



Lessons Management Report

Auckland severe weather event 9 May 2023

Response by Auckland Transport, Auckland Transport Operation Centre (ATOC), and Waka Kotahi

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1. Purpose

This report has been prepared to produce a consolidated summary of the response to the severe weather event that impacted Auckland on 9 May 2023 by Auckland Transport (AT), Auckland Transport Operation Centre (ATOC) and Waka Kotahi including recommendations for improvement.

This report is prepared for learning purposes and does not apportion blame or criticism to any agency or individual.

This report includes:

- Recommendations
- Insights and lessons identified from the response

The Report is in four parts:

- Recommendations
- Background to the severe weather event on 9 May 2023
- Lessons management approach and methodology that informed the recommendations
- Findings, including successes, insights and lessons identified

2. Executive Summary

Auckland experienced a severe weather event on 9 May 2023 which resulted in a local state of Emergency being declared for the Auckland region and localised flooding and slips.

This event followed two previous severe weather events that had impacted the region, the first started on 27 January 2023 and was followed in February by cyclone Gabrielle. This resulted in the Auckland region receiving nearly a year's worth of rain since 1 January 2023 and left the ground saturated and more vulnerable to the impacts of further heavy rain.

The heavy rain caused flooding to many parts of the transport network in Auckland that impacted rail, motorways, regional state highways, local roads, and public transport

stations. These impacts added to congestion on the transport network, which was further exacerbated when Auckland Emergency Management (AEM) sent an Emergency Mobile Alert (EMA) at 12:06pm recommending people to travel early. As a result of the EMA some schools and businesses closed which further added to the congestion on the transport network during the interpeak.

Auckland Traffic Operation Centre (ATOC) had established plans to respond to the 9 May 2023 weather event based on warnings from MetService, this included putting people on standby to activate its Incident Management Team (IMT).

The IMT was fully activated at 11:45 hours on 9 May 2023 and operated until 20:00 hours the same day.

This review considered the response from ATOC IMT and the interoperability with its key stakeholders, especially Auckland Transport (AT) and Waka Kotahi.

The review collected and assessed observations from people across five transport agencies that were involved in the response.

3. Findings

Observations were summarised into twenty-six insights. Common themes were the need for better alignment of expectations between response teams (five insights), improved ongoing training and development (eight insights), need for improved tools and resources for response teams (five insights), need to establish a common operating picture (three insights), need for enhanced stakeholder relationships (two insights), and the need for enhanced customer communications (three insights).

Included in observations were positive reflections on themes of leadership and mentoring, the skills and experience of CIMS trained people, the value of the CIMS structure and role cards, the early preparedness and stand-up of the IMT, and

the learning that was applied from previous events.

The lessons identified from the response to the severe weather event on 9 May 2023 was assessed against the recommendations from the lessons management review of the Auckland Harbour Bridge (AHB) superstructure damage event that occurred on 19 September 2020. Two of the recommendations from AHB review have not been actioned and were observed again during the severe weather event.

4. Recommendations

Six recommendations for improvement have been developed. These are supplemented with guiding information.

RECOMMENDATION 1

Auckland Transport, ATOC and Waka Kotahi emergency response plans are reviewed and aligned to provide clear expectations for the Incident Management Team (IMT) that ATOC operate.

- Waka Kotahi and Auckland Transport emergency response plans to include requirements for how the ATOC IMT should operate and what it should deliver. This should also include the roles of governance and how these will jointly operate to support the IMT.
- The roles that are required need to be reviewed and clarified.
- A better process for early escalation should be included, and this should include the roles of the Tactical Assessment Team (TAT), Executive Assessment Team (EAT), and other agency response teams (such as the National Emergency Response Team (NERT) at Waka Kotahi).
- Clarify which roles need to be physically in the IMT and which can support remotely.
- Better alignment is required to provide improved clarity for

responsibilities around meeting schedules and situational updates and reports.

RECOMMENDATION 2

The capability and capacity for the IMT to be clearly identified and a framework developed and implemented for initial and ongoing CIMS training and exercising to maintain individual currency.

- Define roles that IMT requires (from Recommendation 1) and identify number of people required to allow for a full operation of the IMT.
- Develop training pathway for all people identified for IMT and to include regular exercises.
- AT, ATOC and Waka Kotahi to align training pathways to NEMA training development pathway:
 - Knowledge of CIMS training
 - CIMS function specific training
- Joint exercising to be included in an ongoing exercise programme for the region.
- Training and exercises to provide clarity on IMT (command and control) vs BAU procedures, clear understanding on action plans, objectives and mission statement.

