

This 10th VfM booklet contains
Value for Money Stories
contributed from across the country in the
3 months ending November 2013.

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.

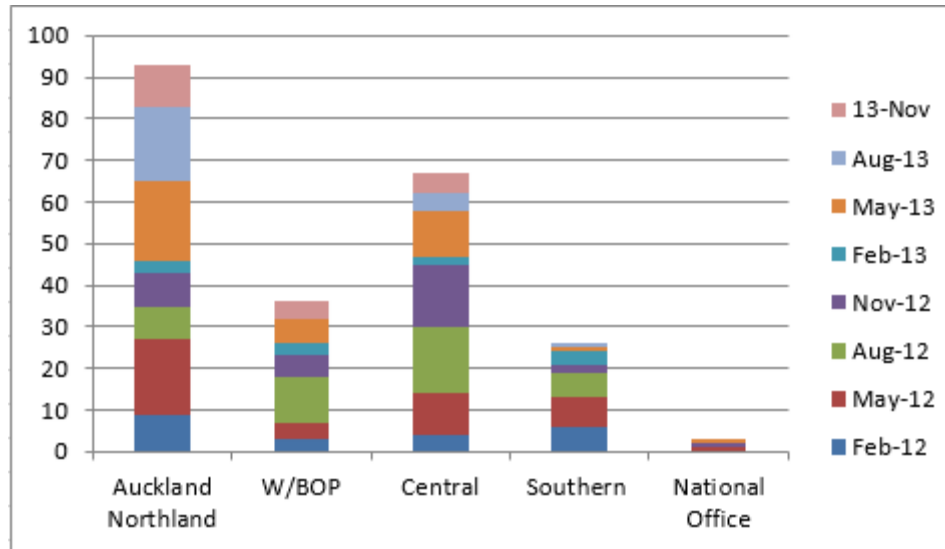
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Southern – Roger.Bailey@nzta.govt.nz

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



To date we have received 245 Value for Money slides.

Value for Money Initiative: AN94 Stinger connection used on piles at the Waterview Connection

Opportunity

In constructing the stabilised block at the Waterview Connection northern approach trench, which included 408 interlocking piles, the team encountered problems with the infill piles getting out of line and being unable to be retrieved.

Solution

Even when pile casings were used it was difficult to keep the initial section of the casing in line, and once below the casing the auger skidded out of its interlocked position. The team developed a stinger attachment to guide the auger, which evolved into a flighted leading auger that drilled the virgin ground between the adjacent plies, proving a lead for the main auger. Once into harder ground the stinger penetrates well and reduces the amount of cutting the auger has to do which also provides for smoother and quicker drilling.

Estimated Costs & Benefits

Around \$230,000 in programme, materials, plant and labour savings.



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

Contributors

Darren Rose and Tony Sage for the Well-Connected piling crew

Category

Cost Savings
Structures

Value for Money Initiative: AN95 Electric Chainsaws for Tree Works

Opportunity

Tree work that requires lane closures for access is mainly carried out at night. Tree work generates excessive noise levels with chippers generating over 120dB, chainsaws generating over 100dB and then communication between team members generally exceeding these. This very often attracts noise complaints.

Solution

FTS are now trialling electric chainsaws, which have a decibel rating of around 80 decibels compared to standard chainsaws that have a decibel rating of around 110. This is a significant reduction and a contributing factor in a recent week of complaint free night work.



Estimated Costs & Benefits

Use of electric chainsaws removes one form of noise nuisance from the tree removal operation.

However they do have draw backs of:

- Added expense
- Batteries need to be charged
- Added responsibility and care needed by staff due to additional value

Contributors

Rick Gardner, Jaiden Palmer, Shannon Chandra, Anneliese Sabrowski (AMA)

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

Category

Customer Service
Maintenance
Environment

Value for Money Initiative: AN96 SH20 Oakley Creek Methodology

Opportunity

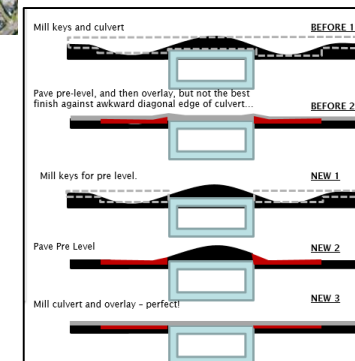
SH20 Oakley Creek was paved due to the settlement of the pavement before and after the bridge in both directions. The Southbound direction was paved first and the result was not as good as we had wanted to achieve.



