

Date: Tuesday, 18 March 2025
Time: 2.00pm
Meeting Room: Room 1, Level 26
Venue: Te Wharau o Tāmaki - Auckland House
135 Albert Street
Auckland

**Komiti mō te Moni Whiwhi, mō te Whakapaunga
me te Uara /
Revenue, Expenditure and Value Committee
OPEN ATTACHMENTS**

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Case Study

Milford Steps Renewal

1. Executive summary

This project comprised the renewal of four sets of concrete stairs originally constructed in the 1960's and the associated enabling works along the adjoining walkway and seawall. The stairs provide access from the Milford Beach walkway (Milford trunk sewer) onto the beach at four separate locations along a 500m stretch of coastline between Muritai Road and Audrey Road (Appendix 1).

This case study sets out a retrospective review of this project from conception through to delivery, presenting a summary of related activities and overall costs.

Key learnings from this project which are being applied to future projects are set out in this case study. They include the need for a clearly defined problem definition at project conception, the need for robust value engineering discussions when considering design options, and clarity with respect to acceptable levels of risk for the asset owner and including minimum viable design and asset design life.



2. Project Overview

2.1 Project Background:

An asset condition assessment completed by the Engineering Assets and Technical Advisory department in 2021 confirmed the subject stairs were reaching the end of their useful life and were starting to present unacceptable health and safety risks for users. The asset condition assessment noted that there had been minimal maintenance completed since the stairs were constructed in the early 1960's and there was an absence of handrails on two sets of stairs which are needed to comply with the relevant NZ standard for outdoor structures.

The stairs did not have a current resource consent meaning maintenance could not be completed as a permitted activity. Resource consent was also required to permit longer term occupation of the coastal marine area which is a requirement of the Resource Management Act.

A renewal project which included four sets of stairs and enabling works to the adjacent walkway and seawall was initiated in consultation with the Takapuna and Devonport Local Board. This project was subsequently included within the coastal asset renewals work programme approved by the Parks Environment Planning Committee in 2023.

Milford Steps Renewal

Project review and lessons learnt

A strategic assessment and business case was prepared in accordance with Councils Investment Delivery Framework (IDF). The strategic assessment confirmed the need to obtain a resource consent (coastal permit) with specific reference to a significant ecological area overlay (Marine 1) and an outstanding natural feature (ID 200) under the Auckland Unitary Plan.

This directed that any renewal works would be classified as a non-complying activity. In effect, this highlighted the high ecological and geological values of this site which needed to be safeguarded and specifically reflected in any works methodology proposed. This is a key consideration reflected in some of the learnings presented later in this case study.

Procurement for this project was guided by the Investment Delivery Framework and focused on the availability and use of local suppliers. Hutchinson Consultants was selected to assist with design and, following a competitive tender process Fort Projects were selected as the successful contractor. Both companies are local suppliers and are listed on Councils preferred supplier panels and have master services agreements.

2.2 Project Scope:

Scope	Deviations	Comments
Renew the steps from the pedestrian access path onto the foreshore. SAP IDs: 1000189122, 1000189123, 1000019753 and 1000117260	Enabling works required, to the adjacent walkway (trunk sewer), seawall, and excavation into basalt shore platform.	The 'seawall' is the Watercare owned trunk sewer structure. The walkway on top and stairs are owned and maintained by Parks and Community Facilities.
Assess the condition of the existing stairs to recommend options for repair or renewal.	No deviation	
Preparation of a resource consent and review of Building Consent requirements	No deviation	
Engineering Design including preparation of design drawings, specifications, and tender pack.	No deviation	
Apply and obtain Watercare works over permit	No deviation	
Tender and engagement of a suitable contractor to undertake the physical works	No deviation	
Construction/delivery in accordance with council approved plan	No deviation	
Site supervision and MSQA (management, surveillance, and quality assurance) over construction phase	No deviation	

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Project review and lessons learnt

The strategic assessment considered a range of options to renew the coastal stairs. These included:

