLC)	5%	5%	5%	<a href="http://www.treasury.govt.nz">www.treasury.govt.nz</a>
Income tax rate	0%	0%	0%	
Capital charge	0%	0%	0%	
Inflation	Excluded	Excluded	Excluded	Using Treasury real discount rate
Contingency applied to mid-point ( <i>Mid-point assumed to be the project estimate. P50 includes 15% on top of mid-point. P95 includes 40% on top of mid-point, equivalent to 22% on top of P50</i> )	40%	40%	40%	Shown separately in financial case table
<b>Asset life (for depreciation)</b>				
Programme and change	7	7	7	
Technology and vendor	7	7	7	
Camera network (sites and infrastructure only)	not depreciated	not depreciated	not depreciated	
Signage	8	8	8	
Cameras	assumed leased as a service	assumed leased as a service	assumed leased as a service	Leased vs owned – either way cost neutral to whole-of-life cost estimates
<b>Key assumptions</b>				
Total number of cameras year 3	s 9(2)(g)(ii)			Includes 135 – existing camera network
Total number of cameras year 10	s 9(2)(g)(ii)			Includes 135 – existing camera network
Percentage of new cameras	50%	100%	100%	
Level of enforcement effort	80%	80%	80%	~19% reject rate, so 80% reviews all incidents



Assumptions	Option A: Cautious	Option B: Progressive	Option C: Aggressive	Source and notes
Improved compliance	60%	60%	60%	Long-term reduction in incidents from camera network
One-time programme change, technology, and integration costs	§ 92(b)(6)			
Percentage of preferred option B	75%	100%	150%	
Verification efficiency gains (integration, AI)	50%	200%	400%	In full effect by year 7, including OCR, workflow & automated vehicle checks
Enforcement efficiency	10%	15%	20%	In full effect by year 7, including OCR, workflow & automated vehicle checks
<b>Utilisation rates of FTEs</b>				
<b>Verification</b>				
Events per FTE per year	40,000	40,000	40,000	
Approximate annual hours	1,400	1,400	1,400	~6 hours per day for 47 weeks in the year
Average per hour	28.57	28.57	28.57	
Time (mins)	2.10	2.10	2.10	
<b>Enforcement</b>				
Events per FTE per year	32,609	32,609	32,609	
Approximate hours per year	1,400	1,400	1,400	
Average per hour	23.29	23.29	23.29	
Time (mins)	2.58	2.58	2.58	
<b>Forecast year 3 FTEs</b>				
Camera network FTE	98	100	100	Traffic camera operators

Assumptions	Option A: Cautious	Option B: Progressive	Option C: Aggressive	Source and notes
Other camera network–related FTEs	7	8	10	Includes calibration and other support functions Note: If New Zealand Police takes calibrations, additional FTE will drop significantly (as it is mostly calibration resource).
Verification FTEs	41	37	36	
Enforcement FTEs, incl customer services & prosecutions	42	48	59	
Peak load penalty for Dec & Jan –FTEs	17	17	19	
<b>Total forecast FTEs</b>	<b>204</b>	<b>210</b>	<b>223</b>	
<b>Long-run camera mix</b>				
Red light	40%	40%	40%	
Fixed speed	26%	26%	26%	
Mobile speed	12%	12%	12%	
Average speed	22%	22%	22%	
<b>Cost per camera – one time</b>				
Red light	<div style="background-color: black; color: red; padding: 5px;">§ 9(2)(b)(ii)</div>			
Fixed speed				
Mobile speed				
Average speed				
				Note: This is a single detection point. An average-speed corridor would be a minimum of twice this cost and more, if further detection points were required for longer corridors or corridors with significant entry and exit points (such as the Auckland motorway system).

