

This 8th VfM booklet contains
Value for Money Stories
contributed from across the country in the
3 months ending August 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.

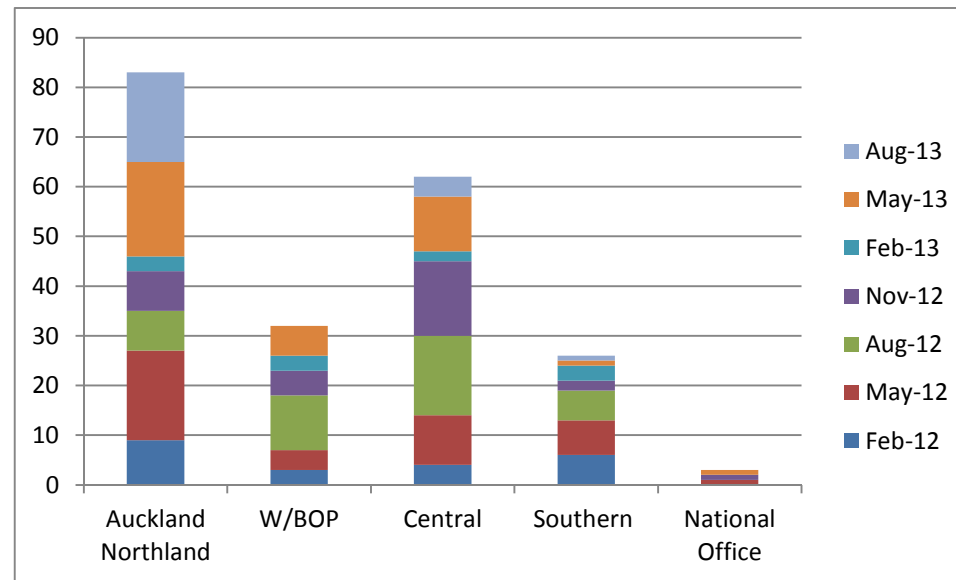
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To date we have received 226 Value for Money slides.

Value for Money Initiative: C66 Gorge East Stock Effluent Disposal Facility – Teaming up with local councils

Opportunity

NZTA, Horizons Regional Council (HRC) and Tararua District Council (TDC) all recognized the need a stock effluent disposal facility to improve the safety on our roads and improvements to the environment. Each party would be able to bring expertise and resources to the construction and operation of the facility.

Solution

The three authorities teamed up to be able to more effectively deliver the facility. The construction and operation of the facility has been jointed funded by NZTA and (HRC). The design and construction of the facility was run out of the Palmerston North NZTA office. While TDC – being the best placed of the three– have taken over the operation of the facility. These solutions would not have been able if all parties had not signed up and fronted up to taking on the problem.



Estimated Costs & Benefits

This project could not of been funded or gone ahead without the support of all three parties. It is the recognition from HRC and NZTA that effluent on the roads and in our waterways is a problem. While by piggybacking on the expertise of TDC’s local maintenance contract for the ongoing operation of the facility, VfM can be obtained over the lifetime of the facility.

Contributors

NZTA Palm North/Horizons Regional Council/Tararua District Council

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

Category

One Network
Environment

Value for Money Initiative: C67 Rail Bridge Collision Prevention

Opportunity

One of the top 5 risks in the bridge management risk register was the risk of trains derailing and impacting the piers to rail bridges. The standard solution to this was to armour the piers with costly collision barrier walls. This is costly in the order of \$100-200k). A solution was explored to reduce the risk to the network.

Solution

A meeting was held between Kiwirail, NZTA and the structures management consultant to obtain a realistic risk assessment of the likelihood of derailment and methods of containment based on Kiwirail's expertise and experience. The causes of derailment were discussed and the risk of collision in the event of derailment could be prevented by the installation of a 3rd rail (torpedo rail). (ROC \$30k per bridge vs \$100-200k+ for pier barriers)



Estimated Costs & Benefits

Significant savings compared to the traditional protection methods. Savings of \$70-170k per bridge and \$350-850k for the region. Elimination of a top 5 regional structures risk.

