AECOM

AECOM IN NEW ZEALAND

BRINGING OUR CLIENTS' VISIONS TO LIFE

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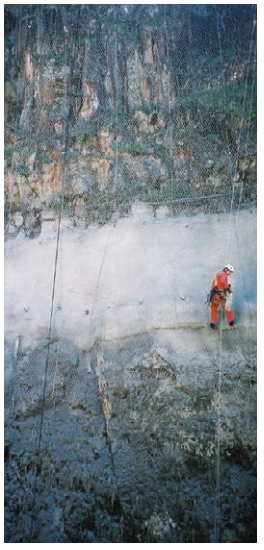



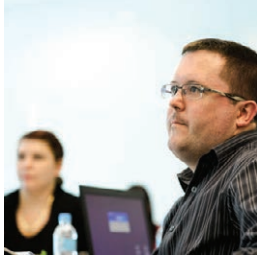

This book is dedicated to all employees, past and present, of AECOM in New Zealand and its legacy companies. Your hard work and commitment to excellence have made our success possible.

Thank you also to our clients and trusted partners for your support and collaboration in creating some of New Zealand's most iconic buildings, feats of engineering and future plans illustrated in this book.

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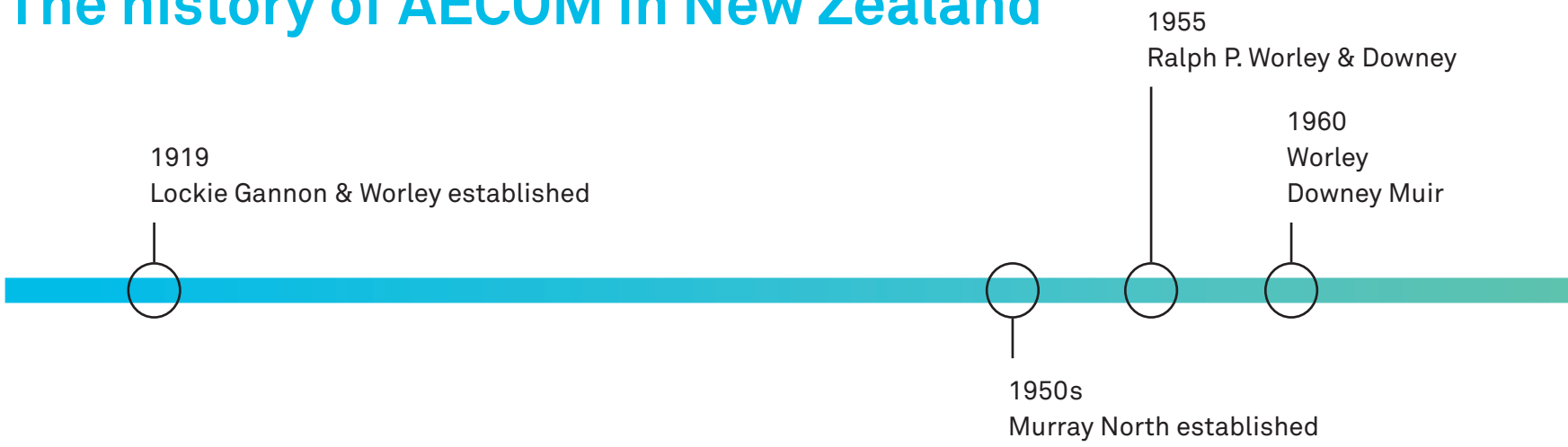
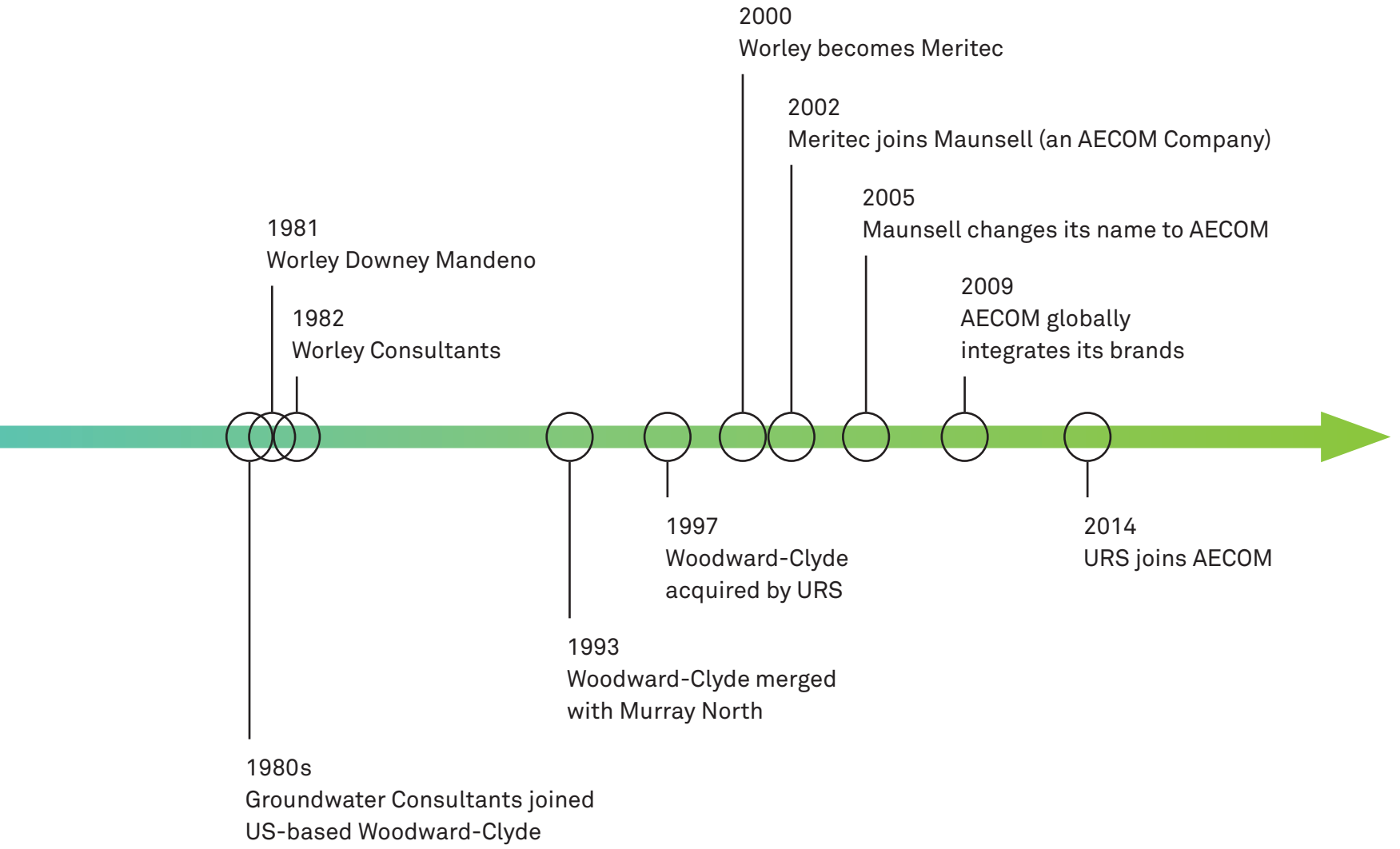
The history of AECOM in New Zealand



The history of URS in New Zealand


2000
Worley becomes Meritec
2002
Meritec joins Maunsell (an AECOM Company)
2005
Maunsell changes its name to AECOM
2009
AECOM globally
integrates its brands
1981
Worley Downey Mandeno
1982
Worley Consultants
1997
Woodward-Clyde
acquired by URS
2014
URS joins AECOM
1993
Woodward-Clyde merged
with Murray North
1980s
Groundwater Consultants joined
US-based Woodward-Clyde

Global expertise, Kiwi solutions

From road, rail, energy and water systems to enhancing environments and creating new buildings and communities, our vision is to make the world a better place.

#1 World's no.1-ranked engineering design firm by revenue, according to *Engineering News-Record's* annual industry rankings.

150 Serving clients in more than 150 countries.

100,000 Nearly 100,000 dedicated professionals globally.

$20B Annual revenue of approximately US$20 billion during the 12 months ended 30 September 2014.

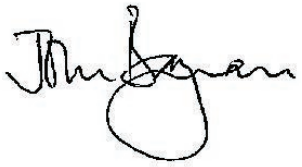
From humble beginnings in the early 20th century, AECOM New Zealand has grown to a team of 800 professionals, working across multiple disciplines in engineering consultancy and technical services. Since the beginning, our focus has remained the same: to deliver excellence to New Zealand and support the nation's growth.

In late 2014, AECOM took a giant step towards fulfilling its vision to become the world's premier fully integrated engineering design firm. The merger with legacy URS is the largest in the industry's history, bringing our global network to 100,000 people. We have further diversified and broadened our market presence globally, and, in doing so, cemented our commitment to and passion for New Zealand.

As a valued client, I would like to share with you the breadth and depth of the 'new AECOM's' offering. The projects included here illustrate our ability to draw on global technology and innovation to enable our clients to achieve their vision. We are proud of our history of creating, sustaining and enhancing the built, natural and social environments within New Zealand borders and beyond.

Today, we have a stronger ability to help you realise your visions. By fusing our global reach with local knowledge, we will continue to deliver innovation with technical excellence.

Welcome to the 'new AECOM', we're looking forward to working with you.



John Bridgman
Managing Director, AECOM New Zealand

OUR CITIES

Throughout New Zealand's cities, you'll find evidence of AECOM working towards our common purpose: to positively impact lives, transform communities and make the world a better place.

From advanced public transport and water systems in major commercial centres, to once-in-a-lifetime engineering opportunities, and from projects of local and national importance, to facilitating the growth of regional centres - AECOM is working for you in our cities.

AUCKLAND
Connected

Three major infrastructure projects from the past 50 years stand out to Auckland Council's Chief Executive, Stephen Town, as shaping New Zealand's economic powerhouse. Auckland's Harbour Bridge opened up the North Shore, the Mangere wastewater treatment plant facilitated the city's growth, and the Southern Motorway enabled the expansion of South Auckland and the development of industry in Penrose and Otahuhu. He believes there are three current infrastructure projects that will shape and influence Auckland's next 50 years – AECOM is proud to be a part of all three.

Auckland Electrification Project

On this cornerstone project, AECOM was the lead designer, with added construction phase responsibility for the inspection and acceptance of installed infrastructure for the electrification of 185 kilometres of rail tracks across Auckland. Cross-regional collaboration saw the project benefit from skills and specialties from Australia and the United Kingdom. Working with Swiss-based manufacturer Furrer + Frey, our team developed the design for a conductor beam system for use within Auckland's main underground rail terminal and approach tunnels. Significantly, this is the first time a solid conductor beam has been installed in a main line underground terminal station in Australasia.

The scope of work included: overhead wiring (OHW) feeding layout and sectioning, detailed design of feeder stations and traction selection cabins, earthing and bonding strategy and design, risk management, conductor beam design, OHW basic design, OHW allocation design, OHW construction design, engineering management, engineering assurance, acceptance and certification.

Central Interceptor

Now in the design stages, Watercare's Central Interceptor (CI) is planned to be a new 13km-long, 4-5m diameter wastewater tunnel from Western Springs to the Mangere wastewater treatment plant, lying between 22m and 110m below ground level. It will cross the Manukau Harbour at a depth of approximately 30m below the seabed. The project will provide resilience to the existing wastewater network through the duplication of ageing assets and reduce the number of current combined sewer overflows. Construction of the main CI tunnel is due to commence in 2018.

