RENEWALS – TURNING PROJECTS INTO PROGRAMMES

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ABSTRACT

Historically, in New Zealand there has been under-investment in water infrastructure for many years. This has created an increasing backlog of required asset renewals and increased maintenance of aging networks that have not been replaced as they reach the end of their expected service life.

The Wellington Region is no different, and Wellington Water is planning for the significant increase in its client Councils' renewals budgets in the Long-Term Plan. In addition to this, Government funding is forecast to become available as part of the wider water sector reforms. As well as building capacity in the industry to meet this backlog, there is also the need to increase the efficiency of project delivery.

The Wellington Water Fast Track Renewals programme is a $15.4 million trial programme delivering packages of pipeline renewals work for water and wastewater focused on addressing known issues in the Wellington region over a period of less than 12 months. The programme is partly funded from the Government's Post-COVID Stimulus Funding and was delivered in addition to Wellington Water's Financial Year 2020-21, $130M Capital Expenditure programme.

The programme delivery model is commonly used in the United Kingdom, and involves identifying areas (rather than pipes, or sections of pipe) that require renewal and undertaking a cost-effective planned approach to their renewal.

This programme trialled moving away from targeting pipe renewals on a street-by street basis and moving to a delivery model which targeted area wide improvement of service. Due to the timing constraints from the Government Stimulus funding - all funding must be spent by March 2022 the trial programme focused on low-risk renewals where engineering standards are well established, and complex designs were not required. The design information provided to Contractors was minimised, providing only overview or simplified plans and the programme has been used to consolidate Wellington Water's library of standard design details and specifications, saving time in the design phase.

The programme has also adopted a "think trenchless technology first" philosophy. Trenchless technology significantly reduces the impact on the community during construction and generally reduces carbon use in the build. Trenchless technology can also reduce the construction programme and Health & Safety risks associated with heavy machinery movements and open excavations. A Corridor Approach (renewal of both water and wastewater) was trialled for some Councils. The programme aims to renew continuous lengths of pipe to ensure parts of the network are not "left behind".

Analysis of available pipe data (condition information, maintenance issues, bursts, collapses, etc.) was completed and a "long list" of potential renewals identified. The long list was generally made up of pipes that were either already failing/known to be in poor condition or were past or very close to their expected lives. Wellington Water operations and investigations engineers were then engaged with to refine the list down to a "short list" of proposed works.

Three teams are delivering these programmes of work which have been formed from Wellington Water's Consultancy and Capital Expenditure (CAPEX) Contractor panels. All Consultants and Contractors are directly appointed saving a significant amount of time in the procurement phase of the programme, reducing procurement costs, and enabling a different type of team structure to be developed where two of the three teams were led by a contractor.

The approach to deliver this programme was overseen and supported by a Steering Group made of up representatives of Wellington Water and the Consultancy and Contractor panels. The delivery approach developed is adaptable and is planned to be used to deliver a six-year rolling programme incorporating more complex renewals and the potential for coordination with other utilities.

KEYWORDS

Renewals, Programme delivery, collaborative, trenchless, efficiencies

PRESENTER PROFILE

Beth Parkin is currently seconded as a Programme Lead to Wellington Water from Stantec. She is experienced in the delivery of Three Waters infrastructure and highly effective in the planning and organisation of resources. Her preferred working style is to share and initiate early discussion with all stakeholders to build collaborative partnerships.

1. INTRODUCTION

Wellington Water manages the drinking water, wastewater and stormwater services on behalf of the Hutt, Porirua, Upper Hutt and Wellington City Councils (HCC, PCC, UHCC, WCC), South Wairarapa District Council (SWDC) and the bulk drinking water supply services of Greater Wellington Regional Council (GWRC). The Councils are all equal shareholders in Wellington Water.

In July 2020, the Government announced funding to provide an immediate COVID-19 stimulus package to maintain and improve water networks infrastructure, and to support a three-year programme of reform of Local Government water services delivery arrangements. All eligible Councils signed the Memorandum of Understanding (MoU) and associated Funding Agreement and Delivery Plan as part of the first stage of the Three Waters Services Reform Programme. The stimulus package requires all funding to be spent by the end of March 2022.

Wellington Water prepared a Delivery Plan on behalf of all six Council owners known as the Stimulus Funding Programme. This Delivery Plan set out how the funding was proposed to be spent across a range of regional and Council specific initiatives, the plan was approved in late September 2020.

A $15.4M fast-track Renewals workstream was included in the Delivery Plan which involves trialling a different approach to delivering packages of capital renewals work on aging drinking water and wastewater pipes, focused on addressing known issues in the Wellington region over a period of less than 12 months. renewal and undertaking a cost-effective planned approach to their renewal.

The programme delivery model is commonly used in the United Kingdom, and involves identifying areas (rather than pipes, or sections of pipe) that require renewal and undertaking a cost-effective planned approach to their renewal. Due to the limited timeframe created by the March 2022 deadline to brief, design and deliver the work to spend the stimulus funding, low-risk pipeline renewals were the focus of this trial. Low-risk pipeline renewals were identified as works that did not require complex design, planning or stakeholder engagement prior to construction. A pipe renewal was considered as a like-for-like replacement not an upgrade due to growth or capacity network constraints.

This paper discusses the programme development and delivery, current forecast results, lessons learnt and how these learnings are now being embedded into Wellington Water's delivery processes. It also discusses the potential applicability of this work for the wider industry.

2. BACKGROUND

Historically, in New Zealand there has been under-investment in water infrastructure for many years. This has created an increasing backlog of renewals and increased maintenance requirements of aging networks that have not been replaced as they reach the end of their expected service life.

The Wellington region is no different and Wellington Water is planning for the delivery of the significant increase in its Client Councils' asset renewals budgets in the next Long-Term Plan. In addition to this, more Government funding is forecast to become available as part of the wider water sector reforms. As well as building capacity in the industry to meet the asset renewals backlog there is also the need to increase the efficiency of project delivery. The fast-track Renewals workstream trialled moving away from targeting pipe renewals on a street-by street basis and moving to a delivery model which targeted an area wide improvement of service.

