

The background of the entire page is a close-up photograph of green fern fronds. The leaves are small and pointed, with a dark brown stem. The lighting is soft, highlighting the texture of the leaves.

PALMY™

PAPAIOEA
PALMERSTON
NORTH
CITY

Environmental Sustainability Review 2022



We take sustainability seriously.....	4
We want to reduce our impact on the environment.....	5
We work closely with Rangitāne o Manawatū.....	7
CARBON	9
ENERGY	15
TRANSPORT	23
WATER	31
RESOURCE RECOVERY	41
URBAN DESIGN	51
BIODIVERSITY	57

WE TAKE SUSTAINABILITY SERIOUSLY

Kia ora,

Our Environmental Sustainability Review is all about showing how we as a Council organisation are committed to improving our environmental footprint and providing a spotlight of some great work happening in our community.

We have a vision of being an Eco-City and that means that we need to be future focused in the way we think, act and plan ahead. We're committed to just that and not only do we have a strategy that explains how we're doing that, but we also have a Council committee to ensure we deliver on these goals.

In the last 18 months since our last Sustainability Review we've experienced the global Covid-19 pandemic.



While air travel ground to a halt, we've also seen a behavioural shift as we all reached for more disposable items like facemasks, tissues and gloves to protect our health – and understandably so. It's too early to tell what the long-term impacts are on our environment at this point. That's the problem with data and measuring environmental change – environmental change doesn't happen overnight; it is small baby steps over a significant period that slowly makes a difference.

Whilst this report has some data and metrics in it, more importantly it tells you the stories and steps we as an organisation are taking to make a positive impact on our planet, and hopefully inspire others to see how they too could make simple switches.

We're committed to making a difference. We recently updated our carbon reduction target in the 2021-2031 Long Term Plan and Eco City Strategy to 30 per cent by 2031 to align with the national direction. While we're on the way toward meeting this solid goal, continued effort will need to be made, and funded, every year along with attempts to drive behaviour change within our communities.

We're also getting stuck in with great initiatives in our region and partnering with other organisations, Councils, businesses and mana whenua to see how collectively we can make a difference to our emissions, and our environmental footprint. You can read about some of them in this review.

Looking after our environment is something we can all do. We have a range of tools and initiatives about how you can do just that, via our website pncc.govt.nz

I encourage you to take a look.

Nga mihi nui,
Mayor Grant Smith JP

WE WANT TO REDUCE OUR IMPACT ON THE ENVIRONMENT

We have a responsibility to respond to climate change for the benefit of everyone. Our goal is for Palmy to decrease carbon emissions and reduce our ecological footprint. We want to protect and enhance our natural and built environments, accommodate growth through intensification, and support active transport. We work with our partners towards achieving shared goals.

Our eco-city strategy outlines our priorities:

- To respect and enhance the mauri of the Manawatū River
- Work with the community to reduce carbon emissions
- Regenerate native biodiversity
- Invest in infrastructure that serves to protect, enhance and preserve the environment
- Use Council's legislative powers and policies to ensure urban development is sustainable now and into the future
- Educate the community, and in particular property owners, on the benefits of investing in sustainable building design and green buildings
- Demonstrate leadership and best practice by developing and implementing an environmental sustainability plan for the Council, Council-run events, and facilities

Council will monitor these measures of success and report on these through the City Dashboards:

- Citywide CO2 e emissions
- Council CO2 e emissions
- Citywide electricity consumption
- Native bird numbers
- Water consumption
- Water quality
- Waste sent to landfill
- Waste diverted from landfill



WE WORK CLOSELY WITH RANGITĀNE O MANAWATŪ

Palmerston North City Council and Rangitāne o Manawatū have a strong partnership founded in Ti Tiriti o Waitangi and work towards joint outcomes in many areas including those encompassed by sustainability.

Our tangata whenua representatives sit as full members on the Environmental Sustainability, Community Development, Economic Development Committees and the Rangitāne o Manawatū Committee which is tasked with jointly planning and managing the Te Motu o Poutoa / Anzac Park Reserve.

Council also has a Partnership Agreement with Rangitāne o Manawatū and our strategic direction affirms the important requirements to ensure that mana whenua values and perspectives have significant weight in decision making, and in particular the key importance of working together to restore the mauri of our waterways.

Our Council documents highlight the special relationship tangata whenua and wider Māori have with the land, forests, rivers and sea, and the obligation to working together in partnership with Rangitāne o Manawatū to restore the mauri of the waterways and forests. Supporting this, among other things, is the Hei Manga Oranga programme which is aimed at a comprehensive set of indicators and outcomes that weave together a set of agreed commitments in freshwater management.