Auckland CBD Rail Link Study

Auckland's Central Business District is forecast to face constraints on growth due to the limitations of the existing public transport infrastructure.

The CBD caters to more than a quarter of a million people every day, but in this high growth region the main downtown rail and bus station, Britomart, is expected to reach capacity by 2020.

AECOM was part of a joint venture commissioned to complete a feasibility study to identify a preferred route for what would be a landmark project - an underground railway, which would link Britomart to the North Auckland line in the area of Mt Eden.

The scope of services included confirming the route and station locations; production of concept designs; development of a business case; assessment of environmental effects; and Notices of Requirement documentation for an underground rail line running through the Auckland Central Business District.

GROWING

HAMILTON / WAIKATO

In the Waikato, AECOM is aiding growth – not only business, but economic and strategic growth too. Pioneering road and bridging projects are opening up the agricultural and business centres of the Waikato and Bay of Plenty to Auckland and beyond, while our research projects analyse the needs of projected population growth, addressing the Waikato's long-term sustainable growth.

SH1 Cambridge Section of the Waikato Expressway

The Cambridge section is part of the 102km Waikato Expressway and involves the construction of 16km of four-lane median-divided expressway. Once complete (planned for late 2016), it will feature the 200m long and 40m high Karapiro Viaduct, three interchanges and four other bridges. Drawing on our technical skills, the Karapiro Viaduct features an award-winning bridge design that's never been seen before in New Zealand. A more economic and structurally efficient bridge, it delivers direct cost savings to the country.

Through our role leading and managing the development of the tender design, detailed design, design review and approval processes, we've helped to shape an important strategic transport corridor for the Waikato region, connecting Auckland to the agricultural and business centres of the Waikato and Bay of Plenty.

Hamilton Southern Links Project

This project identified a preferred urban arterial and state highway network in and around the south of Hamilton to serve the population growth in the area for the next 50 years.

The project identified and protected a preferred route for future provision of 20km of new state highway and 10km of urban arterial routes to link to existing state highways and the Waikato Expressway. Extensive environmental investigation and community consultation was undertaken as part of the project.

LINKING TAURANGA

Some of New Zealand's largest roading projects have taken place in Tauranga, reflecting its local and national importance as a strategic transportation corridor for the Bay of Plenty region. Through our work on the Tauranga Eastern Link and Tauranga Harbour Link we have demonstrated our cross-disciplinary skills, capability and collaborative working.

Tauranga Harbour Link

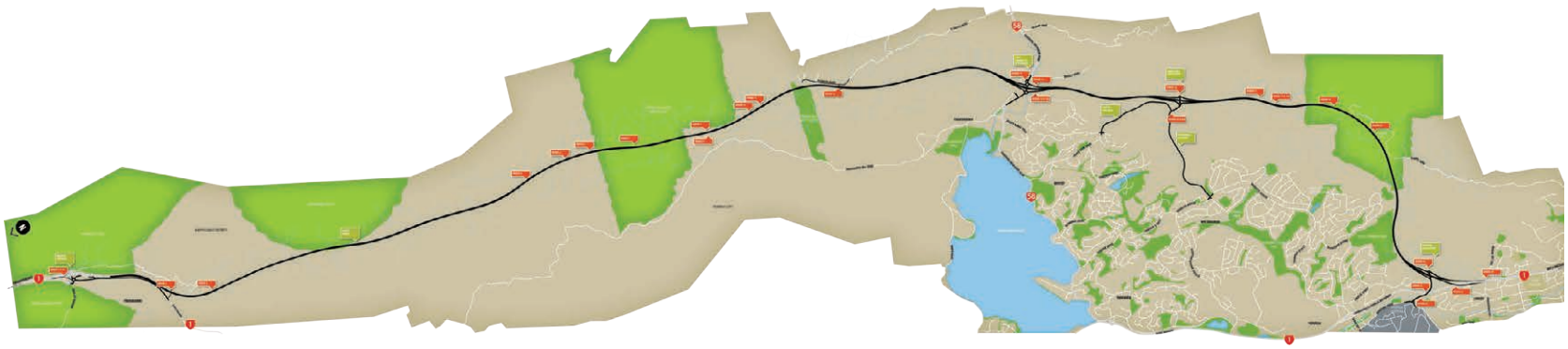
The multi-award winning Tauranga Harbour Link was, at the time of completion in 2009, one of New Zealand's largest roading projects. As the Principal Consultant for the design and construction phases of Stage 2, we were responsible for structural, civil and geometric design of the main alignment, ramps and local road connections. In spite of the uniquely challenging conditions, including heavily congested and environmentally sensitive areas, the project was still completed three months early, with minimal traffic disruption and under budget.

Tauranga Eastern Link

The Bay of Plenty's largest roading project, the Tauranga Eastern Link is a highway recognised by the New Zealand Government as a Road of National Significance and a key strategic transport corridor for the region. When complete, it will enable more direct access to the Port of Tauranga, reduce congestion and travelling times, and increase safety. Due for completion in 2015, the 23km four-lane median-divided highway includes approximately 550,000m² of new road, over 3,000,000m³ of earth moved, seven bridges and extensive landscaping involving the planting of approximately 300,000 native plants.

GATEWAY TO WELLINGTON

Transmission Gully will create a major gateway to New Zealand's capital city and the wider Wellington area. An important strategic link, the benefits are extensive – from ensuring projected capacity problems with the existing roading network are addressed, to enabling economic development through providing a cost-optimised route for better movement of freight and people.



Transmission Gully

A defining New Zealand project, Transmission Gully represents a once-in-a-generation opportunity to be involved in the creation of an iconic gateway to the Wellington region. As designers, we'll be helping to shape the 27km four-lane expressway from MacKays to Linden.

The expressway involves three grade-separated interchanges, and 26 structures including a 270m bridge at Cannons Creek. Highly complex, the design accommodates 11 different geological terrains inside a seismically active zone. The steep surrounding terrain will require large-scale earthworks.

The motorway, which is scheduled to open in April 2020, will create a benchmark within New Zealand's roading sector.

REBUILDING CHRISTCHURCH

In 2010 and 2011, Christchurch's landscape changed forever. The February 2011, magnitude 6.3 earthquake reduced parts of the city to rubble, damaging vital infrastructure and widely impacting on Cantabrians' lives. Yet, the city's rebuild is taking shape, developing Christchurch into a vibrant city of exciting and creative engineering solutions. AECOM is proud to be a part of it.

Stronger Christchurch Infrastructure Rebuild Team (SCIRT)

Following the Canterbury earthquakes of 2010 and 2011, SCIRT was formed in September 2011. SCIRT is expected to run until December 2016 and to deliver $2B worth of essential infrastructure rebuild. The work SCIRT is undertaking includes approximately 300km of damaged wastewater pipework, 124km of damaged water mains, 895km of damaged roads, and associated stormwater systems.

Work has included leading one of the design teams (in partnership with Jacobs), completing nearly 70 projects with an estimated total construction value of $220M; providing designers for other teams within SCIRT; providing external design support for specialist work and peer reviews; and also providing design services for temporary works for some SCIRT projects.

Prior to the establishment of SCIRT, the recovery was managed by the Infrastructure Recovery Management Organisation (IRMO) which was set up following the September 2010 earthquake. During this initial phase of the recovery, design services were provided to the MacDow Fletchers joint venture for repair works to badly damaged areas of Burwood, Dallington and eastern areas. This also included emergency repairs of major infrastructure, such as the Woodham Road trunk sewer – one of the largest wastewater mains in Christchurch.

Canterbury Earthquake Recovery Authority (CERA)

AECOM completed over 40 hazardous material inspections of buildings for Canterbury Earthquake Recovery Authority (CERA) in the former Christchurch Central Business District (CBD) and over 1,100 inspections in the Residential Red Zone following the Canterbury earthquakes.

The inspections assisted CERA personnel and subcontractors to identify hazardous materials such as asbestos and safely remove it prior to structure demolition. Additionally AECOM assisted CERA to negotiate purchases of buildings impacted by hazardous materials.

The Metro Sports Facility

The Metro Sports Facility is an anchor project identified in the Christchurch Central Recovery Plan (CCRP). It will be a world-class venue and centre of excellence, accessible to people of all ages, abilities and sports skills.

Providing aquatic, indoor sports and leisure facilities, it will cater for the day-to-day needs of the recreational, educational and high-performance sporting communities, and also host national and international events.

The location of this major facility within the central city provides a catalyst for Christchurch central recovery and revitalisation, a focal point and an attraction for local and international visitors. AECOM is providing project management and quantity surveying services on this project.

BUILDINGS AND PLACES

Over 150 AECOM people work across the country to transform New Zealand's buildings and places. Some of the iconic projects we have worked on include Auckland's Britomart Transport Centre, the University of Waikato's Student Centre and Te Uru Taumatua, an iwi meeting house in Whakatane.

Our diverse projects are united by one common cause: to deliver our clients' projects in an innovative, cost-effective way.

BUILDINGS

Auckland Art Gallery, Auckland

The Auckland Art Gallery development saw the retention and refurbishment of the existing heritage buildings (Wellesley, Kitchener and East Gallery dating from 1887, 1888 and 1916 respectively), and the demolition and removal of all other facilities and buildings on site. It also involved the construction of new facilities around and interlinked with the existing heritage buildings.

AECOM was engaged on this project for full professional design services for the electrical, audio visual, communications, fire protection and hydraulic services.

The new art gallery provides an additional 50% of gallery space than present, new art storage allowing all present onsite and offsite storage to be housed, conservation areas, café, auditorium, library and a members' lounge. A 5-star Green Star rating equivalence was achieved. The completed development provides an overall floor area of 13,000m^2 from the existing 5,200m^2.

Waikato District Health Board, Waikato

The Waikato District Health Board is undertaking an ambitious series of upgrades and new construction of clinical buildings. It was identified that the existing electrical infrastructure did not have sufficient capacity for the increased load nor was it able to provide the level of reliability required for a major hospital. AECOM was engaged to provide design and commissioning services (electrical, mechanical, acoustics and architecture) for the upgrade of the site-wide electrical infrastructure, including standby generation.

Containment Lab, Wellington

A major disease outbreak would halt trading of New Zealand's $20 billion animal products export industry. With the prioritisation of biosecurity by the Minister for Primary Industries, AECOM has a crucial role in the delivery of a $65 million high-security laboratory.

Considered a necessity rather than a luxury, this world-class bio-containment laboratory will boost New Zealand's ability to cope with large-scale animal disease outbreaks and emergencies.

Acting as the independent technical specialist, the AECOM team will be integral in tying together all phases and elements of the project. In addition to the local services, AECOM specialists, based in the United Kingdom, are contributing technical advice based on their experience in delivering the world-leading Pirbright Institute.

ARCHITECTURE

Endeavour School, Hamilton, and **Shotover School,** Queenstown

AECOM has provided all of the design services for two of New Zealand's newest primary schools. The modern open learning spaces for both Shotover Primary School in Queenstown and Endeavour Primary School in Hamilton have been designed to support students and their teachers in the development of skills, knowledge and attitudes to equip them for success in the 21st century. In addition to architectural services, AECOM is also providing structural, civil, geotech, planning, mechanical, hydraulics, electrical, ESD, security, comms, acoustics and fire protection.