Solution

The methodology used on the Southbound direction was industry best practice, but we innovated to get us a smoother ride by switching steps in the methodology as detailed below.

Initial Plan	Updated Plan
1 - Mill Keys for Pre-Level	1 - Mill Keys for Pre-Level
2 - Mill over Culvert	2 - Pave Pre-Level
3 - Pave Pre-Level	3 - Mill over Culvert
4 - Pave Overlay	4 - Pave Overlay



Estimated Costs & Benefits

Smoother ride on the Northbound direction by smoothing the transverse joins of the pre-level against the bridge.

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

Contributors

Mark Youngs (AMA)

Category

- Pavements
- Safety
- Maintenance

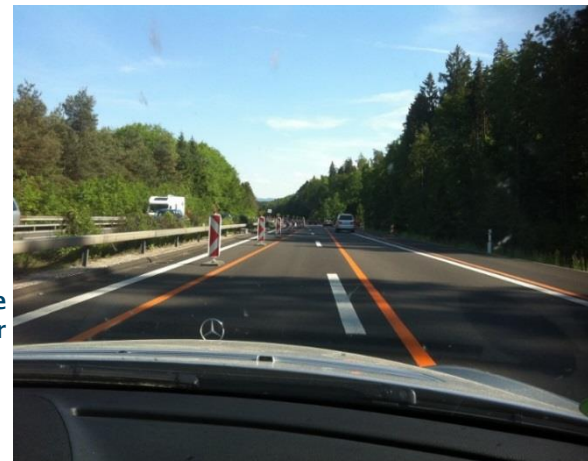
Value for Money Initiative: AN97 Use of Orange Tape during Road Works

Opportunity

Capital Projects often involve several lane shifts during construction. Old markings need to be removed and new temporary marking will be put on. This process is often time consuming and costly. However even worse is that the old markings (ghost markings) can become visible after a while and this can lead to a serious safety risk by creating confusion to drivers as to where they should position themselves on the road.

Solution

European and Australian practice is to use an orange or yellow tape. The AMA lobbied the Traffic Control Device (TCD) group to approve this. A trial is to be run on the Upper Harbour to Greville Road project in early 2014.



Estimated Costs & Benefits

- Less closures, with no need to continually re apply blackout on markings
- Cost savings from reduced closures, reapplication of blackout, or reinstating original markings at the end of the project.
- Improved pavement management strategies due to less (or no) damage to the pavement through removal of markings, and no need to reseal at the end of the project to eliminate ghost markings.
- Less driver confusion by the road markings, especially in inclement weather conditions.

Contributors

Doris Stroh, Andrew Stevens (AMA), (Kenny See)

Category

Cost savings

Safety

Traffic Management

Maintenance

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: AN98 Interchangeable Diversion Signs

Opportunity

General public, whilst traveling on a detour routes from the motorway often get confused or do not see the detour signs. Existing signs are erected in less prominent positions that the general public either cannot see or miss due to being deviated from their regular route. This leads to many complaints from the travelling public.

Solution

Design a bigger detour sign that can be used for a variety of different directions, symbols and colours. This sign can also be mounted on a level 2 frame, which the public already see on a daily basis which helps to standardise what the public look for while on a detour.



Estimated Costs & Benefits

Less confused and lost members of the public. Easier passage while on detour routes. Less signage for TTM companies to purchase. Saving money for NZTA and the general public.

Contributors

Dave Allen (AMA)

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

Category

Customer Service
Traffic Management
Cost Savings

Value for Money Initiative: AN99 Innovative wick drain ground improvement design solution for widening of SH16 Causeway Upgrade Project

Opportunity

To minimize engineering risk associated with differential settlement between the existing motorway and the widened section; to limit disruption to existing traffic during construction works; and to provide cost savings for ground improvements through very soft alluvial deposits. The Causeway Alliance identified major environmental benefits, risk reduction measures and cost savings while also enhancing whole of life, safety, and journey reliability.

