

OVERCOMING THE CHALLENGES RELATING TO THE INTEGRATION OF STORMWATER OPERATIONS FOR THE AUCKLAND REGION

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ABSTRACT

During the 7th South Pacific Stormwater Conference in 2011, the authors presented the challenges in integrating stormwater operations for the Auckland region. This paper outlines the actions since taken and progress made by the Auckland Council's Stormwater Operations group in overcoming some of these challenges, particularly in the areas of:

- Taking over the maintenance responsibilities of stormwater assets within the road corridors
- Development of a robust system to deal with "popped" manholes
- Preparation of the first aligned new stormwater operations contract
- Preparation of a region-wide stormwater knowledge base
- Establishment of good working relationships with other key stakeholders

This paper also summarises additional initiatives and approaches to be taken in overcoming the challenges relating to the integration of stormwater operations for the region.

KEYWORDS

Challenges, stormwater knowledge base, "popped" manholes, integration,

1. INTRODUCTION

Auckland Council's Stormwater Operations group is responsible for operating and maintaining the largest public stormwater system in New Zealand. It serves 460,000 properties with 1.4 million people, and comprises nearly all types of stormwater assets installed in New Zealand.

This stormwater system consists of the public stormwater systems from the seven legacy local authorities in the Auckland region before the amalgamation in November 2010. They had been operated and maintained by these legacy councils using different service delivery models. The merging of these legacy stormwater systems created a unique opportunity to integrate and improve stormwater operations for the Auckland region. However, the Stormwater Operations group also faces a number of significant challenges in doing so (Blackburn-Huettner *et al*, 2011).

This paper summarises the actions since taken and progress made by the Stormwater Operations group in overcoming some of these challenges, particularly in the areas of:

- Taking over the maintenance responsibilities of stormwater assets within the road corridors
- Development of a robust system to deal with popped manholes
- Preparation of the first aligned new stormwater operations contract
- Preparation of a region-wide stormwater knowledge base
- Establishment of a good working relationship with other key stakeholders

In addition, this paper discusses the initiatives and approaches to be further taken in overcoming the challenges facing the Stormwater Operations group.

2. TAKING OVER THE MAINTENANCE RESPONSIBILITIES OF STORMWATER ASSETS WITHIN ROAD CORRIDORS

Tens of thousands of stormwater assets were built within public road corridors and car parks to collect and treat road runoff by developers or the transport departments of the legacy councils, as part of their resource consent conditions for new developments or road improvement projects. These assets include stormwater treatment devices and “conventional” stormwater drainage facilities, such as swales, rain gardens, tree pits, storm filters, sand filters, detention tanks, catchpits, pipes, road culverts, manholes and ground soak holes.

These stormwater assets do not exist in isolation. Most of them form an integral part of the entire public stormwater network, particularly the catchpits. There are currently about 90,000 catchpits in the region and these catchpits are the “starting” points of the stormwater reticulation system. Whether these road stormwater assets are in good working conditions directly affects the performance of the entire stormwater network (Blackburn-Huettner *et al*, 2011).

This part of the public stormwater network is currently owned and maintained by Auckland Transport, and the balance of the public stormwater system is owned and maintained by Auckland Council. Such an arrangement inevitably creates problems in relation to customer services and working efficiency, for example, double handling of the same problem or a service request being sent to the wrong contractor. To avoid these problems, an agreement was signed between Auckland Council and Auckland Transport to transfer the maintenance responsibility of stormwater assets within road corridors to Auckland Council so that the entire public stormwater network is maintained by one organisation.

The agreement is a high level document signed by the Interim Chief Executives of Auckland Council and Auckland Transport in October 2010. In practice, there are several important issues needing to be addressed in order to transfer the maintenance responsibility to Auckland Council smoothly, including:

- Clarification of detailed responsibility for both parties
- Transition process and timeframe
- Consent ownership and responsibility
- Extra resources required
- NZTA subsidy applications

To address the above issues, two working groups comprised of representatives from Auckland Council and Auckland Transport were formed. A high level steering group, consisting of senior managers from Auckland Transport and Auckland Council, was formed to oversee and direct the transition process. A working group, comprising relevant team leaders and senior engineers from the two parties, was established to identify problems, propose solutions and make suggestions to the steering group during the transition process.