Our Eco-City Strategy clearly identifies this partnership and what it means:

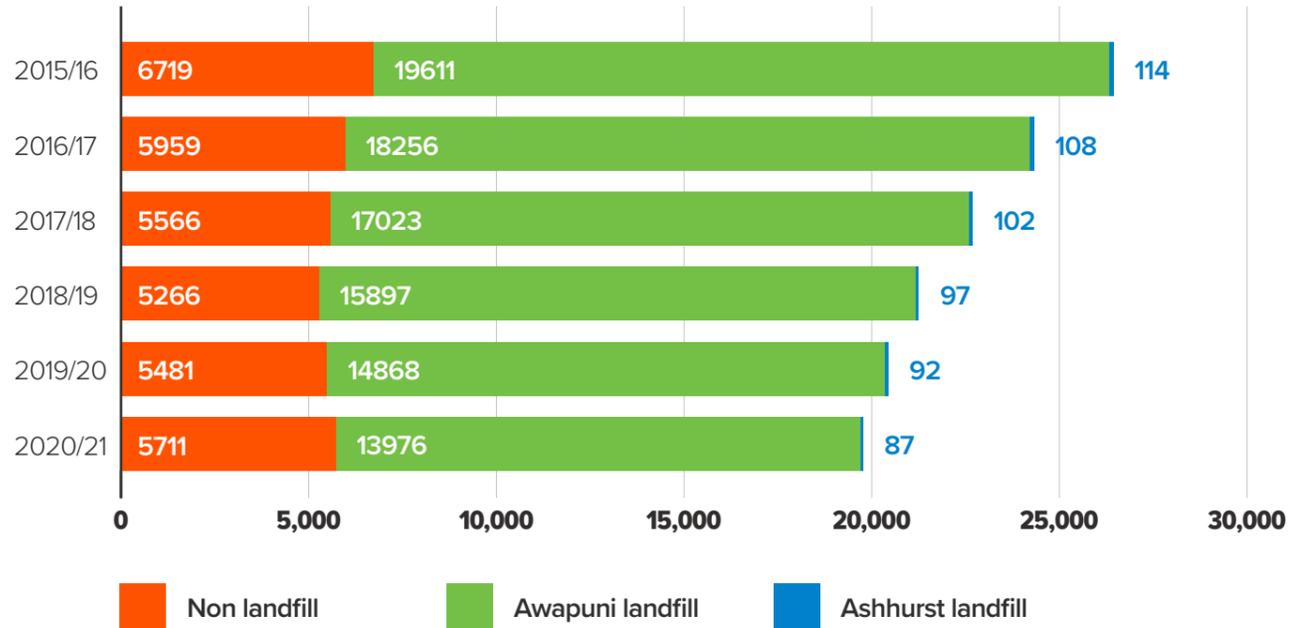
- We engage proactively and collaboratively to ensure positive outcomes where Rangitāne o Manawatū values are embodied
- We as Council acknowledge and honour the special relationship tangata whenua have with the land, forests, rivers and sea
- We partner with Rangitāne o Manawatū to restore the mauri of the waterways and forests
- We acknowledge Te Ao Māori is a key foundation for our collective aspirations for the environment
- We provide support to Rangitāne o Manawatū to achieve their own climate change aspirations
- We work with Rangitāne o Manawatū to understand the impacts climate change may have on Māori
- Support Rangitāne o Manawatū in the retention and expression of mātauranga Māori and Rangitānenuiarawa
- Strengthen Māori community involvement in biodiversity projects
- Collaborate and partner with Rangitāne o Manawatū on activities along, and within the Manawatū River
- Support Rangitāne o Manawatū in the retention and expression of māta





CARBON

EMISSIONS SUMMARY



Since 2016 PNCC has been working to reduce our own emissions. The majority of the emissions directly associated with activities and facilities come from methane generated by the closed Awapuni landfill site. This site has been closed since 2004 but waste continues to rot and generate gases.

Since 2006 the methane gas captured from the retired landfill has been used to generate electricity for the Awapuni Resource Recovery Centre and the nearby Wastewater Treatment Plant. Refinements and upgrades to this process continually improve the capture efficiency and increase the amount of gas intercepted.

CARBON

As floods, storms and droughts become more frequent and intense around Manawatū, the need to reduce our emissions becomes more obvious. Although the pace of change is uncertain, similar patterns around the world suggest tackling our carbon emissions is crucial to mitigating the risks of climate change.

Cities are also among the places most likely to feel the acute impacts of climate change, with the large amounts of concrete, metal and glass often making them warmer due to the way they emit and reflect heat. Palmerston North City Council is attempting to lead by example for our city by making changes in areas of our services and facilities that emit the most carbon.

Council recently updated our carbon reduction target in the 2021-2031 Long Term Plan/Eco City Strategy by 30 per cent by 2031, in order to align with the national direction. While we're on the way toward meeting this solid goal, continued effort will need to be made, and funded, every year along with attempts to drive behaviour change within our communities.

As an organisation we are just coming out of the phase of establishing what our carbon emissions actually are and what to do about them. We have begun taking action by targeting 'low hanging fruit' such as the obvious big emitters. In the lead-up to the 2023/24 Long Term Plan process, Council will conduct a systematic review of opportunities to invest in low carbon technologies and processes, selecting for delivery those opportunities that deliver the greatest carbon reductions at the lowest whole-of-life cost.

