

This 3rd VfM booklet contains
39 Value for Money Stories
contributed from across the country in the
3 months ending May 2012.

Take a look and if you want to learn more, email
or call the contributor, or just make use of their
idea!

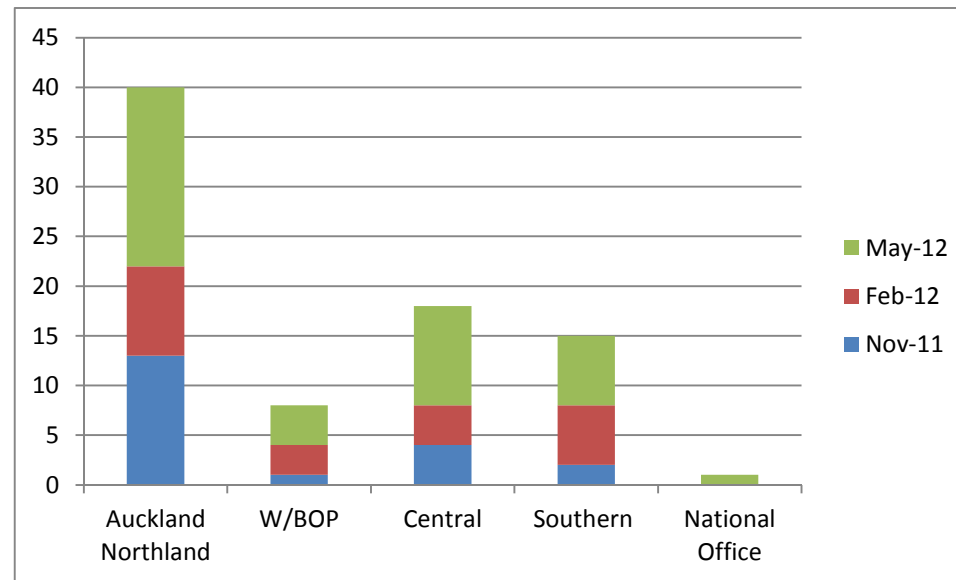
If you have a VfM Story that you would like to contribute, please email one of the following for a blank slide.

Auckland/Northland Tony.Fisher@ama.nzta.govt.nz
W/BOP michelle.parish@nzta.govt.nz , or talk to Richard Young

Central - Andrew.Adams@nzta.govt.nz

Southern – Roger.Bailey@nzta.govt.nz

National Office – Ian.Cox@nzta.govt.nz



To date we have received 82 Value for Money slides.

Value for Money Initiative: C18 Using technology to delivery Vfm and safety outcomes

Opportunity

Winters in New Zealand can be severe and some of the countries road can be closed at any time. Keeping our highways open and safe to drive is vital for the countries economy and more importantly keeping our customers safe.

Decisions to close or keep highways open used to rely on sending out highway patrol staff to inspect and monitor the highway, this was always done late at night or in the early hours of the morning. This approach in some instances caused Health and Safety issues for the contractors.

Solution

In 2011 the NZ Transport Agency commissioned a national thermal mapping system which is operated by MetConnect and Vaisala. The thermal mapping system uses weather stations installed along our highway network which predict when and where roads will ice over.

The thermal mapping system has given us a new vital tool in keeping our highways open and our customers safe.

Estimated Costs & Benefits

Although two winters are never the same and this is also true of Marlborough, however through the Hybrid Maintenance Contract model which encourages collaborative working, joint training and the recent introduction of the new thermal mapping system savings and more reliable journeys are now being realised.

Using the Marlborough North and South Contract plant and labour day work rates, we are on average seeing a 30% year on year saving, although the these saving's in monetary terms are small \$2000 - \$3000 per annum on average, our approach to managing our winter maintenance activities is now proactive rather than reactive.

Contributors

Marlborough Roads, Opus and HEBs



Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	Yes
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: AN33 – Newmarket Viaduct – Social Media

Opportunity

To reduce the congestion in the local arterial routes while closing the Southbound Motorway over Newmarket

Solution

Social media was used as well as traditional media to encourage road users to stay at home or find additional means of travel.

Facebook, Twitter and Youtube were used

Estimated Costs & Benefits

Effective communications led to:

- Zero related incidents, public complaints or congestion.
- 70% suppression of usual trips on the road network.
- A survey found that 30% of people received the message by social media.

Contributors

NGA Newmarket Communications Team, Elizabeth Collins



Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	High
Social & Environmental Responsibility	Med
People & Processes	Med
Efficient Delivery of Works	Med

Value for Money Initiative: C12 Bluetooth Technology For Travel Time Information

Opportunity

Travel time savings and trip reliability are becoming increasingly important to NZTA customers and are a significant factor when assessing project benefits.

As travel time and trip reliability were central to the Ngauranga to Aotea Quay (NtAQ) project, it was important to have good quality data in order to assess options and also monitor the success of the project. Existing information from loops / radar and annual travel time surveys was considered inadequate for assessing trip reliability and alternative options were investigated.

Solution

The NZTA procured Bluetooth tracking technology and deployed it at key locations on SH1 and SH2. This technology identifies unique Bluetooth signatures from mobile or in-vehicles devices travelling along the state highways. The technology is anonymous and non-evasive as these signatures cannot be traced back to the device owners.