Bryant Trust, Hamilton

Currently at concept design stage, AECOM is developing a multi-storey office building for the Bryant Trust. As befits this well-respected, philanthropic organisation with a high profile in the Waikato, the building is designed to be a significant urban design contribution to the CBD.

AECOM is providing architecture services, project management, civil and structural engineering, geotechnical engineering and building services engineering to help the Bryant Trust realise their vision of a flagship commercial office building.

ARCHITECTURE

Student Centre, Hamilton

AECOM, in association with Warren & Mahoney, was commissioned to create a social, cultural, physical and "virtual" hub for the University of Waikato, where students and staff could easily meet, interact and learn from each other. Multi-award-winning and one of the first education buildings in New Zealand to be awarded a 5-star rating by the NZ Green Building Council, the Student Centre blends powerful design with leading-edge technology.

The refurbished library design incorporates Environmentally Sustainable Design (ESD), ensuring the building is economically, environmentally, culturally and socially sustainable. It also allows the university to adhere to its commitment to pave the way in reducing carbon footprints for tertiary institutions.

Sympathetic to its surroundings, the extensive alteration and addition successfully integrates this new generation library into the existing campus – through opening up the building, vistas are created to the unique natural green environment of the campus.

Awards:

- *Merit*: Property Council New Zealand Coffey Projects Education and Arts Property Award
- *Winner:* NZ Institute of Architects Local Architecture Awards - Education

PROGRAMME COST MANAGEMENT

Te Uru Taumatua, Whakatane

Net zero energy; net zero waste; net zero water consumption; no use of materials or products with harmful lifecycle characteristics; a high quality healthy internal environment supporting a just and equitable society; designed to be democratic with accessibility for all capabilities.

These are the qualities of Tūhoe Te Uru Taumatua, the new centre of governance and meeting place for the iwi in Taneatua, near Whakatane in the North Island.

Designed to the stringent and challenging criteria of the international Living Building Challenge (LBC), the recently completed, award-winning project is New Zealand's most advanced sustainable building and the first LBC project in New Zealand – a reflection of Tūhoe's commitment to the environment.

A culturally and environmentally rich project with a strong social drive, Te Uru Taumatua was designed by architects Jasmax, built by Arrow Construction, with contract administration and cost consultancy services carried out by AECOM.

Award:

- *Winner:* Property Council Green Building Property Award and Special Purpose Property Award 2014

Wellington Airport Cost Management, Wellington

A multi-storey 278-space carpark, and a 122-room 4-star hotel to be built at Wellington's International Airport are among a number of projects aiming to meet the growth forecasts for the country's capital.

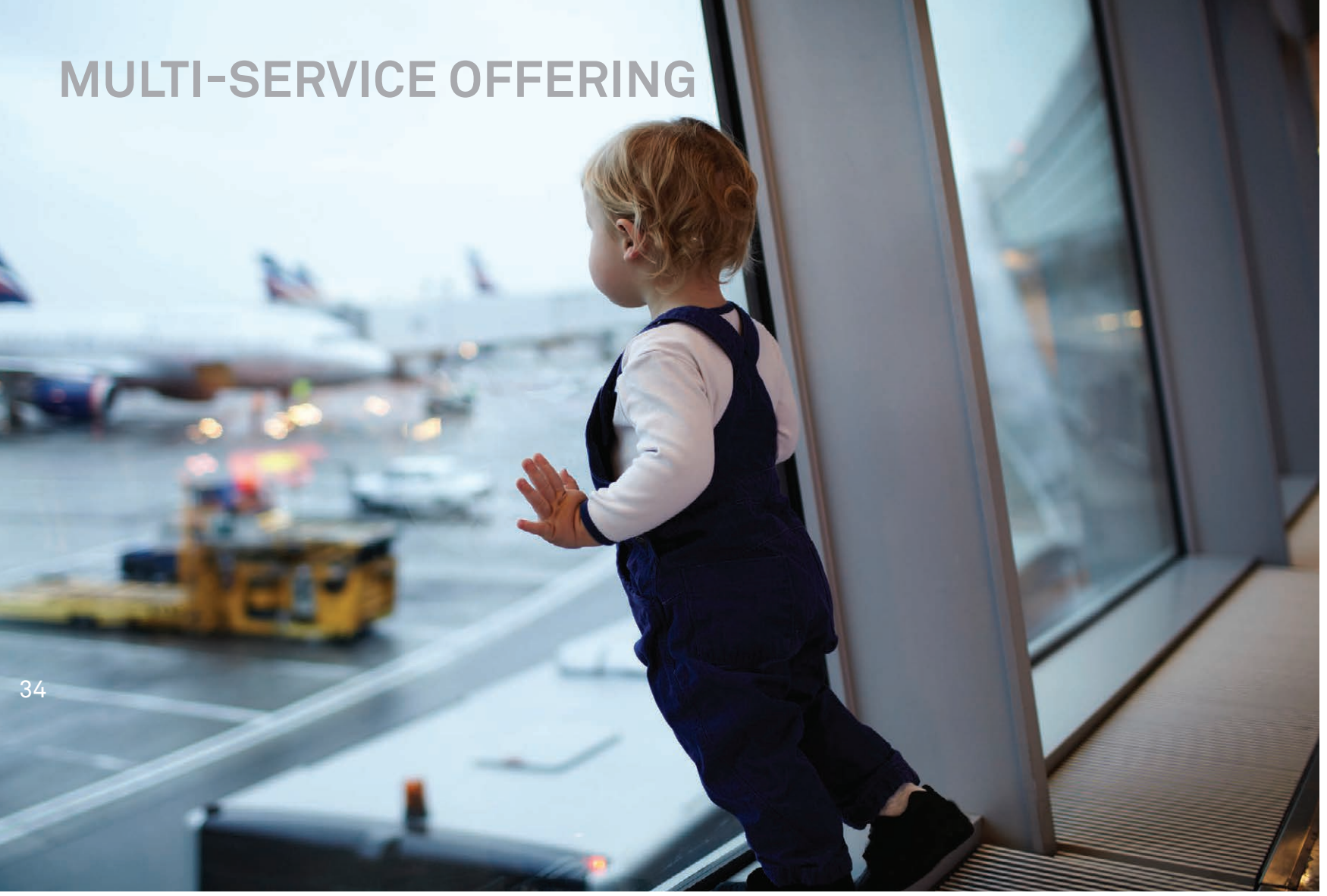
Building on an already established relationship, AECOM has been contracted to deliver the programme cost consultancy on this important development in the country's capital.

Waterfront Hotel, Auckland

AECOM's appointment as Quantity Surveyors for a landmark Auckland hotel is testament to global experience and capability in hospitality and hotel development; a close working relationship with AECOM colleagues in Beijing; and local knowledge and expertise.

China's Fu Wah Group is building the six-level 25,000m^2 190-room hotel with three restaurants, and a spa, pool and fitness centre. The Park Hyatt will be built on Auckland's waterfront - opening 2017.

MULTI-SERVICE OFFERING



Auckland Airport Expansion Programme,
Auckland

AECOM is offering a multitude of services to Auckland International Airport Limited for their expansion programme after being appointed to this significant project on the basis of global experience, local knowledge and our commitment to personal relationships. The works include cost management, programme and project management, health and safety advisory services, asset management, Business Information Modelling (BIM) consultancy, and utilities design. This project will further establish AECOM as a premier airport consultancy.

INDEPENDENT REVIEWER

Men's Correctional Facility, South Auckland

The 960-bed, $250M men's correctional facility was constructed under a Public-Private Partnership contract between the Department of Corrections and Secure Future Wiri Limited (the contractor). The facility will be operated by Serco for the next 25 years.

AECOM was appointed as the Independent Reviewer to conduct a significant number of tests during construction and commissioning. Scope of work included ensuring the facility was strictly built and commissioned according to the specified works schedules and fit for operation prior to prisoner occupancy.

URBAN DESIGN

Sunnyheights Masterplan, Orewa

AECOM has been engaged by ChangDa International to develop the masterplan for a residential community in Sunnyheights, Orewa, north of Auckland. This site has been identified as a Special Housing Area by Auckland Council supported by AECOM's due diligence study. The site is earmarked to provide a diverse community with a mix of housing types, high quality open space and shops. When completed, this community will provide over 600 homes, with 60 of them affordable homes for the Auckland housing market.

Mason Heights Stage 2 Subdivision Layout, Warkworth

Kervus Property Group has engaged AECOM to provide an urban design lead subdivision layout for Stage 2 of Mason Heights in Warkworth.

The urban design lead approach and the proposed layout has gained the support of Auckland Council. When completed, this project will provide up to 150 homes in a high quality, well-connected community setting within the unique landscape of Warkworth.

SPATIAL DESIGN

Spendvision, Auckland

During a period of growth, Spendvision sought to consolidate multiple office locations into a single local headquarters. The planning strategy employed ensured that hard fit-out elements were located immediately adjacent to the central core. This left a flexible zone, or racetrack, around which workspaces can be added as and when required, with individual workspaces enjoying good proximity to natural light.

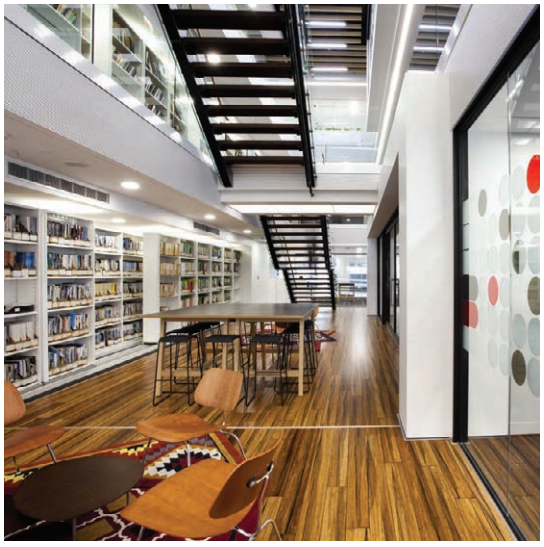
The new workplace environment supports a wide variety of workstyles from coders, to marketing and sales professionals, to a help desk. A tenant stair was incorporated to encourage a unified culture. Finishes in the café are deliberately industrial to ensure the space is differentiated from the main workspace. Subtle reference to the services and products that Spendvision represents were incorporated into the design.

Air New Zealand, nationwide

Following the successful introduction of a self-service customer experience for international travellers at check-in at its flagship port (Auckland International Airport), Air New Zealand has engaged AECOM to plan, design and deliver a roll out of the new model to regional airports, including the main Tier 1 domestic terminal in Auckland.

This will involve the standardisation of the design to create a kit of parts allowing as many aspects of the design as possible to be pre-fabricated off-site to minimise disruption within live terminal environments.

AECOM is involved in feasibility and planning studies for each port, which vary from new build or terminal extensions (still on the drawing board) to terminals that are decades old and the numerous infrastructure challenges this presents.



AECOM House, Auckland

A move to consolidate several satellite locations under one roof gave AECOM the perfect opportunity to rethink its work environment, especially with respect to where and how people worked.

The design of three levels within AECOM House actively reinforces the fact that architects, quantity surveyors, project managers and building engineers are in one big building group, encouraging the cross-pollination of ideas.