RECOMMENDATION 3

To review the tools and resources that ATOC IMT uses.

- Develop a wellness tool focusing on the wellness and resilience of people working in response.
- Develop a full set of CIMS roles cards that are specifically relevant to the IMT.
- Review and develop full set of templates to support the IMT processes:
 - Tracking requests, tasking.
 - Lessons Management observations capture (hot/cold debrief).

- IMT briefings (noting need to align with other agencies in Recommendation 1)
- Action Plan
- Clarify the role and define the skill set of liaison officer between IMT and AEM, especially as need to represent AT, ATOC and Waka Kotahi.

RECOMMENDATION 4

That relationships are enhanced in readiness between Auckland Emergency Management (AEM), Auckland Transport, ATOC and Waka Kotahi.

- Work with AEM to ensure they understand the need to engage with AT and Waka Kotahi (via the ATOC liaison officer if IMT activated or ATOC Shift Lead) for any decisions around public information on transport. In particular, to focus on the need for consultation before any decision by AEM to put out communication regarding recommendations for public to travel at any time and whether the transport system is ready for the resulting movements.
- Develop a process to ensure that AT and Waka Kotahi Public Information Management (PIM) roles work together immediately during a response. Note that this was a recommendation from the lessons management review of the Auckland Harbour Bridge superstructure damage event.
- Develop a process for strategic communications with all key stakeholders, including Kiwirail and the Ministry of Education. Align this with national and other key regional stakeholder management.

RECOMMENDATION 5

To develop a Common Operating Picture and Processes (COP).

- Develop a network status management tool that allows users to

display relevant information for accurate and informed decision making.

- The tool needs to include, as near, real-time situational awareness as possible.
- The tool need to be multi-modal and neutral of road controlling authority.
- The tool needs to be on a platform that all agencies that need access can utilise.
- The COP needs to be used by all relevant agencies to ensure there is a single source of truth
- To review the Waka Kotahi contract with Metservice to ensure it includes briefings for ATOC's area of responsibility (all transport modes) and for the language to be appropriate to understand risks to the transport system in Auckland.

RECOMMENDATION 6

That customer communications need to be enhanced for the multi-modal operations.

- To develop customer communication plans for severe weather events. These should be ready to go and agreed by all relevant agencies.
- Communication plans need to include information on specific public transport areas on the network (example; people queuing at Albert Street, Fanshawe Street bus stop, Newmarket public transport hub).
- Develop the capability to provide 24/7 travel information for Auckland Transport customers and align with Waka Kotahi to provide single network travel information. Note previous recommendation about need for strong relationships between communication teams (Recommendation 4).
- Messaging from AT, AEM, ATOC and Waka Kotahi must be aligned (see Recommendation 4).

5. Background

5.1 Situation

By May 9th, 2023, the Auckland Region had received nearly a years' worth of rain from the start of January 2023. ATOC and the Incident Management Team (IMT) had already responded to the January 27th Flooding and February Cyclone Gabrielle weather events. These events, plus others left the soil saturated and more vulnerable to flooding.

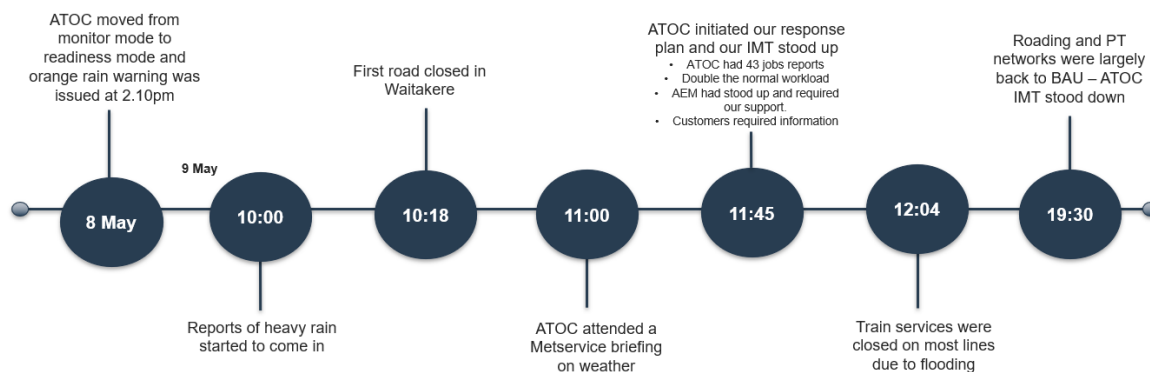
On May 9th MetService issued an Orange Heavy Rain Warning and Severe Thunderstorm Watch for Auckland, including Aotea Great Barrier Island. The Orange Rain warning was in place between 9am and midnight on Tuesday and the Severe Thunderstorm Watch covered early afternoon to 10pm on May 9th, 2023.