Data collected from the Bluetooth devices is captured and processed then made available to the Project team via a shared website. With the rapid increase in Bluetooth devices the project is capturing ~30% of all trips through the project area.

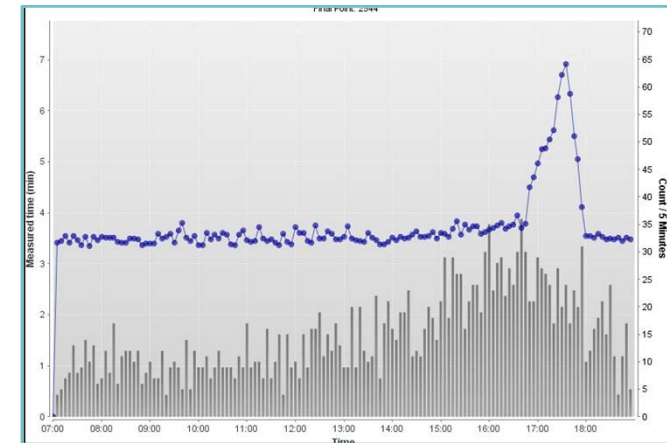
Estimated Costs & Benefits

Three Bluetooth transceivers were installed on the NtAQ project, each unit able to monitor multiple lanes and both directions. Install cost ~\$25k + annual maintenance ~5k. It should be noted that the cost of these devices is reducing and considerable savings could be realised by installing at multiple sites (e.g. via a national contract).

The Bluetooth technology provides continuous (24/7), accurate travel time data. This provides accurate inputs when assessing project benefits and can also be used to monitor effectiveness of a project post implementation. The Bluetooth technology could also be used to provide accurate travel time to customers via VMS in the future.

Contributors

NtAQ Project Team - NZTA / Fletcher / Beca



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: AN35 Safety Improvements Work-SH1 Kauri Passing Lane and Fonterra Access Improvements

Opportunity

NZTA proposed to carry out 2 Minor Safety projects on Kauri Passing Lane (SH1). Fonterra had approval to upgrade their site entrance at the same location.

Solution

- Engagement of one consultant to undertake both client designs, appoint one contractor to build combined works, tender, award, and administer both projects as a single contract
- MoU setup between NZTA and Fonterra to deliver project.

Estimated Costs & Benefits

- Initial cost estimate for combined NZTA and Fonterra project was \$1.8M.
- Combining the project has resulted in estimated cost savings of \$500k to both clients
- Overlapping construction programme has resulted in substantial reduction in disruption to the customers
- Close collaboration between NZTA and Fonterra with regular Project Control Group meetings. Fonterra provided land at no cost to NZTA, which allowed critical early works to be undertaken.

Contributors

Improvement in road safety from the combined three projects
Kumaran Nair and Brian Rainford, (designed and managed by Opus Whangarei)



Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	Yes
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: AN39 Changing the internal electricity supply for the tunnel on the Waterview project

Opportunity

The tunnel requires a significant and reliable power supply. The original high voltage (HV) design had power supplied by Vector from their Te Atatu substation in the north at 33kV to a new surface substation above the northern ventilation building, which stepped power down to 11kV. In the south, power was to be supplied from Vector's Avondale substation at 22kV and stepped down to 11kV in the southern ventilation building.

Solution

Working closely with Vector to consider their broader network, we identified and pursued the opportunity to supply power from Te Atatu at 22kV (as is being supplied in the south from Avondale) and implementing a 22kV high voltage ring main – rather than the 11kV high voltage ring main initially proposed.

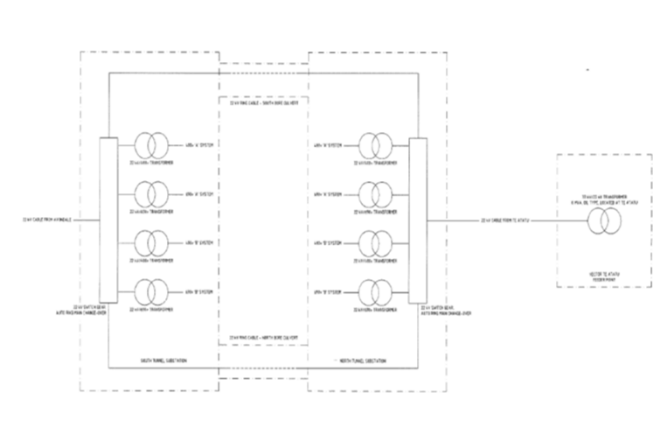
This optimised design removes the need for the surface substation in the north, by placing 33-to-22kV step-down transformers in Vectors existing substation at Te Atatu, and also eliminating the 22-to-11kV step-down transformers previously required in the south.

Estimated Costs & Benefits

Costs savings in the order of \$800,000 are realised by removing the need to construct a surface substation as part of the project, and reducing the amount of HV equipment required. This design delivers additional benefits by returning this land to the community as open space at the completion of the project.

Contributors

Keith Gibson- Well Connected Alliance Mechanical and Electrical



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: C13 Innovative use of Procurement to deliver quality Vfm

Opportunity

4 intersection safety improvements projects on the Mariri Causeway on SH60 were developed by Network operations, ready for construction in 10/11. The construction proposed involved seal widening of existing causeway into a sensitive Coastal marine area so came with some very specific resource consents conditions similar to the nearby Ruby Bay Bypass project that was nearing completion - engineers estimate was 871k

Solution

A collaborative approach between capital and network operations (and ultimately Contractor) resulted in a formal request being made to our National Office procurement team to permit use of Direct appointment of Supplier (in this case the Ruby Bay contractor) as their approval was required as direct appointment for physical works > 400k is outside normal policy.