After detailed discussions between the two groups, the following decisions or actions have been taken to resolve the above problems.

A. Clarification of Detailed Responsibilities

Both parties agreed that a Service Level Agreement (SLA) outlining detailed responsibilities for Auckland Council and Auckland Transport should be prepared and adopted. Although this SLA has not been finally signed off, the operational part of this SLA was completed in late 2011. This part of the SLA specifies in detail the ownership of the stormwater assets in public road reserves, responsibility for maintaining, renewing and modifying these assets, funding for maintaining, renewing and modifying them under different scenarios. For example, Auckland Transport will

provide the funding if a road culvert has to be replaced or enlarged due to structural concerns. However, Auckland Council will provide the funding, at least partially, if a road culvert has to be enlarged due to hydraulic concerns. This part of the SLA also clarifies the responsibility for both parties in responding to emergency or other incidents within the road corridors.

B. Transition Process and Timeframe

Auckland Council currently has 14 major stormwater operation and maintenance (O&M) contracts and Auckland Transport has 16 O&M contracts which involve in maintenance of road stormwater assets. When considering the future new contracts, both Auckland Transport and Auckland Council agreed to align their procurement strategies, including the alignment of contract boundaries for each contract and contract roll out stages. Auckland Council will have 4 major O&M contracts and Auckland Transport will have 9 major contracts. Generally, the area covered by one major stormwater contract corresponds to the entire area covered by 1 to 3 Auckland Transport contracts.

The new aligned stormwater and transport contracts will roll out for the southern area (legacy Manukau City, Papakura District and Franklin District) first in 2012; the Central (legacy Auckland City) and West (legacy Waitakere City) area in 2013 and the northern area (legacy North Shore City and Rodney District) in 2014.

C. Consents Ownership and Responsibility Required Obtaining Subsidy from NZTA

Auckland Transport currently holds many stormwater related resource consents obtained from the legacy Auckland Regional Council for their new or road improvement projects. These consents not only specify the required stormwater treatment for the increased road runoff, but also set up the requirements for the long term on-going operation and maintenance of these treatment devices.

Stormwater discharges from the existing road network were usually consented via legacy council (now Auckland Council) discharge consents, where these are held. In addition, discharges from existing roads in rural areas are a permitted activity and no resource consents are required until road improvements/significant changes are proposed. Where required, any road stormwater discharge consents in rural areas will be obtained and held by Auckland Transport.

Stormwater discharge resource consents will ultimately be superseded by the Stormwater Unit's network discharge consents, which will cover urban areas and township/settlement areas, including stormwater discharges from the Auckland Transport road network. In the interim, Auckland Transport will likely remain the holder of its existing stormwater discharge consents and hence responsible for ensuring compliance, although maintenance may be undertaken by Auckland Council on Auckland Transport's behalf.

D. Extra Resources Required

The estimated extra number of staff required by Auckland Council to handle the increased workload due to transfer of maintenance responsibility of those road stormwater assets was also agreed between the two parties. Auckland Transport will either transfer the required number of staff to Auckland Council or will fund the same number of staff to be recruited by Auckland Council itself. There is however some uncertainty around the staff numbers that have been agreed by Auckland Council and Auckland Transport. Furthermore, stormwater maintenance is only a small part of Auckland Transport's road maintenance works, whereas for the Stormwater Operations group, all staffs are dedicated to stormwater. This means that during or after a major storm, Auckland Transport has a larger pool of staff to call on to deal with stormwater issues affecting the road corridor while the Stormwater Operations group will already be overworked dealing with other

stormwater issues. This problem will be overcome by having arrangements to be able to call on Auckland Transport staff as well as their Service Providers when required.

