

Innovation name	Innovation description	Recognised NOC	Accepted as proprietary: Date
"Slow Sign" Attachment (SSA)	Designed a reusable standardised attachment that covers the speed part of a curve advisory sign, for use where Temporary Traffic Mgmt is established in the same area (ie Temporary Speed Limit is lower than the curve speed). Instead of removing a message completely it provides a safety instruction to the customer ('SLOW') and maintains total reflectivity.	Central Otago	1/10/2018
201 Bioblanket scour protection	Alternative scour protection treatment involving pinned coir (coconut fibre) matting 'socks' pinned into the sub grade to act as check dams to slow water flow and bioblanket (hydraulically-applied mulch mat that adheres to the soil and offers greater protection from wind and water erosion than that offered by conventional hydroseeding) applied along the length of the swale drain. The blanket slowly degrades as vegetation is established.	Bay of Plenty West	1/02/2020
210 Lifting Device for Moving Wheel Stops	Installing concrete wheel stops requires lifting them into place and slotting them onto stainless steel pins that are drilled into the ground. The wheel stops are heavy and require at least two people to manually lift them into place. Identified manual handling risks (eg. back injuries, finger jamming) and potential damage to the wheel stops if they were dropped. Designed a lifting device which can be used to move and place precast concrete wheel stops with an excavator.	Bay of Plenty West	1/02/2020
213 Surface Mountable Bollard Bracket	To prevent further excavation after an archaeological find, WestLink devised a metal bracket that allows a bollard to be bolted into a concrete pad behind the kerb, rather than dug into the ground. The bollard slips into the bracket and is fastened in place with a bolt. The bracket can then be bolted to a concrete surface with four bolt holes in the flange.	Bay of Plenty West	1/06/2020
Abandoned Car Sticker	Distinctive coloured sticker on abandoned vehicles giving NOC contact details, timeframe when vehicle will be uplifted and ref number, letting people know we are aware of it.	Taranaki	1/06/2016
Ahaura Guardrail Upgrade Safety Improvement	Installation of a 25m long gabion basket by fabricating a steel frame to stretch the gabion baskets evenly and tightly. Steel rods attached to the frame were anchored to keep them secure so that when they were filled they stayed in the correct shape. This allowed the team to install more gabion baskets at a time thereby reducing the time required to have an open excavation.	West Coast	1/06/2020
Alarm watch to provide 24/7 service	Using a 24/7 call centre to receive calls and manage collection of data associated with achieving certain OPMs	Taranaki	1/02/2016
Alternative fibre optic inspection cameras	Cheaper alternative fibre optic inspection cameras for Drainage Inspections. Attached to pole and plugged into laptop for reduced inspection costs and availability at short notice, also reducing risk associated with entering a confined space.	South Canterbury	1/06/2016
Asbestos Warning Stickers for Asbestos Culverts	The team identified there were a number of asbestos culverts on our network and that landowners, Downer field staff and other parties needed to be notified. The solution was to create an 'Asbestos' warning sticker - to go on relevant culvert markers pegs. The sticker was created in keeping with commonly recognized hazard graphics. RAMM data was used to create a list of known asbestos culverts, and patrolmen placed stickers on relevant marker pegs.	Taranaki	1/06/2018
Atlas	Digital solution that puts the MMP content into an online tool, making the process and methodologies more logical and easily accessible. Atlas shows the time frames of inspections for OPM compliance and provides a visual download of the MMP section relevant to the asset type. This information includes the example fault photos that define the prioritisation for programming repairs / renewals.	Nelson Tasman	1/10/2019
Attendance at the Hawke's Bay Youth Alcohol Expo	Hawke's Bay Youth Alcohol Expo is attended by all Hawkes Bay year 11 & 12 students, to try to influence the choices of our next generation. Having been approached to provide a VMS trailer and cones, Higgins got more deeply involved, contributing display boards and details around creating a safe driving environment, accident sites and the Safe System approach.	Hawkes Bay	1/06/2018
Balloon Light for night unattended sites	To improve safety at unattended sites overnight without exposing staff to fatigue and night works, the "Light Balloon" emits dull light, suitable for road users while not causing a blinding effect when vehicles approach.	Gisborne West	1/10/2019
Barrier cable lifter	A new device, attached to the side of the truck, uses the vehicle hydraulics to lift cables away from the posts together for barrier post replacements.	West Waikato North	1/06/2019
Big Belly Bin	Solar powered rubbish compactor bin, operates independently of the power grid and can pack up to 10 New Zealand standard litterbins; provides online alerts to trigger collection. Bin status can be checked anytime via pc or phone app.	Northland	1/06/2020
Bi-lingual Road Safety Information Pamphlet	China comprises the second largest visitor arrivals to NZ with 310,000 visitors with the Australians being the largest at 600,000. Our CMT has identified visitor drivers as our number two risk with the safety of our staff out worksites as our number one. This prompted our team to develop a simple method to educate our second largest visitor arrivals on what to expect at worksites. This mandarin translation of standard traffic management signage enhances the understanding to the Chinese people. This pamphlet has been distributed to key stakeholders including rental car suppliers, information centres and Queenstown airport. We plan to hand these out on specific traffic management sites on key routes.	Central Otago	1/10/2019
Bitumen Rail Guard	Designed to prevent the need to mask the rail by hand (labour intensive and time consuming) to prevent bitumen damage when sealing road/rail bridge decks.	West Coast	1/06/2016
Blue Skies IPAD station	Dedicated station located in the lunchroom to capture innovation ideas. Gives staff and subcontractors (particularly those without permanent computer terminals) a quick easy way of recording any innovations they think of independently. It also gives the wider-team working on the NOC a chance to view company innovations to implement in the NOC activities.	West Waikato North	1/06/2017
Bridge end marker pegs	Installation of bridge end marker stickers on edge marker pegs instead of wooden posts. Quicker to install and can get much closer to the narrowest point	Bay of Plenty East	1/10/2015
Bridge Width Markers	Fabricated brackets made from recycled damaged rails to attach width markers and clip onto guardrails. Between the marker and clips a section of thick rubber (recycled conveyor belt) provides the flexibility to fold back into position.	Northland	1/10/2016

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Brifen WRB lifter	A lifting device for the Brifen wire rope barrier system. This is bracket engineered so that it can be secured to the new post with a winch to winch the wire ropes up. This has engineered out risk and reduced inconvenience to the road user.	West Waikato North	1/06/2016
Cantilevered sign posts	Workshop crew designed and installed cantilever poles for chevron warning signs to be mounted on. By using the cantilever system, wide loads can travel over the hill without damaging their load or the signs.	Northland	1/10/2018
Car Bingo for Road Safety	A fun educational approach to encouraging engagement of road users with signs.	Southland	1/02/2020
Car Rally – Annual Performance Workshop.	Put small teams of NOC Annual Performance Workshop attendees (mainly office based) together with representation across the levels of the TNOC team into a "car rally" against each other out on the Network to educate on the field application of KRAs and OPMs.	Taranaki	1/10/2017
Cell Site Oтира	Cell repeater installed at Oтира depot building to enable telecommunications connectivity for winter reponse for Arthurs Pass area ie daily ERoads updates, as well as smart phone updates for the general public	West Coast	1/06/2016