Contributors

Terry McGavin - NZTA Wellington

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

Category

Value engineering
Safety
Structures

Value for Money Initiative: C68Excel Procurement Pricing Schedules

Opportunity

Currently pricing schedule forms in RfTs are supplied in pdf format. Suppliers often make typographical errors which must then be queried, and NZTA staff also can make typographical errors when checking and transposing submitted prices.

Solution

Supply protected excel forms for pricing schedules in issued tenders. These could be linked to Ezidocs and therefore generated automatically.



Estimated Costs & Benefits

Staff time -2 days to design and check excel template. Additional cost to install an excel plug-in to Ezidocs, but temporarily an e-mailable excel template could be used. There are considerable benefits to both supplier and evaluation team through removal of need for manual transposition and elimination of errors.

Contributors

Jo Draper, Ning Ibarra

Category

Commercial
Information Management
Customer Service

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

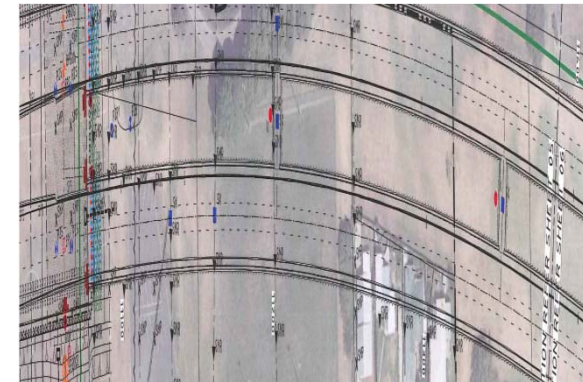
Value for Money Initiative: **AN77 Keeping Alan Wood Sports fields open for the public during TBM monitoring**

Opportunity

Keeping one of the Alan Wood sports fields open for the public while the area is needed for monitoring works during the TBM drive.

Solution

The team developed a solution where they were able to keep the sports field open by installing some of the monitoring equipment in the off season and burying some of the equipment so monitoring would not impact on the use of the field.



Estimated Costs & Benefits

The innovation allows the public uninterrupted access to the park while allowing full monitoring for the project. The combined use of the field will also mean that the project will not have to supply another temporary sports field for the area which will save around \$200,000.

Contributors

Neil Korte- Well Connected Alliance Geotechnical team

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

Category

Customer Service
Value Engineering

Value for Money Initiative: AN78 AMA Closure Impact Analysis (AMACIA) System

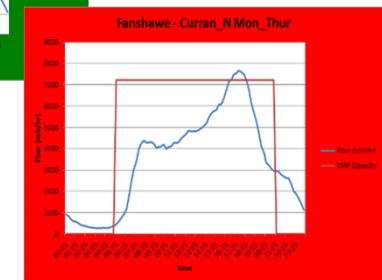
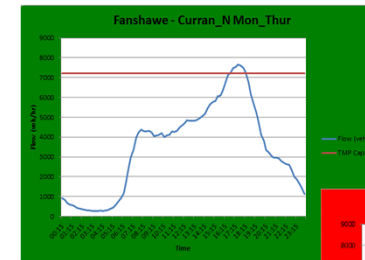
Opportunity

All decisions made by the TMC team require Assessment of traffic flows and the effects of lane or shoulder restrictions by time/day/highway section for all contractors.

The AMA is exploring methods that will provide tools for the industry and the TMC team to better assess the expected traffic impacts of various closure scenarios.

Solution

The AMA has developed prototype tools which link known traffic flow characteristics with the various likely TMP's for each section of motorway. This will allow the coordination and execution of road work to occur in a way that avoids or minimises congestion and gives high quality information to the contractors and the Road Controlling Authorities.