- a) **Do nothing** (i.e. continue to sweat the asset). This was discounted due to the safety considerations coupled with Councils requirements as an asset owner to maintain our structures in good order. This is an exceedingly high use walkway, and the steps serve two principal functions. Firstly, access to the beach areas from the walkway, and return access from the beach areas back onto the walkway. This is crucial for pedestrians who chose to walk and navigate the beach areas as part of a coastal walk but need to gain access back up onto the walkway; as the incoming tide reduces navigable dry high tide space. The average height of the seawall in these locations when sand levels are low is between 1.2m – 2m, so not easily climbed for most beach users if the stairs were not present.
- b) **Demolition and removal of the stairs** (i.e. removal of the stairs and do not replace). This was discounted due to the safety considerations related to beach users needing to exit the beach areas during higher tides. Demolition and disposal would have incurred a cost of \$16,000; excluding the costs to remediate the hole in the seawall where the stairs were once located.
- c) **Replacement timber stairs** (i.e. replace concrete stairs with timber stairs). This option was discounted primarily because of durability and design life considerations with reference to the need for maintenance and replacement post severe storm events. Timber stairs in this environment were determined to have a design life of approximately 5 years and would have cost approximately \$15,000 per set to construct (excluding enabling works). This equates to \$60,000 in total if all 4 sets were replaced. Demolition and disposal of the concrete stairs may have also been required at an estimated cost of \$16,000. Although the immediate cost outlay of timber stairs was a cheaper option than concrete stairs, when considering a 35 – 50-year useful design life (if this were to be aligned to the duration of the resource consent sought), this could have resulted in a total whole of life cost of \$420,000 (based on 2025 values) over 35 years.
- d) **Replacement beach access ramps** (i.e. remove concrete steps and replace with a concrete ramp parallel to the seawall structure). This was discounted due to the design requirements requiring a 1:12 ramp grade to meet code. As a result, this structure would have occupied a large additional area of the coastal marine area, which may have been challenging and costly to obtain resource consent for, noting the ecological and geological values of this stretch of coastal are required to be protected. The total cost for a beach access ramp (construction only) was estimated to cost in the order of \$45,000 per ramp (excluding enabling works). If four concrete beach ramps were installed the total construction costs would rise to approximately \$180,000, plus unknown costs for additional resource consenting.
- e) **Encapsulate the existing stairs with concrete** (i.e. to avoid demolition). This was discounted for several reasons in consultation with a structural engineer. This included reference to the current state of existing stairs, a lack of information to confirm how these stairs had initially been constructed, exposed steel requiring treatment or removal and concerns regarding the ability to adequately bond new concrete to older concrete which was considered difficult and risky due to chloride saturation. Encapsulation would have also increased the width and length of the stairs, thereby increasing the area of occupation of the coastal marine area, which is a challenging consequence to justify as part of a non-complying resource consent application. If this option were chosen, demolition and disposal costs of \$16,000 could have been saved, but durability of the new stairs could have been compromised, with uncertainty related to future maintenance requirements and costs and indeed design life.

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Project review and lessons learnt

- f) **Renewal of two sets of concrete stairs instead of four** (i.e. reduce total construction costs). This was discounted with reference to the fact that this is an exceedingly high use walkway, and the steps serve to provide equidistant access over a 500m section of coast. Provision for two access points over this length was not considered appropriate in consultation with the asset owner (Parks & Community Facilities) with respect to the health and safety of beach walkers potentially being trapped by the incoming tide, or during high tide storm conditions.
- g) **Renewal of four sets of concrete stairs** (like for like replacement). This option was selected in consultation with the local board and asset owner, noting current and envisaged future pedestrian access requirements. This option was also selected noting durability considerations (design life) and the fact that higher upfront costs could be balanced against minimal (if any) maintenance requirements over the minimum 35-year consented life and 50+ year design life. This had advantages when considering potential consequential Opex considerations for maintenance and repairs.