Chip Seal Public Education Campaign	Cartoon graphics on how to drive and how not to drive on freshly laid chipseal, used in advertising (in a format that other organisations can use, including NOCs, transport associations, councils and schools).	Wellington	1/10/2017
Chip spreader rear camera	Use of cameras on the rear of chip spreaders to eliminate the requirement for a worker to stand on the rear of the truck to monitor chip flow. This eliminates the safety risk to the worker.	Bay of Plenty West	1/06/2016
Chipsealer Truck	Combination emulsion sprayer and chip spreader unit mounted on a 6-wheel truck chassis, enabling greater efficiency in providing preventative waterproofing treatments to extend pavement life.	East Waikato	1/02/2019
CMA Solar Panel	Solar Panels fitted to CMA pump, to provide a trickle charger to the pump batteries, hence preventing them from going flat. Prevents safety risk from climbing up on potentially frozen truck deck to hand start the pump motor.	West Coast	1/06/2016
Combined RAMM databases	Combined the state highway and local authority RAMM databases which allows inspectors and maintenance crews to move seamlessly between the two in Pocket RAMM	Bay of Plenty West	1/06/2016
Communications Flow Chart	Capital Journeys Worksite Communications Activity flow chart/diagram. This chart can be used for any renewals project, and details who is the owner/responsible at each stage in the project.	Wellington	1/10/2015
Contract Plan Summary One Pagers	Contract Plan Summary One Pagers developed for each plan highlighting objectives and key processes. Improved understanding of plans and objectives by providing a simple format for the wider team to absorb.	Bay of Plenty West	1/02/2016
COVID innovation: Alert Level Responses	Training sessions, Mental health connection sessions, Track-it phone app additional module for contract tracing; working from home; virtual tools set up	Bay of Plenty West	1/06/2020
COVID innovation: Checkin	Webpage for signing into sites using R-codes unique to each site.	Southland	1/06/2020
COVID innovation: GHD Boarding Pass	Overview and Project Description: The COVID-19 pandemic has resulted in unprecedented disruption to businesses and to the lives of everyday people across the globe. To preserve the efforts and sacrifice New Zealand has made combating the virus, it was important for GHD to prioritise the safety of their employees, partners, clients and communities as they transitioned back into "Level 2" and "Level 1" working conditions. The need for a contact tracing and self-screening application was seen to be crucial in ensuring that GHD's workers are healthy and fit to be back into the office. Historically GHD has experienced that in order to be successful, the tool needs to be accessible, simple to use and easily audited. The Digital arm of GHD developed such an app and its deployment and implementation has been taken on board well by staff. The app allows the user to self-assess their health through using a check-boxed, qualitative approach that incorporates a simplistic traffic light (green, amber, red) system which advises the user of the outcome. The results of the self-assessments are logged and are easily audited to ensure the success of the businesses wider COVID-19 response plan.	Gisborne North	1/06/2020
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COVID innovation: Hand Sanitiser	In response to shortage of hand sanitiser, secured ethanol and manufactured over 700 five litre containers of hand sanitiser to WHO standards and distributed them to essential staff and facilities.	North Canterbury	1/06/2020
COVID innovation: Hand washing stations	COVID19 hand washing and sanitising stations set up on the back of vehicles and all around depot. Instructions were updated at each alert level change.	Taranaki	1/06/2020

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COVID innovation: Health Assessment App	Developed a live app for staff to complete a health self-assessment and trace daily movements; used to identify and assist vulnerable people and create an active database for contact tracing. Shared with sub-contractors.	West Waikato South	1/06/2020
COVID innovation: QR Scanner	Developed a QR scanner code for office entry points; app directed visitors to online self-assessment questionnaire to evaluate if able to enter building; alerting onsite staff and including health status; as well as contact tracing (developed prior to Govt solution)	West Waikato South	1/06/2020
COVID innovation: Sanitiser Station-Essential Services	Fabricated "Sanitiser Station" in each essential service vehicle included Paper towel dispenser, rubber gloves, fresh water, rubbish bins and bags, box for face masks, hand sanitiser and disinfectant spray bottle. Stocked prior to commencing daily work activities	Central Otago	1/06/2020
COVID innovation: Site Specific Signage (Customer)	COVID19 site signage was made specifically for our sites in order to notify the public of the required social distances. The signboards were located at each end of the worksite and had all relevant information on them including a reminder to observe the required social distancing from our crew.	Taranaki	1/06/2020
COVID innovation: Worksite Road Cone Hand Sanitiser Stations	Hand sanitiser station fabricated out of aluminium, to fit over a cone	West Coast	1/06/2020
Crash Report Form	A crash report form developed for the site personnel to collect site data	Wellington	1/10/2015
Crew Briefing Plans	Crew Briefing Plans introduced throughout Downer as standard practice for maintenance and project works.	South Canterbury	1/10/2015
Culvert Twista Marker Pegs	Arranged manufacture of 'twista' culvert marker pegs for safer and more effective installation of culvert marker posts in rocky coastal terrain and alpine areas. Can be attached to guardrail or dyna bolted onto rock faces.	West Coast	1/10/2018
Cyclic truck weed spraying modifications	Designed to spray under roadside barriers, kerb and channel on the left side and traffic islands on the right side. A remote control system was also added to allow the operator to be able to spray EMPs, shoulders and wider areas with ease.	West Waikato North	1/06/2016
Danger zone lighting	Red proximity lights fitted to milling machines. This is a static light system safety product development used to mark out hazardous/blind spot areas around moving plant.	West Waikato North	1/10/2018
Dead Cow Removal	Hiab truck towing a metal trailer for lifting and transport. Allows a safe and efficient lift of a carcass, and a bin trailer means that the carcass can be transported without the risk of pieces falling off, or visual disturbance to the travelling public.	Northland	1/06/2017
Delay calculation spreadsheet for TTM works	Created a tool to automate most of the process, for quicker iterations of work delay calculation for different work times. Pulls through telemetry data based on drop downs and look ups for start hour. Rules ensure only correct data is available. Locked down to avoid accidental overtyping.	Bay of Plenty East	1/02/2017
Digital Scan Surveying	When getting survey undertaken for the section of busy carriageway adjacent to McCurdy's Eng, organised digital scanning as opposed to traditional survey. This methodology provided a far greater degree of safety for the staff involved while supplying accurate information	Taranaki	1/06/2016
Divided Walking Floor Truck Deck	A moving floor divided into sets of narrow floor slats, hydraulically powered to move forward and backward either in unison, or alternately. Reduces risks and increases control.	Coastal Otago	1/02/2019
Drainage prioritisation process	Drainage prioritisation using bespoke drainage process developed for the contract MMP	Bay of Plenty East	1/06/2016
Driver Simulator Training	Driver Simulator Training	Northland	1/02/2016
dTIMS performance modelling optimisation	Modified objective optimisation function routines within dTIMS rewritten for use in the New Zealand context. Developed and implemented by Westlink staff and adopted by NZ IDS.	Bay of Plenty West	1/10/2016
dTIMS Sensitivity Tool	Due to the complexity of the models coded within dTIMS, a tool has been developed by WestLink, in the open source software 'R', to assist users better understand the NZ dTIMS setup. Particular focus is on graphical visualization of the condition models, demonstrating the sensitivity of these models to changes in base data and the inter relationships between the models.	Bay of Plenty West	1/06/2017