Transport is by far Palmy's largest carbon contributor. Meeting our carbon goal will rely heavily on assisting people to drive a lot less. Nearly half our citywide emissions are transport related, with half of that from

petrol use. Swapping all the cars in Palmy for electric vehicles would save over 200,000 tonnes of CO2 from entering the atmosphere per year, not to mention the air quality improvements, noise reduction and safety improvements.

Forestry has also had a large effect on the carbon levels for Palmy city. Citywide emissions have gone up by approximately 80,000 tonnes since last year. The recent cutting down of mature pine trees in surrounding areas accounts for 68,000 of this increase. The remaining 12,000 tonnes come from our growth in population which leads to increases in transport, gas and electricity use, industrial emissions and waste water treatment.

A lot of the work done last year was around altering council proposals for the 2021 LTP so that budgets include funding for sustainability improvements. There was also the creation of our \$1 million Low Carbon Fund for internal sustainability projects such as fleet renewals and LED lighting upgrades.

In the new financial year we are aiming to have a number of initiatives in progress, or being implemented, including provision of electric vehicles and charging points in the Central Administration Building, native bush planting in parks and reserves, more cycling infrastructure trials, changes to asset renewals (i.e. boilers etc.) and further investigation into solar projects.

Council has reduced its annual emissions by 6004 tonnes carbon dioxide equivalent (tCO2e) or 22.7 per cent, since it first began monitoring in 2016. But if we're to meet our target of 30 per cent across the city itself by 2031 we'll need to not only drive our own efforts forward at pace, but also encourage behaviour change within our community as well.

Our Carbon fund

Council is investing \$1,000,000 each year in low-carbon alternatives through its internal 'Low Carbon Fund'.

The fund helps make some of our projects achieve lower carbon or energy costs over their lifetime.

At time of publishing, the Low Carbon Fund has enabled ~\$850k of savings (in 2022 dollars), through ~\$480k of additional spending. Collectively, these projects are also expected to save 94t of carbon emissions.



Our Sustainable Living Programme is helping our community

The Sustainable Living Programme is an eight-week evening course teaching eco-friendly practices around gardening, waste, energy, eco-building, transport, resilience, water, and food choices. The free interactive sessions, developed by the Sustainable Living Education Trust, are facilitated by council staff and local community experts.

Each week course members explore the benefits of sustainable living like reducing power bills, efficient water use and lower-carbon transport options. Some sessions were co-facilitated by council staff with roles in related services, providing a great chance for two-way communication on council initiatives and how we can all work together to improve environmental outcomes. Other sessions were led by community organisations like the Water Protection Society.

Participant feedback from the programme speaks for itself:

'An excellent programme offering great information about why we all need to do things differently and how to put these concepts into practice. I really appreciated knowing how our city council provides us with the various services we enjoy (waste management, water, transport, etc) and how they're making efforts to provide the city with a sound, sustainable infrastructure that will promote a better environment and health outcomes for all of us. Go city council! I strongly urge everyone to consider taking part in this course.'

Palmy's Community Gardens

Alongside Environment Network Manawatū, we've supported the establishment of community gardens in Palmy. These are gardens initiated and created from the grassroots, by like-minded people who are building great spaces in their neighbourhoods.

Palmy community gardens range from the allotment style, like at the Awapuni Community Gardens, to roadside berms, like in Moheke Ave, to Māori-centred initiatives, such as Te Roopu Oranga o Highbury and Te Pataka Kai 4412 Māra Kai.

These gardens are being used to plant fruit, vegetables and herbs. Not only do they provide fresh produce as a community resource (some donate to local food rescues) and help reduce food waste, they have the added benefit of bringing people together to share knowledge and skills.

They promote community spirit and active lifestyles for mental and physical health.

The principles of kaitiakitanga, manaakitanga and whakapapa are forefront. Through kaitiakitanga, they support our city's green landscape and provide an environment where life such as bees, birds and butterflies can flourish. They manaaki our community through social support and by being welcoming to groups such as refugees, those with special needs, students, and both young and retired people. Our whakapapa is celebrated through Papaioea's strong food history, from Te Awa o Manawatū and its five lagoons that formed a food bowl for Rangitāne o Manawatū, to market gardens on the Hokowhitu rivers soils, to the internationally recognised food innovation coming out of Massey University and Food HQ.

We want more people to get involved in community gardens and have produced a guide to setting one up – from getting together a management group through to care and maintenance and the help available.

Plentiful fruit is now on the radar, with plans for a public fruit tree map for Palmy. We're working with the community to plant fruit trees in local parks, with people in those neighbourhoods committing to caring for them through watering, mulching and general maintenance. Council will supply the trees, compost and mulch.

Once these trees are firmly established, there'll be fruit trees producing year-round in our city's community spaces. We'll be able to tell people where apples, plums, citrus and more are ready for picking as the seasons roll by.