E. NZTA Subsidy Applications

Auckland Council will invoice Auckland Transport monthly for the cost of maintaining the stormwater assets within the road corridors. Auckland Transport is still responsible for claiming the eligible subsidy from NZTA for maintaining these road drainage assets by Auckland Council. To ensure that Auckland Transport is able to obtain NZTA subsidy for the services by Auckland Council, it is necessary for the Stormwater Operations group to follow NZTA approved procurement and other processes.

3. DEVELOPMENT OF A ROBUST SYSTEM TO DEAL WITH POPPED MANHOLES

The public stormwater system is constructed to reduce the risk to people, property and the environment from flooding, erosion and environmental damage. However, the public stormwater network itself, such as open channels, stormwater ponds, inlets and outlets, can also, directly or indirectly create a health and safety hazard to the public. A stormwater manhole normally is not considered as a risk to the public. However, when a manhole lid is popped, dislodged or missing, this manhole could be a serious health and safety risk to people. The tragedy that occurred in west Auckland three years ago is a typical example.

To reduce the risk from popped/dislodged manholes, the following works have been undertaken since the amalgamation in November 2010.

A. Addressing Historical Problems

A thorough review of historical popped, dislodged or missing manhole problems was carried out for all seven legacy council areas. For example, more than 600 historical manhole related service requests (not necessarily popped or dislodged manholes) were reviewed for the Rodney area to confirm whether all reported problems have been adequately addressed. This thorough review identified 174 historical reported manhole problems for the entire Auckland region which need further works. A capital project was quickly set up to provide a proper solution to these historical problems, by either installing hinged manhole lids, or installing safety grilles under the manhole lids or replacing the standard manhole lids with grilled manhole lids. This project was completed by June 2011.

B. Development and Implementation of a Robust System to Deal with Popped Manholes

An operational surcharging/popping manhole policy was adopted by the Stormwater Unit in early 2011. The major points of this policy include:

- a. Any reported popping manholes are to be made safe within one hour in urban areas and two hours beyond urban areas;
- b. Any reported popped manholes shall be recorded in the Popped Manhole Register;
- c. Those manholes caused by a capacity issue will require installation of a safety device within 10 working days;
- d. Popping manholes caused by a one off blockage will have the blockage removed and the asset will be placed in the register. The register will be periodically reviewed to identify reoccurring blockages (such as tree root ingress) causing a reoccurring manhole health and safety issue;
- e. Those popping manholes causing reoccurring health and safety issues due to blockages will have a safety device installed within 10 working days of being identified; and

- f. Blockages whether known to trigger a surcharge manhole or not, are to be CCTV scanned after the blockage has been cleared to ensure the blockage has been fully removed and to prevent any subsequent risk of manholes popping.

Council's call centres procedures in dealing with popped manhole problems were also reviewed and modified to ensure the implementation of the new popping/surcharging manhole policy. In addition, all relevant maintenance contracts were varied to align to the new response times of this new operational policy.

To ensure this operational policy is accurately implemented by Council contractors, audits are carried out for all surcharging/popped manhole related works, along with other health and safety related urgent service requests.

The Stormwater Operations group's handling of popped/surcharging manhole incidents (including auditing) is included in our weekly report to the senior management.

Popped/surcharging manholes are only one of the health and safety issues encountered in relation to the public stormwater network. Other stormwater network related health and safety issues include possible fencing of watercourses/stormwater ponds and installation of grilles at inlets and outlets where merited. Auckland Council is currently undertaking a health and safety review in relation to these health and safety issues. The purpose of this review is to develop and adopt a risk-based stormwater health and safety operational policy. Once this operational policy is endorsed, it should form the basis for the Stormwater Operations group to manage the health and safety issues in relation to the public stormwater assets. Stage one of the review has been completed. It includes documentation of the current practice from all legacy councils toward the health and safety issues in relation to the public stormwater network and review of national and international approaches regarding hazards to the public from the stormwater assets.