Electric Cycle/Go Pro Road Safety Audit	Audit of cyclist features (eg off road facilities) conducted by electric cycle and helmet-mounted Go/Pro camera. No need to stop to take a photo, allowing auditor to concentrate on using the cycle lane as a 'normal user' and identify issues from the perspective of an everyday cyclist.	Taranaki	1/02/2017
Electronic Sign Anti-Vandalism Features	Features to discourage theft and vandalism of solar electronic signs solar panels and battery units: compliant street light columns (shear base and ground planted), rather than a 114mm fluted aluminium pole (which was sawn off at the base.); solar panel installed higher, making it less accessible if the pole was to be climbed, with the added benefit of getting the solar panel in better location of sunshine; 'faux' CCTV camera has been installed on the pole to discourage vandalism.	Bay of Plenty West	1/02/2019
Emergency Customer Assistance (stickers)	Stickers for the residents' cars for easy identification, indicating that they are aware of the road conditions and requirements due to the storm damage and emergency response. Reduces Customer delays and makes their journey easier. Residents are still stopped to convey any changes to travel information or safety info before proceeding, when needed.	Nelson Tasman	1/06/2018
Emergency recovery form	Standard form to apply to regional integrator for funding. Form captures all information required and can be used for initial response and recovery phases	Manawatu-Whanganui	1/02/2016
Emergency Trailers	Emergency Trailers dedicated for emergency events containing full TTM signage, cones, lighting, spill kits etc.	Central Waikato	1/02/2016
Emissions dashboard	We have developed an Emissions Dashboard specifically for the NOC to show where the emissions come from and measure progress towards improved efficiency over time.	West Waikato North	1/06/2019

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EMP recycling for whitebaiters	EMP recycling for whitebaiters, ie giving away used marker pegs to reduce the amount of stolen functional ones on the highway	Bay of Plenty East	1/10/2015
EMP's for CMA	Use of sleeves as indicators on Edge Marker Posts to improve CMA laying and reduce traffic disruption. Allows the driver to concentrate on the road and controls for application without having to watch the RP pegs; easily seen in the dark by the drivers; removed during the non winter months. Approved by Safety Engineer.	Nelson Tasman	1/02/2017
eSTOP Portable Traffic Systems	eSTOP are portable remote controlled traffic lights manually managed by controllers located off the road carriageway. Trialled and operationalised with over 60 units across New Zealand, to reduce the risk of MTCs near traffic.	Nelson Tasman	1/10/2019
Fibre Deck	Cut fibreglass fibres (50mm) embedded within a polymer modified emulsion followed by the application of chip provides a heavy-duty fibre-reinforced emulsion seal. This can then be trafficked as a conventional chipseal, or used as a membrane seal under a traditional OGPA or AC surfacing. Used as a preventative maintenance treatment to extend pavement life.	Wellington	1/02/2019
Flood Gates	Additional flood gate at vulnerable flooding areas.	Marlborough	1/10/2015
Flucal Signs	Additional flucal signs at vulnerable flooding areas.	Marlborough	1/10/2015
Folding handsaw in lieu of chainsaw	Hand saws to be issued to all maintenance staff and those who assist in responding to call outs. They can be used to cut reasonable sized branches etc and negate the need to use chainsaws which are deemed to be dangerous items of equipment.	Taranaki	1/06/2016
GateKeeper proximity tags	GateKeeper proximity tags comprised of a USB receiver plugged into a tablet and a separate tag on the operator's key ring for Maintenance Crews. Within a set distance prevents the tablet from locking, eliminating need to manually re-establish GPS contact, while providing security and improving efficiency.	West Waikato North	1/02/2017
GPS Basestation Screw Benchmarks	Permanent screw-in GPS base station, for installation in a wooden post as part of the original survey, saving surveyor time to set up a tripod multiple times and reducing risk of damage/theft.	Southland	1/02/2020
GPS Line Marking Capture	GSP systems allow us to put capture line marking as part of the TTM set up prior to milling. It reduces the cost to capturing the line marking, increases safety for workers and customers, increases network availability and ensures the accurate capture of markings.	South Canterbury	1/06/2020
GPS video inspection and fault capture	Callibrated go-pro video in the inspectors vehicle captures video and feeds a specifically designed measuring tool, to identify faults, measurements, road addresses. This high resolution video allows you to zoom in and 'inspect' the road surface. The inspector can then load the fault into RAMM as a desk based exercise. Also used for wet weather inspections to identify rutting and ponding.	Taranaki	1/10/2019
Grader Blade Lifting System	An engineered clamp and lifting system to protect our people from harm when changing the cutting edges on a grader.	Central Otago	1/02/2020
Grader compactor	With a newly developed engineered frame, an 80kg plate compactor is attached to the mouldboard of the grader allowing it to reach out and compact shoulders on steep shoulders or close proximity to drop-offs without risk of tipping over.	Central Otago	1/06/2018
Grit re-spreader	Fitted to the back of a utility, uses cutting edges and broom butts mounted to a frame to distribute windrowed grit back across the traffic lane.	Nelson Tasman	1/10/2016
Guardrail Post Safety Claw	A 1.5 m long arm with a customised claw welded to the end, allows staff to grip TL4 steel guardrail posts safely away from the excavator. Claw comes in two sizes to match different types of posts in the barrier configuration.	Central Otago	1/10/2018
Guardrail Post Sealing Guard	An innovative pipe guard created to cover and protect guardrail posts, reducing overspray during the sealing process. (Reduces effect of bituminous products on the environment.)	West Coast	1/10/2018
H velcro tabs for detour signs	Use of H velcro tabs for detour routes signs where cars can still use the local road detour (Amohau night time reseal)	Bay of Plenty East	1/02/2016
Hand Held Nugard Rammer (steel guardrail posts)	Repurposed a petrol powered wharratah rammer to drive steel guardrail posts. (Alternative to standard guardrail machine, not justifiable for establishment costs into region for most jobs.)	Manawatu-Whanganui	1/06/2017
Handbrake alarms to all plant items	Helps ensure handbrakes are used in plant	Southland	1/02/2020
Hard hat induction sticker	Each person who has attended Downer site induction is issued with a registered Hi Vis sticker to be affixed to their hard hat. Each year the sticker colour will change so track can be kept on relevance.	Taranaki	1/06/2016
Harvest.com weather communications	Using the Harvest.com weather station data and captured images to communicate the impact of weather events to our stakeholders.	Southland	1/06/2020
Hazard Marker Signage Improvement	These stickers are far more robust and last a lot longer than the traditional plastic clip on ones. They are of the exact same size and dimensions of the clip on markers but do not break and fly off like the others.	Northland	1/06/2020
Herbicide Sprayer	Purpose built buggy attachment for herbicide spraying, incorporating controlled droplet application technology to provide cost-effective and economical treatment of weeds.	Gisborne North	1/06/2016
Hiab mounted chainsaw	Removed the worker from direct exposure to the tree and the chainsaw, with a new hiab mounted chainsaw. The Chainsaw is operated from within the cab of the truck and has a connection that clasps onto the waste material for immediate clearing.	Nelson Tasman	1/06/2019
Highways South OPM button schema for field auditing	Targetted to OPM criteria. Concise wording for the auditor to follow. Wording structured for quicker data processing into field report. Improves the efficiency of field audits and accuracy of reporting. Reduces need for desktop investigations.	Southland	1/02/2020
Hi-Lip Grader blade modification	Gap in grader blade to bridge ATP, saving it from being damaged.	Southland	1/06/2020