Estimated Costs & Benefits

Using Ruby Bay rates basis for a variation to Ruby Bay contract and utilising surplus cut from Ruby Bay a saving of \$271 was envisaged. However negotiation produced even better savings, provided NZTA with a contractor experienced in coastal marine work - resulted in an outturn cost was 500k with no environmental issues.

Contributors

Marlborough Roads



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: C9 Slip material from Manawatu Gorge used in the Construction of Capital Projects and Road

Opportunity

The major slip in the Manawatu gorge required the removal of approximately 500,000m³ of granular material. At the time two large nearby capital projects required pavement metal from local rivers and quarries.

Solution

Rather than transport the slip material to waste, use the material to construct the new roads and repair local roads.

Estimated Costs & Benefits

The cost of transporting the material to waste versus transportation to the capital site was the same. The cost of the construction of the capital projects will reduce by \$700k.

Benefits to the environment comprise 85,000 kms of heavy vehicles mileage, 100's of hrs of excavator time and reduced disruption to the local rivers as 20,000m³ less metal was extracted from the rivers.

Contributors

Larry Jones



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: AN28 - Newmarket Viaduct – South Approach Wall

Opportunity

To redesign the south approach wall at Gillies Ave.

Solution

The design was changed from 600mm piles to ground anchor on shallow foundations, this allowed the existing ramp surfacing to remain in place.

Estimated Costs & Benefits

Minimal impact on the existing ramp with regards traffic closures. 25% saving on T.O.C budget (\$160k saved on a \$640k budget). Potential stability issues resolved by not having to remove existing retaining wall.

Contributors

NGA Newmarket Design Team



Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Med
Social & Environmental Responsibility	Med
People & Processes	Low
Efficient Delivery of Works	High

Value for Money Initiative: AN37 Highway Information Sheet

Opportunity

Highway Information Sheets have been produced manually in the Auckland region for 41 years. Systems employed have been manual drafting and CAD systems, local knowledge and datasets that should all be in the RAMM or BDS databases.

Solution

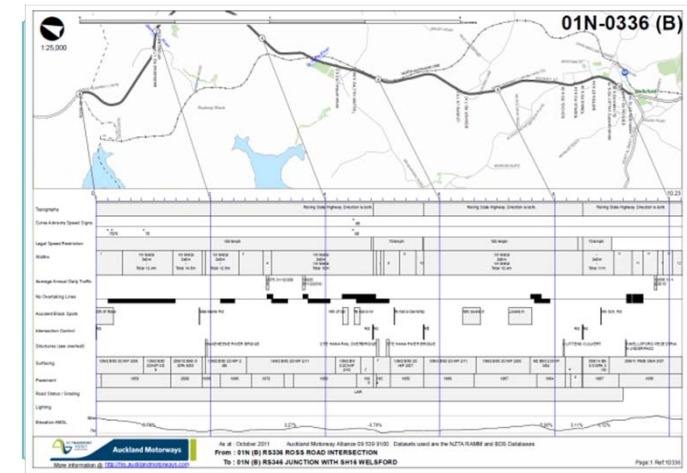
Produce an automated system that publishes data from RAMM and BDS into a GIS system for website access and PDF documents for offline use.

Estimated Costs & Benefits

Cost to implement approximately \$50k. Savings of \$75k per year or approximately \$600k over remaining 10 year life of Alliance. Updates are now available on request, and always using the latest data. While cost savings are significant, particularly as NZTA is currently rolling this system out Nationwide, biggest benefit is that it exposes inaccuracies in RAMM and BDS data in a visual way and encourages corrections to be made at source.

Contributors

Auckland Motorway Alliance - Tony Darby and the IDM Team



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

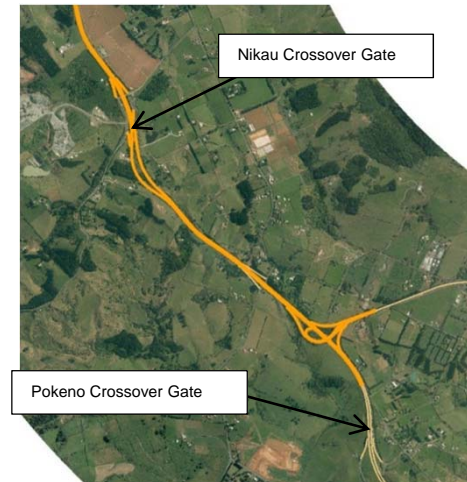
Value for Money Initiative: AN34 Cross Over Gate to Remove a Long Detour

Opportunity

A surfacing site at the SH1/2 Interchange involved a extensive detour that would take the traffic through Tuakau and would add up to 45mins onto the travel time

Solution

A crossover gate was installed to allow the traffic to be put onto the opposite side of the motorway e.g. the NB traffic is put on the SB lanes to allow work to be carried out on the NB carriageway