Assumptions	Option A: Cautious	Option B: Progressive	Option C: Aggressive	Source and notes
<b>Cost per camera – ongoing per year (*)</b>				Camera replacement costs included in
Red light	\$ 921(0)0			
Fixed speed				
Mobile speed				
Average speed				
Mobile camera vehicle renewal cost				
Mobile camera vehicle life				
<b>Year 3 camera network FTE requirements (TCOs, other)</b>				
TCOs (in mobile vans)	98	100	100	
Other network related FTE (calibration, strategy, support)	7	8	10	If New Zealand Police takes on calibrations, then additional FTEs will drop significantly (as it is mostly calibration resource).
<b>Total year 3 camera network–related FTEs</b>	<b>105</b>	<b>108</b>	<b>110</b>	
<b>DSIs per camera type (range)</b>				
Red light	0.10 to 0.30	0.10 to 0.30	0.10 to 0.30	Over range of proposed coverage for new cameras
Fixed speed	0.10 to 0.30	0.10 to 0.30	0.10 to 0.30	Over range of proposed coverage for new cameras
Mobile speed	0.49 to 0.98	0.49 to 0.98	0.49 to 0.98	Over range of proposed coverage for new cameras
Average speed	0.80 to 1.30	0.80 to 1.30	0.80 to 1.30	Over range of proposed coverage for new cameras
<b>DSI social cost (\$one time)</b>	\$ 921(0)0			Ministry of Transport, <i>Social Cost of Road Crashes and Injuries 2018</i>

Assumptions	Option A: Cautious	Option B: Progressive	Option C: Aggressive	Source and notes
<b>Incidents per camera</b>				
Red light	3,100	3,100	3,100	
RL (speed)	15,000	15,000	15,000	
Fixed speed	15,000	15,000	15,000	
Mobile	15,000	15,000	15,000	
Average-speed corridors	5,000	5,000	5,000	
<b>Average melded salary rate (all FTE)</b>	\$100,000	\$100,000	\$100,000	
<b>Overhead per FTE</b>	\$50,000	\$50,000	\$50,000	Property, ICT, and administrative functions of Waka Kotahi
<b>Seasonal peak load cost adjustment for incident &amp; enforcement</b>	20%	20%	20%	Dec & Jan 2.2 x rest of year, net 20% lift in cost approx
<b>Signage</b>	§ 9(2)(b)(ii)			May require some scalability
<b>Calibration – per year</b>				May require some scalability
<b>3-year programme and change costs</b>				See prog & tech assumptions tab for more details
Strategy and performance				
Design and implementation				
People and organisation				
Change management				
Communications and engagement				
Programme				
<b>3-year programme and change costs</b>				
Overheads				
<b>Total 3-year programme and change costs</b>				

Assumptions	Option A: Cautious	Option B: Progressive	Option C: Aggressive	Source and notes
Average FTEs for programme and change	<div style="background-color: #333; color: red; padding: 2px;">b(9)(2)(b)(ii)</div>			
<b>Tech platforms (vendor acquisition + implementation)</b>				
Infringement				
Camera management				
Speed management				
<b>Tech platforms (vendor acquisition + implementation)</b>				
Overheads				
<b>Total tech platforms (vendor acquisition + implementation)</b>				
Average FTEs for platforms (vendor acquisition + implementation)				
Ongoing maintenance and support costs				

## Appendix D Safety Camera System programme – options analysis

### 'Long-list' and assessment criteria

The programme determined the following key high-level components (A–F).

- A. Camera coverage – how many cameras should be implemented across the New Zealand road network.
- B. Level of enforcement – how and when should infringements be enforced (for example, during peak times only or 24/7 or whether infringements should be enforced from 1km/h or more over the limit).
- C. Types of cameras – should the mix of cameras be static or mobile, red-light or speed, should the existing fleet be reused or updated, and so on
- D. Camera management and operations:
  - a. Automation and Integration – should the system be fully automated to enable straight-through processing or maintain human intervention, should it be fully integrated with Waka Kotahi's other systems or stand alone, and so on
  - b. Level of future proofing – should the system be a tactical solution or a fully future enabled solution.
- E. Delivery – should delivery be insourced, outsourced, delivered by Waka Kotahi, New Zealand Police, or external vendor(s) or follow a mixed model.
- F. Implementation approach – should the programme be delivered slowly to mitigate risk or aggressively to realise benefits quicker and so on.