The Auckland Transport Operation Centre received prior warning from MetService of inclement weather which included possible flooding across the transport network. From this information, ATOC put plans in place to have an Incident Management Team on standby ready to be initiated at short notice.

5.2 Preparedness

On the 8th May, ATOC was informed by the MetService of a weather watch in place for Northland, Auckland, and Coromandel. This is when ATOC moved into a monitoring phase and started preparations for a IMT to be on standby. The ATOC Planned Events team proactively reached out to key people across Auckland Transport and Waka Kotahi requesting assistance to fill roles an IMT from Tuesday 9th May onwards. ATOC also received briefings from the MetService on both the 8th and 9th May to ensure the most current weather information was shared for planning purposes. Key partners including, but not limited to, AT Metro, Auckland System Management (AS), Waka Kotahi NOCs and NZ Police were all informed of the inclement weather approaching and to put plans in place to response appropriately.

Response Timeline



5.3 Response

With ongoing intel from MetService and impacts on the Transport network, an IMT was officially stood up at 11:45am on Tuesday 9th May. The IMT was in place until 8pm the night of 9th May 2023 when it was assessed the network and impact was back to business as usual and MetService confirmed the greatest risk was over.

Auckland Emergency Management (AEM) sent an Emergency Alert at 12:06pm recommending people to travel early. Schools and some business closed which caused significant congestion on the transport network during the interpeak.

Flooding caused closures of various rail lines, arterial roads, Auckland motorways, Regional State Highways, and the Northern Busways between Esmonde Rd and Smales Farm stations. This added to the congestion on the transport network.

6. Approach and Methodology

The approach used for this review is based on the current best practice for Lessons Management in New Zealand, adopted by the LessoNZ community of practice and based on the Australian Disaster Resilience Handbook on Lessons Management¹.

6.1 Data Collection

Observations were collected from individuals who were involved in the response through completion of a set of questions using Microsoft Forms.

6.2 Constraints

The review period was set out to focus on a fast report being produced. This meant that individuals were given a set time to complete the online questionnaire.

Some individuals were on leave and therefore observations were not captured from all people invited to participate.

6.3 Contributors

Contributions were received from people representing the following organisations:

- Auckland Transport
- Auckland Transport Operation Centre
- AT Metro
- ASM
- Waka Kotahi

6.4 Methodology

The current best practice for lessons management was used for this report:

- **Observation:** A record of a noteworthy fact or occurrence that someone has heard, seen, noticed or experienced as an opportunity for improvement or an example of good practice.
- **Insight:** A deduction drawn from the evidence collected (observations), which needs to be further considered. Insights occur when there are multiple observations (pieces of evidence), which are similarly themed.
- **Lesson Identified:** A conclusion with a determined root cause based on the analysis of one or more insights and a viable course of action that can either sustain a positive action or can address an area for improvement.
- **Lesson Learned:** A lesson is only learned once the approved change is implemented and embedded.

The above methodology is referred to as the O.I.L.L process.

7. FINDINGS

This part of the report covers successes (what worked well), insights and lessons identified.

¹ 1

<https://knowledge.aidr.org.au/resources/lessons-management-handbook/>

7.1 Successes

Observations acknowledging things that went well during the response centred on five themes:

- Leadership and mentoring
- Skills and experience of CIMS trained people
- Use of CIMS structure and role cards.
- Early preparedness and stand-up of IMT.
- Learning applied from previous events.