Estimated Costs & Benefits

A Road Closure Analysis System benefits the following teams:

- The TMC team will save time, as contractors can assess the traffic impact of different closure scenarios to assist making their own decisions, before requesting approval from the TMC team
- Contractors will gain a much better understanding for the best times of closures

Contributors

TMC & IDM Team

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

Category

Traffic Management
Transport Modelling
Customer Service

Journey Time

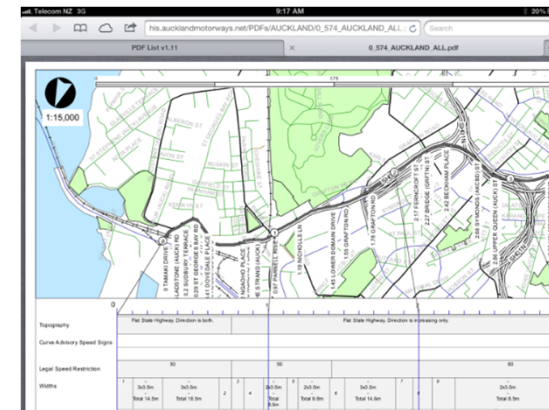
Value for Money Initiative: AN79 AMA HIS PDF on the tablet

Opportunity

Traditionally Highway Information Sheets usage outside of the office environment has required hard copies to be printed and stored carefully in designated vehicles. Two issues arise here, one that the paper copy will quickly deteriorate and secondly the books are refreshed infrequently and are often out of date.

Solution

AMA Highway Information Sheets are electronically generated for both GIS & PDF outputs it is feasible and straightforward to view up to date information on any modern tablet or smart device by connecting directly to the latest PDF required online. The tablet will automatically keep a copy should for any reason an internet connection not be available.



Estimated Costs & Benefits

Faster and more accurate access to Highway Information Sheets;

- Savings on printing costs
- Reduced wear and tear on paper copies
- Up to date information
- Information available for six regions around New Zealand
- Users can use their tablets software to make personal notes and annotations

Contributors AMA

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

Category

Information Management

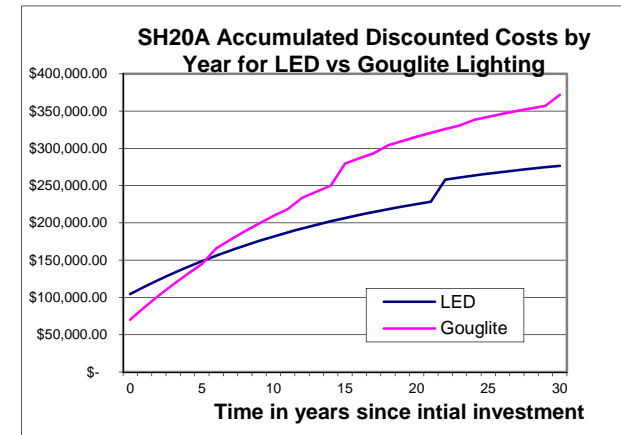
Value for Money Initiative: AN80 FWP LED vs HPS WoL Cost Analysis

Opportunity

Two short sections of lighting on the Auckland Motorway are to be replaced in 2013/14 due to poor asset condition and performance. With the SH22 trial of LED lighting now successfully completed there is an opportunity to utilise LED on other projects should the economics stack up. Projects considered were the Vic Park Viaduct Lighting Renewal with 50 lights required and SH20A Georgebolt Drive Lighting Renewal with 65 lights required.

Solution

Carry out a Whole of Life cost analysis for HPS vs. LED luminaire for each project, to make an educated decision on whether it was feasible to challenge the existing applications. A lighting design was first required for both luminaire options to consider full capital requirements then on-going maintenance, renewal and energy costs. It was well known that LED luminaire were 2-3x more expensive than HPS and that LED do provide energy savings but what was unknown was the potential savings on maintenance and renewal costs and how the whole business case stacked up.



Estimated Costs & Benefits

Where luminaires are to be replaced along with other works, in this case full replacement of lighting poles, the marginal cost of replacing HPS with LED produces a positive benefit over cost.