Estimated Costs & Benefits

Savings to the customer, both in travel time and running costs
 Reduction of advertising costs due to there not being an extensive detour
 Reduction in the length of the detour route
 Provides a safe working area for the crews to work in
 This innovation has allowed us to reduce the detour route for other works in the area between Nikau Rd and Pokeno for years to come
 This particular cross over gate can also be used by the NZTA Waikato contract for works in their area
 Savings: Closure Advertising \$20000, Detour Implementation \$35000, Total: \$55000
 Cost Cross Over Gate: \$75000

Contributors

Imran Ibrahim, Tony Darby, Gordon Coombes, Mike Marsden

Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: AN35 Safety Improvements Work – SH1 Kauri Passing Lane and Fonterra Access Improvements

Opportunity

NZTA proposed to carry out 2 Minor Safety projects on Kauri Passing Lane (SH1). Fonterra had approval to upgrade their site entrance at the same location.

Solution

- Engagement of one consultant to undertake both client designs, appoint one contractor to build combined works, tender, award, and administer both projects as a single contract
- MoU setup between NZTA and Fonterra to deliver project.

Estimated Costs & Benefits

- Initial cost estimate for combined NZTA and Fonterra project was \$1.8M.
- Combining the project has resulted in estimated cost savings of \$500k to both clients
- Overlapping construction programme has resulted in substantial reduction in disruption to the customers
- Close collaboration between NZTA and Fonterra with regular Project Control Group meetings. Fonterra provided land at no cost to NZTA, which allowed critical early works to be undertaken.
- Substantial improvement in road safety from the combined three projects

Contributors

Kumaran Nair and Brian Rainford, (designed and managed by Opus Whangarei)



Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	Yes
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: S11 Innovative Resurfacing- Combi Seals

Opportunity

With maintenance and renewal budgets under pressure for efficiency savings, it was appropriate to closely examine the seal designs being used to ensure we were investing wisely in appropriate treatments, as the reseal budget represents our largest budget.

Solution

South Canterbury being a P/4 contract, has allowed us to accept different risk profiles and try innovative lower cost treatments. One example is use of combi seals, which effectively give the strength of a 2-coat in high stress wheel tracks, fills any ruts present, yet gives a lower cost single coat over the low demand shoulders and centre line.

Estimated Costs & Benefits

The cost of a combi seal is approx \$1.30/m² less than a full 2 coat seal. Over a km of sealing, this equates to a saving of \$13,000 which can then be reinvested in lower risk treatments on the higher profile roads, allowing our budget to stretch further. It also reduces traffic delays during construction due to only 1 spray run of binder.

Contributors

Albert Su (NZTA) albert.su@nzta.govt.nz and Bevan Sandison (Opus) Bevan.Sandison@Opus.co.nz



Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: **\$15 Reduced Capital & Maintenance Costs – S2G (in detail design)**

Opportunity

- Designation corridor became very tight, given need for a service lane additional to four laning improvements.
- Drainage treatment and disposal was necessarily contained within designation, but required bespoke containment and treatment solution (approx 1km of precast units)
- Ongoing maintenance costs expected through life of facility 'above the norm' for this solution
- Investigate alternative ways: re-visit designation and land requirements

Solution

- Collaborative wholesale review within NZTA and with designers to revisit design.
- NZTA liaising with landowner to seek permission for additional take of rural aspect land to create detention pond in lieu of precast units. Looking favourable (to be confirmed through negotiation)
- Realise an alternative S/W collection and disposal design, through localised expansion of land requirement

Estimated Costs & Benefits

- \$2 - \$3 million saving in capital construction costs (even with additional land)
- Significant lifetime maintenance costs saving (pond less to maintain than 1km culvert system)

Contributors

Steve Proud / Craig Redmond / MWH



Highways Strategic Priority	Impacts
Safe Journeys	NO
Efficient & Reliable Journeys	NO
Social & Environmental Responsibility	YES
People & Processes	NO
Efficient Delivery of Works	YES

Value for Money Initiative: C10 Placement of surplus earth material for future road realignment

Opportunity

The SH2 Corby Curves Realignment between Woodville and Dannevirke generated a significant quantity of surplus earth material. At the same time, a need to realign and install a passing lane immediately to the south was identified in a passing lane strategy study.

Solution

Place and compact surplus material so that it can be used as the formation for a new passing lane with improved alignment in the future.



Estimated Costs & Benefits

The construction of the formation will reduce the cost of the future project by approximately \$250k with little increase in cost to the existing SH2 Corby Curves project.

Contributors

Larry Jones

Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

WBOP5 Combined Investigation Projects – Arden Cottage Curves

Value for Money Initiative: Realignment, Bridgman Lane Passing Lane, Wolseley Road Passing Lane

Opportunity

To reduce cost to NZTA for professional services fees by combining multiple block projects into one contract

Solution

Three block projects (Arden Cottage Curve, Bridgman Lane Passing Lane, Woseley Road Passing Lane) were packaged into a single I&R and D&PD professional services contract, which generated high levels of interest in a competitive open market.

Estimated Costs & Benefits

The larger longer term nature of the work was desired by the industry, with good competition in the tender box. It also delivered value for money through efficiencies in the procurement and contract management processes. Savings of a potential \$400,000 in professional services fees (when compared to the pretender estimate) for the I&R and D&PD phases.

