FACT SHEET: Auckland System Management's TTM block programme and mobile operation initiatives

NZGTTM-aligned practice, enabling safer, smarter TTM

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Overview

Auckland System Management (ASM) has implemented two complementary approaches to improve temporary traffic management (TTM) outcomes. The block programme uses planned cyclic maintenance closures to improve coordination and reduce duplication. Mobile operations apply risk-based thinking to tasks that fall outside planned closures, such as high-exposure or reactive maintenance. Both initiatives align with the principles of the New Zealand guide to temporary traffic management (NZGTTM), with a focus on reducing risk, improving efficiency and delivering better value from TTM.

These initiatives are part of a broader shift at ASM, where NZGTTM thinking is applied not just to large programmes, but also to more focused operational improvements. Refer to Additional practical applications of risk-based thinking on page 6 for further details.

Project summary — block programme

The maintenance block programme is a new approach developed within ASM's cyclic maintenance workstream. It was designed to improve efficiency by integrating TTM into early planning. Instead of setting up TTM individually for each task, a block of time and space is secured in advance, allowing multiple activities to be delivered under a single closure.

This shift aligns with the principles of the NZGTTM, placing risk-based thinking and coordination at the heart of delivery. It has enabled better decisions, improved delivery outcomes, reduced overspend and resulted in fewer TTM deployments.

What was done

- ASM introduced pre-scheduled block closures to support all maintenance activity.
- TTM was included upfront in the annual delivery planning process, shifting away from reactive TTM booking and planning.
- Block closures were scheduled to allow multiple workstreams to operate at the same time within the same traffic management setup. This significantly reduced the need for separate closures and disruptions.
- The approach began with ASM's cyclic maintenance programme while enabling space for other workstreams like renewals and project works to "piggyback" on the same closures.

"TTM was treated as an equal participant in the early discussion and was positively received by the wider team"

— Tim Emerson, Optimisation Manager for Auckland System Management Alliance

Refer to Block programme – additional details on page 5 for project data.

Why it was needed

- Prior to the programme, TTM was deployed as needed by each project. This sporadic approach often resulted in a project overspending or underutilisation of TTM.
- TTM was treated as overhead cost, and not actively managed or integrated into forward works programme planning.
- Managing TTM separately across ASM's 16 workstreams led to seasonal spikes in demand, a high perceived volume of roadworks during peak periods, and inefficient use of TTM resources, with oversupply during quiet times and shortages during busy ones. The ASM Board pushed for innovation and efficiency within the constraints of the annual TTM budget.
- NZGTTM was in development, providing the strategic backdrop and rationale to trial risk-based, system-level alternatives.

NZGTTM principles applied

- Proactive Risk Management – embedding TTM in early planning to identify and address risks across multiple workstreams.
- Cross-department coordination highly emphasised – all programme workstreams sitting in one system for geospatial sequencing and programming, enabling the opportunity for shared TTM setup to undertake multiple jobs.
- Lowest total risk – by reducing the total number of TTM deployments and people exposure periods
- Consultation, Coordination, and Collaboration (the 3 Cs) – integrated into the planning workflow. This also enabled bigger opportunity (such as wider working hours) to negotiate the higher value of work.

"The status quo had TTM sidelined. When they need the 'cones', they order the 'cones'."

— Tim Emerson, Optimisation Manager for Auckland System Management Alliance

Benefits

- Reduced TTM duplication – block closures enable multiple tasks to be completed under a single TTM deployment.
- Improved efficiency – fewer movements and simplified planning of the order of work.
- Reduced cost escalation – reversing previous patterns of overspend.
- Better safety outcomes – fewer setups means fewer high-risk periods while enabling safer working environment by eliminating the risk of traffic-exposure.
- Improved planning culture – treating TTM as an equal party supports better site planning, design, resourcing, quality, auditing and implementation decisions.
- Easier customer communication – having the programme scheduled in advance allows better communication planning.

Refer to Block programme – additional details on page 5 for further project details and data.

Project summary — mobile operation improvements

While the block programme introduced coordinated, planned closures for routine maintenance, some activities across the Auckland System Management (ASM) network require more frequent or urgent access to the network. These include tasks like mowing near live traffic lanes and rapid-response ramp repairs, where traditional TTM approaches can be costly, complex, or expose crews to unnecessary risk.