In 2020 we launched a strategic identity for Palmy with the ambition of making our city known as the food innovation capital of New Zealand. We're doing great stuff with food and innovation in Palmy which is helping feed both the tummies and minds of our residents and visitors. Over the coming years we'll be promoting these unique capabilities and the opportunities these bring to our city, our residents, our visitors and our economy.





ENERGY

**Council's
electricity
use (tonnes
of carbon)
dropped
31% over the
last 5 years**



ENERGY

Energy efficiency is an integral part of our wider efforts to tackle climate change and improve how council operates. We are making some good progress in this area with reductions in our electricity usage resulting from efforts to implement modern energy efficient technology within our operational systems. Recent increases in our use of natural gas, alongside increased costs per kWh of gas, highlight the need for continued focus on reducing our energy use across the board, and transitioning from fossil fuels to electricity wherever practical.

Our medium-term goal of a 30 per cent reduction in climate changing emissions by 2031 will require us to reduce the energy we use across all of our operations and continue to transition to greener and more efficient ways of working. Government mandates due to be published in the National Emissions Reduction Plan, will mean significant changes to how energy is generated, and we'll look to harness those changes to further reduce our climate impact.

Since 2016, we have been working to replace gas boilers with electric systems; replaced inefficient pump systems at the Lido Aquatic Centre; replaced

the majority of the city's street and council building lighting with LEDs, and used gas captured from our closed Awapuni Landfill to power our water treatment works. We are currently working on a number of other projects, including transitioning our vehicle fleet to battery electric or hybrid systems.

Council's electricity usage was responsible for 1,945 tonnes of carbon in 2016, but has since declined to 1,327 tonnes of carbon (a 31 per cent reduction). We continue to make savings and are forecast to use 10,692,262 kWh of electricity in the 2021/22 financial year against a target of 11,036,854 kWh - 3 per cent under budget, and saving around \$98k or 33.7 tonnes of CO₂.

Our teams will continue to look for opportunities to transition away from fossil-fuel based technology wherever practicable. Technologies such as electric cars, LED lights, electric heat pumps and effective insulation and draughtproofing will become standard practice across council assets, and we will continue to investigate new ways of reducing or offsetting our energy use, such as by planting native bush in our parks and reserves.

Turitea hydroelectric power station

Two-thirds of Palmy's drinking water comes from our two Turitea Dams at the northern end of the Taranaki ranges.

The Upper Dam is a traditional concrete arch dam, which contains the bulk of our stored water. This dam then feeds the lower dam, which is an earth embankment style dam. It is the lower dam that feeds water to the Turitea Water

Treatment Plant whilst maintaining a constant flow to the Turitea stream.

In 2001, we commissioned a small 200kW hydroelectric power station on the Upper Dam to provide electricity to the treatment plant located 2-kilometres downhill.

Four turbines or generators are powered when water flows between the two dams. They operate at full capacity in winter – when the Upper Dam water level is consistently high – and generate enough electricity to power the entire treatment plant. Surplus electricity is sold back to the national grid. Excess water is flushed via the Turitea Stream to the Manawatū River.

In summer, the plant is switched to water saving mode and most electricity is sourced from the grid. During these drier periods, water from the Upper Dam is only released to maintain the water level in the Lower Dam and a minimum flow in the Turitea Stream.

In the year to March 2021, the total electricity generated at the hydro station was 2,107 gigajoules, while the total energy consumed at the treatment plant was 876GJ. That means we injected 1,230GJ back into the national grid.

Since February 2018, we have made more than \$145,000 from selling electricity to the national grid.



Bio-gas generator

We also have a bio-gas generator located at the Totara Rd Wastewater Treatment Plant, which supplies power to the treatment plant and Awapuni Resource Recovery Centre.

Methane gas is captured from the retired Awapuni Landfill – decommissioned in 2001 – and from sludge digesters at the wastewater plant. The digestors use a biological process to breakdown sewage sludge. The process is designed to capture the bi-product – methane gas – before feeding the gas into the generator as a fuel source to produce electricity.

Not only does this prevent methane gas from polluting the environment, but the electricity produced offsets about 40-50 per cent of the total annual power requirements for our wastewater plant.

In the year to March 2021, the biogas generator produced 1,992MWh, and the treatment plant imported 1,885MWh. Occasionally there were times, such as night, where the generator produced more power than the plant required, allowing us to export 107MWh back to the national grid.

Since February 2018, we have made \$11,600 from selling electricity back.



Mercury's Turitea windfarm

More turbines are sprouting on the hills surrounding Palmy as Mercury and the Manawatū grow New Zealand's production of renewable energy.

New Zealand is blessed with natural resources and Palmy and the Manawatū are right in the middle of it. Our country's shape and location mean we're well set up to take advantage of the power of wind – something we are very unlikely to run out of. Ever. For more than a decade, Mercury has been working with communities in the Manawatū. The goal: to harness the winds from the Tasman that gather across the plains. A significant milestone has now been reached in the construction of New Zealand's largest (so far) windfarm at Turitea – a project that after much planning finally broke ground in 2019. After moving more than 700,000 cubic meters of earth, with up to 180 personnel on-site during peak construction, the 33 wind turbines that make up the northern zone are now in place to turn the wind into around 470GWh of electricity every year.