2.3 Stakeholders:

Stakeholders	Comments
Parks and Community Facilities (Auckland Council)	Asset owner (walkway and staircases)
Watercare	Asset owner (trunk sewer)
Devonport Takapuna Local Board	
Mana Whenua	
Engineering, Assets and Technical Advisory (Auckland Council)	Work programme owners, subject matter experts, project delivery

3. Project Execution:

3.1 Methodology

Auckland Council’s standard Investment Delivery Framework for capital project delivery was followed, as outlined in the below timeline. Gateway documentation was prepared in consultation with Parks and Community Facilities as the asset owner. Necessary approvals for key documentation (including the Strategic Assessment, Project Complexity Assessment, Business Case, Project Execution Plan, professional services and physical works contracts) were received from the Work Programme Lead as Project Sponsor and Delegated Financial Authority.

Necessary regulatory approvals were obtained prior to all physical works commencing on site including resource consent approval for a non-complying activity and Watercare works over approval.

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Project review and lessons learnt

3.2 Timeline

Schedule	Original baseline milestone	Actual completion of milestone	Comments
Strategic Assessment	December 2021	December 2021	
Business Case	February 2022 (preferred option)	March 2023 (final plan)	Updated following completion of preliminary design including high-level cost estimate
Preliminary Design (professional services)		March 2022	
Physical works contract awarded/Project Execution Plan		April 2023	
Project pre-start Meeting		April 2023	
Physical works completion	November 2023	December 2023	Minor delays in programme due to adverse weather conditions in coastal environment
Project handover and benefits realisation		February 2024	

3.3 Budget

Budget	Planned total	Actual Total	Variance
Overall budget	\$216,000	\$257,000	\$39,000
Increased spend	The coastal renewals budget is regional and risk-adjusted throughout the financial year. Increased spend was related to an increase in preliminary and general items, and enabling works associated with the four separate sites and the required physical works methodology.		
Savings	\$60,000 based on the original engineers estimate for the works and the awarded tender price. Anticipated cost savings through engagement of a local, Tier 3 consultant for professional services and award of physical works to a local contractor.		

A further breakdown of total costs, resources and respective activities is presented below:

1. Engineering design (**Hutchinson Consultants** who are a local supplier). Design of four sets of concrete stairs, including all design investigations, concept and detailed design, assistance

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with resource consent application, preparation of contract documentation and MSQA. **\$27,000.**

2. Preparation of a resource consent (for a non-complying activity) to enable the four sets of stairs to occupy the coastal marine area. Total fees include the resource consent lodgement and processing fees. **\$7,000.**
3. Physical works construction (**Fort Projects** who are a local supplier) for four sets of concrete sets of stairs, enabling works on the walkway and seawall and fabrication and installation of stainless-steel handrails. **\$192,000.** Total costs for physical construction included demolition and disposal costs, foundation preparation, establishment, and disestablishment at each of the four sites. An independent engineers estimate obtained for construction costs prior estimated \$260,000 for the four sets of concrete steps.
4. Council project management and engineer costs. These activities included resource consent preparation, programme, project and contract management, design reviews, physical works supervision as Engineers Representative Assistant and Local Board, Watercare and mana whenua engagement. **\$31,000.**

3.4 Challenges Faced

Restrictions related to the Auckland Unitary Plan overlays and subsequent resource consent obtained were reflected in the accepted works methodology of the successful contractor (Fort Projects). This included extreme care needing to be taken with site access, works within the coastal marine area and demolition and construction of the new stairs to limit impacts on the basalt lava flows and preserved fossil forest which is considered to be one of the best examples in the world. As a result, the construction practices methodology including demolition and site preparation were slower than would normally be expected, with the use of hand tools during demolition, due to the exclusion of larger excavator mounted equipment normally used on a project of this nature. This in turn contributed to higher overall costs for construction.

The work programme was also impacted by several coastal storm events during construction, requiring tidal control structures to be rebuilt post storm events before site works could resume.

3.5 Solutions Implemented

Challenges related to the ecological and geological values attributed to this site, were overcome with a works methodology which specifically set out methods to avoid any damage or degradation of these values, noting that this required the avoidance of heavy machinery, thereby extending the timeframes and associated costs of construction.