	VPV	SH20A
Equivalent HPS	70W	250W
Additional Capital Cost	\$15,600	\$41,600
B/C for LED	4.18	2.13
Energy Saving	15%	40%
Payback period	1 Year	4 Years
Discounted 30yr Saving	\$65,179	\$88,740.88

Contributors

Rick Gardner, Paul Kruletich, Jim Bernhard, Andy Collins, Ben Cullen, AMA

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

Category

Street lighting
Value Engineering

Value for Money Initiative: AN81 Noise Screens

Opportunity

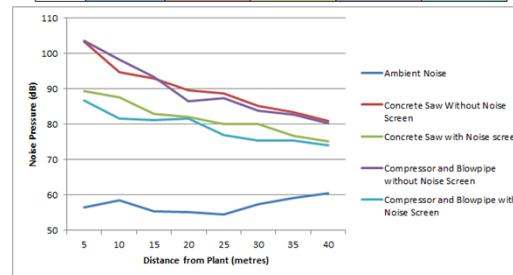
Traditionally for night works, noise from plant can be a leading contributor to complaints from stakeholders. Previously, this has meant relocating residents during the works period. This can also be a hazard to staff on site if exposed to noise is for long periods.

Solution

By building a plywood screen with Acoustic Padding attached, we can reduce noise travelling to properties and reduce onsite noise.



Distance	Ambient Noise	Concrete Saw Without Noise Screen	Concrete Saw with Noise screen	Compressor and Blowpipe without Noise Screen	Compressor and Blowpipe with Noise Screen
5	56.5	103.3	89.5	103.6	86.7
10	58.6	94.7	87.7	98.3	81.6
15	55.5	92.9	82.9	93.4	81.2
20	55.1	89.7	82.1	86.5	81.6
25	54.5	88.7	80.1	87.4	76.9
30	57.3	85.2	80	83.9	75.5
35	59.2	83.4	76.7	82.7	75.4
40	60.5	81	75.2	80.4	74.1



Estimated Costs & Benefits

Less noise (up to 17 dB reduction), reduced costs, happier residents.

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

Contributors

Symon Heslop, Structures team

Category

Structures
Health & Safety
Environmental

Customer Service

Value for Money Initiative: AN82 Use of Capital Works Sites

Opportunity

Capital Works at Papakura were undertaking full closures of the network, Pavement and Surfacing management team became aware of this and requested approval to do work at the same time at the BP Service Centre.

Solution

By combining with Capital Works full closure the Pavement and Surfacing team were able to:

- Increase the planned scope of work to reduce impact on the BP Service Centre
- Reduced milling by 'profile milling'
- Tandem paving which increased productivity and decreased duration on site

Estimated Costs & Benefits

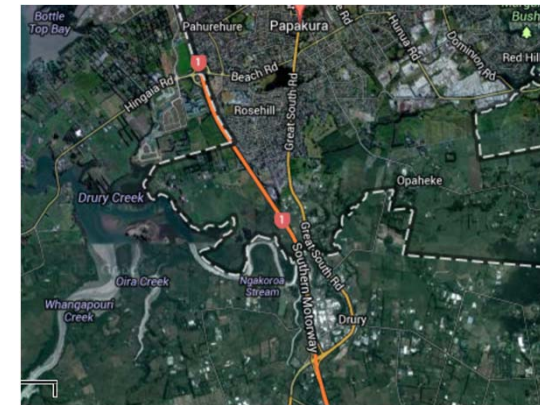
Increased productivity, reduced milling by 50% - 66%, reduced duration from 5 to 6 days down to 3 nights and reduced costs to do the job by shoulder infill not required, less TC, no advertising costs.

Contributors

Mark Youngs and Gordon Coombes, AMA

Category

Customer Service
Collaboration
Traffic Management



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: AN83 Reclaimed Asphalt Pavement (RAP) Overlay

Opportunity

On pavement work after the milling operation has been completed a tack coat is applied to the milled surface and Grade 4 Chip is spread over to allow asphalt trucks to reverse drive over to fill the Paver. Grade 4 Chip is a quarried aggregate and therefore comes at a cost.

Solution

The use of RAP as a substitute to Grade 4 Chip has been implemented on most sites. The RAP is now fully screened with the removal of most of the dust to give a better quality product



Estimated Costs & Benefits

Reduced direct material costs to the job, environmentally sustainable as RAP is a re-cycled material.