Table 60 shows the assessment of each of the components against the criteria, scored simply as follows:

- Green – meets criteria
- Amber – partially meets criteria
- Red – does not meet criteria.

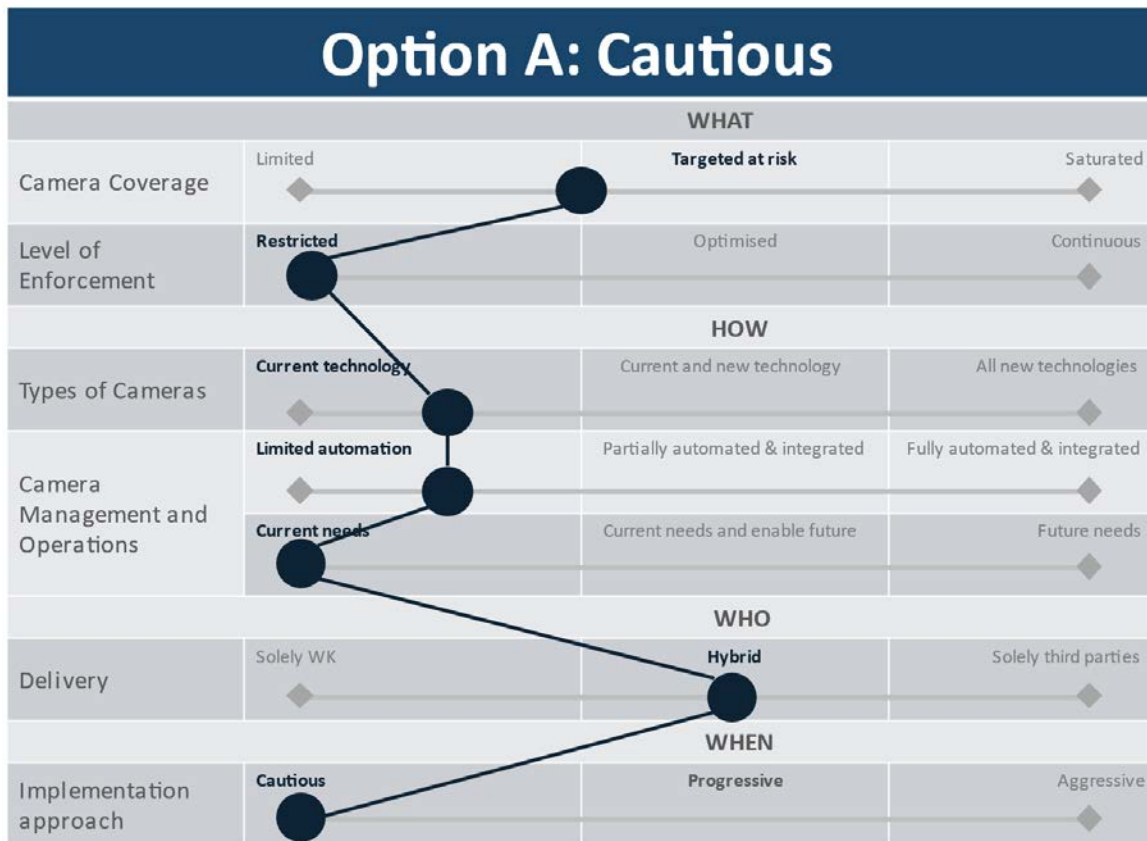
The table is not a long-list per se, but illustrates that a mix and match approach can be taken to identify a wide variety of options, with the evaluation criteria used to arrive at a short-list of options.