3.6 Results and Outcomes:

Key Deliverables	Comments
Renewal of four sets of concrete stairs, two of which had handrails installed to comply with the relevant NZ standard for outdoor structures.	Deliverables achieved in full and in accordance with the relevant resource consent conditions. The stairs as constructed have a 35 - 50-year design life and it is anticipated that no maintenance will be required for at least 35 years (likely 50 years), obviating the need for consequential Opex allocation post coastal storm events.

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4. Lessons Learned:

4.1 Application of the 10 Principles:

This project has been assessed against the ten delivery principles adopted by the Revenue Expenditure and Value Committee in February to determine how further consideration of each of these principles might have achieved better project outcomes. Key observations were:

- **Early problem definition and robust value assessment.** This could have better supported considerations related to the need for stairs, how many sets of stairs were actually required and council's accepted levels of risk in relation to design life, which are key factors contributing to overall costs.
- **Rightsizing our investment.** This could have assisted early conversations related to value considerations and what council was actually willing to spend in respect of the identified benefits.
- **Increase use of standard designs.** This project focused on delivering a 'like for like' renewal and as a result alternative options incorporating the use of standard designs were not considered.
- **Setting maximum prices.** Cost limits in addition to an engineer's estimate that was obtained, were not considered and set for this project. This in-turn limited consideration of a range of innovative and cheaper alternatives to solve for the problem of improved pedestrian access.
- **Factor in past supplier performance.** This was considered and the suppliers chosen had proven track records for work completed for Auckland Council.
- **Focus on local suppliers.** This was considered at project conception with local suppliers with proven experience selected.
- **Streamline processes and remove barriers.** Efforts were made to streamline construction process and associated timelines, but weather events and regulatory restrictions with respect to working in this coastal environment, made it difficult to accelerate works in order to save costs.
- **Manage consultation and consultancy carefully.** Consultancy costs were considered to be reasonable for this project with respect to the specified design, resource consent preparation and works supervision.
- **Independent assessment.** This project and the selected delivery method was not independently reviewed. This could have resulted in challenge related to the design life selected, value considerations and why a maximum price had not been set.
- **Continuous value assessment.** The application of a gateway process that includes proceed or stop decisions at each gate to continually ensure that the project is being delivered within the framework of the approved business case was not completed. This resulted in a lost opportunity to confirm whether value was being delivered at every stage for this project.

4.2 What Went Well:

With reference to the ten directives of Better Value Projects the below are highlighted as key areas that went well.

- The project engaged smaller local suppliers for both design and construction, with both companies listed on Councils preferred supplier panels and master services agreements.

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- The design life selected (35 – 50 years) with reference to whole of life costs means the requirement for future maintenance reliant upon consequential Opex is not required for at least 35 years (most likely 50 years).
- The stairs are now compliant with respect to the relevant provisions of the Resource Management Act and NZ standard for outdoor structures.
- The stairs are now safe to use with respect to relevant health and safety considerations.

4.3 What Could Be Improved:

The following are key areas that could have been improved.

- This project would have benefitted from an early problem definition discussion which included a robust value assessment and setting a maximum price. Instead, early design and option considerations for this project defaulted to a 'like for like' renewal approach devoid of reference to an acceptable level of spend.
- Although the approach of a 'like for like' renewal derived some benefits attributed to design life and structure durability, this low risk appetite approach limited the ability to consider minimum viable design alternatives including precast or prefabricated structures that could have been transported to site for installation, accepting these would still need to tie into the existing wall and would still require demolition of the existing stairs and removal of basalt
- This project applied a minimum design life of 35 – 50 years for the stair replacements, with a focus on durability. In hindsight, renewal options for structures with a shorter design life should have been explored with the asset owner. This could have resulted in reduced costs for construction, with accepted risks related to the potential for maintenance or repair post severe storm events. A matrix to consider a range of renewal options, attributable design life, risk acceptance and possible maintenance costs over 35 – 50 years could have assisted with this.