The team applied NZGTTM principles to rethink how risk could be reduced in these situations. By treating TTM as a planning partner and focusing on overall risk exposure, resource use, and delivery value, ASM implemented new approaches. These include remote-controlled robotic mowers and a short-duration mobile ramp closure method.

What was done

"Why don't we put the people out of the line of fire... and let the mower do the mowing, with the operator monitoring safely?"

— Tim Emerson, Optimisation Manager, Auckland System Management Alliance

- Remote-controlled mowers were adopted to remove workers from live traffic lanes.
  - Robotic mowing can be deployed up to the edge of shoulder, removing the need for TTM.
  - Robotic mowing is prioritised for areas where terrain or barriers make standard mowing difficult and exposure to live traffic is high. Large mowing jobs are scheduled during block closures, with tractor mowers used for efficiency.
- Short-duration on-ramp closures were introduced for reactive maintenance, such as high-priority barrier repairs, and are now used where possible without deploying full detours.
  - Closures are timed for lower-risk periods, such as after midnight, when traffic volumes are low and ramp demand is minimal.
  - This reduced worker exposure and total time on site, freeing up TTM crews for more productive tasks elsewhere.

Why it was needed

- Even with the block programme in place, ASM couldn't cover the entire network within available crew hours and calendar days.
- Mobile activities, particularly open space management, continued to carry high TTM costs.
- Short-duration work on motorway ramps required full site-specific static TMPs, resulting in up to two hours of TTM setup for jobs that took less than 30 minutes. This created unnecessary exposure, shift inefficiency, and avoidable risk.

NZGTTM principles applied

- Hierarchy of controls – replacing physical exposure with engineering solutions (for example robotic mowers).
- Eliminating unnecessary exposure – through risk assessments and shorter-duration closures.
- Enabling productive work based on real risk assessment, not set standards.

Benefits — reduced total hours of worker exposure

"Based on these initiatives we have realised a reduction in [mobile] mowing TTM of about 80% compared to what was being done"

— Paul Geck, Alliance Manager, Auckland System Management Alliance

- TTM allocated to mowing operations reduced from approximately 200 shifts to 40 shifts annually.
- More efficient use of TTM crews and resources — reducing worker exposure and time on site, while enabling redeployment to higher-value or safety-critical activities. Early results indicate a reduction in open space management TTM spend, while maintaining or increasing outputs.
- Increased efficiency by applying risk-based assessment. For example, robotic mowing allows productive work to continue during congested, low-speed peak periods where a prescriptive approach would typically restrict access.
- Robotic mowing has also eliminated some non-traffic related risks, for example tackling steep slopes that pose a high risk for tractor mowing operators.

Refer to Improved efficiency on page 5 for further project data.

Appendices

Block programme – additional details and data

Programme duration and scale

The ASM block programme pilot started in July 2022, initially focusing on the motorway network. The schedule has been regularly reviewed and since 2023 it has been adjusted to include rural state highways. The block schedule varies depending on the asset maintenance need. The majority are scheduled every three months.

The programme covers all ASM's internal workstreams and at times enables external workstreams, such as capital projects, third party service providers and neighbouring RCA works. A block closure often has 35-50 workers involved, but on larger sites this can be over 100. This contrasts with an average of five workers or fewer on non-block programme work sites.

TTM cost and frequency

The TTM cost for the block programme is approximately 30-35% of ASM's total TTM budget. This covers cyclic access to all the ASM network. This is mostly on a three-monthly schedule. Sites with lower maintenance requirements are programmed six-monthly or less frequently.

Improved efficiency

It is important to note that required maintenance activities and other conditions can vary significantly from year to year. Therefore directly comparing these annual data is difficult. However, at a broad level the data indicates a trend of increased activity output and reduced TTM requirements, reflecting the improved efficiency that the block programme has created.

The chart below represents this, showing the number of ASM maintenance activities per financial year along with the number of TTM deployments required for those activities.