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Hi-Vis Spotter Gloves	Gloves with different reflective markings on the front and back i.e. an Arrow on the front of the glove and a cross on the palm. When directing reversing plant, the spotter waves to signal the driver to keep reversing, the arrow is visible; and when the spotter puts his hand up (showing the palm) to signal the driver to stop the cross is visible.	Northland	1/06/2019
HSMP Contractor Management Process	Contractor Management Process adopted nationally within Opus as a standard process and reviewed against the new Act, and applied across other contracts in NZ. Opus has pre-qualified under several acts and regulations as a result. Lessons learnt locally have been applied to other specialist areas, and transferred into subcontractors and sub consultants to ensure seamless systems.	Bay of Plenty West	1/10/2015
Improved Guardrail Installation Techniques	Instead of excavating holes for each post, an attachment is fitted onto the end of a rock breaker of a 5 tonne excavator, with fittings to drive standard guardrail posts or bigger et2000 posts. Also started using a new marker peg system, bolting marker pegs to guardrail through existing post holes. Reduces risk of damage and preserves asset integrity.	West Coast	1/02/2020
Incident Office	A 20ft container fitted out as a site office for 'off grid' use, with solar and battery power, water supply, secure storage and security lighting, Network, PC, Printer, Wi-Fi; RT linkage to crews and WTOC; staff facilities (hot/cold water, cooking, hand-washing, heating, first aid; floodlighting and cabling; mobile device charging statinos; additional power sourcing options. Deployable at short notice by flat deck truck.	Wellington	1/02/2020
Incident Resilience Training	Pre- and post trauma exposure training designed for first responders provided to team involved in visits to sites where fatal crashes have occurred, or crash data analysis; EAP is very much "post event" and relies on people recognising they have an issue and being willing to seek help. This training provided staff with an understanding of the factors that may result in post-traumatic stress disorder (or similar responses). It also provided information on how to get help and what happens when you seek help (in an attempt to remove the stigma and macho kiwi attitudes which often discourages people from seeking help).	North Canterbury	1/10/2019
Installation of Ducts for other services with culvert renewals in rural areas.	Under the LA component of our contract, and with agreement of the client, we have developed the standard practice of installing 100mm ducts when completing culvert replacements in rural areas. This practice enables local farmers a crossing location to cross the road reserve for water pipe and electric fences with out having to re-dig a crossing or use the culvert barrel as the duct line, reducing the number of non-notified installations in culverts that cause culvert blockages, maintenance cleaning and waterway issues.	Nelson Tasman	1/06/2018
Instant dry and drive linemarking	LED lighting and instant cure process eliminates wait time for paint to cure, thereby minimising network disruption. Product has TNZ M/7 approval and Extended Life Classification CE0 on chipseal and Long Life Classification AL0 on asphalt.	West Waikato North	1/02/2018
Isolation of safety zones	A cone bar providing a physical barrier between the safety zone and the working zone, to address breaches.	Wellington	1/06/2016
Jockey Wheel for Pedestrian Roller	Jockey wheel attached to the handle of a single drum pedestrian roller, allowing the weight of the roller to rest on this, reducing the effort needed by the operator to control the machine and minimising any hazard.	West Waikato North	1/10/2019
Juno Viewer Automated Process	Transfield Services, together with Juno Services, developed an automated process in Juno Viewer which updates the NZTA Renewals Programme spreadsheet. The process minimises mistakes made due to double handling the data.	West Waikato South	1/10/2015
Karangahake Gorge EMP	Custom bracket to attach EMP to concrete wall below concrete nib kerb for increased durability and decreased future maintenance (as alternative to PW66 chevrons).	East Waikato	1/02/2017
KnowHow TV	FH Smart Phone app with a library of safety and instructional videos that crews can use on site and at tailgates to familiarise themselves with safety requirements of equipment and hazard alerts. Enabled for Sub Contractors. Subscription to updates and push notifications available.	West Coast	1/10/2017
KRA Audit Alignment Project	Conducted nationwide audits of all NOC contract management plans, with the same auditors (National Network Performance Manager and Implementation Manager) travelling to every Downer led NOC to verify consistency of interpretation and application of the KRA framework. Intent is to verify at least annually across all Downer NOC's.	Taranaki	1/02/2017
LED Amber Flashing Lights	Self contained portable amber flashing light to enhance advanced hazard warning system. Small portable, long lasting, water resistant and inexpensive \$17 each as opposed to \$77 for traditional beacons; which are prone to theft, problematic on unmanned sites and are not able to be attached to multiple signage. The LED amber lights are simple to attach and secure to, for example TTM signage, stop-go-paddles, cones, even permanent signage .	Gisborne West	1/06/2016
LED heat headlights	Installed on snow vehicles, the heated lens provides a steady, complete surface melting of snow & ice and is active when tempertures drop under 10°C. LED headlights provide a brighter, crisp & white light output, closer to the colour temperature of daylight, improving light projection distance and overall visibility. Improves safety for both the operators and members of the public	Central Waikato	1/10/2019
Light bridge footpath panels	Light bridge footpath panels (over services ducts) were getting thrown off a bridge regularly. We fabricated new panels that are 3 panels long and installed them on Edgecumbe bridge. The extra weight should reduce vandalism.	Bay of Plenty East	1/02/2016
Lighting Tower System	Designed a lighting tower system (to CoPTMM standards) for Level 1 and 2 Temporary Traffic Management that is considerably more affordable and safer than existing systems available on the market.	West Waikato South	1/10/2015
Lindis Pass - Alternative Communication System	Where fog affects solar powered RT towers in remote Lindis pass, established a "Coloured Paddle" system that can be viewed via the network camera from the office.	Central Otago	1/06/2020
Litter Collection Education Scheme	The "Keep Our Roadsides Clean" message is being communicated to the travelling public through our Litter Collection Education Scheme. Progressive signage identifies the problem, provides repeat messages, and the location of the nearest bins. The aim of the scheme is to provide motorists with a choice to litter or use the bins.	Manawatu-Whanganui	1/10/2016

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Live bottom truck deck	Live bottom truck deck for chip spreading	Northland	1/02/2016
Local Site Names – Map and Register	Sections of the network with local names that can't be found on online maps (i.e. Meads Hill) mapped out (including RS/RP details and nearest side roads), included in the EPPP and provided to ATOC. This helps ATOC to identify the location if the caller provides a local name rather than an official one, thus decreasing response time and ensuring the information is provided to the correct NOC Contractor.	West Waikato South	1/02/2018
Low coverage phone signs	Installed phone signs in low coverage areas to indicate that emergency calls can be made there. Particularly useful in areas like SH35 where phone coverage is patchy.	Bay of Plenty East	1/06/2017
LRMS km Markers on Wire Rope Posts	Installation of LRMS Kilometre Marks on wire rope posts within the M2PP expressway, improving visibility, providing maintenance cost savings and safety benefits.	Wellington	1/10/2016
LTMA	Light Truck Mounted Attenuator (LTMA). Is a compact NCHRP 350 TL2 Unit designed for the Level 1 road environment that limits road corridor space required for a LTMA. Successfully trialled the LTMA and Full Colour VMS system. A few results LTMA speed radar had a 96% speed reduction impact when displayed, reducing speed by 24.78%	Central Waikato	1/02/2020