Contributors

Gordon Coombes, Imran Ibrahim and Bruce Chappell, AMA

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

Category

Pavements

Waste material/Cost savings

Value for Money Initiative: AN84 15 Minutes Planner

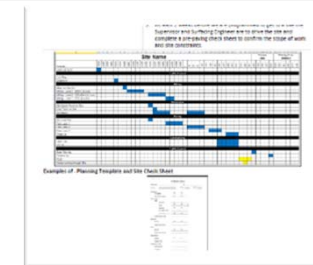
Opportunity

Night time pavement work must be completed in the approved timeframe, this can be very limiting due to time on and off the network. Planning of the pavement work is complicated as it involves various teams and subcontractors. Issues that cannot be planned are late deliveries, plant and equipment failure/breakdowns. This can cause incomplete work and sometimes lateness getting off the network.

Solution

To assist the crew by monitoring the progress of work to the 'work plan' by using the '15 Minute Planner' and to make decisions if work will not be completed on time. An SOP was developed along with Planning Template and Site Check Sheet.

STANDARD OPERATING PROCEDURES	
SOP – 15 Minute Planner	
PURPOSE	The purpose of this procedure is to outline the safety aspects and instructions when working on the network in a traffic critical location. To assist the crew by monitoring the progress of work to the 'work plan' by using the '15 Minute Planner' and to make decisions if work will not be completed on time.
SCOPE	This procedure applies to all staff, subcontractors, and visitors, clients attending or working on or under the guidance of AMA on AMA worksite.
RESPONSIBILITY	Line Manager Responsibilities



Estimated Costs & Benefits

Reduced delays and costs to do the job, quicker response to late deliveries, plant and equipment failure/breakdowns. Off the network on-time.

Contributors

Mark Youngs and Gordon Coombes, AMA

Category

Traffic Management
Customer Service
Information Management

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: AN85 Towai Slip, SH1, Towai

Opportunity

A series of relatively steep embankments were created in 2011 as a result of extensive earthworks carried out for erosion stabilisation in the area. Recent aerial photos show the site was originally covered in regenerating bush. However, the earthworks cleared all existing vegetation leaving the soil exposed and susceptible to erosion. Previous attempts to 'hydro' seed the site with grass and native plants have failed due to the challenging erosion prone, glauconitic sandstone soils which release oxidised iron when weathered. Towai Slip is located within Ngati Hau's rohe, a subtribe (Hapu) of Ngapuhi (Iwi). The proposed work provides the opportunity to learn from Ngati Hau and to build effective relationships founded on trust and respect.

Solution

Existing vegetation, grass and gorse, appears to only grow on one half of the site. A distinct area of exposed soil remains on one half of the site. Two primary planting methods including the use of Manuka fascines will be implemented to test what plants (if any) will grow in the erodible, potentially acidic sandstones and to explore whether 'soft' landscaping techniques such as using specific plants and Manuka fascines help to reduce erosion and stormwater runoff while increasing biodiversity. The plants and techniques employed such as the use of Manuka 'Fascines' allow for traditional weaving techniques such as woven flax rope (twine for the fascines) to be used as well as eco-sourcing plants endemic to the area.



Estimated Costs & Benefits

The project costs are estimated around \$33,000.00. On-going maintenance costs associated with the defects liability period are anticipated to be minimal as the maintenance requirements are limited to weed control and maintenance of the fascines. Benefits include: improved route security (less slips, reduces potential as better soils and plants soil matrix holding back erosions and over saturation of underlying materials), reduction in maintenance as correct plants selected, will assist in the reducing stormwater run off, improves visual aspect of area. Ongoing relationship with Ngati Hau, this collaborative approach is consistent with NZTA's objectives and policies and in keeping with the Treaty of Waitangi, the RMA and other legislative criteria. Planting eco-sourced plants as well as native species such as 'Wiwi' which are currently in decline due to contemporary landuse practices. An increase in biodiversity is also anticipated overtime encouraging the natural biota of the site to revert to its natural state while ensuring the safe and efficient operation of the State Highway is maintained.