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Table 60 – Safety Camera System programme – assessment of each component against the criteria

	Camera coverage			Level of enforcement			Types of cameras			Camera management and operations – level of automation and integration			Camera management and operations – level of future proofing			Delivery			Implementation approach		
	Limited	Targeted at risk	Saturated	Restricted	Optimised	Continuous	Current technology	Mix current and new	All new technology	Limited automation	Partly automated	Fully automated	Meets current	Current & enables	Meets future	Waka Kotahi in-	Mixed model	Full outsource	Cautious	Progressive	Aggressive
<b>Investment objective: to effectively and efficiently implement the government’s new approach to safety cameras and compliance</b>																					
New approach to cameras	X	√	√	√	√	√	?	√	√	√	√	√	?	√	√	√	√	√	?	√	√
<b>Critical Success Factor</b>																					
Strategic alignment?	X	√	√	?	√	√	?	√	√	√	√	√	?	√	?	X	√	?	?	√	√
Value for Money?	√	√	√	?	√	?	?	√	?	?	√	?	?	√	?	?	√	?	?	√	?
Capability in the market?	√	√	√	√	√	?	√	√	√	?	√	√	√	√	√	X	√	X	√	√	?
Achievable?	√	√	?	√	√	?	√	√	√	?	√	√	√	√	?	X	√	X	√	√	?
Short List?	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y
<b>Shortlisted options</b>																					
A: Cautious		√		√			√			√			√				Y		√		
B: Progressive		√			√			√			√			√			Y			√	
C: Aggressive		√				√			√			√			√		Y				√

## Option A: Cautious



Option A takes a cautious, do minimum, approach that is designed to manage implementation constraints and risks. It expands the safety camera network to 370–500 cameras over 9 years. Indicatively, it will deliver around a 2.0–3.6% DSI saving by 2030.

In this option, the safety camera network is expanded in three phases, initially using existing camera technologies and mobile safe speed cameras. Gradually, new and more effective average-speed cameras will be adopted (subject to the necessary legislative change to implement such technology).

This option delivers a new camera management and operations capability supported by modern technology systems. New functions could be centralised or dispersed through like functions in Waka Kotahi. This capability will be supplemented by using existing New Zealand Police and Ministry of Justice functions such as for calibration, debt management, and prosecutions.

Manual processing still occurs to limit the investment in technology platforms (that is, this option does not maximise automation).

The advantages of Option A are that it:

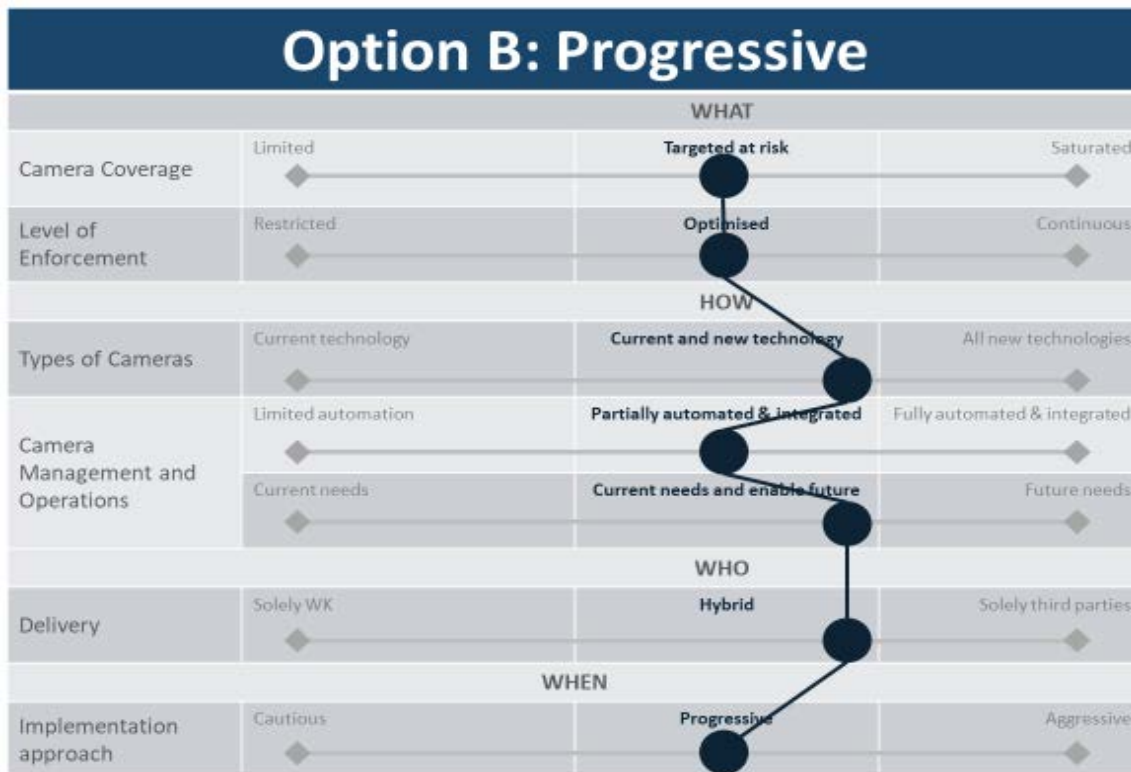
- manages delivery risk by expanding the camera network slowly and deliberately
- requires the least investment of all the options
- provides breathing space for an orderly transfer of the existing camera network from New Zealand Police.