Contributors

Greig Stephen



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: S9 Central Otago Highway Maintenance

Opportunity

Renewal of existing 5 year Highway Maintenance Contracts in Central Otago for 2011-2016

Solution

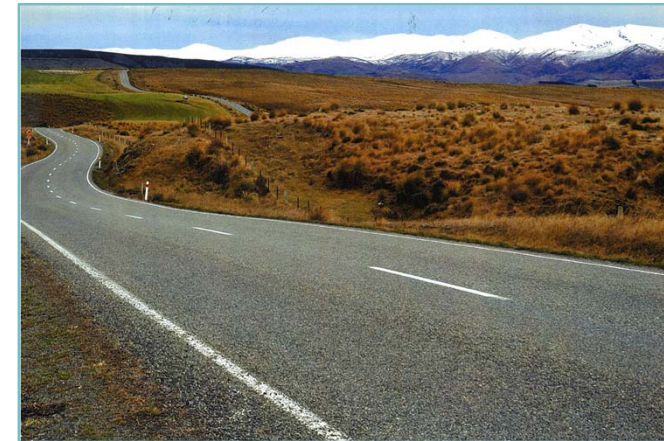
To formally combine 2 existing Highway Maintenance Contract Areas of Central Otago (305km) and Queenstown Lakes (232km) into one optimal and efficient Highway Contract.

Estimated Costs & Benefits

\$250k PA has been assessed as the annual savings solely attributed to the efficiencies of one larger but optimal Contract length of 537km

Contributors

John Jarvis and Fulton Hogan Accepted Tender July 2011



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: S10 Kawarau River Bridge Repairs and HPMV

Opportunity

SH6 Kawarau River Bridge (Bungy) near Queenstown has a number of significant design deficiencies and structural issues that are being closely monitored and a design for repairs is well underway.

Solution

As this bridge is on a Regional Strategic Route and a local HPMV priority, the design will also incorporate HPMV requirements for very minimal additional cost thus avoiding any future establishment/access retrofit costs.



Estimated Costs & Benefits

Between \$80k and \$100k of extra establishment and scaffold access costs to retrofit for separate HPMV upgrade will be saved.

Contributors

John Jarvis & Opus Dunedin

Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: S13 Longer Life Asphalt Surfacing

Opportunity

Downer is the Network Maintenance Contractor for the Hurunui-Kaikoura Hybrid Contract. Within this contract Downer is responsible for developing an annual treatment programme which includes a component of asphalt resurfacing. As the designer of these surfacing treatments Downer can identify and develop innovative solutions using their proprietary asphalt products and binders.

Solution

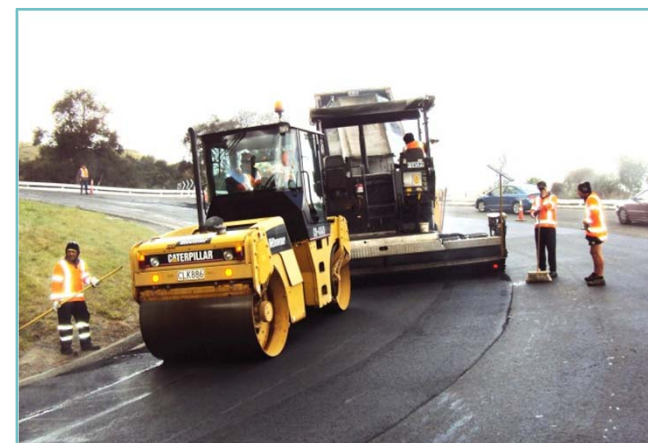
The Okarahia corners comprise 3 tight curves on a steep hill decent on SH 1 approximately 30km south of Kaikoura and provides an important freight route between Picton and Christchurch with almost 20% Heavy Commercial Vehicles. The surfacing on these corners has suffered from premature deterioration when using traditional mixes. Downer developed an innovative surfacing using a proprietary binder including a Warm Mix additive in order to provide an asphalt with superior fatigue and deformation resistance.

Estimated Costs & Benefits

The additional cost of the new surfacing over a traditional asphalt was approx. 40% more. Based on the laboratory testing the benefits of this innovative solution is an expected increase in surfacing life of up to 3 times over that of a traditional asphalt.

Contributors

janet.jackson@downer.co.nz and shaun.magee@downer.co.nz on behalf of Downer



Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: C17 Peka Peka to Otaki RoNS Consenting

Opportunity

- The NZTA and KiwiRail are required to apply for consent for projects which are directly adjacent to and cross each other
- There is an opportunity to achieve cost savings on the application process

Solution

- The NZTA Teamed up with KiwiRail to make individual applications through a combined consenting process
- Reduces tax payer costs by completing 2 consent applications through one process

Estimated Costs & Benefits

- One set of specialists required to complete assessments for both organisations instead of two
- One tender process (saving Govt and Consultant \$\$\$)
- \$\$ saved is hard to quantify, but would be significant \$10s -

Contributors

Rowan Oliver; Ulvi Salayev, Dean Ingoe; KiwiRail; Opus



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: WBOP6 Guardrail on Pyes Pa Bypass

Opportunity

Remove guardrail terminal ends in two locations on Pyes Pa Bypass to improve safety outcome, visual aesthetics and reduce costs.

Solution

Using the natural contours of the landscaped bank to bury two guardrail ends removes the end treatment hazard (and cost) leaving a more visually appealing and safer environment.