4. PREPARATION OF THE FIRST ALIGNED NEW STORMWATER OPERATIONS CONTRACT

A stormwater operation and maintenance (O&M) procurement strategy was developed by the Stormwater Operations group and approved by Auckland Council in August 2011. To form a proper procurement strategy, the following factors were considered: our internal structure; political wards and areas; the type of contract; Auckland Transport and Watercare contract boundaries; the economics of the scale we are proposing; regional response capability; opportunity for benchmarking and competition; and maintaining competitiveness and capability in the contracting market. Based on these considerations, the strategy proposed to have four area based comprehensive O&M contracts: South, Central, West and North, for the region, and roll them out over three years (South in 2012; Central and West in 2013; and North in 2014).

The new southern O&M contract has now been awarded and it will start from 1 July 2012. This is the first aligned O&M contract covering three legacy local councils (Manukau City Council, Papakura District Council and Franklin District Council) and the maintenance responsibility for those Auckland Transport owned stormwater assets within the public road corridors. The following important issues were addressed during the process of contract preparation, request for expression of interest, request for service proposal, and tender assessment.

A. Contract Procurement

This procurement was focused on securing cost effective Stormwater Operations and Maintenance Services for the Southern Sector of the Auckland Council region. The Southern Sector is the first phase in a three phase procurement strategy.

The competitive REOI and RFP process and the bundling of ten contracts into one southern sector contract has resulted in overall cost savings to Auckland Council and Auckland Transport of 9% p.a. A collaborative form of contract has been adopted that will see the parties work together to further enhance service delivery and reduce costs throughout the contract term.

B. Contract Form - Alignment with Auckland Transport

After consideration of various types of contract forms, a NZS3910 based contract was chosen. This has the advantage of being well known to practitioners. It also aligns with the contract form used by Auckland Transport for their new contracts, namely, a NZS 3910 based contract with varying amendments. Using the same contract format can avoid potential problems in future for Auckland Transport to apply for NZTA subsidy for maintaining their stormwater assets within public road reserves. To ensure meeting NZTA requirements for the subsidy, Auckland Council's stormwater operations procurement plan and the evaluation of the new southern stormwater O&M contract, had to be agreed and signed off by Auckland Transport.

C. Alignment of Level of Services and KPIs for the Region

The new southern stormwater contract covers three legacy local council areas. These legacy councils have different level of stormwater services and KPIs in their current O&M contracts. Furthermore, this new southern stormwater contract will form the basis for the new contracts for Central, West and Northern Auckland areas over the next two years. Therefore, we aligned the levels of services and KPIs for measuring the contractor's performance for the entire region, including the terminology used in the contract. For example, the current contractor's response time to urgent service requests varies from one hour to four hours over the Auckland region. We now simplified this to within one hour for urban area and two hours beyond urban areas. We set up five priorities to categorise different customer service requests and the corresponding response times by the contractor or our own engineers.

D. Terms and Conditions

Apart from the contract form, the contract term and possible extensions are also aligned with Auckland Transport. Both the new southern stormwater contract and transport contract have a term of four years with two possible 24 month extensions, at Council's sole discretion.

As the new southern stormwater O&M contract is the first of its kind, we liaised with Auckland Transport and Council's legal and procurement teams closely, to ensure alignment between Auckland Council and Auckland Transport and also to comply with relevant Council policies and procedures. For example, the initial proposed attributes in the Request for Expression of Interest (REOI) document for evaluating the tender documents were modified so that they are consistent with Auckland Transport's proposed new contract and comply with NZTA's requirements. To comply with NZTA's requirement, the engineer's estimate for the contract works was included in the Request for Proposal (RFP) document.

The evaluation panel for the new stormwater contract included representatives from Council's Stormwater Unit, legal team, procurement department and Auckland Transport.

5. PREPARATION OF A REGION-WIDE STORMWATER KNOWLEDGE BASE

On average, Auckland Council's call centres and written communication team receive about 710 stormwater related service requests per month, excluding general enquires, seeking of information or clarifying LIM (Land Information Memorandum) reports. It is critically important that the customer representatives from the call centres and the written communication team can accurately understand these service requests and forward them to the right team. All call centre and written

communication teams rely on Council's I-Know system which includes basic stormwater information and procedures for handling stormwater related service requests.