The COVID-19 Stimulus funding provided by the Government aims to enable Councils to meet two government defined objectives:

1. Improve the safety and quality of drinking water services, and the environmental performance of drinking water and wastewater systems, by maintaining, increasing or accelerating investment in core water infrastructure renewals and maintenance; and
2. Support New Zealand's economic recovery from the COVID-19 pandemic through job creation, by enabling investment to continue at a time when council revenues are uncertain, and they face immediate cashflow challenges. (Department of Internal Affairs, 2020)

The fast-track renewals workstream addresses both these objectives using the opportunity government funding provides to assist in fixing the region's ageing network quickly and sustainably. Running a fast-track pipeline renewals

programme provides an opportunity to achieve this in an efficient manner, spending money directly on renewing existing core water infrastructure.

3. PROGRAMME OVERVIEW

The fast-track renewals workstream focuses on known issues within each Council area (excluding GWRC). The programme of work concentrates on:

- Undertaking capital renewals activity on aging drinking water and wastewater pipes across the region.
- Selecting and developing packages of work from a high-level problem statement, with clear outcomes and performance measures of success focused on known issues within each Council area.
- Transitioning from a project development model to an outcome development model with a fast-tracked prioritisation process.

The workstream was required to be managed separately to other Council CAPEX work as there was finite delivery window (all money to be spent by March 2022). The funding is not tied to either CAPEX or Operational Expenditure (OPEX) spend and subsequently can be leveraged to set up Wellington Water for future delivery.

Areas to focus on were identified in five of the six Client Council's areas. GWRC was not included in the renewals programme as they own the bulk watermain network which was unsuitable for a fast-tracked renewal.

Table 1: Summary of Proposed Work by Council and Budget

Council	**Area**	**Service**	**Budget**
HCC	Wainuiomata	Water & Wastewater	$4.1m
PCC	Tithe Bay	Water & Wastewater	$2.0m
SWDC	Featherston	Water	$1.0m
UHCC	All Upper Hutt	Water	$1.0m
WCC	Karori	Wastewater	$7.3m
TOTAL			**$15.4m**

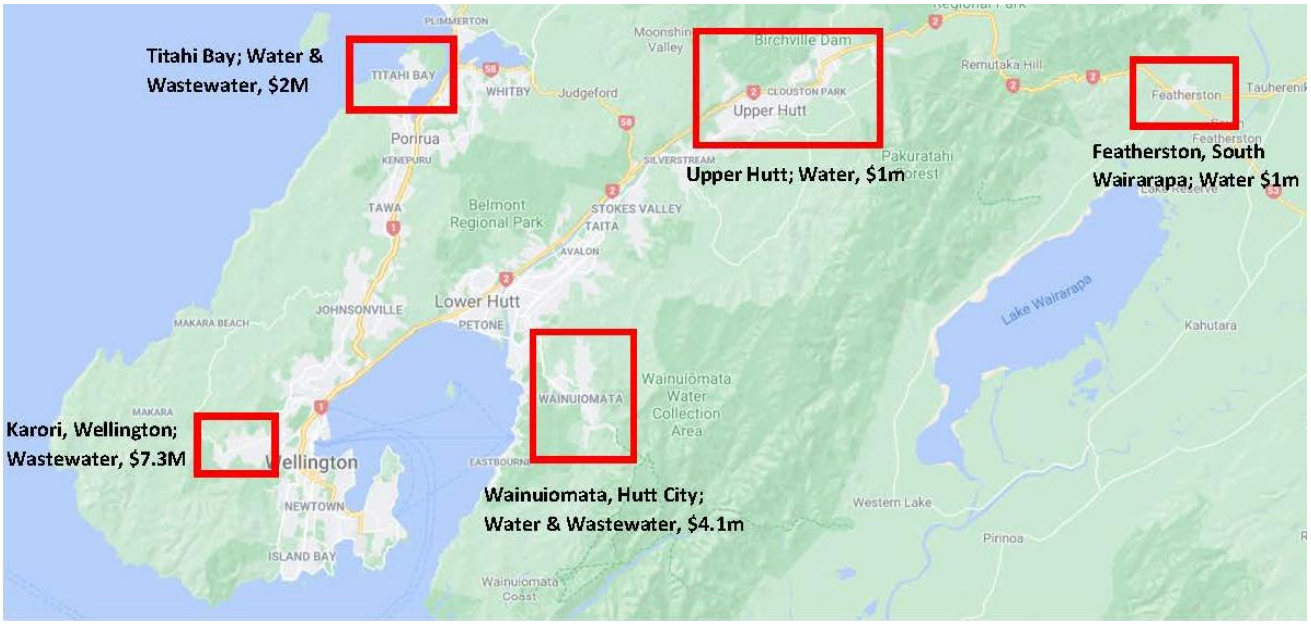

Figure 1: Map of Targeted Areas in the Wellington region

4. PROGRAMME DELIVERY

4.1. OVERVIEW

To deliver the renewals efficiently and effectively this programme trialled moving away from a project delivery model to an outcome focused programme delivery model with a fast-tracked prioritisation process. This involved Wellington Water providing briefs for each area with a high-level problem statement, clear outcomes, and performance measures of success. The briefs focused predominantly on reducing watermain bursts and renewing wastewater assets known to be in poor condition in areas where there was a known impact on the environmental water quality. A Corridor Approach (renewal of both water and wastewater) is also being trialled for some Councils. The renewals also identify continuous lengths of pipe to ensure sections of the network are not "left behind". The programme also targets the increased consideration and use of trenchless technology.

Three integrated delivery teams made up of members of Wellington Water's Contractor and Consultant panels were set up to deliver the work in each of the Councils. The standard Wellington Water delivery process was adapted to support a fast-tracked approach.