TRANSPORTATION

Travel by land, sea or air in New Zealand and you will encounter transportation systems and facilities that AECOM's transportation team has managed, planned, engineered, designed and maintained for the benefit of our communities.

Our transportation professionals have successfully won and delivered some of New Zealand's largest and most important projects, including the SH1 Northern Gateway Toll Road, and the Upgrading Cape Reinga project.

ROADS / HIGHWAYS

SH1 Northern Gateway Toll Road, Auckland

A pioneering project, the Northern Gateway Toll Road is not only the first toll road in New Zealand to be fully electronic and the NZ Transport Agency's largest capital project; it is also one of New Zealand's largest and most challenging roading projects.

The award-winning project involved the construction of a 7.5km dual carriageway road which crosses four main ridges and five catchments. It also features a number of structures including 380m-long twin tunnels at Johnstone's Hill, and six bridges totalling 1.1km. This includes two eco-viaducts at Otanerua and Nukumea to enable wildlife to pass safely from one side of the motorway to the other. Additionally, it's the first project in New Zealand to actively work on reducing its eco footprint.

Work included overall design management; providing structures, geometric and general civil design and planning leadership; and tunnel structural, mechanical and electrical design management for the Northern Gateway Alliance.

ROADS / HIGHWAYS

Cape Reinga, Northland

The Healing Te Rerenga Wairua – Upgrading Cape Reinga project – combines roading and environmental excellence, and social, cultural and economic benefits melded together into a project that has transformed one of New Zealand's most iconic sites from a lighthouse at the end of a dusty road into a visual experience that would be hard to equal anywhere in the world.

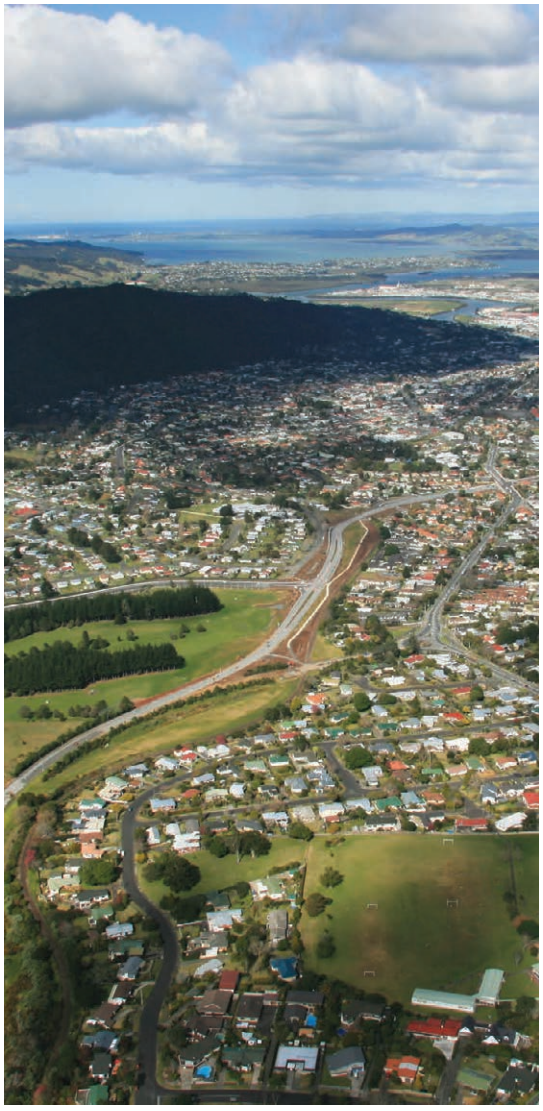
The term 'Healing Te Rerenga Wairua' in the project title refers to both the improved access as a result of the sealing of the final length of SH1, and the removal and re-landscaping of earthworks and structures that had been built over culturally sensitive sites.

The entire site – which includes the road and roadside leading up to the Cape, the carpark and visitor facilities, and interpretation sites leading back some 20km – has been reshaped and contoured.

AECOM delivered engineering measures which have been highly effective at an extremely challenging site. Overall, the environment and the community have been left in a much healthier and natural state than before the project started.

Awards:

- *Winner:* IPENZ
  Arthur Mead Award for Environmental and Sustainability - large project category 2011
- *Winner:* Roading New Zealand
  Excellence Award 2010



Kamo Bypass, Northland

Traffic congestion and heavy traffic flows were creating challenges at a key SH1 intersection at the northern entrance to Whangarei city. The Kamo Bypass (stage 2) is a 1.5km section of SH1 which widens the existing intersection and adds a new connecting route to the north.

The project offered numerous challenges, including managing civil and road works at Whangarei's busiest intersection. Also, because the highway traversed through a built up residential area, a large focus of the project was engaging with the local community and stakeholders to keep them informed of progress and ensure they understood every step of the process.

The works included a new 1.5km section of SH1, two signalised intersections and a crucial railway crossing. Additional features included a 140m bored pile reinforced concrete retaining wall up to 5m in height, and an underpass to separate local and bypass traffic and enable property access for residents.

The $15M project was successfully completed on budget, four months ahead of schedule at the request of the client (NZ Transport Agency). The project spanned a two-year period.

ROADS / HIGHWAYS

Papakura Interchange, Auckland

The improvements at the Papakura Interchange were designed to allow for population growth in Papakura and Karaka for the next 20 years. One of the most significant improvements will impact on drivers from Karaka, who will no longer need to cross oncoming traffic to get onto the northbound motorway. The project team worked together to mitigate challenges such as minimising road-user disruption and reducing the impact of construction on the local community.

Works included construction of a new 16.8m wide three-lane bridge over SH1, a shared footpath and cycleway across the new bridge for safer pedestrian and cycle access, and the construction of a new northbound on-ramp at Hilldene Road for vehicles travelling east on Hingaia Road. It also involved improvements to the existing northbound off-ramp, and southbound on/off-ramps; and the installation of traffic signals at the southbound on/off-ramp and the existing northbound on/off-ramp intersections with Beach Road and Hingaia Road.

The project was awarded a NZ Transport Agency ‘GEM’ Award for Innovation in Customer Care. The award recognised how the site team had ‘gone the extra mile’ in their proactive management of community liaison.

Wairere Drive, Hamilton

This major arterial route is a key component of Hamilton's arterial ring road. A strategic corridor of regional significance, it addresses the city's transportation issues. AECOM's work included the design of a 4.5km section of four-lane greenfield road, a grade-separated intersection, new traffic signals and roundabouts, 2km of upgraded two-lane road, major service upgrades and protection of future infrastructure. Other work included detailed option studies, detailed design and construction.

Award:

- *Merit*: ACENZ
  INNOVATE NZ Awards of Excellence

SH18 Upper Harbour Corridor SH16 Hobsonville, Auckland

Delivered in three stages, this project created a motorway link from SH1 through to SH16 to relieve existing high levels of congestion and the anticipated future pressure from the population growth. The enhanced network resilience improves the efficiency of the Northern Corridor and helps to facilitate interregional travel between Auckland and Northland. AECOM was contracted for project development, construction design liaison and co-ordination, contract documentation including tender process management and the tender assessments for the Upper Harbour and Causeway section.

Southern Corridor, Auckland

Planned improvements to the Southern Motorway include constructing additional lanes from Manukau to Papakura, and upgrading the Takanini interchange.

AECOM is providing Scheme and Detail Designs for the portion SH1 from Hill Road Bridge to the Takanini Interchange including the Interchange Upgrade.

The project has been extended to the Papakura Interchange. AECOM is currently a subconsultant for the entire project scope.

ROADS / HIGHWAYS

Newmarket Viaduct Replacement, Auckland

Originally constructed in the late 1960s, Newmarket Viaduct is essential to Auckland's motorway network. Yet increased traffic volume and the importance of its role in the smooth operation of the motorway network meant that it needed to be replaced. The new viaduct needed to provide additional lanes, increased vehicle load capacity, stronger edge protection and improved seismic resistance.

Multi-award-winning, the Newmarket Viaduct is a world-first project, due to the deconstruction of the original viaduct. There is no global precedent for the staged removal of a structure of this size (690m long, 27m wide, up to 20m high) between the two carriageways of a motorway in a live urban environment alongside mainline rail.

Construction of this complex project involved a five-stage operation over four years and resulted in a 690m-long continuous structure, comprising 12 spans ranging from a 62m main span to 40m back spans.

Awards:

- *Winner:* NZ Contractors Federation Safety Award 2012
- *Winner:* KHL Group World Demolition Award 2012
- *Winner:* Fulton Hogan Manager Directors Innovation award 2012
- *Gold:* ACENZ Innovate NZ Awards of Excellence 2013
- *Winner:* Roading New Zealand Z Energy Excellence Award for a Major Road Project - Planning Design and Construction 2013
- *Supreme Winner:* Roading New Zealand Z Energy Excellence Award for a Major Road Project 2013
- *Winner:* NZ Concrete Society Infrastructure Award 2013
- *Winner:* NZ Concrete Society Concrete Award 2013
- *Merit:* FIDIC World Award 2013
- *Excellence:* NZ Contractors Federation Civil Construction Award 2013
- *Winner:* NZEE - IPENZ Engineering Excellence Awards Transportation Infrastructure Award 2013

ROADS / HIGHWAYS

Causeway Alliance, Auckland

The Causeway is a key part of the Western Ring Route - one of the government's seven Roads of National Significance prioritised to promote economic growth. The upgrade project will help Auckland realise its vision to become a world class city, making life easier for residents, commuters, cyclists, pedestrians, businesses, freight operators and tourists, all while looking after the environment.

The project is being undertaken by the Causeway Alliance - NZ Transport Agency with Fulton Hogan, Leighton Contractors, Coffey, Jacobs and AECOM. The works run for 4.8km between the Great North Road (Waterview) interchange to the Whau River Bridge near Te Atatu in Auckland's west.

This section of the Northwestern Motorway has steadily sunk into the Waitemata Harbour mud since it was first constructed in the mid-1950s. Managing soil stability is one of the key challenges facing the team delivering this complex project.

SH20 to SH1, Auckland

This design and construct project is part of the Western Ring Route that links the SH20 at the Puhinui Road Interchange through to a new interchange on SH1. It involved the development of 4km of new four-lane divided motorway carriageway that includes over 1km of bridge structures. There are three interchanges, 10 bridges, signalised intersections and numerous services relocation and protection work.

AECOM's scope included the specimen design and resource consents, tender and tender evaluation process and the Management, Surveillance and Quality Assurance (MSQA) phase for delivery as the client's agents.

Great South Road/Sylvia Park Road, Auckland

A complex intersection upgrade and bridge replacement scheme within a constrained arterial road carriageway, this project demonstrates AECOM's ability to provide design and supervision services for a large urban project and overall management of a multi-disciplined team. The works required careful community and stakeholder consultations, and complex engineering and structural issues.

Award:

- *Winner:* NZEE - IPENZ Engineering Excellence Award

SH20 Mt Roskill Extension, Auckland

This is a 4.5km vital link in completing Auckland's motorway system and helping solve the region's congestion and traffic flow issues. This high priority project included the creation of two motorway interchanges; provision for future bus shoulder lanes and rail; and a dedicated cycleway alongside the motorway.