Estimated Costs & Benefits

Safety benefits increased with the removal of two hazards from the SH (guardrail terminal ends).

Reduced cost of guardrail by eliminating terminal ends, typically costing \$4000 each.

Contributors

Steve James

Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	No

Value for Money Initiative: WBOP7 Maraenui Hill Realignment

Opportunity

Following the collapse of SH35 into the sea at Maraenui a new route had to be constructed on the opposite side of the hill. The original proposal of a 1.2km 50km/hr design speed realignment incorporated several retaining wall structures and substantial earthworks which made up a significant portion of the project cost.

Solution

By adjusting the proposed alignment and slightly reducing the design speed over a few short sections significant savings were able to be made. This was due to the elimination of three retaining wall structures from the design (of Gabion and MSE construction) and a reduction in earthworks.

Estimated Costs & Benefits

It's estimated that the reduction in design speed and subsequent reduction in earth works saved \$360,000. The removal of the three retaining wall structures from the design is estimated to have saved \$260,000. Total savings of this initiative are estimated at 6% of the total cost.

Contributors

NZTA Tauranga (Nigel D'Ath, Dilip Datta, Russell Brandon),
OPUS Whakatane (Rex Humpherson)



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	No
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: NAT 1 Papakura Interchange Value Engineering Review

Opportunity

The ECI contract for design and construction of the upgraded Papakura Interchange was priced at \$34.4M which was more than \$3M over the allocated budget.

Solution

Undertake a Value Engineering review of the design solution to challenge design standards and assumptions. The review focused on the design for the new bridge and associated ground improvements.



Estimated Costs & Benefits

Cost: The review utilised the Professional Services Structures team, and some additional design from the ECI team. This cost approximately \$261K.

Benefit: By allowing limited ground displacement at the bridge abutments during a seismic event the requirement for 2.3m dia. piles to retain the ground was removed. The abutments were redesigned using geogrid /geotextile reinforcement and considerably smaller piles which carry vertical load only. These amendments saved 10 weeks from the construction programme and reduced the construction cost by \$4.51M.

Contributors

Chandra Perrera (Project Manager, Auckland) and John Reynolds (Principal Bridge Engineer, Professional Services)

Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: C14 Rates Minimisation Bogart's Corner

Opportunity

To look for ways to reduce our holding costs for the five properties now that the earthquake-prone buildings have been demolished and replaced with a temporary landscaped open space.

Solution

The five properties are individually rated partly on value and partly on service connections. If we can successfully argue that the capital value and the number of service connections have been reduced and that the five properties are effectively being used as one, we should be able to reduce the overall rates bill.

Estimated Costs & Benefits

This year's annual rates bill for all five properties is \$18,014. As a result of our request, WCC has now reclassified all five properties to "Base - no services". Under this classification, preliminary estimates show that we can expect annual savings in the order of \$10,500.

Contributors

Peter Trotman, Project Management Services, Wellington



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: AN27 - Newmarket Viaduct – Post Tensioning Cables

Opportunity

To simplify the viaduct segment cross sections and method of installing post-tensioning cables.

Solution

Instead of the steel tensioning cables being installed inside the bottom slab of the segments, they were installed within the bridge deck. Therefore the pre-cast segments did not need holes cast in the bottom slab for the cables.



Estimated Costs & Benefits

- Reduced segment cross sections required – lighter segments.
- Improved production rate from pre-cast yard.
- Reduced risk of grouting operations spilling onto roadways as grouting was done inside the viaduct.

Contributors

NGA Newmarket Design Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Med
Social & Environmental Responsibility	Low
People & Processes	Low
Efficient Delivery of Works	High

Value for Money Initiative: AN38 Mutually beneficial agreement struck with the Friends of Oakley Creek

Opportunity

Opportunity raised between the Well Connected Alliance and the Friends of Oakley Creek community group to share resources for mutual benefit.

Solution

An agreement was reached where the Alliance used its subcontractors to remove pest trees from sections of Oakley Creek not directly related to the project and supplied native plants and rodent bait stations to control predators of native lizards relocated from the project area. In return the FOC is providing labour for the time consuming plantings, and on-going maintenance of bait stations to discharge the Alliance's commitment in relation to lizard habitat enhancement and pest control.

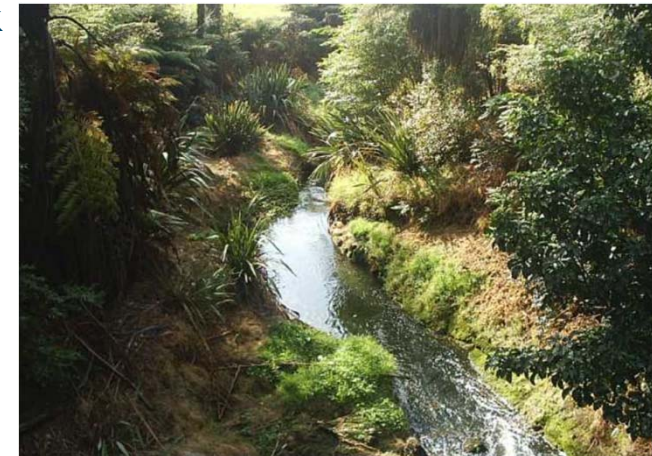
Estimated Costs & Benefits

Cost saving from predicted levels amount to around \$29,300.