The following successes were noted by individuals:

- Experienced and trained people slotted into their roles very well
- Incident Controller provided clear communication on expectations and outcomes, kept things on track.
- CIMS based IMT environment and processes brought structure to the response
- Provision of information to ELT meant less intervention from them that was unnecessary or unhelpful
- Early stand-up of IMT – had time to prepare a few days before hand
- Good plan for response – everyone fitted their roles easily
- Experience from previous events provided familiarity and a calm environment with critical people involved.

“The IMT was well managed and led. There was good communication in the room” - *Observation*

7.2 Insights

Insights can be positive or negative and can sustain a positive action or address an area of improvement.

Twenty-six insights were formed into the following themes:

- Alignment of expectations between response teams (five insights)
- Ongoing training and development (eight insights)
- Improved tools and resources for response teams (five insights)
- Common operating picture (three insights)
- Enhanced stakeholder relationships (two insights)
- Enhanced customer communications (three insights)

Alignment of expectations between response teams

- a) Observations indicate a lack of clarity from Auckland Transport and Waka Kotahi on what is expected from the ATOC Incident Management Team. This lack of clarity resulted in different and sometimes conflicting pressure on the IMT. Alignment of processes and expectations across AT and Waka Kotahi for incident response in Auckland is required.
- b) Observations highlighted a difference of expectation on physical and remote operations of response teams. Clarity around who needs to attend an IMT and who can work remotely would allow for improved operation of the IMT.
- c) Observations also showed that some key CIMS functions operated independently of each other. The main observation focused on the Public Information Management (PIM) functions not being connected which resulted in conflicting public messaging being sent. It should be especially noted that this is a lesson that was previously identified in the review to the response to the Auckland Harbour Bridge superstructure damage event and remains unresolved.
- d) Observations highlighted to need for strategic communications to operate and support information to both governance structures (AT and NERT) and key stakeholders (AEM, local government).
- e) Observations highlighted that different response teams (IMT and NERT) did not

align timings for briefings. This resulted in ATOC IMT not being able to attend NERT briefings and missing out on providing and receiving key information.



Ongoing training and development

- f) Observations highlight there is a shortage of well trained, capable people who can stand-up quickly and be able to provide suitable resources for the IMT when it is required over long periods of time (more than a few days).
- g) Observations indicate there is a culture of reliance on the same people with experience to form the IMT. This culture currently leverages off good-will and professionalism of the trained and experienced people.
- h) Observations showed that people in the IMT need clarity on the roles they are taking and clear expectations on them. People need to understand their CIMS role and how their role interact with other CIMS roles in the IMT.
- i) Observations indicate that there are misunderstandings between the role in an IMT (using a command and control approach) to business-as-usual roles. This resulted in different approaches to tasks and caused delays and confusion. This also contributed to different approaches by agencies who have different BAU approaches.
- j) Observations indicate that specific training on what is expected for briefings,

what to include and the use of IMT templates would benefit people prior to being involved in the IMT. This required other people in the IMT to mentor others and diverted attention from a more efficient response.

- k) Observations highlight the need for clearly defined mission statement and objectives and the use of an action plan to record tasks across the response. This is another area where training people in their CIMS role would help.
- l) Observations indicate that people need to be regularly exercised to maintain their understanding of roles and working in an IMT. With an opportunity to exercise across organisations this would also help align agencies better.
- m) Observations indicate that people would benefit from shadowing others during a response. This opportunity would allow less experienced people to observe and work alongside experienced responders and gain valuable induction into the IMT.

Improved tools and resources

- n) Observations indicate that people in the IMT use different equipment and is not standardised or formalised. This relied on people to find ways to share information and work more effectively together. This relied on experienced trained people to make this work.
- o) Observations highlighted that CIMS role cards were very useful and provided the necessary information to help people in their IMT roles.
- p) Observations indicate that templates were extremely valuable and supported the response and working in the IMT. The template used by Logistics to monitor incoming tasks and requests was useful. A lack of template for an Action Plan was identified as an area for development.
- q) Observations reinforced the need for hot and cold debriefs. The use of templated questions to help people channel feedback is considered valuable as it not only reminds people, but also means they don't have to think on the fly.

r) Observations indicate that a tool to help people focus on their and others wellbeing is important. It was noted that a gap in this space exists and would help people with behaviours and personal resilience.