4.4 Improvement Actions:

A retrospective review of this project and what could have been improved has resulted in the following actions being applied to the coastal renewals work programme. .

- Completion of Coastal Asset Management Plan (AMP) with support via the recently formed Asset Management Centre of Excellence within the Engineering, Assets and Technical Advisory Department. This AMP ready for publication is intended to assist effective future decision making for coastal asset renewals, including defining the use and application of minimal viable products.
- A comprehensive review of the coastal renewals work programme to ensure the ten principles of Better Value Projects are applied from project conception to delivery. This includes a review of consultancy support to be provided across approximately 60 projects, ensuring there is a focus on local suppliers and better utilisation of internal expertise to reduce reliance on consultancy services. This process has already resulted in 6 projects being moved from Tier 1 consultants to smaller and more local providers, better suited to deliver Councils requirements.
- The requirement for business cases (in this case simple), that clearly identify benefits and a maximum project cost.
- Establishment of a Gate Zero requirement in addition to the Investment Delivery Framework (IDF), ensuring all projects are subject to a panel discussion focused on early problem definition and robust needs and value assessment. This panel discussion includes the programme manager, project sponsor, project manager, relevant stakeholders, relevant

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technical experts (internal) and the Chief Engineer. The outcome of this step confirms if the subject project should proceed to Gate 1 of the IDF or needs to stop.

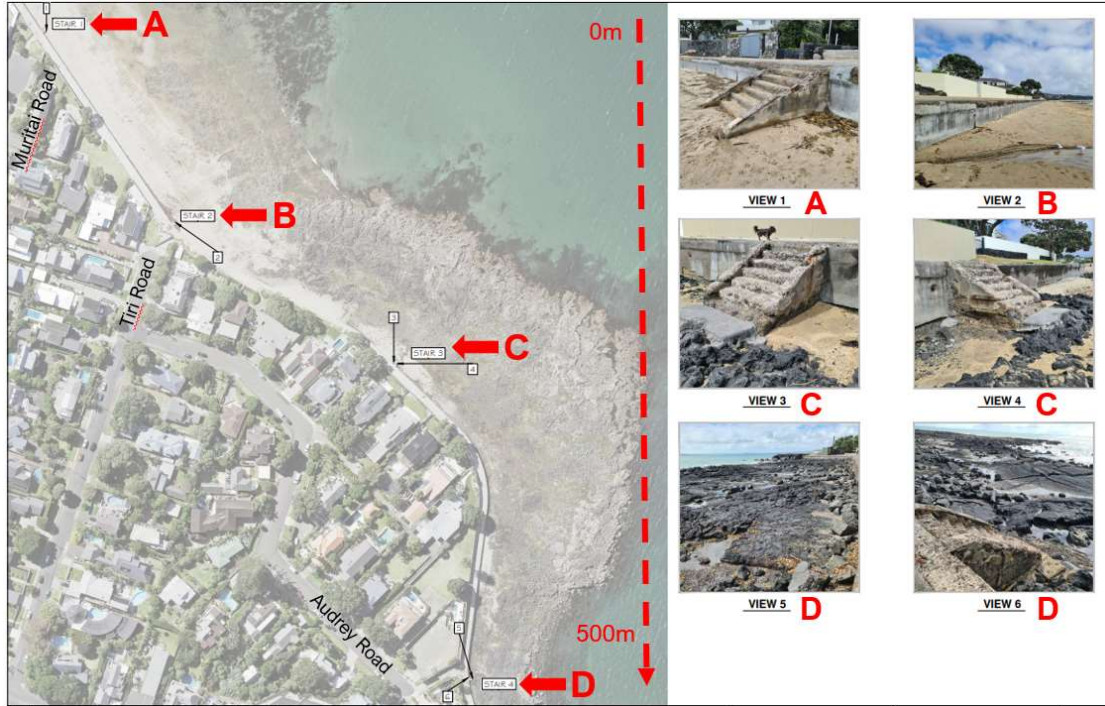
- Application of a gateway process that includes proceed or stop decisions at each gate to continually ensure that the project is being delivered within the framework of the approved business case.
- An agreed requirement for all projects to have specific demonstrable reference to whole of life cost considerations linked to critically and design life.
- Development of a comprehensive project management training package in collaboration with the EPMO. This training is being rolled out across all delivery staff in Engineering, Assets and Technical Advisory and focuses on council's IDF framework, project governance and key linkages to the better value project principles in delivery.
- Consideration of alternative procurement approaches for asset renewals in difficult locations e.g. consideration of Early Contractor Involvement (ECI) model to help establish the most cost-effective construction methods early in the design process.