4.2. PROCESS

The programme delivery process incorporated aspects of Wellington Water's standard delivery process and was broken down into the following steps:

1. A project brief was prepared that set the outcomes to be targeted for water and/or wastewater infrastructure for each of the five Council areas. This brief was then provided to the integrated delivery teams along with relevant available information and data.

2. Each delivery team reviewed the information provided, and a kick-off meeting with the project brief writer to confirm the delivery team's understanding of the scope.
3. Analysis of available data (condition information, maintenance issues, bursts, collapses etc.) was then undertaken by each of the teams which identified a long list of potential renewals. This was generally made up of pipes that were either already failing/known to be in poor condition or were past or very close to their expected lives. Due to the fast tracking of the programme the selection also focused on "low risk" work and excluded work in private property, high traffic roads, trunk infrastructure, locations needing complex traffic management or complex consultation such as around town centres, schools, hospitals were also excluded.
4. Representatives from the operations and network planning groups were then consulted firstly to inform the long list, and then approve the long lists identified and agree how they could be reduced to a short list of proposed scope to fit within the funding envelope for each area.
5. Following agreement of the short list some site investigations were undertaken such as CCTV, topographic survey to confirm levels, ground investigation, service investigations and confirmation of capacity to ensure pipes were upsized if required.
6. A Delivery Plan for each area was developed by the teams. Which included the proposed (and extended) work programme, details of the design including the Safety in Design process, customer communications plan, risk management and proposed budget breakdown of the work. This plan was presented to the Runway Control Group (RCG) who held the final approval. Pricing of the proposed scope by the contractor was undertaken in parallel to ensure that the proposed scope fit within the funding available.
7. Formal Request for Tender (RFT) documents were then issued to the Contractor for pricing, these included provisional works that could be undertaken if additional funding became available.
8. The Contractor submitted a price for the work which was assessed using a Simplified Tender Evaluation process focusing on price and any tender tags. Standard contract award documentation was then prepared for approval by the relevant Wellington Water delegated financial authority. For some contracts this process was completed within two weeks compared to between one and two months for a standard Wellington Water tender evaluation and award.
9. Following contract award, construction commenced.
10. Once construction was completed, as-builts drawings were produced and submitted. Wellington Water's asset data was then updated, and a brief project close out report also prepared.

A flow chart showing the summary of the process is below in Figure 2.

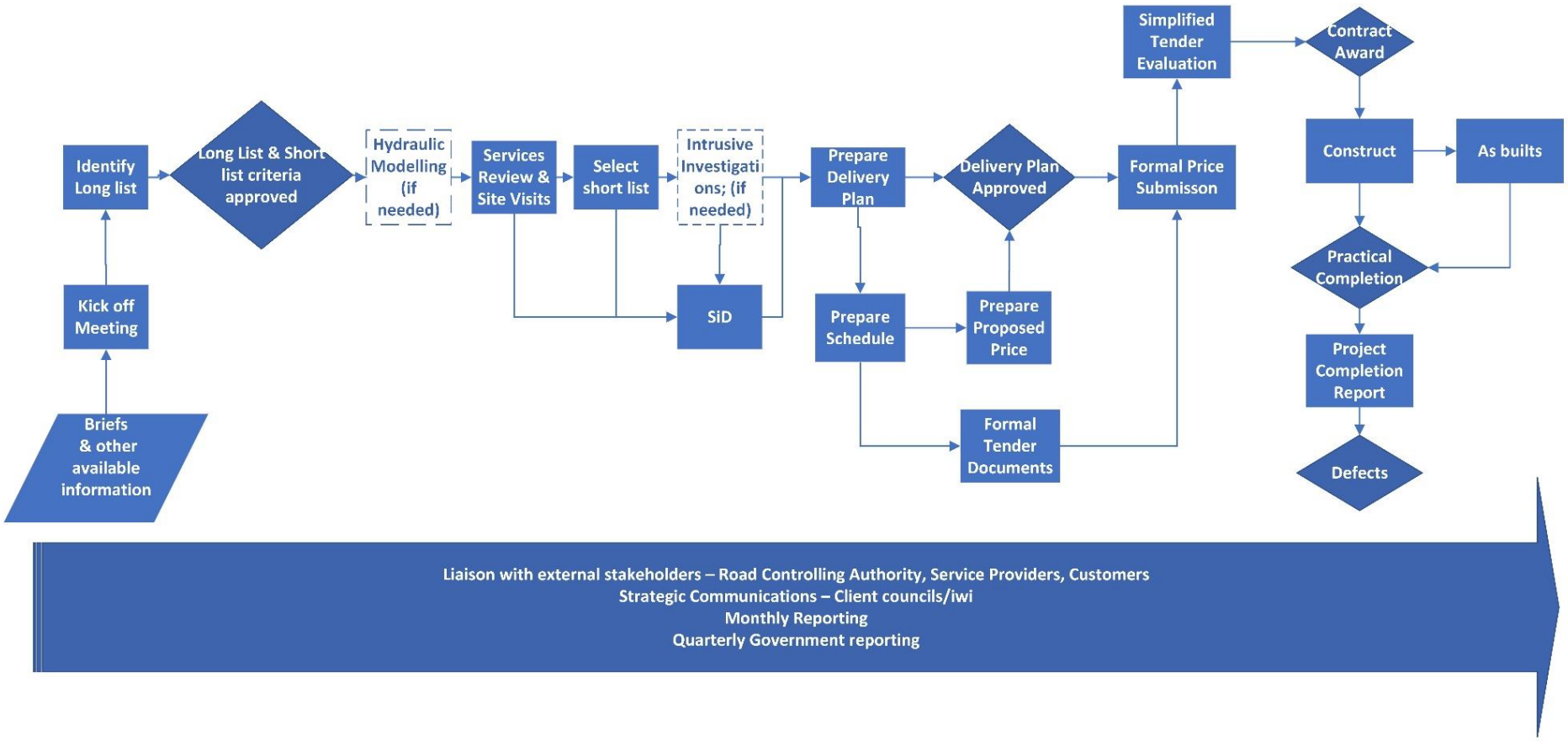

Figure 2: Flowchart of Delivery Process Followed

4.3. STRUCTURE AND GOVERNANCE

A specific programme structure was developed to sit within Wellington Water's Programme Management team. An organisation chart of the programme structure is shown in