Awards:

- *Winner:* Ingenium Public Infrastructure Awards - Physical Projects over 2M Category
- *Silver Award:* ACENZ Awards of Excellence - Innovate 2010
- *Merit Award:* Concrete³ Sustainability Award - Excellence in Civil Concrete Construction Award

ROADS / HIGHWAYS

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Christchurch Southern Motorway, Christchurch

The Christchurch Southern Motorway Stage 2 (CSM2) is part of a package of projects designed to address increased travel demand and congestion in the south of Christchurch and Canterbury. It is made up of a new section of four-lane median separated motorway and an upgrade to four lanes of the existing Main South Road (SH1).

SH1 Russley Road, Christchurch

The Western Corridor (SH1) connects the northern and southern Canterbury areas with Christchurch International Airport. Increased commercial and industrial activity in Christchurch is causing congestion at peak times. To ensure businesses based outside of the city are able to transport their goods efficiently the project will upgrade Russley Road (SH1) between Yaldhurst Road and Harewood Road to a four-lane highway.

Wellington to Hutt Valley Shared Path, Wellington

This project prepared a Detailed Business Case to support investment in a new walking and cycling facility between Wellington and Hutt Valley. This project demonstrates the benefits of considering a wider range of users, including cyclists, walkers and runners. Design of higher quality surfaces and wider paths meant that more users would be attracted to use the facility. The Wellington to Hutt Valley Shared Path also involved focus groups and community consultations with local walking and cycling advocates and community representatives.

Central Motorway Junction Cycleway, Auckland

The Grafton Gully Cycleway is an extension of the Northwestern Cycleway, helping to create a well-connected cycling route through motorway and urban areas – opening up Auckland Central City.

Grafton Gully will provide an almost entirely off-road cycle route from Te Atatu, in West Auckland, to Auckland's city centre and waterfront. AECOM was contracted to provide advisory, engineering and consulting and planning services to the project.

TUNNELS / UNDERPASSES

Arras Tunnel, National War Memorial Park, Wellington

To commemorate the centenary of the First World War, the Ministry of Culture and Heritage funded the construction of Pukeahu National War Memorial Park. To make this park possible, SH1 had to be diverted under the site through an underpass – Arras Tunnel.

The Memorial Park Alliance was formed to undertake the project. A challenging project, it needed to be delivered at pace in a busy central Wellington area with high volumes of vehicle and foot traffic – and with minimal traffic disruption.

The resulting 130m-long tunnel blends sophisticated information technology (including 24/7 monitoring, and safety and traffic management systems) with a reminder that the Pukeahu National War Memorial Park is being built on top of it – the walls are lined with 273 decorative red poppies, symbolising the 2,721 New Zealand fatalities in the Anzac Gallipoli campaign.

It opened one month ahead of schedule in September 2014.

TUNNELS / UNDERPASSES

Terrace Tunnel and Mt Victoria Tunnel,
Wellington

AECOM was part of the Wellington Tunnels Alliance Consortium to refurbish Wellington's Mt Victoria and Terrace Tunnels. The two tunnels are critical elements of the Wellington transport network providing access to the CBD, airport and eastern suburbs. The Mt Victoria Tunnel and the Terrace Tunnel's southbound lanes operate at near full capacity on most days. The works included the investigation, design, procurement and implementation of tunnel services and fire safety systems improvements.

Britomart Transport Centre, Auckland

At the time of its opening in 2003, the 50,000m² Britomart Transport Centre was Auckland's largest transport project. It was also one of the few underground railway stations in the world designed for use by diesel trains, posing unique engineering challenges. Located in Auckland's Central Business District, the transportation hub allows trains, buses and ferries to interconnect in a modern setting.

As a project partner, we designed the rail track work and state-of-the-art signalling systems to guide the safe operation of trains. We also worked with architects to design platforms and effective passenger information systems to assist the thousands of daily users.

AVIATION

Airport Pavement Maintenance Works, Christchurch

As part of the asset management team, AECOM is contracted to Christchurch International Airport Limited (CIAL) for five years to carry out its Annual Pavement Maintenance Works (APMW) programme. The team is charged with continually identifying sustainable and innovative solutions for a range of pavement maintenance problems. AECOM has been contracted for a two-year period to deliver the airside expansion programme at Christchurch Airport to facilitate larger aircraft operations on a more regular basis.

Of note from the APMW programme is the use of a specialist Gilsonite-based pavement surfacing preservation treatment named GSB-88® – the first known instance in Australasia. AECOM undertook an extensive testing programme under a highly restrictive operational environment to understand the materials' influence on surfacing friction post-application and has developed a thorough understanding of the materials' properties when used in an operational airside environment.

CIAL has elected to continue with the recommended ongoing GSB-88® application programme based on the positive results achieved to date with this product, including significant reductions in future airside surfacing maintenance costs.

Services to New Zealand Government

AECOM is engaged by The Ministry of Foreign Affairs and Trade to provide rehabilitation and upgrade services to a number of aviation and related infrastructure projects.

- **Christmas Island Runway Rehabilitation, Kiribati:** Emergency repairs and long-term rehabilitation works.
- **Bamyan Airport Upgrade, Afghanistan:** Runway upgrade design suitable for future ATR 42 passenger operations.
- **Munda Airport Runway Rehabilitation, Solomon Islands:** Assist with upgrade of runway to cater for larger aircraft and improve operational safety.
- **Nusatupe Airfield Upgrade, Solomon Islands:** Assist with improving aviation safety standards by reconstructing, lengthening and bituminous surfacing of the runway.
- **Munda – Noro Road, Solomon Islands:** Reconstruction and surfacing of the road linking the airport at Munda to the seaport at Noro.
- **Munda Airport Emergency Alternate Status, Solomon Islands:** Security fencing, airfield ground lighting, air navigational aids and airfield firefighting facilities.

INNOVATION

An innovative approach underpins most of AECOM's projects, derived from the local expertise and global knowledge of AECOM employees. Some of our innovative projects include data centres and new-to-New-Zealand technology utilised in the aftermath of the Christchurch earthquakes.

Beyond projects, we have a commitment to thought leadership and contributing to the wider industries and communities in which we work.

DATA CENTRES

Gemini Data Centre, Auckland

Gen-i's 'Project Gemini' data centre in Auckland has benefited from an integrated approach between the client, the contractor and the designer. Spark entered into a development agreement with Retail Holdings, who engaged AECOM and Hawkins Construction to design and build the new facility.

It is a world-leading design in the use of modular systems and power delivery for data centres. The Elemental philosophy is to adopt a smaller module size wherever is reasonable and arrange them in sets of four modules. As well as being lower in capital cost, it's reliable, flexible and able to be deployed quickly.

It also has outstanding features related to power and cooling – in this case resulting in an overall cost saving of 20%. The Elemental approach flows through all parts of both the mechanical and electrical plant designs. It is one of the country's largest, most sustainable and most sophisticated data centres.

Project Gemini includes a first for any New Zealand data centre, as it features an innovative Kiwi-designed base isolation bearing system in place to support the main structure, which will maximise its resiliency. AECOM teams investigated the use of base isolation and discovered that it would be cheaper to construct due to the reduced load transmitted to the long foundation piles. This is a great outcome for our client who will receive a state-of-the-art base isolated building, for less than a traditional piled solution.

ANZ Data Centre, Auckland

The role of technical reviewer plus detailed design and commissioning of the critical power stations and data hall fit-out was required for the ANZ tier 3 + data centre. To ensure the long-term viability of the project, work also included carrying out the site search and assisting ANZ in selecting their preferred site.

FLOOD PROTECTION

Flood Protection Trial, Christchurch

Three significant flooding events in Christchurch, exacerbated by the earthquake sequence, left homes in parts of the city underwater and in need of a quick solution. AECOM was engaged to investigate short, medium and long-term flood alleviation measures. One of the outcomes recommended by the taskforce is property level protection – in particular an innovative method called 'house tanking' – widely used in the United Kingdom but new to New Zealand. AECOM embarked on a high-profile pilot study to investigate the potential of 'house tanking', using a damaged red-zoned property in Avonside.

This short-term alleviation method involves sealing the external walls and foundations of the building with a spray-on waterproof membrane. It also involves installing temporary covers for air vents and temporary flood boards across door openings and non-return valves on gully traps, storm and foul sewers.

Once the pilot study house was 'tanked' the key challenge for the team was to test it in a 'real time' flood environment, without waiting for the next big storm event. Temporary flood defence barriers were used to create a bund (moat) around the perimeter of the property to enable the house to be flooded, simulating water levels far above those generally observed in Christchurch.

The perimeter of the house remained flooded for over 72 hours and as water levels increased around the building, the external wall and below floor area were monitored for water ingress where sections of GIB and floor boards had been removed. At its peak the flood waters reached 1.1m above ground level, but impressively, the blue coloured waterproof membrane did its job and kept the flood waters out.

The successful pilot proved the concept of 'house tanking' as a viable option to protect homes in Christchurch, potentially saving the rate payer tens of millions of dollars.

THOUGHT LEADERSHIP

Sentiment, nationwide

The six-monthly Sentiment Survey and resulting Sentiment Report is a central piece of AECOM's thought leadership activity and as a piece of business intelligence, is a unique survey in our market. Clients from the infrastructure, buildings and construction industry are asked questions which help AECOM to understand the challenges they are facing and their business priorities. The survey asks questions across investment and delivery and has a representative split between the public and private sector. The results are collated into a report with insights and analysis from AECOM's business and intelligence unit and its senior leaders.

Sentiment is presented to senior stakeholders during a breakfast forum, at several locations across the country. The forum includes a presentation of the survey, plus a guest speaker, and provides an opportunity for discussion and networking.

THOUGHT LEADERSHIP

Connected, Cities

The AECOM Global Cities Institute was created to understand the most pressing issues facing a city or region and how to address them. The Institute draws on AECOM's fully integrated planning, design and management capabilities to make cities and regions better. In 2011, we brought together specialists from both the Institute and Auckland Council. Resulting from the forum we identified liveability, urban form, economic growth and transportation to be key focus areas. A publication was compiled to document the exchange of ideas and identification of opportunities.

Since then AECOM has hosted Connected, Cities forums in both Auckland and Christchurch. The forums are themed and guest speakers from different perspectives present their viewpoints before an audience of senior stakeholders from the infrastructure building and construction industry. Each event creates opportunities to engage with the media, industry and government in an effective and credible manner.

ENERGY 71

With more than 90 years of service, AECOM's energy team works in over 50 countries, while retaining a strong national and local focus here in New Zealand.

Focused across the following market sectors – geothermal and thermal, wind and solar, hydropower, power transmission and distribution, and industrial – the team provides the full range of engineering advice and services to utility, power and industrial generation facility owners.

We also offer the full spectrum of solutions to deliver energy conservation and to assist clients in modernising ageing infrastructure.

GEOTHERMAL

Wayang Windu, West Java

Magma Nusantara Ltd (MNL) intended to develop a second turbine-generator unit and associated facilities at the Wayang Windu geothermal field. MNL appointed AECOM to provide engineering review, design and supervision consulting services for the construction and implementation of the entire scope of the development, with the exclusion of the geothermal wells.

The extensive services provided included power plant contract establishment, contract establishment, cost management support, project management, safety support, and training.

EDC Geothermal Power Plants Project, Philippines

AECOM's client owns and operates the majority of the geothermal plants in the Philippines. Since their construction 15–20 years ago, the control systems of these plants have remained largely unchanged. Now they're in need of rehabilitation and replacement.