Mechanical mat roll out machine	Fabricated a mechanical motorised drum fitted to our pavement stabilisation tractor which can roll matting out and back in, as required for events (eg cycling event on one lane bridge); removing manual handling and minimising delays to road users	Central Otago	1/06/2019
Mobile App for Chip Stockpile Sites and PRS	Real time updates available through an App on the status of pre reseal repairs (PRR) at each reseal site (Red – not to be sealed, orange – PRR under construction, green – PRR completed and site ready to seal). Provides the location, area and status of each ship stockpile site being used to store chip for reseal sites.	Bay of Plenty West	1/10/2017
Mobile Mapper (Parked - Not enough information provided. What is the advantage beyond the WDM survey?)	PROBLEM: People in live traffic lanes collecting / assessing data and geo-spatial information. SOLUTION/INNOVATION: In an effort to not have people working within the road corridor - Downer has created, developed and implemented a Mobile Mapper - offering high speed surveying and geo-spacial data collection in motion. The WDM Survey collects data relating to texture and skid resistance of the network and brings out exceptions, building a SCRIM site profile. Mobile Mapper is like a LIDAR system, this means that it replaces the need to have people on the highway, as it is a geospatial measuring mechanism as it can summarise with width and area of the site on its own. Under the current TTM requirements a surveyor would have to work from one side of the highway with pilot vehicles, temporary traffic management setup – surveying half the site and then having to repeat this and measure the other side of the road. This offers a step change in safety - surveying with the Mobile Mapper is undertaken without putting people in live traffic lanes. It means we have faster and more accurate results due available immediately in digital format. The primary benefit between WDM survey capabilities and Mobile Mapper is the far superior level of detail and GIS spacial survey that is recorded and available for analysis. This means the data has multiple applications across all levels of the business - not just in building a SCRIM profile.	Taranaki	1/06/2020
Mobile phone video with RP display	Using a video recording app for your phone that will record latitude & longitude that can then be displayed on the video in a 3rd party video program like VLC (recommended program), we have developed a conversion tool (excel macro) that will convert the coordinates to display SH Route Positions on the video instead. The applications for this tech are great for wet weather surveys, post storm inspections, videoing rehab sites for pavement engineers/NZTA and in general for remotely located staff where they are able to provide a video with an accurate location of the issue they are reporting.	Bay of Plenty East	1/02/2018
Mobile Site Asphalt Machine	Mobile volumetric asphalt plant with capacity to produce up to 200 kg of quality hot mix asphalt on site within an 8-12 minute cycle. Ideal for pothole patching in all weather conditions in busy/remote locations minimising disruption and saving on cartage. Manufacture of specific quantity for job provides environmental benefits through lower carbon emissions and eliminates wastage of materials.	Central Otago	1/10/2018
MOCK Court	MOCK Court sessions for awareness of hypothetical serious work incident outcomes. FH staff acting as Board Member, Senior Manager, Department Manager & victim, taking their turn on the stand for questioning by real lawyers acting as prosecutor and defence counsel. Subcontractors also invited to attend.	West Coast	1/10/2017
Modified Bridge Joint Installer	Modified the tool in our workshop by welding on a handle, a footstep to allow staff to apply more pressure, and an angled lip at the base, which allows the rubber joint to be secure when levering in into place.	Central Otago	1/06/2019
Multi dot extruder Roadmarking long life head attachment.	A new road marking applicator head that allows long life/high performance markings to be installed, removed risk of contact with moving parts and risk of burns; increased product quality and accuracy, increased speed of application.	Coastal Otago	1/02/2019
MVMS Deployment Check sheet	Sign off sheet to be used each time a VMS is deployed to ensure the best chance of it being sited and used appropriately. The sheet covers aspects including safety, security and location ensuring that operators are aware of all the considerations needing to be taken into account when using this piece of equipment.	Taranaki	1/06/2016
Near Miss Reporting – Call Centre	Allocated a phone number for staff to call and report near miss incidents, speak with the Health & Safety Manager or leave a message for follow up. Increased reporting, removed the perceived hassle of reporting, ensure timely capture of the event. Before implementation: 1 recorded near miss in 4 month period; After implementation: 15 recorded near misses in 4 month period.	West Coast	1/10/2017
Network Controls Sheet / Journey Enhancement Model (JEM)	A model to assess the effects of a site to the travelling public, the JEM system can assess whether the closure type in this area is generally allowed for the times applied for; assess worst case scenario for delays; determine the 'Communication Level' required and produces a handout with the delay calculations, what that looks like on site (Queue length, green time, wait time etc) and what they can and should do if and when the delays extend. Signed and clearly formatted, this empowers STMS on site to make necessary decisions, even if unpopular with the physical works contractor.	Central Otago	1/10/2018
Nevis Remote Crack Sensor	A sensor for monitoring cracks on bridges, adapted for geotechnical purposes. Remotely and continuously monitors movement of a rock fracture previously accessed by abseiling on a 6 monthly basis. Emergency alert is activated upon detected significant movement.	Central Otago	1/06/2019

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New A Type Roadmarking Vehicle	Equipped with rear crumple zone to improve operator safety. A hi-ab crane allows quicker transfer of materials and use of larger quantities, reducing refill time. Paint application is tracked with e-roads and GPS and paint guns are fitted on both sides.	South Canterbury	1/10/2019
New Bitumen bound basecourse	Utilising CSS1 cold mix bitumen emulsion. More flexible so doesn't block crack. Waterproof so increases likelihood of patching getting through winter with only 1st coat seal for protection	Manawatu-Wanganui	1/02/2016
Night Bags for ITS staff	Night bags for ITS and Agency labour staff who are undertaking traffic management and incident call out work at night- contains wands, illuminated vests, head lamps, procedures & documentation etc all in one kit bag allowing them to 'grab and run' knowing that everything they need is included.	Taranaki	1/06/2016
No Spray Sign	Landowners who request a no spray area in front of their properties to use signage developed by CJ to link to a no spray database	Wellington	1/10/2015
NoiseBox	Echo enclosure providing approximately 10-15 dB of attenuation; providing a noticeable reduction in construction noise, as perceived by receivers at adjacent properties.	Wellington	1/02/2018
On Site Speed Calculation Table	Easy reference 'matrix' for STMS and TC to help calculate average speed of vehicles through their worksite. They can then assess quickly and easily if the temporary speed limit (TSL) is appropriate or if the positive traffic management in place is sufficient or not and increase TTM over and above CoPTM if required to make our people and the travelling public safe.	Taranaki	1/06/2019
Online Induction Process	Induction programme (including interactive content), developed for attendees at alternate office locations (as opposed to head office) to reduce unnecessary travel across a very long network.	West Coast	1/10/2019
OPM PowerMaps	Use of PowerMaps to display OPM data in a video map of the network to NOC team members, Contract Boards, and Annual Performance Workshop eg A number of edgebreak and low shoulder problems were identified, following a concerted effort by all contractors our OPM score dropped from 15 to 0.	West Coast	1/02/2017
Orange marker pegs	Orange marker pegs to identify extents of safety ATP in snow prone areas to assist identification for snow ploughing activities which is a benefit to the delivery of winter services to minimise damage to ATPs	South Canterbury	1/06/2016