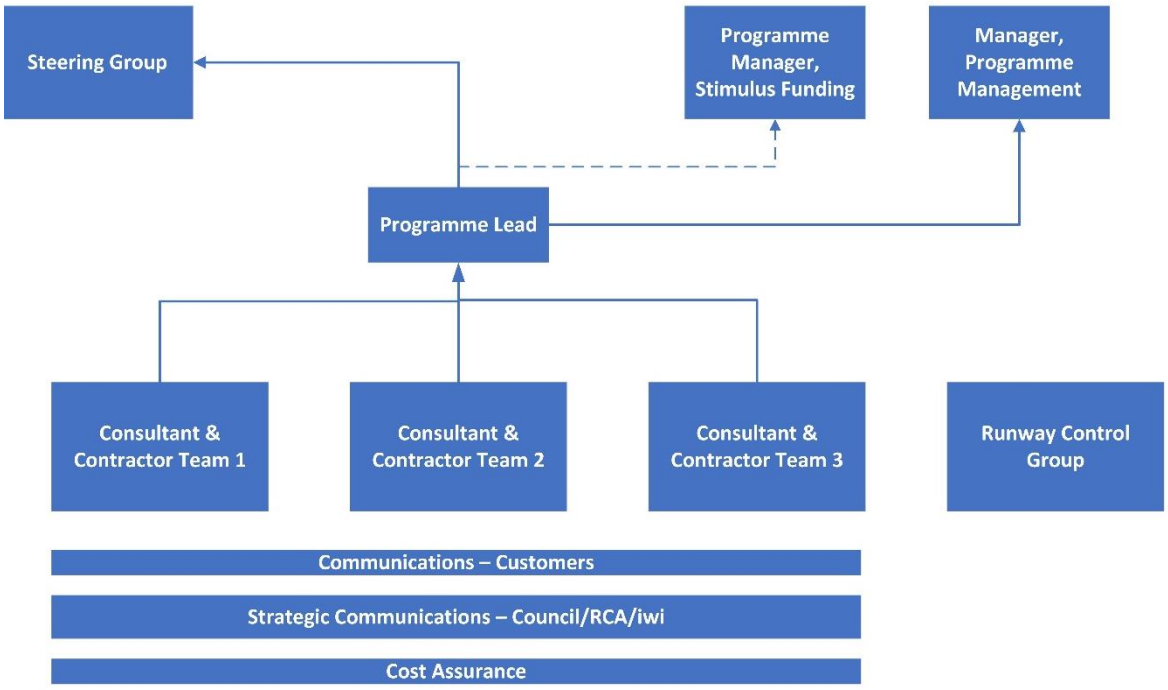

Figure 3 below.

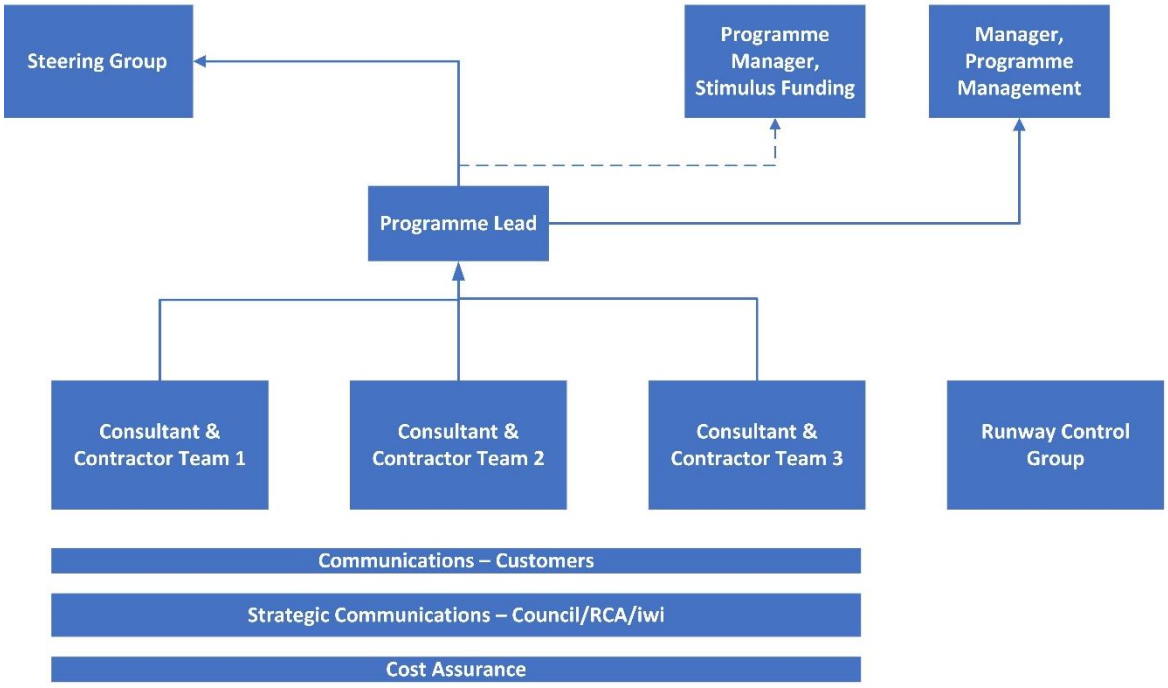

Figure 3: Programme Structure and Governance

A Programme Lead was appointed to be responsible for the delivery and management of the programme on behalf of Wellington Water. The Programme

Lead was responsible for ensuring that information from Wellington Water was communicated to the teams and was also the first point of call for queries on the renewals workstream. The Programme Lead formally reports to the Manager, Programme Management, and is also accountable to the Programme Manager of the overall Stimulus Funding programme.