Other non financial benefits include strengthening relationships with the community and the Alliance enhancing the local environment passed what was required in consent conditions.

Contributors

Brett Ogilvie- Well Connected Alliance Key Relationships team



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	Yes
Social & Environmental Responsibility	Yes
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: AN 24 - Newmarket Viaduct - Pressure Grouting

Opportunity

Pier B of the Newmarket Viaduct required deep foundations. At the depth required the founding rock was fractured scoria / basalt. Deeper excavations would have been required to dig it out, and piles would normally be required.

Solution

Pressure grouting was used beneath the foundation to avoid the need for piles. Ducts were cast into the foundation and once the column was fully constructed it supplied sufficient pressure to drive grout into the fractured rock.

Estimated Costs & Benefits

- Avoided expensive piles
- Saved time and kept the project on schedule

Contributors

NGA Newmarket Design Team



Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Low
People & Processes	Low
Efficient Delivery of Works	High

Value for Money Initiative: AN31 - Newmarket Viaduct - Ground Anchors

Opportunity

To reduce the risk and complexity of drilling anchors through the reinforced concrete abutment and backfill.

Solution

The anchor casings were drilled from ground level to the abutment footing. By installing the casing above ground level the abutment could be constructed around the anchor casings instead of drilling through the abutment later on.



Estimated Costs & Benefits

- Less complex drilling – saves time and money.
- Removal of risk of equipment becoming stuck while drilling.
- Less backfill required.
- Drilling and grouting activities safer.
- No drilling platform required.
- Smaller environmental impact from work activities.

Contributors

NGA Newmarket Design Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Low
People & Processes	Med
Efficient Delivery of Works	High

Value for Money Initiative: C11 – Reuse of temporary lighting to Mt Victoria Tunnel to save money

Opportunity

During the period between completion of phase 1 works, and the construction of phase 2 works, we could increase the lighting levels to enhance driver and pedestrian perception, comfort and safety when driving through the Mt Victoria Tunnel

Solution

Relocate temporary fluorescent lighting utilised for the Terrace Tunnel refurbishment and install within Mt Victoria Tunnel to supplement the existing HPS lighting units. Work was carried out utilising pre-planned tunnel closures, hence avoiding additional traffic management costs

Estimated Costs & Benefits

Increase in luminance of between 24 (mid section) and 58 (portals) lux through the tunnel length.

Reuse of otherwise redundant lighting units and cablings - installation, testing & commissioning (\$177k) were the only additional costs to the project

Contributors

David Arrowsmith / WTA Project Team



Highways Strategic Priority	Impacts
Safe Journeys	Yes
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	Yes
People & Processes	No
Efficient Delivery of Works	Yes

Value for Money Initiative: C16 Wifi throughout NZTA

Opportunity

Smartphones and I pads are becoming the standard through NZTA. These devices use data which is downloaded through 3G if no wifi connection is available. Most people get 100mb of data which is easily exceeded if the person is downloading emails once an hour, after which out of bundle rates apply.

Solution

Wifi should be provided as a matter of course throughout NZTA offices. Once I moved to L7 PSIS (which has Wifi) my data bill declined as I was no longer using 3G sitting at my desk to download emails.

Estimated Costs & Benefits

Estimated at \$5 per smartphone / Ipad saved per month. Cost is the cost of a wifi connection, possibly \$100 per unit including boosters. Say four required per office *15 offices = \$6000 one off outlay . Assume 500 smartphones/Ipads, payoff in three months.

Contributors

Jo Draper, PSIS House.



Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: AN23 - Newmarket Viaduct - Smaller Foundation

Opportunity

Excavation for the northbound pier A foundation created high risk to the existing southbound foundation which was carrying traffic loads.

Solution

Decrease the southbound foundation size and stress



Estimated Costs & Benefits

- Removal of risk to network security.
- Reduced construction costs as extent of basalt breakout is reduced .

Contributors

NGA Newmarket Design Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	High
Social & Environmental Responsibility	Low
People & Processes	Low
Efficient Delivery of Works	High

Value for Money Initiative: AN26 - Newmarket Viaduct - Cantilever Anchors

Opportunity

Eliminate top deck anchorage holes for cantilever post tensioning.

Solution

Fully recessed anchorage assemblies in the top slab section of segment.



Estimated Costs & Benefits

- No need to apply tack coat, mix grout/concrete and fill anchorage holes – completed during tendon grouting.
- Better corrosion protection of anchorages, short and long term
- Eliminate large opening/trip hazard

Contributors

NGA Newmarket Temporary Works Design Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Low
People & Processes	Med
Efficient Delivery of Works	High

Value for Money Initiative: S12 Efficient & Effective Chip Testing

Opportunity

The Central Otago resealing programme has used a single source of chip in all resealing sites across the region. New standards require us to test a representative sample every 5km of completed seal.

For the 40km of new sealing this season this equates to around 30 samples, each weighing approximately 20kg.

Solution

Two samples were taken direct from the chip source quarry. These were analysed against composite samples taken from random seal sites. Results were then compared against previous test results from the same source quarry and random quality audit samples. Significantly reducing the amount of samples that needed to be taken and tested.

Estimated Costs & Benefits

Costs and time associated with the compliance testing were significantly reduced as were sustainability issues associated with transporting nearly 500kg of material to the laboratory in Wellington.