Solution

The Causeway Alliance implemented a flexible ground improvement solution, which involved a combination of wick drains, preloading and temporary berms instead of the expensive rigid solution of Deep Soil Mixing (DSM) suggested by the Specimen Design. This design will allow settlements under the existing motorway and the widened section to continue post construction. It has eliminated the need for either (1) a sharp interface between no ground improvements and rigid ground improvements or (2) additional ground improvements beneath the existing motorway.

Lightweight fill (pumice sands) and high strength geotextile will be used where appropriate to assist the wick drain and preloading design. It will reduce differential settlements and improving embankment stability.

The overall design ensures that all wick drain and preloading works can take place outside of the main motorway corridor (to the north of the existing motorway). Only earthworks will be required across the existing motorway to raise it. This has reduced the number of traffic switches, limited traffic disturbance, will provide greater journey reliability, and will enhancing traffic and worker safety.

This design also has environmental advantages over pumping concrete into the existing mud. It has allowed the works to be carried out with lighter or smaller plant, increasing safety during construction over soft ground.

Estimated Costs & Benefits

Greater than \$25 million in reduced costs from rigid ground improvement solutions. In addition, providing wick drains only under the widened section of the motorway reduces traffic disruption. The wick drain solution reduces whole of life differential settlement risks in comparison to rigid ground improvement solutions.



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

Contributors

The Causeway Alliance – Geotechnical Designers

Category

Value Engineering
Earthworks

Value for Money Initiative: AN100 Tool Lanyards

Opportunity

To reduce risk of dropping tools onto traffic when working above live lanes on VMS signs and Lane Control Signals

Solution

Use a selection of lanyard and clip products from Safeworx.

- Tool lanyard
- Tool attachment
- Wrist strap
- Tool belt



Estimated Costs & Benefits

For around \$45 we could reduce the risk of dropping tool into live lanes using fit for purpose lanyards.

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

Contributors

Patrick Burns

Category

- ITS
- Maintenance
- Health & Safety

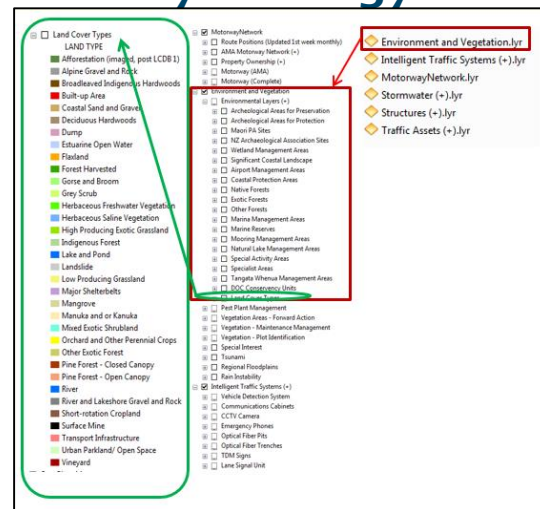
Value for Money Initiative: AN101 Sharing Map Viewer Symbology with NZTA

Opportunity

A new platform for spatial viewer is required by the new Geospatial team in NZTA Wellington. In order to assist the Geospatial team in NZTA, the IDM Team shared the symbology AMA use for the map viewer with NZTA. This helps to increase the speed of setting up the viewer, and making the viewer more consistent.

Solution

By using ArcMap, we created a set of ,lyr files for all the symbology we used for assets, roads, environmental feature classes. These are emailed to Andrew Shakes the Spatial Information Manager of NZTA.



Estimated Costs & Benefits

Able to transfer the symbology to other third parties effectively and quickly. Quote from Andrew Shakes: “Saves us reinventing the wheel and makes thing consistent”

Contributors IDM Team

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

Category

Collaboration
Information Management

Value for Money Initiative: AN102 Designing out engineered structures through effective community engagement

Opportunity

To reduce capital cost, save time on the construction programme, and leave a better legacy for community stakeholders. During detailed design the Causeway Alliance identified whole of life cost savings whilst improving the overall amenity value of a local Domain for its current and future users. Specimen Design indicated a number of retaining walls were required adjacent to Rosebank Domain, but by engaging with the stakeholders and understanding their needs, it was found that the walls could be eliminated.