Contributors

Ngati Hau, Opus, Fulton Hogan, NZTA

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

Category

Environmental
Consultation
Scour/Erosion Protection

Value for Money Initiative: AN86 Development of programme to expose lighting Photocell sensors

Opportunity

Our networks street lights are controlled by photocells attached to our Montrose boxes that turn off/on to the rising and setting of the sun. Some photocells are shaded by other assets but especially vegetation which is an on-going problem.

Solution

A treatment and programme was developed to trim or remove vegetation that was shading photocells, if this was not feasible photocells were attached to poles and raised above or away from the shading.



Estimated Costs & Benefits

Up to 16% energy savings of affected circuits.
Reduce customer complaints or adverse perceptions for lights turning on too early or off to late.
Less call outs for perceived lighting failures.

Contributors

Rick Gardner, Paul Kriletich (AMA)

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

Category

Street Lighting

Value for Money Initiative: AN87 Access Grates for Underground Stormwater Vaults

Opportunity

Significantly improved access to underground stormwater treatment vaults by the application of grated and lockable hinged lids. Stormwater treatment devices require regular cyclic inspection and periodic operational activity which includes confined spaces entry to confirm that the asset is in good health operationally (for delivery of legal compliance – environmental). Traditional underground stormwater treatment vaults have access lids that are very heavy, require special tools for opening and are difficult, time-consuming, and unsafe to open due to the risk of injury. Traditional covered access lids also result in gas accumulation within the confined space vaults.

Solution

Grated and lockable hinged lids - Locked with a standard Auckland Motorway Padlock, the relatively light weight grated lid can be easily and reliably hinged open. A grated lid also allows for good ventilation reducing gas accumulation for confined spaces entry when required (safer and less 'downtime').



Estimated Costs & Benefits

Grated and lockable hinged lids at underground stormwater treatment vaults enables efficient, effective, and a safer means of delivering operational activities. Note: This simple AMA innovation has now been promulgated and applied at several recent NZTA capital projects as well as TLA projects as a solution that positively influences operational legacy outcomes.

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

Contributors

Peter Mitchell (AMA)

Category

Health & Safety
Inspections
Environmental

Value for Money Initiative: AN88 Johnstones Hill Tunnel Deluge Zone Marking

Opportunity

In the event of a fire in the Johnstones Hill tunnels, the operators at JTOC need to rapidly be able to determine its exact location so they can operate the deluge systems. Previously, the operators have had to make a best estimate of the location and fire off deluge valves until someone on site confirmed they were deluging the correct zone.

The existing markings are too small to be seen from the CCTV cameras and new road markings would confuse the motorist

Solution

Zone markings were painted on the pavement using a super wide font (250% wider than normal) When viewed from the tunnel's acutely angled CCTV cameras the numerals appear to be at a normal aspect ratio.

Various different sizes and aspect ratios of numeral were trialled on site before the correct font and location on the road was chosen in conjunction with JTOC.



Estimated Costs & Benefits

In the event of a fire, JTOC will now be able to readily identify its location and apply the deluge, reducing property damage and potentially saving lives.

This benefits both JTOC and the Emergency Services.

Contributors

Tunnels Team

Category
Safety

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

Value for Money Initiative: AN89 Using Radio Controlled Slope Mower – Spinder ILD02

Opportunity

Traditional Weed eating is very hazardous for the Crew due to some of the slopes, access paths, live traffic, weather and other worker near by. The activity is very labour intensive, laborious and costly. Continual improvements in reducing costs and increasing productivity is very difficult do to the constrains of the task.

Solution

A new radio controlled slope mower (Spider) has been trailed on the network. It only requires one (1) operator to control the mower. The mower can cut 1.7 acres per hour and can climb at 41 degrees.



Estimated Costs & Benefits

Current	Weedeating Spend AMA + Subcontractor) = \$500k per annum	
Proposed		
	AMA Weedeating	\$250k
	Spider	\$115k
	Total	\$365k
	Reduction in cost \$500k - \$365 =	\$135k

This cost saving will result in less reliance on sub-contractor at peak season.