AECOM carried out an assessment study of 12 geothermal power stations, and proposed a development plan that was agreed and adopted by the Board. The plan included replacement of obsolete controls and instrumentation, and the installation of a state-of-the-art control system which would allow the client to integrate power plants and steam fields into a coordinated operational environment.

Following the initial study, AECOM has carried out a further assignment, including front end design, a specification for supply and implementation, and tender and evaluation services. The next phase will involve manufacture and implementation, followed by migration of the other plants.

ADVISORY

Renewable Energy and Energy Efficiency Unit, Tuvalu

In the face of global warming, the Polynesian island nation of Tuvalu has a clear vision of getting 100% of its electricity from renewable energy sources by 2020. The New Zealand Ministry of Foreign Affairs and Trade (NZ MFAT) engaged AECOM in 2011 and 2012 to help Tuvalu turn its vision into reality.

To the local population of 11,000, living on nine low-lying islands about 1,000km north of Fiji, the supply of diesel for power generation is not only costly but also unsafe and environmentally risky. AECOM worked with the Tuvalu Electricity Corporation (TEC) for 18 months to outline a masterplan for the conversion of the power generation from diesel to renewable energy. The plan identified a mix of roof-mounted PV solar, wind and biodiesel as energy sources, and that Tuvalu would need to improve its energy utilisation by 25%. The US$420,000 project focused on planning, institutional development, project management and capacity building.

The highlight of the project was the Prime Minister of Tuvalu committing his nation to the concepts of the masterplan at the Rio+20 Conference in June 2012.

TRANSMISSION AND DISTRIBUTION

NIGUP Pakuranga 220kV Substation Detailed Design, Auckland

AECOM provided detailed design services for the 220kV Pakuranga Substation as part of the North Island Grid Upgrade Project – a new transmission link from Whakamaru Substation to Pakuranga Substation (PAK).

The Pakuranga 220/33kV Substation is a new substation on the existing 110/33kV PAK site. It consists of a new switchyard; three 220/33kV transformers; a switchroom building; and a new control room building housing control, protection, SCADA and communications panels. The substation will provide connection of two overhead transmission lines from Otahuhu plus two cable circuits from Brownhill and two cable circuits to Penrose.

This project is crucial to strengthen the reliability of the power supply in Northland and Auckland as it is one of the main substations connecting a number of hydropower generation plants in the North Island. The design services include the complete detailed design for Pakuranga substation plus associated work at Otahuhu and Penrose. Additional work includes geotechnical investigations; platform development and road access; stormwater design; structural design; environmental services; and acoustic design.

HYDROPOWER

Purari Hydropower Scheme, Papua New Guinea

PNG Energy Developments Ltd (PNG EDL), Australia, is evaluating the potential development of a renewable hydropower project on the Purari River in Papua New Guinea (PNG). By harnessing the power of the Purari River and its tributaries, the project has the potential to produce electricity in PNG as well as deliver electricity to Australia via undersea transmission cable. If constructed, the undersea section of cable would be one of the longest High Voltage Direct Current (HVDC) undersea cables ever built.

A consortium led by AECOM, comprising Electricité de France, Environmental Resources Management Australia Pty Ltd and Entura (Hydro Electric Corporation of Tasmania), has been engaged by PNG EDL to undertake the project feasibility studies and social and environmental impact assessments for the proposed development.

Investigations to date have confirmed that a hydropower scheme on the Purari River with a generating capacity in excess of 2,000MW is technically feasible. Feasibility studies and front-end engineering are expected to continue, in advance of a future investment decision.

Tekapo Canal Remediation, Canterbury

Commissioned in 1977, the Tekapo Canal transfers water 25km from the Tekapo A Power Station to the headpond of Tekapo B Power Station. Over time, it's been susceptible to leakage, with evidence of internal erosion of its lining. The asset owner and client Genesis Energy required detailed design for remedial works that included seismic hazard assessment, as well as design of the geomembrane liner, the 8.17km culvert replacement, strengthening of bridges for seismic loads, and an emergency spillway.

THERMAL

E3P Combined-Cycle Gas Turbine Power Station, Huntly

Designed and constructed under the Energy Efficiency Enhancement Project, AECOM provided engineering services for the 385MW combined-cycle gas turbine power plant, known as the E3P Plant.

Engaged by Genesis' contractor for the project (Downer Engineering), AECOM provided geotechnical, civil, structural and architectural design services, and construction monitoring of the site works, civil and structural works, powerhouse building, and cooling structure, including architecture and building services (HVAC only).

Successfully commissioned in 2007, it generates enough power to meet three years of expected national growth demand.

OIL AND GAS

Exploration Site Flare Monitoring, Taranaki

Air quality monitoring was undertaken around a flare at an oil and gas exploration site. This involved collecting samples both directly from the flare and in the immediate local environment using a range of ambient monitoring techniques. The results were used to determine the environmental effects associated with flare operation and, in particular, whether emissions were able to comply with local standards. The monitoring was undertaken for the main combustion products as well as products of incomplete combustion such as PAHs and dioxins.

Environmental Impact Assessment and Consultation, Taranaki

OMV required assistance to produce a comprehensive non-statutory environmental impact assessment for the Maari Field development to comply with its environmental health and safety and community policies. We worked with government regulators and OMV to identify and agree on mitigation measures for potential environmental effects. This led to the voluntary accord between Maritime NZ, Ministry for Environment and the New Zealand offshore oil industry.

INDUSTRIAL

Regulatory Compliance Upgrade Project, Rotorua

This is an extensive project, beginning with thorough research into why this paint and aerosol manufacturing plant was not compliant. It involved the preparation and submission of a HSNO Compliance Plan, prior to a rebuild programme.

Over a number of years the rebuild took place and included new unodourised flammable gas systems, bulk storage of flammable liquids, and the complete rebuild of the paint manufacturing plant.

Flammable Tank Farm Upgrade, Mt Maunganui

Design, construction supervision and commissioning services were provided for this terminal upgrade project.

Works involved the installation of a new 1.6km flammable products wharf pipeline, four new API 650 flammable liquid storage tanks, a fully automated truck loading facility, piping and pumping systems, and fire protection and environmental protection systems.

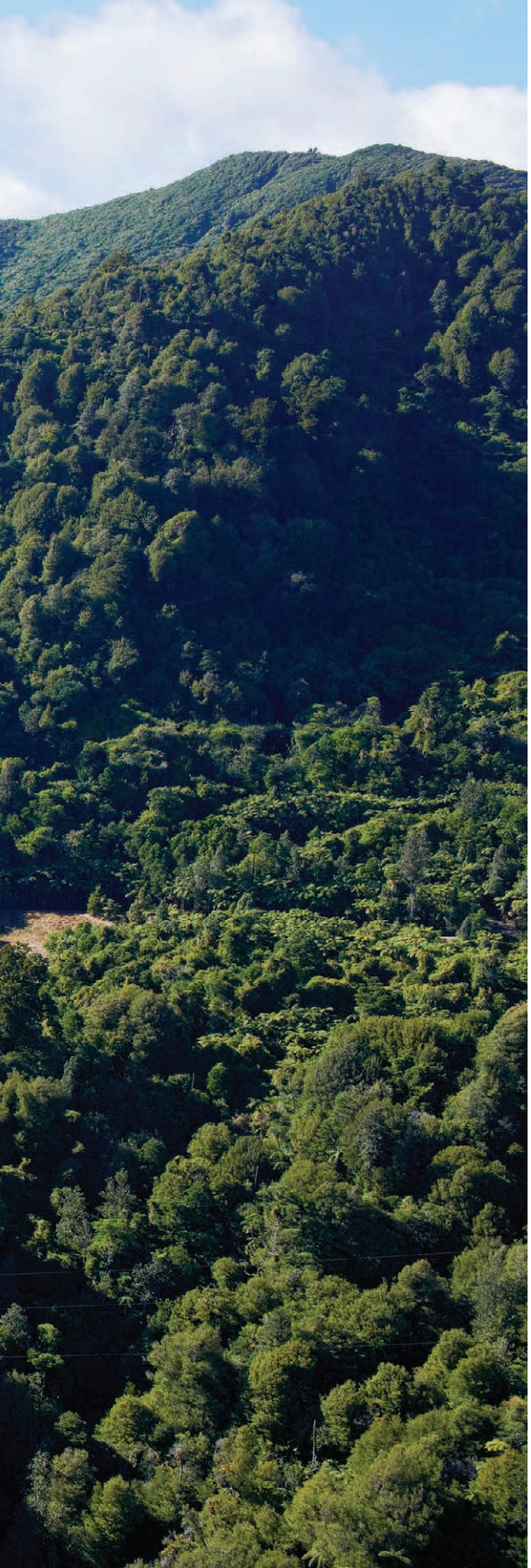
This $8.5M system was delivered under budget and three months early, and is fully compliant with the New Zealand Hazardous Substances legislation.

ENVIRONMENT 85

A commitment to preserving New Zealand's natural environment, balanced with economic, social and engineering needs, has resulted in award-winning environmental work.

AECOM's diverse mix of planners, engineers, scientists and managers have undertaken a wide range of environmental projects - from work on New Zealand's most contaminated site (Tui Mine) to preserving some of New Zealand's most beautiful areas (Milford Sound).

CONTAMINATED SITE AND REMEDIATION



Tui Mine Remediation, Waikato

Once dubbed New Zealand's most contaminated site, the Tui Mine Remediation project has removed the major risks to community health and safety and environmental damage Tui Mine once posed. Prior to its abandonment, Tui Mine produced a range of base metals, including copper, lead and zinc. The two streams that flow from the mine site through Te Aroha were affected by heavy metals leaching into them. Additionally, the tailings dam was found to be at risk of collapse in a moderate seismic or extreme weather event. If an event had occurred, over 90,000m^3 of mine waste could have flowed down the Tui stream – through the township of Te Aroha and into the Waihou River that feeds into the Hauraki Gulf.

Various phases of assessment were carried out as the tailings material had not been stabilised for over 10 years. Additional work included the concept and detailed design for the remediation of the tailings dam and underground workings.

In recognition of the environmental and community benefits of this complex project, the Tui Mine Remediation project achieved merit in the large project category of the 2014 IPENZ Arthur Mead Award for the Environment and Sustainability.

CONTAMINATED SITE AND REMEDIATION

Southern Landfill, Wellington

Wellington City Council wished to extend the Southern Landfill, and required support with the resource consent application through undertaking and providing ecological information. The thorough report established the ecological health of the aquatic and terrestrial environments within the proposed area of the landfill extension.

Puketutu Island Rehabilitation, Auckland

Puketutu Island is a volcanic island located in the Manukau Harbour, approximately half of which had been used for quarrying. Covering 40ha of the former quarry, this Watercare project includes more than 4 million m^3 of earthworks and the construction of an engineered earth embankment that, when finished, will reflect the pre-quarry volcanic landform. Additional tasks included hydrogeological and geotechnical investigations, the preparation of Assessment of Environmental Effects, and the provision of expert witnesses.

PLANNING

Cleddau River Protection Works, West Coast

Alongside the Cleddau River at Milford Sound is infrastructure critical to the functioning of the local community and tourism industry – all of which were susceptible to large flood events in the Cleddau. In 2006, Southland District Council determined that no further building consents would be granted in the area until flood protection was provided to a '1 in 100' year standard. The Department of Conservation (DoC) required background studies into the flooding and appropriate planning responses.