Paint rollers to spread emulsion	Use of paint rollers to spread emulsion for BRP patches (reducing back strain and getting even coverage).	Bay of Plenty East	1/06/2016
Pavement Marking Blackout	Spraymarks have developed a technique of ghosting using a cold applied plastic and basalt grid.	Bay of Plenty West	1/02/2017
Pedestrian Signage Protection	Frames around RG17 and Pedestrian signs to prevent damage caused by careless removal associated with over-dimension loads, as well as modified pole bases and sockets with lugs to prevent incorrect re-installation and consequent reputational damage.	Northland	1/02/2019
Permits for Local Residents	A permit for residents living/working between Springfield and Arthur's Pass to allow limited access to the closed road under specific circumstances, to address the risks associated with uncontrolled use of officially closed roads. (Worked with NZTA legal team on managing liability.)	North Canterbury	1/10/2018
Pest Plant Pampas Treatment	Granular herbicide for pampas control. A small amount can be placed in the centre of a pampas plant to proactively manage weed control. Can be adopted by NOC's and also other projects where pampas is an issue.	Northland	1/02/2017
Plant mixed modified basecourse - Extended Duration testing	A laboratory-based study has been carried out to assess the effect of extending the time limits in NZTA B/7 Specification for plant mixed modified basecourse. A series of trials has been carried out that demonstrate the design objectives are still achieved when the time duration is extended from 4 hours up to 48 hours provided additional compaction water is added during spreading and compaction of the aggregate.	Bay of Plenty West	1/10/2019
Pot Hole Repair material	Pot Hole Repair now uses new imported pot hole filling material suitable for wet conditions.	Central Waikato	1/02/2016
Prescription Safety Glasses	Optical safety glasses to ensure that staff members can wear prescription lenses. Available in single or multi focal options and can be used with either clear or dark outer frames. Lenses can be removed and used again in subsequent frames should the frames become scratched.	Taranaki	1/06/2016
Pressure bars on paver screed	Tracked Paver (c.f wheels) with pressure bars on the screed to improve compaction in deep lift asphalt and basecourse. Faster construction and less road user disruption.	Bay of Plenty West	1/02/2017
Process for Police and Insurance companies	Process for dealing with Police and Insurance companies for recovering damage costs. Improved methodology for tracking with the potential to enhance the ability to recover cost.	Bay of Plenty West	1/02/2016
Program achievement dashboard	Leveraged a data warehouse and Power BI to generate a dashboard reporting on routine and renewal works programmed for the month ahead. As works are completed in RAMM, the dashboard is updated in near real time. Audience includes client, operational and management staff.	Wellington	1/02/2018
Provision of RT at Castle Hill Village	This alpine village is frequently affected by winter conditions. We have provided an RT radio connected to the same open channel frequency we use to communicate to our staff working on SH73. Designated community members can communicate directly with us during winter events, when residents need to travel for essential reasons (eg medical events) etc. It also allows them to hear what is going on and to give them an appreciation of the conditions they may encounter should they choose to travel.	North Canterbury	1/06/2018
Radio Telephone Zoning	Clutter free (zoning) communication during emergency situations	Wellington	1/02/2019
RAPT tour van to undertake site visits	RAPT tour van set up with Mobile Road, Annual Plan spreadsheets, Juno Field Inspection tool, relayed to large screen showing GPS location; RAMM Patrol, showing recorded defects in relation to the FWP; Annual Plan site sheets (including drainage programme), showing site photos, history, prioritisation, treatment estimate and NPV/Lifecycle costing.	Wellington	1/02/2016
Recycled Cone Bases	Cut down old cones to use as stackable weights around the base of signs. Easy to stack and carry. Superior to sandbags.	Taranaki	1/10/2016

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Recycled Picnic Tables	Made from 100% recyclable plastic items, which would have otherwise gone into landfill. These contain approx 2% UV stabiliser, allowing them to withstand NZ weather conditions and extending the life of the product (70-year lifespan). Anti-graffiti/anti-scratch surface; will not split, splinter or crack; never need painting.	West Waikato South	1/02/2020
Reflective Tape Nose Installation	Reflective tape applied to nose of traffic island to help prevent vehicles hitting them and repeatedly causing damage to small signs and nose of the island.	Taranaki	1/10/2016
Region wide mail out for dump site locations	In response to the recent issues with dump sites, we engaged a media company to carry out a region wide letter drop to every rural location for possible dump site locations. This asked landowners to contact us with possible dump site locations in their land, that met the permitted activity rules for the regional council. The response was overwhelming, and has providing several new locations for dumping cleanfill material. Each site is to be assessed by our environmental advisor to ensure compliance with rules.	Manawatu-Wanganui	1/02/2020
Remote access and control of CCTV for on-call	Enables on-call person to remotely access and control live CCTV camera footage, and share screenshots with on-call crew or other parties during incidents or events.	Bay of Plenty West	1/06/2019
Resilient Sign Posts	Replaced timber sign posts with strong PVC pipe 1/3 filled with sand, to solve problems with frequent theft, damage and high wind exposure.	Northland	1/02/2019
Road Barrier Treatment Method & Model	A method and model that considers/combines barrier safety, strike rates and lifecycle costs to predict the suitable treatment option for each renewal site of existing steel wire rope barrier or w-section guardrail.	Wellington	1/06/2020
Road Marking Paint Bracket	A metal bracket to used aid the transfer of paint from a pallet bladder to make the pump transfer more efficient.	North Canterbury	1/02/2020
Road reporting through Central App Push Notifications	The Central App is an existing application that covers various news and notifications for the region. NOC has worked with Central App to get messaging from TREIS loaded into their Road conditions page and sends a push notification out to users.	Central Otago	1/10/2017
RoadRoid App	Takes advantage of the built-in accelerometer to measure roughness of the road (good correlation to NZTA's HSD survey) pre and post first coat sealing, to detect roughness issues at time of construction.	West Waikato North	1/06/2016
Robust temporary rock-fall fence design	Designed and implemented a rock-fall barrier & fence system that is much more robust. A standardised design with engineering approval. Can be fabricated offsite & be kept in stock and reused as required. Reduced worker risk under rock-fall site compared to other fence-on-barrier systems that are assembled in-situ.	Bay of Plenty East	1/10/2018
Rock Saw	Excavator boom mounted rotating blade fitted with replaceable "Mill" teeth for cutting back rock faces on the upside of narrow highway to minimise cart away volumes and maintain traffic flow (vs drilling/blasting or pick/rock breaker).	Nelson Tasman	1/02/2017
Rockface Milling Head	A lightweight milling machine on the end of a long-reach digger used to clear hazardous material off rock faces, as an alternative to sluicing or sending an abseiler down the rock face.	Northland	1/02/2020
Rodent Trapping	Installation of rodent traps adjacent to the Karapiro rest area, which are re-baited as part of the bin-clearing process; in support of Predator Free 2050. Trialling a NOC built T Shape trap and a standard DOC trap.	West Waikato North	1/02/2019
'Rover' camera	Camera (mounted on top of a vehicle) and Road measurement data acquisition system used to record defects while conducting monthly audits. The video is made available to NZTA staff and provides a comprehensive record of all audit sections and activities.	West Waikato South	1/02/2016