Contributors

Mike Marsden (AMA)

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

Category

Health & Safety
Value Engineering

Cost Savings

Value for Money Initiative: AN90 Stormwater Channel Vegetation – Whole of Life Assessment

Opportunity

Reduce the whole of life costs associated with the construction and on-going maintenance of vegetation with stormwater channels on the SH16 Causeway Upgrade Project. The Causeway Alliance (CA) undertook a project specific, Whole of Life (WoL) assessment comparing vegetation types to identify an appropriate vegetation for the approximately 6.5km length of narrow, shallow channels in the projects coastal environment.

Solution

Stormwater channels are used throughout the SH16 Causeway Upgrade Project to collect, convey and treat runoff. A main driver of the project is to reduce the footprint of permanent works and costly ground improvements. Stormwater channels are therefore required to be of minimal width whilst still meeting the Stormwater Engineering requirements.

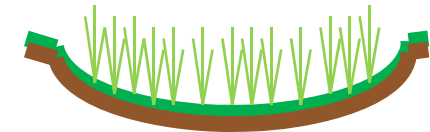
The Causeway Alliance has undertaken a Whole of Life assessment of three types of vegetation species for use within stormwater channels taking into consideration capital cost, maintenance costs over a 25 year period, amenity value provided by vegetation, environmental and engineering considerations.

Vegetation types considered include standard motorway Perennial Rye grass, Apodasmia Similis (oi oi) and Seashore Paspalum low growth grass species. Results were:

- Seashore Paspalum grass provides the greatest WoL benefits due to lower maintenance requirements (mowed 2-3 times per year) compared to Perennial Rye grass (mowed 6-8 times p.a) despite a 19% (\$32K) higher capital cost.
 - Reduced maintenance cost for the Transport Agency/AMA resulting from less frequent mowing when compared to Perennial Rye and intensive weed spraying/control during Oi oi establishment of up to three to four years
 - Minimised need for Temporary Traffic Management benefiting road users
 - Seashore Paspalum requires no weed spraying compared with Oi Oi, resulting in improved environment outcomes
 - Reduced channel erosion and improved hydraulic/engineering outcomes when compared with Oi Oi planting which requires a longer establishment period and results in very dense vegetation slowing stormwater flows
 - WoL cost (4% project discount rate) over 25 years for the 6.5km of stormwater channels: Oi Oi = \$726k, Perennial Rye Grass = \$491k and Seashore Paspalum = \$415k
- Seashore Paspalum is an attractive coastal grass, growing to 200-300mm height resulting in improved visual amenity

Estimated Costs & Benefits

Approx \$76,000 or \$235,000 savings (WoL) plus environmental and engineering benefits



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

Contributors

Causeway Alliance – Don Mackintosh (Civil Design Lead)

Category

Environmental
Value Engineering
Scour/Erosion protection

Value for Money Initiative: AN91 Storm water as built upload/update

Opportunity

The storm water as built drawings on the Map Viewer and Document Management System were previously uploaded in 2011 had gaps in the network as well as ones that are now out-dated due to capital projects and poor handover of asset information.

Solution

Storm water as built drawing are scanned into PDF's, transformed into images, geo-referenced and uploaded into the GIS. This dataset is then uploaded and updated on the Map Viewer and ADC.



Estimated Costs & Benefits

The updated storm water as built drawings allows Asset Managers to easily view parts of the network and recall actual storm water asset drawings individually just by clicking on the Map Viewer which also links directly to the actual files. Viewing efficiently is maximised and Asset Managers and Investigators can easily locate and pass on drawing information to quickly facilitate jobs.

Contributors

IDM Team and Peter Mitchell (AMA)

Category

Information Management
Environmental
Inspections

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: AN92 Time-lapse HD Camera for Traffic Survey

Opportunity

To ensure the vehicles are detected accurately, counting loops need to be placed in locations where: traffic is on the correct lane at steady speed; and free of congestion and tail gating. Understanding the optimal location for each traffic count site is challenging as all sites are different, having different layouts, driving behaviour, congestion levels and speeds. Historically, we used a video camera with tripod to capture the traffic condition. However this is time consuming as the surveyor needs to stay with the camera for the duration of the survey, and the battery only lasts a couple of hours.