Once the full 60 turbines at Turitea (north and south) are completed, that total energy output will be around 840GWh per year. So, what could be done with this new renewable electricity being generated from the turbines turning in the north of Turitea? Over a year they could power over 67,000 homes, or around 200,000 electric vehicles.

Turitea is set to become the nation's largest wind farm, but the Manawatū already holds this crown with the mighty Tararua Wind Farm. With 134 sets of spinning blades over three wind farm sites, it generates 563GWh of electricity (or about 250,000 EVs) each year. In August 2021, Mercury purchased the Tararua Wind Farm from Tilt Renewables.

For wind farm development in the region, the story is far from over. Mercury has a plan to build another in the region, with a further 53 wind turbines consented to be built at Puketoi, and work is under way to progress this site to a shovel-ready project including baseline ecological surveys, further site investigations and development of design.



TRANSPORT

We have 534kms of roads, 572kms of footpaths and 88 bus shelters.

2 per cent of people regularly catch the bus to work

4 per cent regularly bike to work



8 per cent regularly walk to work



13,900 street trees grown and maintained to reduce carbon emissions.



43,000kms travelled by our electric bus, saving 14,300L of diesel and 40 tonne of emissions entering atmosphere.

TRANSPORT

From a strong rail-based network in the past to one that supports a burgeoning logistics and distribution hub today, Palmy's transport network has grown with the city to accommodate a community with diverse and everchanging transport needs. However, much of this growth has focused on serving growing private and heavy vehicle movements across the city at the expense of alternative means of getting around.

Palmy saw the country's highest proportion of trips on bikes in the years leading up to 1996 but cycling numbers have consistently dropped as the population has increased, along with public transport patronage despite increased investment by Horizons Regional Council into the service. Stigmatised alternative modes and a historic vehicle-centric network has led to transport emissions being a significant contributor to the city's total carbon emissions, as well as decreased transport choices for Palmy's residents, an increasing road safety problem and poor social outcomes for the city.

The transport network is not currently keeping pace with city growth demands in a way that supports people-oriented and environment-friendly transport systems. For example, state highways through the city frustrate our urban development goals around provision of slower safer streets in which people feel safe to use low carbon alternatives such as walking or cycling. We are however making progress toward our broader strategic transport objectives.

One area of progress has been the approval from Waka Kotahi of the Palmerston North Integrated Transport Initiative (PNITI). Heavy freight vehicles on urban streets not only cause major noise and safety issues for residents, but also have a significant impact on the city's carbon emissions.

PNITI aims to make Palmy's streets safer and more pleasant for those wanting to use active modes to get around town, with a 50 per cent reduction of freight movements on residential and place-based streets and a 50 per cent reduction in the number of congested intersections – both of which will have major benefits on emissions. Furthermore, PNITI aims to achieve a 35–40 per cent reduction of deaths and serious injuries across the rural freight network and improved safety and accessibility to new housing developments across the city.

We've also made progress on the implementation of our Urban Cycle Network Masterplan with the installation of buffered cycleways on certain routes, with more planned for the upcoming financial year. Palmy was also successful in receiving funding from Waka Kotahi's 'Innovating Streets for People' programme, with the four resulting temporary installations on George Street, Ruha Street, Main Street West and Square Edge Community Centre providing valuable test cases for how road space may be reallocated to achieve better social outcomes in the city.

Palmy has also shown its big city ambition, small city benefits with the introduction of a shared e-scooter service. Micro-mobility options such as e-scooters provide residents across Palmy with further transport choices, allowing many everyday trips to be made with these lower-carbon options. They're also shown to have a lower barrier to entry than using a bike for many people. Many in Palmy took to these easy use options like ducks to water with the appearance of scooters on our streets from November 2021, seeing an immediate and enthusiastic uptake of this low-carbon short trip alternative.

We are proactively working with Horizons Regional Council to review and refresh the public transport service in Palmy. A fit-for-purpose public transport system is key to achieving a lower-carbon transport system and it's critical the service is seen as a more viable transport option than the status quo. Moving to a more frequent service across the city is a main aim for Horizons in their review. For our part, council is currently investigating redevelopment of the Urban Bus Terminal on Main Street East to provide a more attractive hub for public transport and active modes in future.

Though we have many plans and projects in the pipeline to provide environmentally friendlier transport options, these are not just technical problems to be quantified by economists and solved by engineers. We'll work with affected communities on why change is needed and explore with them ways we can all support and increase use of low-carbon transport.

While work with Waka Kotahi to implement the Palmerston North Integrated Transport Initiative is underway, we need to build its profile, providing the 'why' for our communities and stakeholders so they understand the 'bigger picture' benefits to our environment and lifestyle. We'll also need to provide timely infrastructure across the transport network to enable the final outcomes to be achieved.