Each integrated team appointed a Team Lead to provide a single point of contact for each team, and to disseminate programme level information within the wider team. The Team Leads were considered accountable for the overall performance of their team. Each Consultant also appointed a Project Manager who was responsible at the project level for day-to-day project management including project reporting, cashflow management, programme development, deliverables and maintaining documents in Wellington Water's online document management system.

The team leads met with the Programme Lead regularly during the development of the programme to discuss and agree on key aspects such as process, new initiatives and Key Performance Indicators (KPIs) and this group also provides a forum to discuss and resolve any programme level issues.

The RCG includes representatives from Wellington Water's Operations Group, Network Engineering Team, the Design Manager, and Programme Lead. The members of the RCG were responsible for approving on behalf of Wellington Water the scope of work at key stages of the process. The RCG met as necessary during the programme.

A Steering Group was appointed made up of representatives from Wellington Water and a representative of the leadership teams of both the Contractor and Consultancy panels. The purpose of the Steering Group was to review, provide feedback on and endorse the proposals put forward by the Team Leads and Programme Lead, and advise if further approvals were required before these were implemented. The Steering Group also reviewed the programme progress and KPI metrics each month. If programme issues arose and the Team Leads and Programme Lead could not resolve these then they could be escalated to the Steering Group.

Common programme needs such as stakeholder communications and cost assurance were delivered using the same resources across the programme to ensure consistency.

4.4. KEY PERFORMANCE INDICATORS

KPIs were agreed at the start of the programme to measure and capture the improvements to existing and new business operations and service, contained within the benefit profiles, including a plan of when expected benefits would fall during or after the programme. The KPIs for this programme included measures agreed with the Department of Internal Affairs (DIA) as part of the overall Stimulus Funding Delivery Plan.

Measures reported to the DIA include:

- Full Time Equivalents (FTEs) working on the programme, the Delivery Plan estimated 25 - 30 employees would be employed by the Panels to deliver, plus internal staff for programme management.

- Amount of pipe renewed and overall cost/metre of main renewed compared against historical data, this programme provided an opportunity to collect a broad range of cost data.
- Programme – a normal 'Business as Usual' (BAU) project can take at least two financial years to deliver. A target delivery date of June 2021 to deliver all the works was proposed, a programme of less than 12 months.

In addition to the measures agreed to be reported to the DIA, it was agreed with the Steering Group that the following KPIs would also be measured and reported on:

- Consideration of trenchless technology as the first option, measured by the percentage of trenchless technology used compared to baseline information.
- Consultancy fee percentage – Wellington Water currently measures this as part of its consultancy panel KPIs.
- No impact on the existing programme – the proposed work was able to be delivered on top of the current programme and does not impact delivery of the existing programme of works.
- Innovative ideas recorded throughout the programme.
- Development of a streamlined process/sustainable model including standardised design details/guidance.
- Forum to trial new technologies/data capture/methods of working/techniques.

4.5. STANDARD DESIGNS/GUIDANCE

As well as developing and delivering a fast-track renewals programme of works, it was equally important to improve efficiency and the effectiveness in making the best use of resources was used.

This part of the programme began to build a library of best practice standard design documentation and details to standardise Wellington Water's technical delivery and to support the training of new team members.

As part of this project, Wellington Water is also introducing the production of technical guidance notes as a new system to provide support and guidance to the delivery teams. These provide guidance on how to undertake common activities to aid in high-quality justified decision making and minimise repeating the same activity across multiple projects.

A large component of the standard documentation/design guidance being developed focuses on trenchless technology. Wellington Water aims to facilitate the use of these technologies and the identification of where they may be appropriate. The documentation developed enables a robust and consistent decision-making process across all Wellington Water projects by providing a common basis for design decisions. The benefits of trenchless technology include environmental benefits from the reduction of carbon footprints during construction (due to reduced excavation, less imported materials and lower use of heavy equipment), reduced disruption & traffic management requirements, and the subsequent reduction in time and cost of projects.

4.6. PROCUREMENT AND COST ASSURANCE

All the work was procured through the existing Wellington Water Contractor and Consultant panels. The use of a panel allows for direct appointment of a Consultant or Contractor to deliver the work. Packages of work are first scoped by Wellington Water, and then the Consultant and Contractor panel leadership representatives decide which panel member is best placed to deliver the work. This model enabled the procurement phase of works to be undertaken very quickly, in parallel with the design phase, and also saved significant time in the start-up phase of the programme.

Consultants provided a price estimate for the work which is then invoiced on an hourly rate basis whereas Contractors provided a price for work based on measure and value rates.

Under the Wellington Water Contractor panel engagement Contractors are engaged separately for each project that they deliver. The engagement for Contractors also varies depending on the value of the contract they are engaged for and the work that they are undertaking. Contractors can be engaged through Purchase Orders, Minor Works Contracts for works up to $100,000, and formal NZS3910 contracts using a standard Wellington Water template used for all construction projects over $100,000. The Consultant undertakes the verification and processing of all payments to the Contractor on behalf of Wellington Water.

It was critical that Wellington Water demonstrated cost assurance in this programme, particularly as the work is low risk, and that prior to pricing the Contractors had had significant input on methodology, traffic management, programme, and materials used. It was expected Contractors would not price large amounts of risk into prices, and tags would be minimised, however a comprehensive cost assurance process was still required to demonstrate that Government money was spent wisely.

Due to the funding spread (varies from $1–7.3M) across Councils, commercial sensitivity, and staggered timing of price submissions, comparing prices from different contractors within the programme itself was not an appropriate methodology to assess "value for money". The project teams followed the standard Wellington Water tender evaluation process for price where the price submission and rates submitted by the contractor are reviewed by the consultant and any unexpectedly high rates and tags are discussed and clarified during a meeting.