The disadvantages are Option A are that it does not:

- maximise DSI reductions
- provide the capability needed for the future, including the preferred levels of integration enabling straight-through processing.



## Option B: Progressive



Option B manages implementation constraints and risks by taking a flexible and iterative approach to the safety camera implementation. It expands the safety camera network to **802,000** cameras over 9 years. Indicatively, it will deliver around a 2.9–5.3% DSI saving by 2030.

As with Option A, under Option B safety cameras are rolled out in three phases over 9 years. In this option, each phase is informed by the effectiveness of previous safety camera rollouts and is closely linked to infrastructure treatments. Waka Kotahi trials and refines different ion combinations to better understand their effectiveness, costs, and deployment constraints (for example, trialling different types of cameras (such as average-speed cameras) in different locations and with different levels of enforcement).

The first trials in phase 1 will include testing several average-speed camera corridors. International evidence shows average-speed cameras are the most effective safety cameras for reducing DSIs in high-risk corridors.

As with Option A, Option B delivers a new camera management and operations capability supported by modern technology systems. The difference is that under Option B some processes will be automated and integrated with other systems.

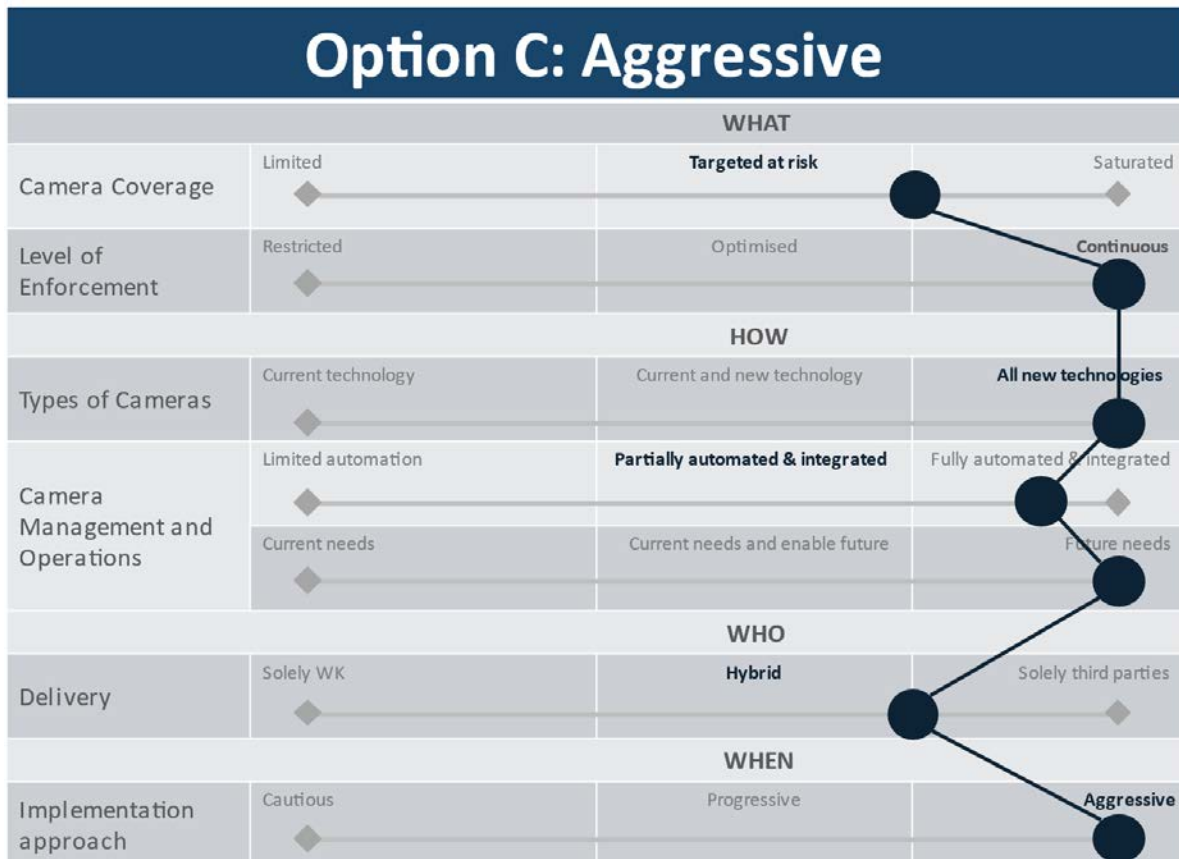
This new capability also enables the introduction of new infringement types such not wearing seatbelts or using a mobile phone while driving (subject to the required legislative amendments to permit this).