Several programmes including the continued implementation of the Urban Cycle Network Masterplan, revised Public Transport Network, redevelopment of the Urban Bus Terminal, roll-out of a city-wide Parking Framework and reviews of speed limits, among others, are critical to unlocking further central government funding which we'll need to help achieve our long term carbon emission and road safety goals.

More cycleways for Palmy

Over the past two years, we've also had some progress on our cycleways.

We've now completed work on College St- a major improvement in this busy central city street. This cycleway saw us introduce buffered cycleways the entire stretch of the street, as well as install some indented parking along the route. We also worked with businesses in Awapuni to highlight the village feel

of their shopping centre by adding new welcome signs, designed by Rangitāne, and red road markings to provide a visual cue for motorists to slow down when approaching the shopping area.

We consulted and constructed the Summerhill Drive Cycleway. In 2022, we will be installing a physical barrier between the cycleway and the traffic lane. This will make it the first permanent cycleway in the city to have a physical protection for people on bikes.

In 2021, we received 90 per cent funding from Waka Kotahi to trial a cycleway along Main

Street West. Whilst the cycleway became famous around town for the colourful planter boxes that were used as the barrier, we did have some great results too. We saw the number of cyclist's triple during the trial period, from six an hour before the trial, to 17 an hour by May 2021. The result was particularly interesting as the trial was over autumn/winter when there is typically a reduction in people on bikes. Council is now considering the next steps for the cycleway.

The next cycleways being looked at are Milson Line, Albert St and Featherston St.



E-Scooters take Palmy by storm

E-scooter operators rolled into Palmy from November 2021, adding to the city's transport options.

Micro-mobility, such as e-scooters, are not only a fun addition to our innovative, growing and vibrant city, they are part of a bigger conversation about an integrated, multi-option and low-emission

transport network that connects people with their destinations.

E-scooters are a great fit for our flat city, and their addition is helping make a walking trip quicker and giving an alternative to short car trips. Their popularity has been seen right through Palmy, with operators reporting about 1000 trips per day within the first few months.

We've put a lot of thought into the safe operation of e-scooters in our city, knowing that while many

people see this micro-mobility as a positive addition, for some people their presence is challenging. A 2-stage regulatory approach has been taken. Stage 1 has seen temporary permits issued to operators that outline conditions to ensure a high safety standard. Stage 2 is looking at longer-term improvements, including developing a code of practice of e-scooter operators and amending our Signs and Use of Public Places Bylaw to include provisions specific to e-scooters and other forms of micro-mobility.

Waka Kotahi : New Zealand Transport Agency – Te ahu a Turanga

A major slip in April 2017 left SH3 through the Manawatū Gorge impassable. A new road is being constructed over the Ruahine Range, to provide a safe, resilient, and efficient route between Woodville and Ashhurst. The new highway is due for completion by the end of 2024.

A big part of this project is an ecological offset programme, intended to mitigate the project's environmental effects and leave the environment in a better state than it was prior to construction starting.

To do this, Waka Kotahi is

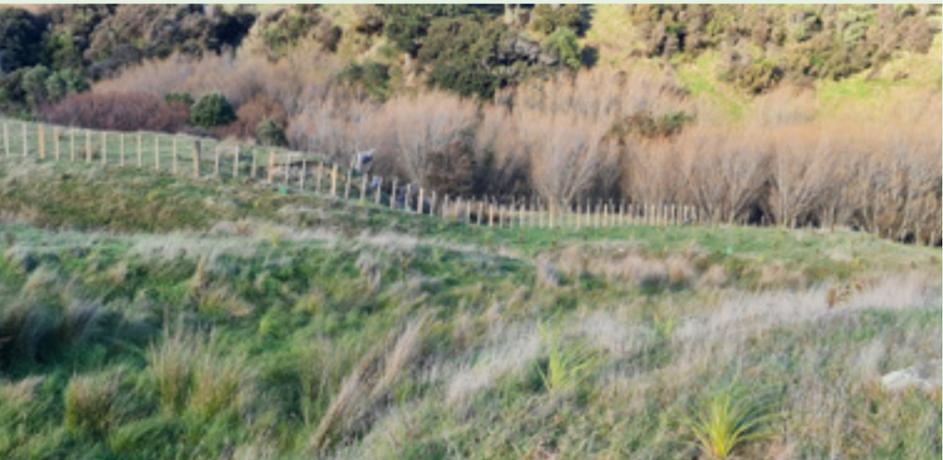
- Planting 46ha of native forest
- Rehabilitating 28km of streams
- Protecting 48ha of existing forest
- Managing pest control of 300ha of already protected forest reserve.

Almost 2 million native shrubs and trees will be planted over the duration of the project. So far, 250,000 plants have already gone in the ground and in 2022 another 570,000 will be planted.

Many of the areas are remote and not accessible by vehicle, which means the landscaping teams often have to hike to their work areas and have the plants delivered in via helicopter.

During construction, Waka Kotahi also has a defishing programme which sees fishlife relocated from streams or ponds before earthworks begin. This important work is guided by the project kaitiaki using sustainable and culturally appropriate fishing practices.