Solution

Using a cheap (\$380) time-lapse camera allow us to capture a few days of time stamped HD video footage of traffic condition. Using cable ties and plastic enclosure, the camera is hidden from the public and can be installed on any fixed assets such as light poles and guardrails easily. We can also fast-forward the video to shorten the time to review the video.



Estimated Costs & Benefits

- Massive time saving compared to using a surveyor and normal camera to capture traffic condition for few hours.
- The time lapse video massively shorten the time required for post processing as it has smaller video size and shorter playback time.
- Reduce the time required on site significantly. (From hours to few minutes)

Contributors

Network Performance Team (AMA)

Category

Information Management
Inspections

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

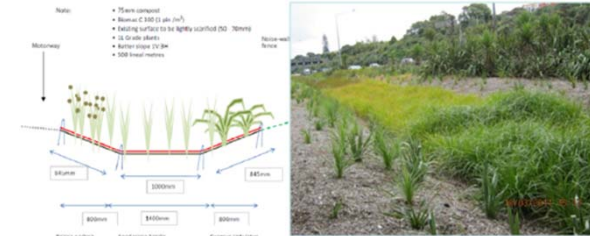
Value for Money Initiative: AN93 Landscaped Stormwater Swales

Opportunity

Swales are an excellent stormwater management asset for the multiple benefits of good runoff collection, flow conveyance, improved flood storage, and stormwater treatment by filtration. Traditional stormwater treatment swales are grassed. AMA trials and research (published 2011) identified a significant opportunity is to improve outcome values by the using Landscaped Stormwater Swales.

Solution

Compared with traditional grass swales, Landscaped Swales use native plant species that provide good filtration characteristics and environmental outcomes, as well as other the positive attributes such as low growth (less maintenance), and resilience to spray, drought, flooding, and capability to 'spring' back up if flattened (by foot or flood).



Estimated Costs & Benefits

- Landscaped stormwater swales deliver better outcomes by:
- Landscaping deters unwanted traffic that results in damaged swale profile e.g. motorists drive onto grass swales to use phones
 - Less Pollution: Better litter capture by taller plants that is easier to clean up = less rubbish at the receiving environment
 - Reduced damage to the swale profile that can be caused by routine operations (e.g. mowing is not required at landscape planted swales)
 - Looks great: Improved visual/aesthetic outcome – people like plants
 - Delineation: Defined edges improve roadway and swale demarcation
 - Reduced spraying needs – healthier for people and the environment
 - Cheaper to maintain – Grass maintenance typically costs about 6 to 9 times more than landscape planting (great whole of life value)
 - Network Efficiency: Less disruption from reduced maintenance needs
 - Safety: less maintenance = less exposure of operators to traffic risk, and improved reliability of filtration function = safer for environment
 - Improved habitat, biodiversity, and ecological connectivity

Contributors

Peter Mitchell, Nick Hohaia, Dale Logan, Rick Gardner (AMA)

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

Category

Environmental
Scour/Erosion Protection
Value Engineering

Safety

Value for Money Initiative: S29 Thomas River Bridge Replacement

Opportunity

It had been widely acknowledged for many years that the Thomas River Bridge located in in the alpine environment of Castle Hill Basin on SH 73 required major upgrade or replacement. However, the one lane bridge had a low crash rate which has meant that most replacement or upgrade proposals have not been financially viable.

Solution

The North Canterbury Hybrid team recognised an opportunity to combine funding from three different sources, Minor Improvements, Area Wide Treatment, and Bridge Maintenance budgets to finally enable the delivery of the bridge replacement project. The bridge is now a 2-laned culvert with shoulders, guardrail and realigned approaches.

Estimated Costs & Benefits

Project cost \$700,000 and was delivered by the hybrid contractor. This is a relatively low cost for the project type due to delivery method and budget sourcing.

This project has achieved many safety benefits as well as reducing travel delays. It also demonstrated a successful interdisciplinary and across-team project management and delivery.

Contributors

Christchurch NZTA, Opus and Fulton Hogan



Before



After

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