In addition to the standard process, an Independent Reviewer provided oversight across all price submissions in the programme. The Independent Reviewer was involved throughout the contract pricing process in particular:

1. Reviewing scope/schedule before formal pricing by contractor,
2. Reviewing the price when it was submitted,
3. Attending the Price Clarification meeting with contractor and consultant,
4. Reviewing the Price Evaluation Report.

4.7. STAKEHOLDER ENGAGEMENT

Stakeholder engagement both internal and external was critical to the success of this programme.

Prior to the programme commencing, a workshop was held in early September 2020 with Wellington Water staff and representatives of the Consultancy and Contractor panels. In April 2021 a second workshop was held with the same attendees to gain feedback on the process, discuss areas for improvements and opportunities for future integration.

Meetings were also held with specific Wellington Water internal teams to discuss the programme and how they could input or may be affected by it.

Client Council representatives were kept updated at regular monthly meetings and through the regular monthly reporting cycle. Specific communications were prepared for Councils as needed.

In addition to these targeted communications, lunch time presentations and articles in Wellington Water's monthly electronic newsletter were used to communicate information on the programme to the wider Wellington Water Whanau.

The feedback from stakeholders directly involved in the programme has been generally very positive. Due to the speed with which the programme was delivered there were some challenges in communicating the programme objectives and progress consistently to stakeholders in Wellington Water outside of those that were directly involved.

5. PROGRAMME RESULTS

5.1. SUMMARY

The programme is delivering greater benefits than forecast across all KPIs set except for the delivery to programme timeline proposed in the Delivery Plan. The target delivery date proposed in the Delivery Plan of June 2021 had always been a stretch target and there was some slippage due the need to avoid impacting the already committed CAPEX programme. An additional $1.9M of works in HCC and PCC has been able to be included using uncommitted Financial Year (FY) 2020-21 CAPEX funding.

Some key successes are:

- The forecast kilometres of pipe laid is exceeding the programme target,
- The cost per metre is less than the Wellington Water baseline cost,
- Forecast to use around a peak of 45 FTE, against an initial estimate of 25 – 30 FTE,
- The consultant fee percentage is less than 9% compared to the standard CAPEX programme target of 13.5%, and,
- Use of trenchless technology is exceeding the historic baseline.

It should be noted that the benefits received are in trial conditions, where simpler projects have been selected to test the methodology.

5.2. PIPE LAID AND COST/METRE

The two tables below show the forecast kilometre of pipe laid and forecast cost per metre for this work. This includes the additional works in HCC and PCC which provided a further $1.9M of funding to the programme. The forecast km for wastewater is almost the same as the average wastewater renewals delivered in

either of the last two financial years which averaged 7.9km pipe/year (Hutchison & Robertson, 2021).

Table 2: Forecast Pipe to be Laid (June 2021)

	Programme Target (km)	**Programme Forecast (km)**	**Total Programme Forecast incl. additional funding (km)**
Wastewater	3.4	6.1	7.0
Water	2.1	3.8	4.1

Table 3: Forecast Cost per metre (June 2021)

	Historical Baseline Cost per metre	**Forecast Cost per metre incl. additional funding**	**Percentage reduction**
Wastewater	$2,500	$1,600	36%
Water	$1,500	$1,300	14%

5.3. JOB CREATION AND BUILDING CAPACITY/CAPABILITY

The Delivery Plan estimated that 25-30 FTEs would be employed by this programme. The programme is currently employing a greater number monthly than anticipated.

The graph below shows the FTEs working on the programme since it commenced in late September 2020, the current peak is estimated at approximately 45 FTEs in a month.

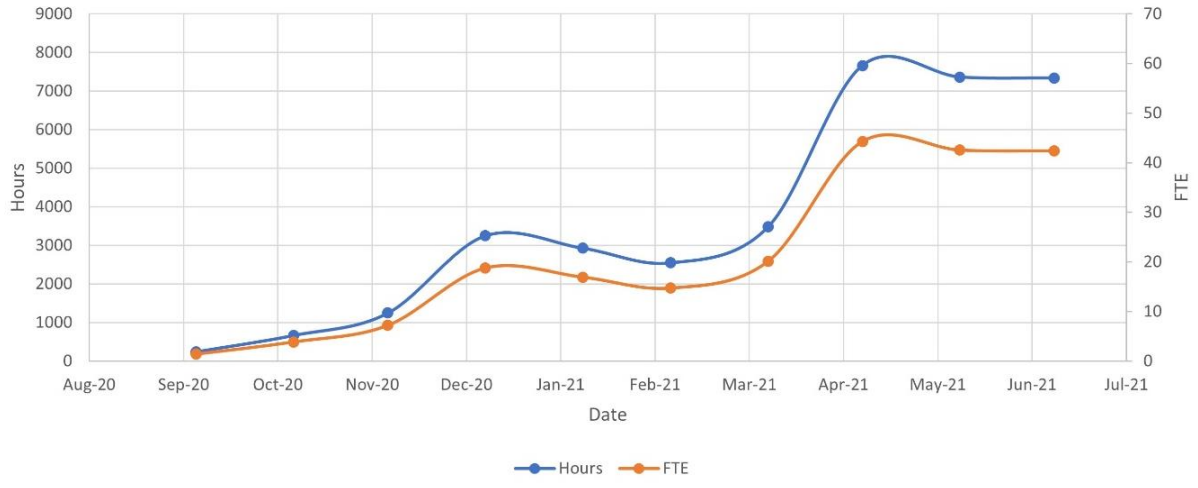

Figure 4: Graph of FTEs working on programme (to end of June 2021)

5.4. DELIVERY TO PROGRAMME

The Delivery Plan set an ambitious target to complete all construction works by the end of June 2021. At the end of June 2021, 56% of the wastewater and 48% of the water main renewals (by metres constructed) has been completed.