Research and planning investigations included a village relocation study, hazards analysis and modelling (including flooding, tsunami, rockfall and snow avalanche), statutory approval scoping/strategising, and cost estimations for design, consenting and construction.

The culmination of these studies was DoC securing $13M in funding from cabinet.

ADVISORY

Bankside, Canterbury

Towards the end of WWII, a secret airfield was constructed at Te Pirita and a 9m deep and 23m diameter brick-lined blast pit with fuel storage tank constructed at Bankside to supply the airfield. Following the tank's removal, the pit was used to illegally dump rubbish, including banned agrichemicals.

Remediation works were undertaken to remove the source of potentially hazardous waste from the pit, with additional work including the preparation of tender documents, oversight of the remediation works and project management.

Port Hills, Christchurch

This is a 30-strong specialist geotechnical group drawn from five organisations, assessing and responding to the effects of the 2010 and 2011 earthquakes and associated risks in the Port Hills. The area suffered significant damage from rockfalls, landslides, cliff collapses, debris inundation and land movement, putting several hundred homes at risk.

ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT

Patea Freezing Works, Patea

This project became a high-profile demolition and remedial operation and the first in New Zealand to use an innovative risk-based approach to evaluating asbestos in soils. This created direct costs savings for the client.

AECOM provided a full suite of asbestos management services. The project highlighted the benefits of having one organisation managing asbestos removal, demolition and in-ground contamination.

Ruapehu District Plan, Central Plateau

The Ruapehu District Council engaged AECOM to review its District Plan, which is the guiding document for the sustainable management of natural and physical resources in the scenic Ruapehu District.

Our planners managed the six-year process from start to finish and, among other things, helped the Council to introduce measures to avoid adverse effects of development on the Tongariro National Park. The park is a UNESCO World Heritage Site and the protection measures developed by AECOM were noted by UNESCO representatives for their innovation and forward thinking.

WATER 95

Preserving one of New Zealand's key natural resources, and supporting the population growth of some of New Zealand's major centres are just some of the aspects of AECOM's water projects.

Strong skills in water, wastewater, stormwater, tunnelling, ground engineering, geology, and strategic asset management has resulted in AECOM delivering significant water projects across New Zealand.

URBAN WATERWAYS

Oakley Creek, Auckland

Located in the heart of the Auckland isthmus, Oakley Catchment contains one of the longest uninterrupted natural water courses in the region. Despite significant modification and disturbance over the years since the early 20th Century, it remains of high social and ecological value to iwi and the local community.

Auckland Council recognises Oakley Creek's value and is undertaking a significant restoration of the waterway that will ultimately create an inspiring space where people can come together and enjoy the natural environment within central Auckland.

Alongside the restoration component, our design work will include widening of a 1.3km stretch of the creek, reconstruction of three road bridges, design of cycle paths and pedestrian bridges, play spaces including a flying fox, and urban/landscape design.

WASTEWATER AND STORMWATER

Pauanui Treated Wastewater Disposal,
Tauranga

This system disposes of the combined treated wastewater from both Pauanui and Tairua and required assistance with the consenting and tendering process, design services, and commissioning supervision. This technically challenging and innovative effluent reuse project involves irrigation disposal within the urban environment, is fully future proofed and incorporates many new-to-New-Zealand technical developments.

Army Bay Wastewater Treatment Plant,
Auckland

The Army Bay wastewater treatment plant was built in 1982 and upgraded in 1998 and 2005. The last upgrade increased the capacity of the secondary treatment process. However, the overall plant capacity is currently constrained by that of the existing marine outfall which restricts the ability of the Hibiscus Coast network to pass flow forward to the plant. AECOM has been engaged as the designers for a replacement outfall, compliant with all consenting requirements.

Mangere Wastewater Treatment Plant Biological Nutrient Removal Upgrade Project,
Auckland

A long-standing relationship with Watercare has seen AECOM undertake significant upgrade contracts for the Mangere wastewater treatment plant. This significant piece of Auckland's infrastructure has continued to develop to ensure it has the capacity to cope with forecast population growth without compromising its environmental performance standards. AECOM has completed the plant's masterplan, and its solids stream masterplan, and has been awarded the contract for the solids stream design.

Matata Wastewater Scheme, Tauranga

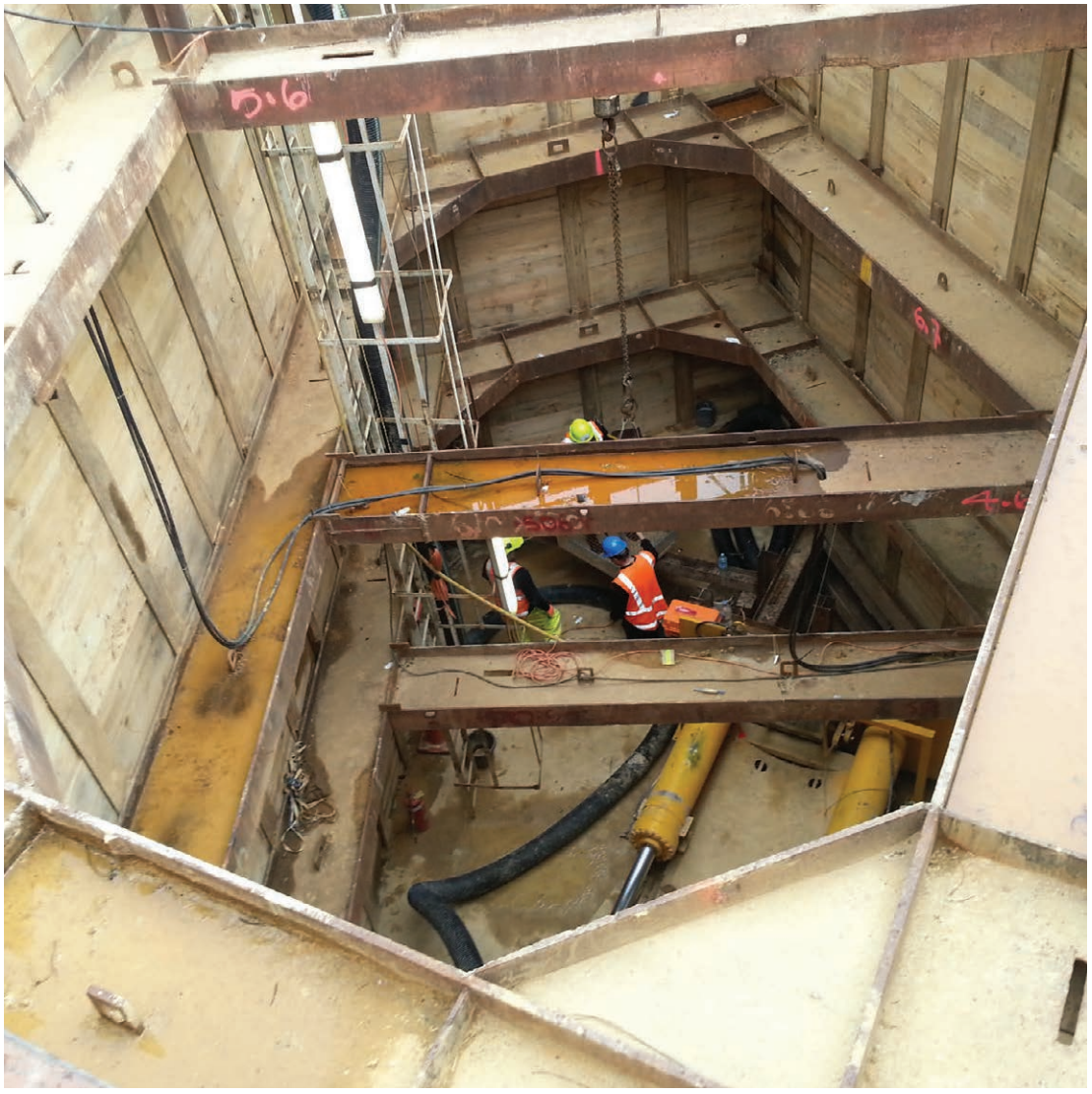
Since 2003, Whakatane District Council (WDC) has been investigating options for wastewater management for the Matata community to replace the existing septic tank and on-site disposal. Following consultations and consideration of long-term solutions, WDC decided to proceed with a wastewater scheme which included a new wastewater treatment plant. Technical advice and engineering support was provided to help realise this scheme, such as detailed investigation and assessment of preferred site options and assistance in the tender procurement process.

WASTEWATER AND STORMWATER

Eastern Interceptor, Auckland

The Eastern Interceptor is the main collector sewer for the central, eastern and southern regions of Auckland. Sixty percent of the wastewater flow generated by the city drains through this sewer to the Mangere wastewater treatment plant. Wastewater from the central isthmus begins its 19km-long journey at Okahu Bay and is joined by flows from the east and south. The sewer was constructed in the early 1960s using reinforced concrete. This concrete has been corroded over the intervening years by bacteria generated acid on the internal surface of the sewer. Almost half the wall thickness has been lost to corrosion in some locations in the sewer.

This project reinstates the walls of the sewer with a corrosion-resistant calcium aluminate cement over some of the most damaged lengths of the sewer. The extent of the works covers 676 metres of the sewer in two sections. The Eastern Interceptor is a main arterial route for sewage and cannot be shut down so the rehabilitation work must be carried out in the live sewer. The normal sewer atmosphere contains high concentrations of toxic gases particularly hydrogen sulphide so an effective ventilation system was required to safely enter the sewer. The works involves cleaning the walls then applying a protective layer of calcium aluminate cement.



Tasman Street Stormwater Renewal, Wellington

Significant flood events of the stormwater mains between Rugby Street and Wallace Street in Wellington prompted the local council to address the existing system's inadequate capacity. An inspection revealed that the pipeline was in a significantly worse state than had been previously thought, due to a full-length longitudinal crack. AECOM was engaged by Wellington Water Limited for the design of the renewal works required for the existing stormwater pipeline.

Tahuna Wastewater Treatment Plant Upgrade, Dunedin

Dunedin City Council embarked on a major upgrade to its Tahuna wastewater treatment plant to improve the quality of wastewater effluent discharge.

This project included the design of the land-based work associated with the Stage 1 upgrade and the supervision of the construction works being performed.

WASTEWATER AND STORMWATER

Pukekohe Watermain, Auckland

Watercare has planned a water supply connection for the township of Pukekohe – with almost 30,000 residents, it's one of Auckland's fastest growing regional centres. The project involved the construction of a new 8km, 600mm diameter steel pipeline and valves. Services included pipeline design, and contract documentation.

Southern Pipeline Project, Tauranga

This project involves the development of a 14.5km, 0.8m diameter interceptor sewer across Tauranga City. The detailed design for the majority of the pipeline route and a 0.54 ML/day sewage pumping station has been undertaken.

North Harbour No.2 Watermain, Auckland

We assisted Watercare in the options investigations to decide a suitable route for a second North Harbour pipeline to run between the Titirangi No.3 Reservoir at Huia Water Treatment Plant and the Albany Reservoirs.

The 32km, 1200/900mm diameter pipeline is required to accommodate growth and to provide redundancy in the Watercare network supplying Waitakere City, the North Shore, Whangaparaoa Peninsula and Orewa.