Solution

Rosebank Domain is currently used as a raceway. There is a centrally located race track with an elevated viewing area between the track and SH16. It was identified during design that the retaining walls could be eliminated if the slope from the viewing area down to SH16 could be regraded at a shallower angle. The raceway stakeholders were approached and a solution designed with the following benefits:

1. A 15% increase in car parking at the viewing area.
2. An increase of 220m² in the grass seating area with a raised grass bank providing an elevated position to view the raceway.
3. Regraded entrance area to improve the safety of the access to the viewing area.
4. Upgraded internal road to allow an ambulance clearway to be maintained.
5. Regraded slopes to allow easy mowing providing a better whole of life solution .
6. Construction off line, reducing traffic management impacts and providing a safer construction zone.

By engaging positively with the local community, a solution was found to add value to a neighbourhood amenity whilst providing significant capital cost and construction programme savings and reducing the overall environmental impact associated with delivery of the SH16 Causeway Upgrade Project.

Estimated Costs & Benefits

Cost saving approx \$450,000 + Benefit to local community

no maintenance of retaining walls long term

Contributors

The Causeway Alliance – Designers/Constructors/Estimators

Category

Collaboration

Value Engineering



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: AN103 Loop Road Signage

Opportunity

Capital works project has a funding profile of “8”, therefore HNO needed to work with the capital team to implement short term options. The increase in HCV traffic at Loop Rd going to North Port needed to achieve a) better sightlines & b) to advise customers of trucks crossing. This intersection had sightline issues with vegetation outside of the road reserve.

Solution

The team working with the landowners removed a number of trees adjacent to the State Highway to increase sightlines and at the same time gated Truck Crossing signs have been implemented to highlight to North & South bound traffic on SH1 that this intersection has a higher proportion of logging trucks at various times of the day.



Estimated Costs & Benefits

For the minimal cost of \$28k. This minor improvement has contributed in minimising the incident count at this intersection therefore has not only saved NZ Transport Agency in call out charges but more importantly potentially saved lives. It has also helped build a customer relationship with land owners in the area.

Contributors

Downers, Opus, NZTA – HNO & Capital Team.

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

Category

Value Engineering
Safety

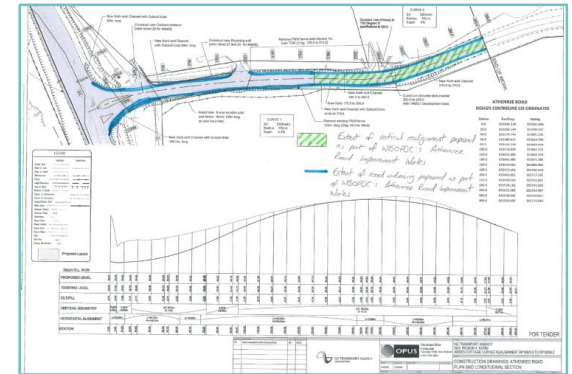
Value for Money Initiative: WBOP33 ‘One Network’ Collaborative Safety Approach

Opportunity

Work together as ‘One Network’ with the local council to maximise value by leveraging on competitively procured rates to undertake local road safety upgrade as a variation to much larger contract.

Solution

On SH2 Arden Cottage Curves we issued a variation under contract rates to improve the vertical crest curve on the local road approach to the project intersection.



Estimated Costs & Benefits

Minimising protracted disruption for local residents by undertaking concurrent roading works. Maximising site traffic management and establishment costs already incurred by the SH project to undertake smaller project on side road at no additional cost. Approximate savings \$50K.

Contributors

Greig Stephen & Jon Wyeth

Category

- Collaboration
- Cost Savings
- Customer Service

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

Value for Money Initiative: WBOP34 TEL Toll Gantry

Opportunity

It has been some 5/6 years since the Northern Gateway was constructed. During this time there will have been advances in the toll gantry system and technology. From the original dual gantry provided.

Solution

The supplier (Kapsch) has recently developed a new single gantry

The single that provides numerous benefits



Estimated Costs & Benefits

1. lower cost of roadside infrastructure establishment.
2. superior aesthetic outcome with its double skinned cladding finish and greater protection for maintenance.
3. As the latest generation, contains state of the art equipment baseline that will be supportable for a longer duration when compared to the double gantry solution.
4. Additional cost of \$350K per toll road, offset by TEL team.