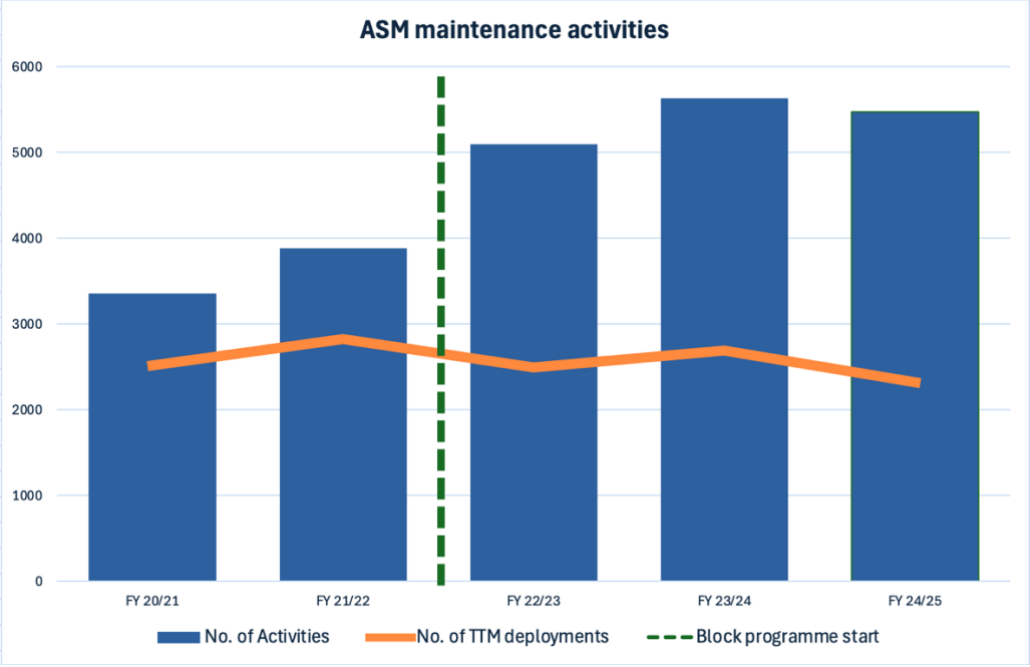

Chart 1:Number of activities and TTM deployments per financial year

	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
	Pre block programme		Block programme		
No. of activities	3351	3884	5093	5631	5471
No. of TTM deployments	2515	2824	2496	2688	2320

Table 1: Number of activities and TTM deployments per financial year

Improving on common closures

Common closures — the concept of combining works into the same TTM deployment, existed prior to the block programme. However, this was largely an opportunistic setup that created dependency challenges. The table below demonstrates that by providing stability, the block programme has improved efficiency resulting in more jobs per closure.

	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
	Pre block programme		Block programme		
Average jobs per common closure	3.9	4.4	5.9	6.5	7.2

Table 2: Average jobs per common closure by year

Additional practical applications of risk-based thinking

The following examples demonstrate how ASM is applying NZGTTM principles beyond major programmes to improve safety, clarity and efficiency through smaller, targeted changes.

Magnetic detour sign symbols

- What was done — ASM replaced standard white-square detour signs with magnetic state highway shield symbols.
- Why it was needed — Clashes between works by different contractors risked creating confusion around temporary detours.
- Benefits — Improved driver recognition and reduced risk of detour misinterpretation.

Customer pre-conditioning matrix

- What was done — A standardised messaging matrix was developed in partnership with ATOC to align communications with the level of disruption.
- Why it was needed — Community feedback indicated frustration when roadworks appeared unadvertised or inadequately signposted.
- Benefits — More consistent, proportional messaging helps manage public expectations and reduce negative perceptions.

Risk profiling for damaged asset delineation

- What was done — Cones are now only used to mark damaged roadside assets if the asset presents an actual hazard. Retroreflective stickers or other low-impact methods are used for low-risk damage.
- Why it was needed — Cones were being overused to mark minor damage, creating unnecessary visual clutter and reducing their effectiveness as risk markers.

- Benefits — Helps combat negative public perception by reducing the appearance of unnecessary or unexplained TTM. Also improves clarity for road users and ensures cones remain associated with genuine risks.

Crew and stakeholder feedback

Staff and stakeholder feedback was gathered in July 2024 to reflect on experiences of working with block programme closures:

"[Block closure] has been good for us because now we can access areas we would not be able to access normally under mobile TTM like the ramps."
— Tony M, ASM Corridor Maintenance Foreman

"It has been really good for our team because the (block closure) dates are set and I can plan my year ahead in advance."

— Gareth D, ASM Structure Inspector

"We are much more productive within the block closures. [We spend] Less stop/starting the job [compared to mobile TTM] and we can focus on getting the job done without worrying about traffic next to us."

— Tree work subcontractor