The programme of work commenced in late September 2020 with the release of the first brief and construction commenced at the first site in Karori in December 2020. Currently, the final contract is forecast to be completed by November 2021. Despite not meeting the June 2021 target, the programme will be completed within 15 months compared to two years for a standard CAPEX project.

The delays were largely due to the need to avoid impacting regular CAPEX programme delivery and to work around already committed work.

5.5. CONSULTANCY FEE PERCENTAGE

For the FY 2020-21, the Wellington Water consultancy panel fee percentage KPI target for BAU work was set as <13.5%. When calculated, this fee percentage had some agreed exclusions, such as scoping costs, optioneering and some investigatory work.

Table 4 below shows the forecast consultancy fee percentage for the original programme scope and for the overall programme (including the additional PCC & HCC). This programme has demonstrated a significant reduction in consultancy fee percentage, and that further reductions can be realised when additional works are able to be included. The efficiencies in this programme have been able to be realised by reducing processes where appropriate and also by increasing the scale of delivery.

Table 4: Forecast Consultancy Fee Percentage

	Forecast Fee Percentage (with approved exclusions)
Original Programme Scope	8.8%
Total Programme (includes additional PCC & HCC work)	8.4%

5.6. TRENCHLESS TECHNOLOGY

In this programme, the use of trenchless technologies has been actively encouraged. The technologies utilised by Contractors included:

- Directional Drilling,
- Pipe Bursting,
- Pipe Lining:
    - Cured in Place Pipe (CIPP),
    - Fold & Form and,
    - Spiral Wound.

The table below compares the CAPEX programme baseline (from projects in FYs 2018-19 and 2019-20) against the programme forecast at the end of June 2021. As an international comparison Anglian Water achieved 75% trenchless in 2018, from a starting point of 5% in 2005 (Anglian Water, 2021).

Table 5: Trenchless Technology Percentage

	BAU Baseline	**Programme Forecast**
Water	33%	68%
Wastewater	80%	95%+

6. ADDITIONAL BENEFITS

In addition to exceeding the majority of the programme KPIs, the programme has also had a number of additional benefits.

This programme has resulted in improved collaboration and relationships between Consultants and Contractors as well as an increasing appreciation and understanding for each other's roles in project delivery. The implementation of a team approach has enabled a 'right person – right job' mentality and instilled a joint ownership for delivery for the Consultants and Contractors.

Delivering larger packages of work has led to increased efficiencies and provides a consistent and clear forward workload for Consultants and Contractors. Contractors have been able to use these relatively low risk works to train up existing junior staff as well as staff new to the organisation.

It has also been clearly demonstrated that it is relatively easy and quick to scale up the scope of design during the design phase to create a bench of "no regrets" work that can be quickly brought to construction if additional funding becomes available.

The reduction in consultancy fee percentage, as well as increasing the budget available for construction of assets, also frees up scarce engineering resources to focus on more complex works.

7. RISK MANAGEMENT AND LESSONS LEARNT

A number of risks needed to be managed throughout the delivery of the renewals programme.

Initially there was a risk that internal Wellington Water, Consultancy panel, and Contractor resources would be unable to deliver the programme. Through making use of consultancy resources outside of the Wellington region and planning around the standard CAPEX programme these risks were able to be mitigated albeit with some delay to the construction of the renewals programme. There has been no impact on the standard CAPEX programme identified as a result of these additional works.

The effects of the COVID19 pandemic on material supply and availability has begun to impact the construction sector across New Zealand with delays to materials arriving in New Zealand as well as significant material cost increases. While some Contractors are pre-purchasing some materials in advance of construction, there is a limit to the volume of materials Contractors are able to pre-purchase and store.

The Contractor panel is currently working with Wellington Water on a strategy on how to address the risk of material escalation costs in contracts consistently, including whether cost escalation clauses should be included in the standard form of contract.

COVID 19 and a sudden change in risk levels has also been an on-going risk to the programme. Works in the renewal programme have been classified as essential and due to location (residential in road), should be able to proceed safely

if alert levels were to be raised. Wellington Water is currently managing this across their full programme of capital contracts.

Data availability and quality varied between the different Councils' areas – as Wellington Water was formed from six Client Councils it inherited data in various formats and of varying quality. Sharing of information between Wellington Water and the consultancy and contractor panels has also at times been challenging. While Wellington Water has an online document management system the Contractor panel does not have access to it. A Microsoft Teams page was set up for the renewals programme, however access for users outside of Wellington Water was difficult to implement due to security restrictions of different operating systems. There is work underway as part of the overall Stimulus Funding programme to improve the quality of data capture and storage and improve accessibility.

Quality of the design and construction works was also a concern due to the reduced level of design detail proposed to be provided to the contractor. The Wellington Water Design Manager was involved during the scoping and design phase and the construction of renewals work was able to be managed by using the Wellington Water Regional Standards and Specifications.

8. EMBEDDING THE CHANGE AND FUTURE OPPORTUNITIES

One of the key success factors of this programme was that the processes developed, and lessons learnt will be able to be integrated into the Wellington Water delivery model.

Wellington Water is currently reviewing and formalising their standardised approach to project management. This work involves reviewing the current processes and tools in place, collaborating with the consultant and contractor panels who are key to project delivery, consulting with key Wellington Water stakeholders, and collaboratively scoping the outcomes. This work is planned to incorporate different runway approaches to address different project and programme delivery risk profiles, and incorporates lessons learned from this fast-track renewals programme.

The process followed in this trial programme for low-risk renewals is currently being adapted to deliver programmes of work that contain a mix of risk profiles. The FY 2021-22 programme of work has been reviewed and identified two further wastewater catchments in Hutt City Council's programme that are suitable to incorporate the fast-track approach. Aspects of this programme have also been incorporated when planning out a programme of watermain renewals across the region.