Photos supplied by Waka Kotahi



Te Āpiti Manawatū Gorge Governance Group

The Te Āpiti Masterplan was adopted by the Te Āpiti Manawatū Gorge Governance Group in December 2021. It sets out a long term vision to protect, preserve and enhance the Te Āpiti environment through a policy framework based on five focus areas – culture, environment, recreation, education, and leadership.

The masterplan includes 11 key projects designed to enhance the visitor experience at Te Āpiti, many of which will lever off the new Te Ahu a Turanga (Manawatū – Tararua Highway) currently being constructed by Waka Kotahi.

The group is made up of Horizons Regional Council, Palmerston North City Council,

Tararua District Council, Manawatū District Council, Department of Conservation, Rangitāne, Ngati Kahungnu, Central Economic Development Agency, Waka Kotahi: New Zealand Transport Agency and Environment Network Manawatū. ⚡

Stay up to date at teapiti.co.nz



WATER

Drinking water

<p>We have 587km of water pipes, 14 reservoirs and 21 bores and pump stations</p>	<p>We completed 5.16km of pipe renewals over the past year</p>	<p>New 4km duplicate main installed from Turitea Treatment Plant to Palmy over the past 2 years</p>	<p>Continue to achieve full compliance with drinking water standards</p>
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Wastewater

<p>We have 424km of wastewater pipes, 5794 manholes and 37 pump stations</p>	<p>We treat water for around four days before it is discharged to the Manawatū River</p>	<p>Our wastewater investment in the coming years is the largest ever for Palmy</p>	<p>Completed 100 percent of our renewal programme over the past year</p>
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Stormwater

<p>We have 5,511 manholes, 290km of piped drains and 20km of open drains</p>	<p>3km of urban streams and open drains cleared of vegetation or weeds over the past year</p>	<p>Vautier, Sutton and Paisley pump stations upgraded over the past year</p>	<p>CCTV inspection of 3.5km critical network completed over the past year</p>
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THREE WATERS

The three waters are a key focus for central and local government, with water reforms currently being implemented for the country. The three waters represent some of the most significant investments required both now and over the next decade. The opportunity for sustainable practice is huge and mandatory, and Palmy is rising to this challenge.

WATER

We manage three types of waters in Palmy-wastewater, stormwater and our drinking water.

All our water services are delivered within the context of the Manawatū River Leaders Accord, which sets out the shared commitment to improving the mauri of the Manawatū River. The Accord is made up of iwi and hapu, local and central government, farming, and industry leaders, along with Massey University and environmental and recreational advocacy. Recently it has grown to include others. It's a collaborative group supported by Horizons Regional Council.

The river is at the geographical, recreational, and spiritual heart of Palmy. The mauri of the river is a direct reflection of people's values. It is of great historical, cultural, spiritual, and traditional significance to Rangitāne. While we once turned our back on this asset, this is now not the case, and we are actively and increasingly turning the city towards this waterway.

We have also strengthened our connection between the city and Turitea Valley, the home of our drinking water reserve, and invested heavily in predator control in the area which has resulted in the regeneration of bush and increased birdlife. Planting the gullies and streams also improves water quality and provides corridors for native birds to move between the ranges and the city.

Drinking water

We have four water sources, which come from a combination of the Turitea dams and several bores in Ashhurst, Bunnythorpe, Palmy and Longburn. Our water supply is of high quality and plentiful. However, summer droughts and growing demand means we need to conserve water every summer to ensure everyone has enough water.

We're committed to developing ways to reduce residential water use and increase storage. We also need to upgrade aging infrastructure including pipes. We are looking to improve our district-wide resilience and improving the connection of Palmy's

water supplies to its satellite communities, such as Bunnythorpe and Longburn, which have separate water supplies in place.

We want to continue making progress in relation to water supply. We have made some headway, yet we need to do more in the community and as a council. This means we will continue to have a safe and readily available water supply that is cost-effective and environmentally sound. All our existing water supplies are secure, have approved safety plans in place and are fully compliant with the New Zealand Drinking Water Standards.

We are investigating smart metering to accurately profile commercial water use, coupled with pressure management which reduces leakage and delivers sustainable reductions in water use and wastewater flows. We are working to make our network more resilient to cope with swelling demand and future predicted growth.

We will strive to ensure all urban areas continue to be serviced with chlorinated and fluoridated water as demand grows and our city expands. We have capacity for growth and plans for more ground water sources in future to meet this demand.

There will be an increase in groundwater source capacity as necessary, to provide back-up in the event of mechanical or seismic event failure. There will be seismic strengthening of key water assets to reduce risk of major asset failure, loss of service and reduce the time to restore services in a seismic event. We recently constructed a duplicate water main to improve resilience and ensure we have a water supply in the event of an earthquake.

If demand increases, we plan for water supply zones throughout the district that could have water pressure reduced to save water. This, coupled with household water-saving and storage solutions, will further reduce water demand and wastewater flows. Pressure management will help to reduce leakage from the network, and we are currently investigating where we can lower pressure to achieve this.