Contributors

TEL Team

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

Category

Cost Savings
ITS

Value for Money Initiative: WBOP35 Bitumen Rubber Patch (BRP)

Opportunity

Address vibration due to pavement surfacing joints where pavement subgrade are soft and moist.

Solution

Bitumen Rubber Patches (BRP) were applied at seal joint in the wheel track. This effectively reduced the lip height and hence vibration from the pavement

The photo shows the patches applied on SH2 Bay of Plenty East



Estimated Costs & Benefits

- Cost of BRP was up to \$1K/m² offset by:
- Possible reduction in vibration and demonstration of addressing the problem to local residents
- Cost savings of \$10K-\$15K (investigation with accelerometers), and cost of other maintenance works (mill & inlay or relay)
- Reduced roughness over BRP, observed in annual survey data

Contributors

Terry Boyle (WBOP)

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

Category

Maintenance
Customer Service

Value for Money Initiative: WBOP36 Waioeka Gorge Slope Hazard Pilot Study

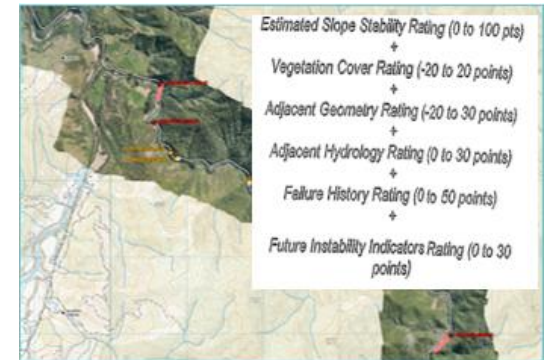
Opportunity

The history of these slopes tells us that future large scale slips are always possible and tend to occur every 12 to 14 years. Current status quo of contractors sweeping the gorge twice a day and OPUS Annual Rockfall Study only cover small rock falls. Recent Sandy Slip in March 12 revealed need for a more proactive means of managing this risk.

Solution

Pilot Study focused on potential large scale landslide risk sites carried out along SH2 Waioeka Gorge. This was a qualitative, repetitive and quick visual assessment based on a modified risk matrix used by Kiwi Rail.

Factors considered included failure history, slope shape, vegetation and drainage.



Estimated Costs & Benefits

- Cost of investigation and professional services was \$21K offset by:
- High level screening of gorge within a 5day field work period
- Utilisation of Kiwi Rail risk matrix modified for landslide risk on road
- 50Km gorge reduced to 16 high risk sites
- Potential dumpsite locations based on locality of the 16 sites identified
- The philosophy behind this has been provided to National office for inclusion into the National Risk Assessment process.

Contributors

Catherine Roh

Category

Safety

Journey Time

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

Value for Money Initiative: C69 Region 6 – Clean Up Chip Stockpile Areas

Opportunity

An opportunity was identified to clean up NZTA stockpiles in preparation for the NOC contracts which are due to start in the region over the next few years. Hastings District Council and Central Hawkes Bay Council have expressed an interest in uplifting old and contaminated chip remnants that have been gradually accumulating for many years. The TLAs are able to use the material on their unsealed networks and for repairs and other non-critical situations.

Solution

Utilising the forum of bi-monthly liaison meetings, which are held with all TLAs in the region, we were able to identify a symbiotic solution. NZTA gets its stockpiles cleaned out at no cost in readiness for the new NOC contracts. The TLAs acquire some handy good quality (if somewhat grubby) chip at minimal cost – basically what it costs to uplift and spread it. Their end use is not affected by contamination from soil and other deleterious material and the material is cheaper than alternative sources.



Estimated Costs & Benefits

Benefits for NZTA include free clean up of stockpiles (including potential disposal costs estimated at \$5K per site). There are 68 stockpile sites in Region 6 of which approx. 20 are used for chip storage so potential savings of \$100K. This also frees up stockpile capacity for the upcoming sealing season. Environmentally it reduces wastage and fuel usage and makes the roadside look tidier. Benefits for the TLAs are a handy source of good quality material at a modest cost that they can uplift as required. Great example of a mutually beneficial collaborative initiative with environmental benefits.