An initial risk screening process using already available data will be used to identify low risk works to provide a construction programme for the first year. While this work is being constructed further investigations and the design and optioneering of more complex works will be undertaken to provide subsequent year's programmes of work. The completion of investigations may identify further low-risk work that can be supplementary work to the already identified work and designed work.

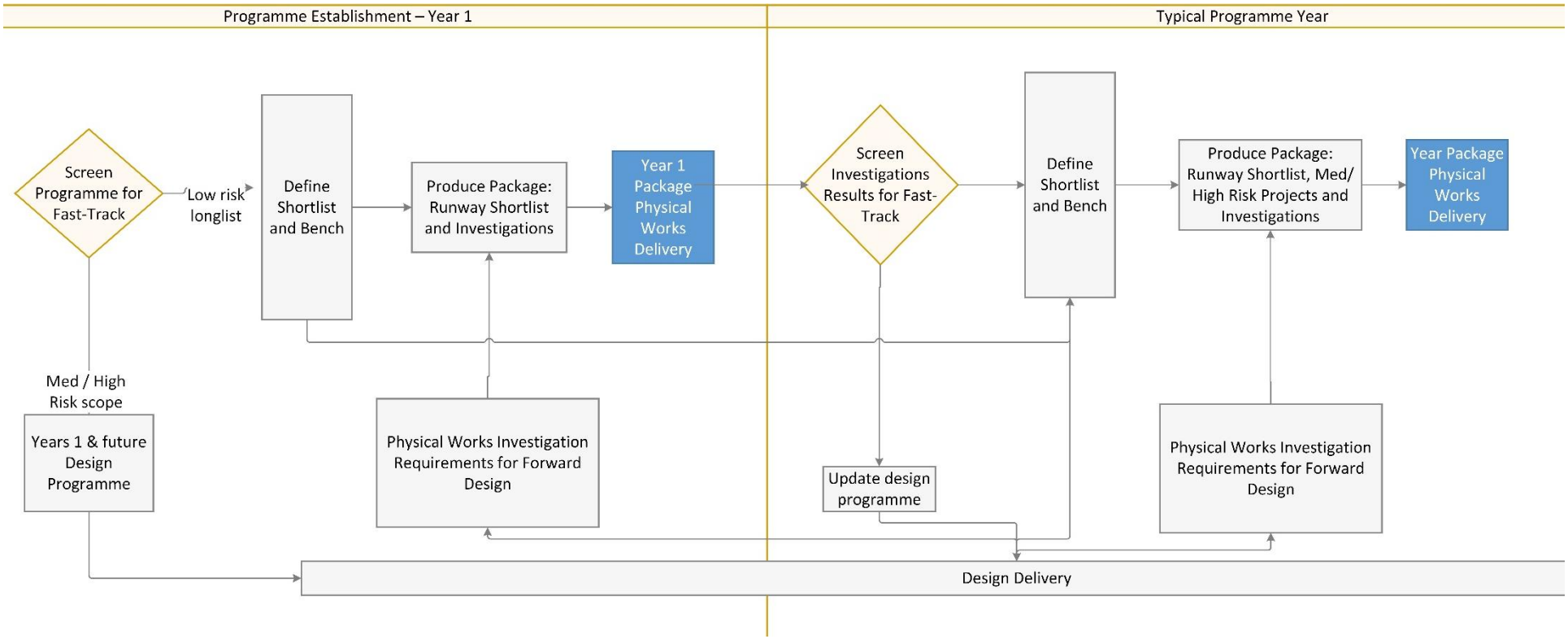

Figure 5: Concept Process for programme delivering a mix of risk profiles

A programme approach also presents an opportunity to use integrated systems to capture data obtained from these larger programmes of work (cost /asset condition/ results from investigations). It is important that this data is used to feed back into the asset management systems to inform future project and programme delivery.

There is also an opportunity to review and improve the delivery of MSQA for construction contracts. This could include utilising common technology platforms for contract communications such as Procore and potentially include combined construction monitoring teams, for example one Engineer to Contract across multiple contracts, with a pool of identified Engineer Representative's and Engineer Representative's Assistants.

Programmes of work could also facilitate the use of a carbon calculator to baseline Wellington Water's existing programme and to measure and understand the potential for carbon reduction. This could also be used to inform decision making about methodology.

There are opportunities to align renewals planning with Councils' roading programme and other utilities to minimise disruptions to customer and reduce reinstatement required.

With the increasing volume of forecasted work that Wellington Water is proposing to deliver, togetherwith the transition to Water Reform occurring over the next three years, there will be a further need to deliver works efficiently and make the best use of limited consultancy and contractor resources.

9. CONCLUSIONS

The programme has been hugely successful delivering greater than anticipated results and enabling the building of relationships across the Wellington Water Whanau.

Tackling renewals at an area level has many benefits including:

- Increases in efficiencies resulting in reduced costs/metre of pipe renewed and reduced consultancy fee percentage allow for more work to be undertaken for the same total budget.
- Provides greater certainty and visibility within the market of a long term, visible programme of work and subsequently encourages suppliers to scale up their operations.
- A mechanism to promote and encourage the consideration and use of trenchless technology which also has a range of benefits including:
    - A wider range of options are considered up front
    - Reduced disruption and disturbance,
    - Reduced health and safety risks as excavations are decreased and subsequently truck movements.
    - Reduced carbon during construction.
- More in depth and widespread engagement with stakeholders and the community is enabled through a programme approach.

Supplier panels enable procurement to be streamlined, however it is necessary to ensure that the panels enable access to a diverse, wide range of consultants and contractors.

The processes and standard design details/guidance developed as part of this programme are currently being implemented across the wider CAPEX programme and being formally brought into the formal Wellington Water delivery framework.

The Consultant and Contractor panel model that Wellington Water operates enabled this approach and for all parties to be flexible in their work together. This programme would not have been able to be implemented had it been required to go out to the open market to procure these works.

The work undertaken as part of this programme sets Wellington Water up for successful delivery for the future increases in programme and transition during water reform.

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