Unfortunately, due to a variety of reasons, about 15% of the total stormwater related service requests were sent to the wrong teams between July and November 2011. These mistakes resulted in delayed mitigation of reported stormwater issues, frustrated customers and increased costs due to double handling.

To improve this situation, the following steps have been taken.

- A. Review and modify the stormwater contents in the I-Know knowledge base. A comprehensive stormwater glossary was prepared and included in the knowledge base. This glossary contains 88 stormwater related items with plain English explanation. To make it easy for the customer service representatives to understand, a photo or drawing is attached for every item in the glossary. Hyperlinks between similar items, such as "catchpit", "cesspits" and "sumps" are also provided in the glossary.
- B. Review and clarify the relevant procedures in the I-Know knowledge base. For example, the procedures for handling reported surcharging/popped manholes were reviewed and modified to reflect the requirements from the new "surcharging/popping manhole and pipe blockage policy".
- C. Develop and implement an education programme. In November 2011 we commenced an education programme for the call centres and other relevant teams. Our customer response coordinators and stormwater engineers are conducting presentations about the stormwater glossary, outlining the correct procedures to the call centre staff and answering their questions. We plan to complete the presentations by June 2012.

As this education programme started just a few months ago, no adequate data has yet been obtained to prove its effectiveness. We are currently monitoring the percentage of customer service requests which are sent to the wrong teams or wrong organisation.

6. ESTABLISHMENT OF A GOOD WORKING RELATIONSHIP WITH OTHER KEY STAKEHOLDERS

Apart from Auckland Transport, Watercare, Auckland Council Parks, Sports and Recreation Department; Resource Consents Department; and Building Control Department are also key stakeholders in the creation, operation and maintenance of the region's stormwater systems. Given the interdependencies of the Stormwater Unit with these stakeholders, the success of not only the Stormwater Operations group, but the Stormwater Unit as a whole, will depend on close collaboration and our working together towards a common goal.

A Service Level Agreement (SLA – called the Detailed Partnership Schedule) between Watercare and Auckland Council was signed before the amalgamation. To ensure the implementation of this SLA, a working group between Auckland Council's Stormwater Operations group and Watercare's operation group was formed to address the operational issues between the two organisations. This group meets bimonthly to identify issues encountered by both parties and propose improvements.

The SLAs with Auckland Council's Parks, Sports and Recreation Department; and the Resource Consents Department are in their final stages. Once these SLAs are finalised and signed off, the responsibilities for these key stakeholders in relation to stormwater management will become clearer. Similarly, we intend to set up working groups with these organisations to resolve the operational problems between the Stormwater Unit and these stakeholders.

7. CONCLUSIONS

- 1) The Auckland Council's Stormwater Operations group has made significant progress in overcoming the challenges in integrating stormwater operations for the Auckland Region. It achieved 97.5% and 99% of its KPIs in responding to urgent and non-urgent customer service requests, higher than those achieved by the legacy councils before the amalgamation.
- 2) All major issues have been identified and addressed by Auckland Council and Auckland Transport jointly in relation to the transfer of maintenance responsibility for the stormwater assets within public road corridors and car parks.
- 3) A thorough review of historical reported popped manhole problems was carried out and all outstanding issues were resolved in a timely manner through a capital project. A robust system has been established to deal with new popped manhole issues. This includes quick response to the incidents, staged mitigation, quality assurance, data capture and reporting.
- 4) Close cooperation with Auckland Transport and other key Auckland Council departments ensured a smooth process in preparing, tendering, evaluating and awarding the first new stormwater O&M contract which aligns the three legacy local authorities and includes the maintenance of Auckland Transport owned stormwater assets within public road corridors.
- 5) The stormwater contents and procedures for handling stormwater related service requests in the new Council's I-Know knowledge base were reviewed and improved, including the addition of a comprehensive stormwater glossary. A stormwater education programme is currently being implemented for Council's call centre, written communication and other relevant teams.
- 6) Good progress has been made to establish a good working relationship with other key stakeholders, including Watercare, Auckland Transport, Auckland Council's Parks and Regulatory/Building Control Departments.

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9. REFERENCES

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