The advantages of Option B are that it:

- takes an iterative, evidenced-based approach to the adoption of new camera technologies, which reduces risks
- provides a satisfactory DSI reduction
- delivers a safe camera system that is scalable and will support future expansions of the camera network
- supports the introduction of new infringement types (such as average speed).

The disadvantages of Option B are that it delivers a slower ramp-up to the desired level of DSI reductions (compared with Option C).

## Option C: Aggressive



Option C focuses on rapidly reducing DSIs by expanding the camera network very quickly, using current (largely international) evidence to determine the most effective camera types over the three phases of the programme. It includes implementing average-speed cameras. This option expands the safety camera network to **5,021,000** cameras over 6 years. Indicatively, it will deliver around a 2.9–5.3% DSI saving by 2027.

As for Options A and B, this option delivers new camera management and operations capability that is supported by modern technology systems. The difference is that under Option C all processes will be automated and integrated with other systems.

This option also enables straight-through-processing for certain infringement types should Waka Kotahi wish to use it, although this would be subject to the required legislative change being made.

The advantages of Option C are that it:

- has potentially the greatest and fastest speed-related DSI reduction
- delivers a fully featured safe camera system that is highly automated and scalable
- supports the introduction of new infringement types.

The disadvantages of Option C are that it:

- has a high degree of implementation risk
- may result in a suboptimal camera network
- requires the largest investment of all options
- is reliant on legislative change
- makes change management more challenging (because delivery is so rapid).

## Monetary costs

### ***Programme and technology costs***

Programme and technology costs include the costs of the programme team to lead and manage the change and the implementation of the technology platforms that are needed. The programme team includes the functions strategy and performance, people and organisation, change management, and communications and engagement.

For the programme team:

- Option A requires an estimated 17–27 FTEs
- Option B requires an estimated 23–35 FTEs
- Option C requires an estimated 34–53 FTEs.

### ***Camera network and operations costs***

Camera network and operations costs include the transfer of the camera network to Waka Kotahi and the expansion of the camera network, including:

- one-time camera expansion and set-up costs (including site selection, infrastructure installation, signage)
- ongoing camera operation costs (camera lease costs, footage acquisition, repairs, and maintenance to the network).

- Option A requires an estimated 150–160 FTEs
- Options B and C both require an estimated 200–215 FTEs.

### ***Enforcement costs***

Enforcement costs include verification and offence processing, debt collection, and prosecution costs. The main cost driver is staff cost, with:

- Option A requiring an estimated 90–95 FTEs
- Option B requiring an estimated 110–120 FTEs
- Option C requiring an estimated 95–105 FTEs.