Contributors

Kathy Grant (Opus Napier) & NZTA team (Napier)

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: C70 Shared Services with TLA's

Opportunity

Via the NZ Transport Agencies collaboration with the Marlborough District Council (MDC), the Marlborough Roads office has been able to obtain savings in its electricity costs.

Solution

MDC are a big user of electricity (pump stations, lights etc.) and have been able to negotiate with the power supplier a more favourable rate than the Transport Agency.

Estimated Costs & Benefits

By a shared services approach, MDC pay for the Transport Agencies electricity at their rate, with the Transport Agency reimbursing for its proportion of the bill at this lower rate. Approx 20% savings to the Transport Agencies bills are being achieved.

Contributors

Marlborough Roads office.

Category

Cost Savings
One Network



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: C71 Region 6 SH2 Waitangi Bridge Repairs (Stage 1)

Opportunity

An opportunity was identified to remove redundant utilities and carry out other utility repairs during the Stage 1 bridge repairs. During the site investigation, redundant fibre-optic and redundant electric cables were noted. Also, it was observed that the 200mm Ø gas main was detaching from its support brackets in several locations. Following fruitful discussions with all the various utility companies, the redundant services are to be permanently removed whilst the opportunity will be taken to inspect the full length of the gas main and programme repairs as deemed necessary.

Solution

Stage 1 repairs of Waitangi Bridge is for substantial concrete spall repairs and crack injection to all of the sub-structure and underside of the deck for its full length. The work necessitates the need for access, in this case scaffolding for the full width and length of the bridge. By including in the contract the need for the Contractor to afford all reasonable access to utility companies, it allows for the safe removal of the redundant services and to complete any necessary repairs to the gas main or its supporting brackets.



Estimated Costs & Benefits

Benefits include removal of redundant (and therefore unnecessary) cables and unsafe broken & unsightly ducting. Mitigating the need for single lane TM had the utilities removed the redundant cables from above. Completing the work in a safe, quick practical manner. Freeing up space on the bridge for possible future installations. \$10,000s saved by utilities - not having to install scaffold for gas main inspection.

Contributors

Marc Herring (Opus Napier) & NZTA team (Napier)

Category

Cost Savings
Collaboration

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: C72 Team Contact In an Emergency

Opportunity

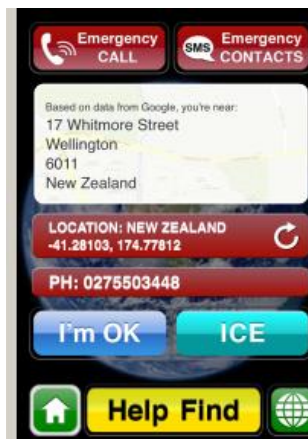
In a large emergency, making contact with family, colleagues and team mates is very hard and the trick is to make contact as soon as possible. The natural reaction is to pick up the phone and call everyone's mobile. The system soon fails and can then be down for a number of days.

There is a need for and quick simple method of sending messages to a list of people.

Solution

Using a free app, a user pre-loads a list of people they would like to send a message in the case of an emergency. Then all you need to do is open the app and select 'I'm OK' or 'ICE' if you're not. The business use is that you can include your work mates and boss.

The message will state your status and roughly where you are. To find this app, search "help grant dewar" and download it. There may be other apps that do the same thing.



Estimated Costs & Benefits

Cost of App = \$0
 Knowledge of everyone being OK or where to help them = \$Priceless

It can also help you find services such as petrol stations, GP's etc.

Contributors

Neil Beckett - NZTA (Wellington)

Category

Health and Safety
 Information Management

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

Value for Money Initiative: C73 Prevention of Data Blow Out on Smart Phones

Opportunity

In the past year, there has been a large number of smart phone users who have received excessive data usage bill on their phones. This is due to the NZTA mail server repeatedly bouncing large emails back to the phone. This is not easy to detect until you receive a bill for hundreds of \$ on your work account and also potential bill increases on your home wi-fi network.

Solution

There are free apps available, which monitors your data usage, the one I installed was called My Data Manager.

I can now monitor my data use and rectify any issues early, saving me from a shock when I see my bills.



Estimated Costs & Benefits

Potential devices affected = 600

Potential addition data charges = approx \$200

Cost to minimise the problem = \$0

Contributors

Neil Beckett – Network Management Wellington

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

Category

Information Management
Cost Savings