Rutting Prioritisation Tool	An optimisation tool that uses the last 10 years' High Speed Data alongside the carriageway, surface structure tables and the current forward work programme; to assign scores to 20m lengths and grouped sections (grouped lengths customisable), to provide rankings across the Network. Quickly shows impact the proposed rut fill programme would have on the Network - displaying comparison graphs for pre- and post- treatment.	Bay of Plenty East	1/06/2018
Safety Deficiencies' in RAMM (non-reported accidents)	A 'Safety Deficiencies' category has been added to the 'First Signs' Dispatch Group in RAMM to enable cyclic crews to log of evidence of accidents that have not been reported/attended through TREIS (skid marks on the road/damaged berm/damaged sign/broken glass/ vehicle parts, etc). This information can then better inform analysis for safety improvements.	Hawkes Bay	1/02/2018
Safety Improvements for Temporary Traffic Management Trucks	Installation of improved safety features on Temporary Traffic Management truck: safety gate, covering the stairwell leading to the tray; rear-facing camera at the back of the cab allowing the driver to see the tray (additional to the reversing camera); additional hand rails (centre and sides of the tray) to allow for three points of contact at all times; improved non-stick flooring.	West Waikato South	1/06/2018
Safety Jacket	Support doc	Central Otago	1/02/2020
Safety video	Speed at Roadworks safety video	Northland	1/02/2016
SCRIM Exceptions Process within JunoWeb	Worked with Juno to develop a process to upload SCRIM exception reporting, following Agency specification including geospatial location mapping, and enable recorded review, comments on decisions and reporting. Drives consistency and time saving in both desk top and field work to complete T10 exception process and transparency for auditing.	West Coast	1/02/2017
Seatbelt alarms to all plant items	Helps ensure seatbelts are used in plant	Southland	1/02/2020
Shotblasting	Mechanical removal of stone and bitumen via steel shots to remove excess bitumen and also improve micro texture of the stone, improving skid resistance of SCRIM sites at approaches to controlled intersections (vs traditional water cutting, which can result in temporary removal of bitumen (binder rise)).	Coastal Otago	1/06/2017
Should I seal App	Downer 'should I seal App' which draws on weather and other info to assess whether chip sealing should go ahead at the time.	Central Waikato	1/10/2015

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Shoulder Widening Improvement	Designed and modified plant to construct a "thin" pavement with a resilient asphalt surface for widening, required extensively on the P2C alternate route. New method is much faster than traditional methods therefore there is a benefit by minimising network disruption and increasing safety. Permanent high quality work, and has ongoing application throughout the country	West Coast	1/02/2018
Sign Truck Camera	Camera installed to allow the driver of the sign truck to see staff working on the back of the truck (eg setting up TTM), increasing the safety of the works when the vehicle is in operation (vs relying on radio communication).	East Waikato	1/02/2017
Site safety signage (My DADDY Works Here)	Site safety signage erected inside the coned off work area to positively change customer behaviour through a 30 KPH restricted work site. In the trial, an average speed reduction of 6 KPH was achieved.	West Waikato North	1/02/2019
Skid Assessment Length (SAL) analysis tool	The NZTA T/10 Skid Assessment Length (SAL) review process was a manual job requiring a significant amount of time, being done differently across the regions. A new SAL review tool has been developed to provide a consistent methodology and reporting format for this process.	Wellington	1/06/2017
Skills View App	Real time information on individuals' training and competency to aid assignment of tasks or activities in the field.	West Waikato North	1/06/2016
Slope Movement Monitoring Gauge	Precision gauges installed at regular intervals across joins in the kerb and channel above the 2011 dropout at the Gates of Haast to measure any small relative movements, indicating instability. Currently read daily by construction or maintenance crew on site, this allows early warning of slope failure, without requiring independent surveyors.	West Coast	1/06/2018
SNOOPY	Armoured cart 400mm long and can fit into culverts with a minimum of 225mm in diameter. On the cart sits a Go-Pro camera in a waterproof housing and a simple torch for providing lighting. The cart is pushed through the culvert (and pulled back) using drainage rods to inspect culverts up to 15m long. Can be pushed through debris/water-logged culvert without issue and continue to capture video footage.	North Canterbury	1/06/2020
Solar panels installed on service vehicle	Solar panels installed to eliminate the need for a 240 volt charging system on a break down workshop vehicle	Wellington	1/06/2018
Spray Arm adapter	Retractable spray arm for more direct application of chemical, reducing waste and improving accuracy. Differs from existing kit available on the market in that it's been developed to be able to be fitted to current fleet without incurring significant cost implications (or manufacturing warranty constraints).	Coastal Otago	1/10/2019
Stand in the Gap	Stand in the Gap stage 2 presentation follow-up to promote Zero Harm and empower employees to have a say in safety.	South Canterbury	1/10/2015
Surface Depression Measurement Tool	An all-in-one hand tool made from Steel that our programming team uses to measure the depth of ruts and depression. Less time in the live lane and removed need to get down onto the ground therefore improving safety.	Central Otago	1/02/2018
The Gibney – Horizontal Paddle	A stop go paddle extending horizontally from a traffic cone, visible at eye level in the lane. No go option on the back. Operated by a foot pedal. On wheels so it can be moved along the road for a short distance if required.	Nelson Tasman	1/10/2017
The Range Finder	SNDWAY (SW-900A) range finder used to record speeds of vehicles during TTM audit. Can determine how well traffic is adhering to a speed restriction and provide to STMS (vs estimate).	Gisborne West	1/06/2017
Thunder Maps App	Thundermaps App for mobile staff to complete onsite safety based conversations on their mobile devices, reducing paper work, saving time and improving reporting.	Central Waikato	1/10/2015
Tow Safe device	A device that reduces risk of human error by creating a step where you are forced to check that the trailer is properly secured. Also enables trailers to be secured with a padlock.	Northland	1/06/2019
Traffic Guard - Safer Worker Alert System	A lightweight, easy-to-transport trip hose and sensor assembly that wirelessly sends a signal up to 700m away to a flashing rechargeable siren alarm and to individual Personal Safety Devices. PSD's vibrate and provide an audible sound through the included ear buds, giving workers extra seconds awareness if a vehicle crosses over the hose.	West Coast	1/06/2018
Traffic Signal Audio Alarm	Audio alarm system to alert site staff in the event of traffic light signal malfunction, enabling CoPTMM compliant usage of traffic light signals, minimising traffic management costs.	West Waikato South	1/10/2015
Trailer Ramp Audible Warning Device	In response to safety concerns audible alarm systems have been installed on ramps on all transport trailers. Activated by the driver when starting the unloading/loading process via a trailer ramp control pressure switch.	West Coast	1/06/2019
Treatment selection forms	Treatment selection forms developed for the Annual Planning, RAPT and design reporting of the forward works programme	Wellington	1/02/2016
Truck Ring Feeder Attachment (while towing)	The ring feeder attachment is a safe and efficient tow coupling unit, making towing operations in the Otira Gorge easier and safer. (Compared to handling a heavy-duty strop directly into the ring feeder).	West Coast	1/02/2019
T-SKAN – SAL Score Integration	Automated upload and calculation SAL spreadsheet into TSKAN software (used to manage SCRIM). Aligns the SAL table with exception sites, site investigation, and proposed actions. Groups all the sites with the supplied SAL data, with annual parameters, prioritises and displays them into a single spreadsheet	East Waikato	1/06/2016