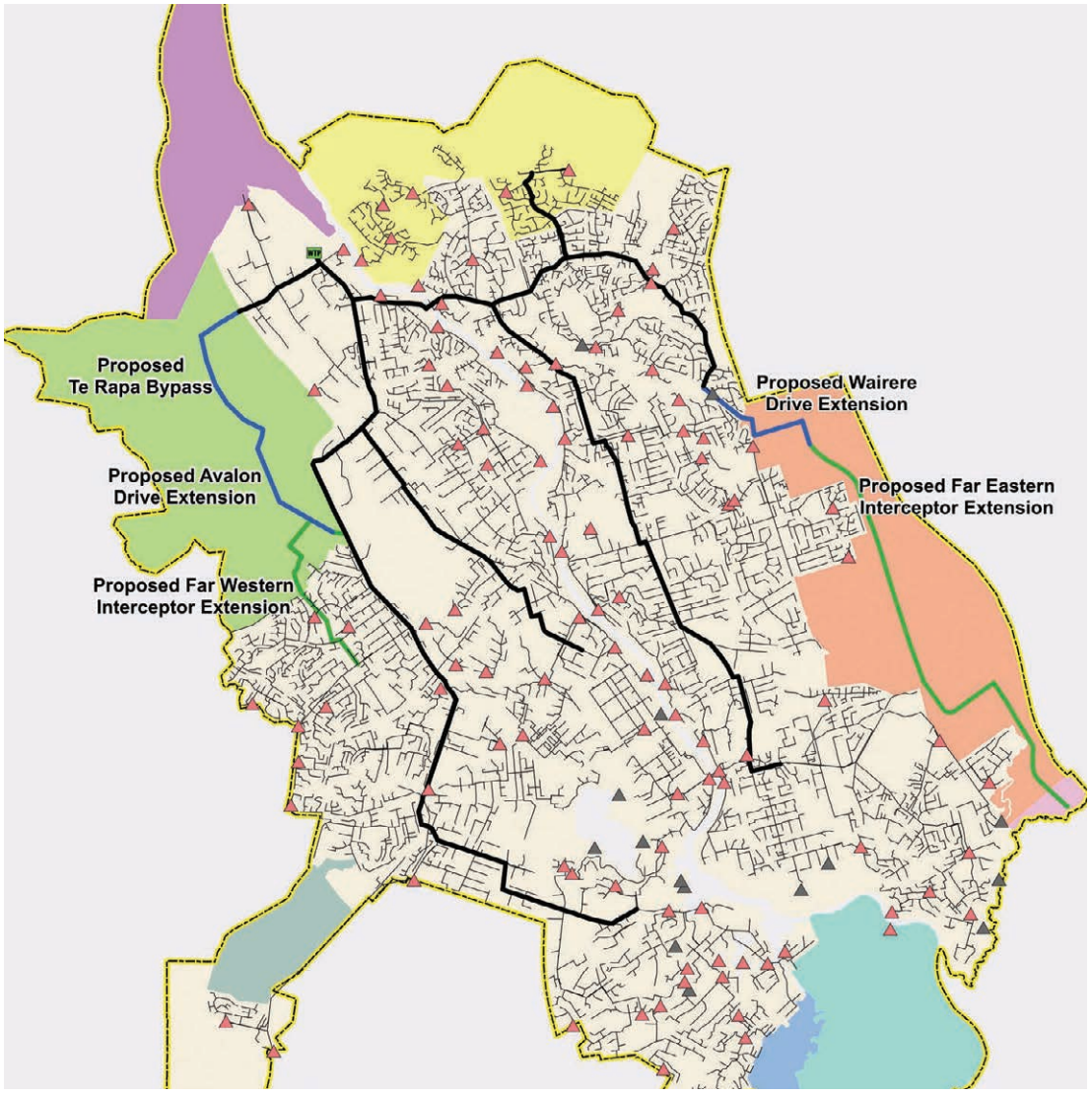
Kumeu Southern Transmission Watermain Section 2, Auckland

The Kumeu Southern Transmission Watermain Section 2 project is part of Watercare's overall objective to provide a public water supply to the townships of Kumeu, Huapai and Riverhead in northwest Auckland. The project involves the design of a 3km section of 450mm diameter watermain and associated line valves, air valves and scours, with the pipeline alignment entirely within the road corridors. Work on this project has included preliminary and detailed design of mechanical and electrical equipment.

WATER RESOURCES

Central Plains Water Irrigation Scheme,
Canterbury

The Central Plains Water Irrigation Scheme will provide water for irrigating some 60,000ha of land on 400 farms in the Central Canterbury Plains. There will be a 60km-long canal of up to 40cumecs capacity on a level grade between two rivers to enable water to flow in either direction, according to water availability and demand. From there, water will be supplied down the Plains by gravity through 400km of delivery network with two areas of pumped extension above the canal to service some 10,000ha. Work includes leading the initial feasibility studies and advancing the scheme to preliminary design to obtain planning consents.

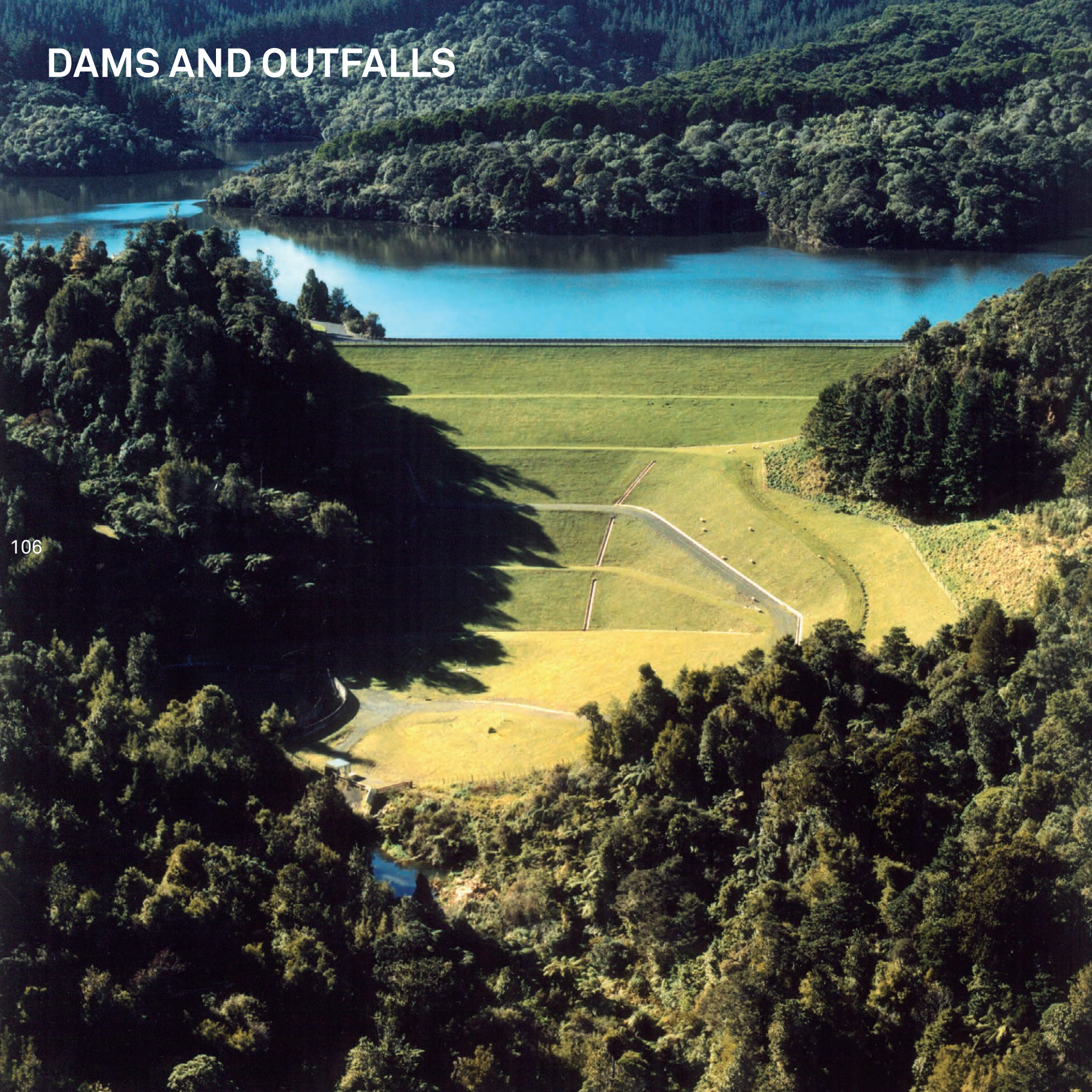


Three Waters Modelling, Waikato

In 2010 AECOM was contracted by Hamilton City Council to develop computer models of their three waters networks (water, wastewater and stormwater). AECOM developed the detailed model of the city's wastewater network and undertook flood hazard modelling and mapping to support their District Plan and development of Integrated Catchment Management Plans.

The wastewater and water supply models have been instrumental in assisting Hamilton City Council to understand the current and future performance of their network and to support investment planning decisions.

DAMS AND OUTFALLS



Cosseys Dam, Auckland

Cosseys Dam is a 40m high, zoned earthfill dam located in the Hunua Ranges. It holds 14.1million m³ of water, representing about 14% of the total storage for supply to the Auckland region.

Watercare engaged us to assess the dam for potential upgrade works and, using the findings, develop a risk assessment, options study and detailed design for the upgrade delivery. The works comprised a downstream shoulder excavation and reconstruction of an underdrainage system engineered to modern standards.

Ocean Outfall, Christchurch

Christchurch City Council's wastewater treatment plant required a major upgrade from the existing discharge to the Avon-Heathcote Estuary. All stages of the work were managed, including investigations and the preparation of applications to obtain the necessary permits. In the subsequent Stage 1 preliminary design, hydraulic design of the pump station and 3kms ocean outfall was carried out. Stage 2 comprised the detailed design, tender documentation and tendering, and Stage 3 the construction supervision.

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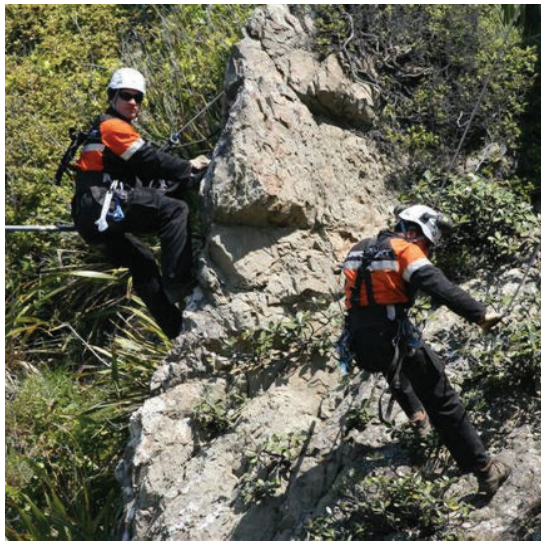
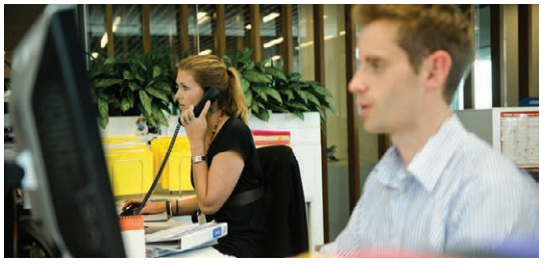


THANK YOU



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