There was reduced time in the field collecting samples and reduced exposure to heavy lifting of these samples.

Contributors

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Highways Strategic Priority	Impacts
Safe Journeys	No
Efficient & Reliable Journeys	No
Social & Environmental Responsibility	No
People & Processes	Yes
Efficient Delivery of Works	Yes

Value for Money Initiative: AN29 – Newmarket Viaduct – Pier C Prop Modification

Opportunity

To keep pier C schedule on time by introducing a concrete base prop to allow the commencement of the larger prop installation without waiting for pre tensioning to finish on piers K-L.

Solution

A concrete support was cast in situ, allowing the prop components to be installed early and keep the project on track.



Estimated Costs & Benefits

- More time available to finish pre tensioning at piers K-L
- Reduction in team overtime required to recycle the props back to pier C
- Reduced programme schedule risk

Contributors

NGA Newmarket Construction Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Low
People & Processes	Med
Efficient Delivery of Works	High

Value for Money Initiative: AN30 – Newmarket Viaduct – Pier B Re-Sequencing

Opportunity

Increased segment erection rates on the gantry resulted in support props not being available to Pier B, and the program risked falling behind schedule.

Solution

Adapting a different method of pier bearing installation using scaffolds instead of props allowed the bearings to be installed earlier and the rest of the pier segment to be cast on schedule.



Estimated Costs & Benefits

- Span pre-tensioning and grouting finished on time from pier G–H.
- Dates for removal of pier H props and installation of pier B props brought back on schedule.
- Diaphragm and bearing installation at pier B completed on time.

Contributors

NGA Newmarket Design Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Low
People & Processes	Low
Efficient Delivery of Works	High

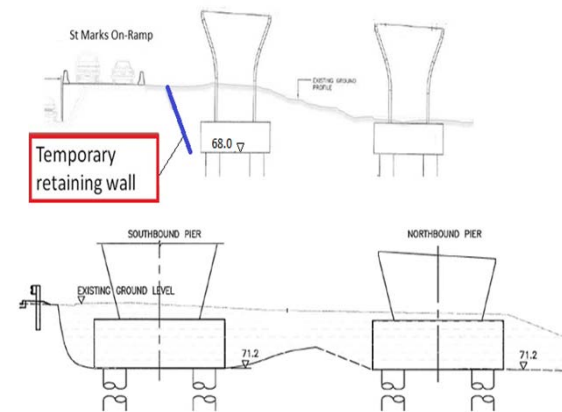
Value for Money Initiative: AN25 - Newmarket Viaduct – Lifting Pad Foundations

Opportunity

The piers at the southern end of the viaduct originally used deep pad foundations to give the columns enough length to avoid large seismic demands. This required a temporary retaining wall to support the St Marks on ramp.

Solution

Raising the foundations avoided the need to construct the temporary retaining wall during foundation construction.



Estimated Costs & Benefits

- Not constructing the temporary retaining wall saved time and money on the project.
- Less risk of safety and environmental side effects from construction.

Contributors

NGA Newmarket Design Team

Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Low
People & Processes	Low
Efficient Delivery of Works	High

Value for Money Initiative: C15 Predicting Future Economic Activity

Opportunity

There is an opportunity to use NZTA's state highway monthly traffic data to provide a extremely valuable 6 month lead on the countries economic activity and allow NZTA to make smart investment decisions.

This opportunity also demonstrates how NZTA's information can be used to help New Zealand thrive in a uncertain economic environment.

Solution

The correlation of Gross Domestic Product (GDP) and monthly traffic growth trends is very close. GDP is published quarterly, monthly traffic data is published monthly. This provides a future estimate of economic activity. A monthly (detailed) report of these statistics are published by the ANZ Bank in a report titled 'Truckometer'. Click on graph for link.

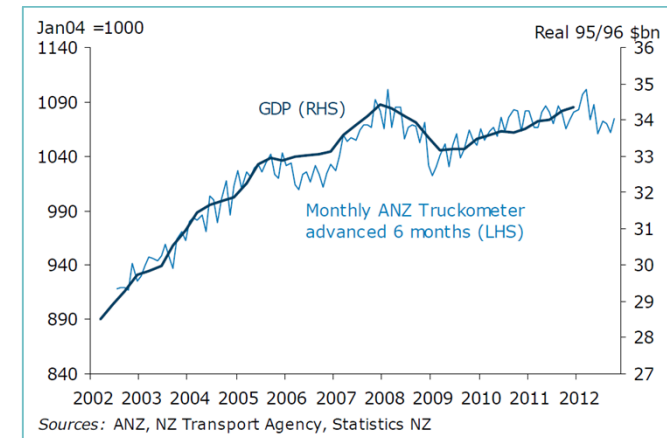
Estimated Costs & Benefits

Using this knowledge NZTA are more capable of making better value for money decisions. NZTA's suppliers can use this information to make their business more efficient and provide better value for money.

The dollar savings are hard to quantify, but would be significant.

Contributors

Neil Beckett from the National Traffic Monitoring System
(TMS)



Highways Strategic Priority	Impacts
Safe Journeys	Low
Efficient & Reliable Journeys	Low
Social & Environmental Responsibility	Medium
People & Processes	Medium
Efficient Delivery of Works	Low