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Appendices

Appendix 1. Overview of worksite and stair locations



Milford Steps, Case Study

Revenue, Expenditure and Value Committee

Paul Klinac

General Manager Engineering Assets and Technical Advisory

18 March 2025



Komiti mō te Moni Whiwhi, mō te Whakapaunga me te Uara / Revenue, Expenditure and Value Committee
Forward Work Programme 2025
 This committee deals with assisting the council to be cost effective and make financial savings. The full terms of reference can be found here: [Auckland Council Governing Body Terms of Reference](#)

Area of work and Lead Department	Pūnga / Reason for work	Committee role (whakatau / decision and/or tika / direction)	Expected timeframes Highlight the month(s) this is expected to come to committee in 2025												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Value for Money programme															
Section 17A reviews Value for Money	Council has a legal obligation under section 17A to review the cost-effectiveness of the delivery of our services	To receive updates and make decisions on the program of s17A reviews. <ul style="list-style-type: none"> P27 full facilities maintenance contract review update on local board engagement (April 2025) Marina Ownership Framework review update (April 2025) Building Consents review update (May 2025) Progress to date: Update and approval of terms of reference - February 2025 link to decision													
Group Insurance															
Insurance Strategy and Placement Risk and Assurance	Approve insurance strategy and then note outcomes	Council Group Insurance Renewal (March) Council Group Post Insurance Renewal Update (July)													
Service optimisation and reviews of value / effectiveness / performance															
Service and financial performance reviews	The committee has responsibility for reviewing outcomes and value obtained for spend as well as conducting reviews of the service and financial performance of individual council and CCO departments.	To undertake monthly service and financial performance reviews on service areas and departments, including: <ul style="list-style-type: none"> Building Consents Waste Solutions Environmental Services Licensing and Compliance Further reviews to be confirmed.													
Group Shared Services		To receive an update on the Group Shared Services program Progress to date: Update received February 2025 link to decision													
Better Value Projects		To receive updates on implementation of the Better Value Projects improvement program Progress to date: Update received February 2025 Link to decision													

Item 13

Attachment A

Item 13

Attachment A

Area of work and Lead Department	Pūnga / Reason for work	Committee role (whakatau / decision and/or tika / direction)	Expected timeframes Highlight the month(s) this is expected to come to committee in 2025												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Billing		Te receive an update on the work being done on streamlining Council's billing systems Report on outcomes of billing systems work													
Savings updates															
Savings updates	Quarterly savings update	Quarter 3 – May Quarter 4 – August Progress to date: Quarter 2 – February Update received February 2025 link to decision													
Procurement															
Waste Solutions	Procurement plan for the supply of refuse and recycling bins and bin recall, retrofitting and distribution services	Decision: to approve the procurement plan													
Healthy Waters	Healthy Waters Maintenance Contracts Variation – Making Space for Water	Decision: Approval of variation to add scope for Making Space for water and contingency for future years													
Healthy Waters	Healthy Waters - Small Water and Wastewater maintenance Procurement Award	Decision: Approval of Supplier Recommendation report for regional SWWS contracts for 5+3 years													

Completed

Area of work and Lead Department	Committee role	Whakatau / Decision
Pools and Leisure and Early Childhood Education - Savings update	Breakdown of savings and benefits expected to be achieved this financial year for both ECE and Pools and Leisure	Update received February 2025 link to decision