Common operating picture

s) Observations highlighted the need for a network status assessment tool to capture better and faster information from impacts to the network. When catastrophic events occur the current process of capturing information via telephone from contractors overwhelms the system and causes delays.

t) Observations indicate that lack of a common operating picture resulted to poor situational awareness of what was occurring across the network at any given time. A GIS tool that had been created for the 27 January 2023 severe weather event was not available and may not have been developed to be fit for use at other events.

u) Observations questioned whether the Journey Planner website is fit for purpose. It was noted that it crashed during the 9 May severe weather event possibly as a result of the number of people trying to use it. It was noted that Emergency Management (AEM and NEMA) point people to use the Journey Planner website as a source of travel information.



Enhanced stakeholder relationships

- v) Observations indicated it was not clear who was the liaison person in the AEM ECC and whether they understood they represented AT, ATOC and Waka Kotahi. It does not appear that anyone was specifically selected for this role with the necessary skills in influencing and coordination. This resulted in information not being shared with wider key stakeholders and AEM did not appear to consider transport when sending out the Emergency Mobile Alert (EMA).
- w) Observations showed that key relationships with some stakeholders such as AT, Ministry of Education and Kiwirail were not well identified and connected with the IMT. This resulted in key information not being shared for improved outcomes and better communications.

Enhanced customer communications

- x) Observations highlighted the need for communication plans to be prepared in advance of an event. This would also allow different agencies to be involved and be aligned on messaging to customers.
- y) Observations indicated that part of the AT communications team was working in isolation on level 2 of the Viaduct and it was not clear on their role and how they were connected to the IMT.
- z) Observations illustrated the need for an ability to provide customers with afterhours travel information to make informed decisions 24/7.



A co-ordinated multi agency PIM function was lacking” - Observation

7.3 Lessons Identified

The twenty-six insights were developed into thirteen lessons. These lessons in turn inform the recommendations.

LESSON 1

Resourcing for the IMT is heavily dependent on goodwill of individuals and an expectation for them to show up each time. There is a culture of reliance on those with previous experience.

(contributes to Recommendation 1)

LESSON 2

Clarity is needed on the expectations of the IMT, what services can be delivered and by when.

(contributes to Recommendation 1)

LESSON 3

There is a shortage of well trained, capable staff who can mobilise quickly and be able to resource the IMT for prolonged responses.

(contributes to Recommendation 2)

LESSON 4

Misunderstanding of roles and responsibilities exist for operating under normal business as usual versus IMT. Roles and responsibilities of operating under IMT response mode should be clearly identified, delineated, trained, and exercised.

(contributes to Recommendation 2)

LESSON 5

CIMs training is required for key roles across Auckland Transport in accordance to the agreed level of service to be provided by the IMT. The training needs to be broadened to include exercises at appropriate cadence. *(contributes to Recommendation 2)*

LESSON 6

Improvements of some administrative tools, processes and templates were made as a result of learnings from previous events. These were informal and at individual IMT member's discretion. These need to be formalised and embedded into IMT processes. *(contributes to Recommendation 3)*

LESSON 7

Formal wellbeing support and training for those involved in IMT is required to build awareness of working in an IMT command and control structure, resilience, and knowledge of available help. *(contributes to Recommendation 3)*

LESSON 8

There is a critical requirement for an integrated tool showing a One Network real-time status view that can be utilised for purposes of IMT, key stakeholders and users of all transport modes. *(contributes to Recommendation 4)*

LESSON 9

Interaction is needed between AT and Waka Kotahi PIM roles to ensure alignment of key messages. This needs to be an enduring process and not reliant on individuals. *(contributes to Recommendation 5)*

LESSON 10

Delineation of roles and responsibilities need to be established between AEM, AT and Waka Kotahi on strategic and tactical levels. This needs to include public information on transport. *(contributes to Recommendation 5)*

LESSON 11

Core relationships between AT and Ministry of Education and KiwiRail needs to be established and embedded into the IMT for sharing key communications. *(contributes to Recommendation 5)*

LESSON 12

Availability of AT's network on 24/7 basis is needed for customer's ability to make informed decisions on after hours travel. *(contributes to Recommendation 6)*

LESSON 13

The level of preparedness to inform customers on availability of the network can be improved through pre-prepared plans using critical areas of the network during these types of weather events. *(contributes to Recommendation 6)*



Roads affected by flooding needs a better process to get the information to customers – very manual & easy to make mistakes. Needs an automated process” – *Observation*