TTM Application On Downer Survey	Gathers the inputs for planning (details of construction methodology, planned and contingency dates, exact location (RPs), a map or visual aid to demonstrate the treatment length, stakeholder inputs, for example the name of nearby businesses or schools, as well as the consideration of road aspects that will be indirectly affected, i.e. footpaths or driveways), screens for Downer permits and captures any customer/stakeholder requirements; capturing adequate detail for the project's TTM Plan Designers, implementers and Customer Stakeholder Managers. Once the form is completed, the applicant is prompted to mark their calendar, as they are given a pre-populated date for stakeholder letter distribution. This is calculated one week in advance of construction start date, to comply with SWAMP notification periods.	Gisborne West	1/02/2020

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TTM Risk Assessment Calculator	Introduced for out-of-vehicle operations on Level One roads. By scoring each site, a risk level can be determined providing the user parameters to work under for that site. We have divided the network into zones depending on TTM level classification/ability to safely pull off the road/sight distance.	West Coast	1/06/2019
TTM Sign Racks	Light racks on the sides of TTM trucks designed to hold pre-assembled TTM signs and stands. STMS sets the order of the signs on the truck, allowing TC crew to more easily select and place the sign in location, reducing time spent in the live lane. Only attached while setting out and parking down sites (removed and stored away under normal driving conditions).	Northland	1/02/2020
TTM training lane in yard	To provide a 'safe' work environment, away from the hazards of live traffic, we painted a road in our yard, and this allows us to undertake TTM training effectively.	Hawkes Bay	1/06/2019
Unmanned UAV Pest Plant Control	Carrying up to 16lt of selective herbicide, a remotely piloted drone for pest plant control in areas that are difficult to reach. Eliminates need to put people in hazardous positions, saves time, and limits impact on road users.	West Coast	1/02/2020
Utilising BR1 rutting file.	WDM Ltd that collects high speed data has a rarely used BR1 file which we now regularly use to identify and track a more detailed rutting pattern to verify annual trends. This gives greater insight than the traditionally summarised 20m data.	Bay of Plenty West	1/10/2016
Vaisala Ice Detection	Sensors on CMA applicators for real time grip measurement and ice detection, reducing the number of missed ice hazards and over application of CMA, and therefore saving cost while increasing the LOS.	Central Waikato	1/10/2016
Vegetation Control - night spraying	Chemical vegetation control undertaken at night to avoid traffic and windy conditions, reducing chance of off-target kill.	Taranaki	1/02/2016
ViaFix for permanent winter pavement repairs	Viafix for minor pavement repairs (eg potholes, seal stripping) in freezing conditions. Activated by water, sets as a permanent repair as good as compacted hot asphalt mix. It can be applied in wet/freezing conditions, and remains pliable in the cold. Can be relied upon to compact suitably under normal traffic, without sticking to wheels or popping out of the repair. No emulsion tack coat is needed.	Central Otago	1/10/2017
Vibration Management Process	A procedure for complaints about vibration, including information for complainants, a robust investigation methodology and action plan based on outcomes of investigation.	North Canterbury	1/06/2019
VIVA	IVA: To utilise latest video (sourced from local network inspections or HSD or other source) combined with RAMM data, Google earth and Google maps. Link directly to inspector's weekly video and new charting function enables RAMM data to be graphed and tracked while running latest video.	Bay of Plenty West	1/10/2015
W Section Steel lifting Plate.	A simple steel plate for adjustable lifting of the W-section while leaving the bridge post footing completely undisturbed. Requires only a new hole drilled into the steel bridge post block-out and one additional short nut & bolt to attach the plate to the block-out to prevent rotation. The steel plate is of sufficient thickness to ensure full back support for the W-section profile under crash forces.	Nelson Tasman	1/06/2017
Waipoua Forest Approaches	Addressing pest plants in N&S approaches to forest to prevent threats to forest stand	Northland	1/06/2016
Waitangi Sign Panels	By agreement with iwi, large carved panel designs requested for the Te Puke settlement entrances were colour printed and transferred to sign board, including film for reflectivity. Eliminated requirement for heavy carved totara wood panels and foundations (roadside hazard), while still delivering design outcomes.	Bay of Plenty West	1/02/2018
Weed spray uses infrared technology	A weed control machine with independent operating spray jets, with ability to directly target an individual plant using infrared technology when it encounters plant chloroplast. Rather than current practice of blanket coverage, this spray technique allows for minimal herbicide use which may lessen potential for spray drift & run off.	Wellington	1/06/2018
Wind power as alternative energy source	Wind generator installed to supplement solar panels and enable constant street lighting at Kawatiri Junction.	Nelson Tasman	1/10/2018
Wind sock	Part of the slope stability strategy on the site includes sluicing using a helicopter and sluice bucket unleashing water to wash down loose material at risk of falling on to the pavement. Pilots previously used a long standing tree as a guide for determining wind strength. Because it was recently damaged in extreme weather, the team installed a permanent windsock.	Central Otago	1/06/2018
Windscreens wipers up (EPPP)	Once vehicles are stranded on SH5 due to a snow event, to show that the occupants have been extracted, the windscreens wipers are raised to advise others of the status of the vehicle. Between Higgins, CDEM and the Police, this proved very efficient in the July snow event.	Hawkes Bay	1/10/2017
Wine Industry Consultation To Reduce Grape Spills	To reduce the disruption to traffic and stop the contamination the grapes cause to the environment, leading up to the grape harvest in April and May we ran an awareness campaign with the local industry. We mapped all the known hotspot areas, created a driver induction handout and listed the times of the day the grape spills occurred and the percentage of spills for each location. The wine industry shared the information with the harvesting team. The result of the campaign was a 33% reduction in grape spills from the previous year. The wine industry were impressed with the success and wish to continue the campaign every year.	Marlborough	1/10/2018
Winter Services VMS	VMS sign installed with pre warning messages on Winter Maintenance Response Vehicle has reduced the number of customers stopping and exiting their vehicles when an incident/event has occurred. Smart Trak installed in Kui Griffin (SME) vehicles.	Central Waikato	1/10/2015
Wire rope barrier tensioner	A hydraulic device that runs off a cyclic truck, pulls the cables together allowing the turnbuckles to be efficiently tightened. Eliminating a purely manual operation also speeds up the repair thereby reducing disruption and exposure to live traffic conditions.	West Waikato North	1/10/2017
Work activity reporting (TTM specific)	A process of capturing all events taking place on the network and redistributing the collated information to TTM practitioners, Journey Managers and neighbouring TMCs. Stakeholders have visibility on a daily basis of all authorised events on the network. ALL stakeholders working with a standard template and understanding of what information is required.	West Waikato North	1/02/2017

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Wrike Road Works Reporting	Real-time updating of current closures on the Network, including internal and external customers; enables valuable planning for journey management. (Supplementary to TREIS)	Wellington	1/06/2018
Yellow pedestrian safety barriers	We believed the red colour did not stand out, particularly at night and changed the colour to yellow. To date where damaged rails have been replaced there have been no barrier strikes.	Marlborough	1/06/2019