Wastewater

Palmy currently owns and manages its wastewater treatment plant in Awapuni. The discharge of wastewater is stringently managed and is monitored by Horizons Regional Council.

In September 2021, council adopted our preferred option for the treatment and disposal of Palmy's wastewater (read more on page 36). We are now working through the consent process for this. This will be the largest project for the council for several years and a range of important considerations need to be made, such as community, public health, environmental, financial and sustainability implications.

Community consideration is a key component of the project and there are many opportunities for the community to have their say. Called 'Nature Calls', this project is detailed further on the next page.

Ongoing consideration is being given to new ways to manage, move, and treat our wastewater, and we have taken some steps already. An example of this is our new Pressure Sewer Policy. This requires pressure sewer systems to be installed in areas difficult to service with a conventional gravity sewer system. This reduces the risk of stormwater entry into the wastewater network and provides storage of water to smooth peak flows into the treatment plant.

Looking to the future, we want to achieve the following actions in wastewater treatment:

- Lodge resource consent with Horizons Regional Council for the treatment and disposal of the city's wastewater in 2022
- Smart metering and on-line monitoring are introduced to provide more robust profiling of flows and loads from large trade waste dischargers
- A reduction of stormwater infiltration and inflow into the wastewater network. We will achieve this by proactive monitoring of our network
- A city-wide wastewater network hydraulic model is completed and in use to inform asset management and city development decisions.

Stormwater

As our city grows and the impact of climate change becomes known, our stormwater network will become increasingly more important.

Over the last decade or so, there has been increasing awareness that urban water bodies are at risk of both flooding and poor water quality – leading to a shift in stormwater management.

This shift has been towards an integrated approach that seeks to protect and enhance the freshwater environment through sustainable stormwater management. This whole-of-system approach is not just about stormwater devices, but one that mimics natural processes, reducing flows and treating stormwater contaminants rather than systems designed principally for drainage.

This approach means:

- We will use modelling data to identify areas of Palmy that are subject to risk of flooding and to evaluate options for engineered solutions to reduce flooding frequency and the extent of flood events
- We will evaluate options to implement controls by way of permeable surface coverage, stormwater detention, water sensitive design and minimum floor level separation to mitigate the effects of flooding risks associated with new development
- We are placing greater emphasis on cooperating at Plan Change stages to include low impact design, water sensitive urban design, sustainable urban drainage systems and best management practices for all new greenfield developments
- We work together with developers to achieve sustainable outcomes for new developments. Farm drains are transformed into a series of native planted watercourses, rain gardens and wetlands that will improve water quality. A notable example of this includes ecological restoration works at Tamakuku Terrace
- We continue to do cultural and urban water quality monitoring at some of our most degraded urban streams. This gives an indicator of health of the stream and contamination level to programme treatment and restoration works.



Palmy soon home to NZ's best treated wastewater

In late 2021, the Palmerston North City Council committed to having the best treated wastewater in the country.

The city is currently deciding how it will manage, treat and discharge its wastewater for the next 30-50 years.

Currently our wastewater is treated and discharged to the Manawatū River. But in September 2021, after three years of technical work and public consultations, Council voted to move to a hybrid option where the treated wastewater is discharged to land and the river.

Three-quarters of the time the treated wastewater will be discharged solely to the Manawatū River. During the remaining 25 per cent of the time, the discharge of wastewater reduces to the river by 75 per cent and this highly treated wastewater is then used to irrigate crops.

Council voted to cap the amount at 760 hectares of land, to give communities some certainty over the amount of land needed. This gives farming, businesses and land owners some surety for their ongoing infrastructure investments.

In terms of the treatment of our wastewater, nothing changes in the system between your home and business and when it gets to our treatment plant.

But, when it comes into our plant, one of the major new treatment additions is called microfiltration,

which is a relatively new technology that has started to come in to use in New Zealand over the past five years or so. This special filtration technology removes tiny micron sized particles, and the filtration is so advanced it can even remove some bacteria and viruses.

But this will become an important step as we progress to our new treatment method. We'd be using a biological nutrient removal process called Bardenpho which uses micro-organisms to remove most of the nitrogen from the system.

We'd also continue to remove phosphorous from the treated wastewater to ensure we're doing all we can to protect our taonga. Council is currently preparing its consents, and the new treatment technology would start five years after consent is granted.



Summer Water Use a big success!

Palmy kicked water restrictions to the kerb this year thanks to our new initiative 'Summer Water Use'. We launched the new eco initiative over summer 2020/21 and have rolled it out permanently from summer 21/22.

Summer Water Use asks everyone to act like they're in level 2 water restrictions by choice. This means only watering outside every second night between 7-9pm.

While the programme's purpose is to try and avoid the need for water restrictions, it's also about a long-term change in our behaviour and starting to treat water like the precious taonga it is.

The peak 7-day rolling average water use for the city supply went from more than 34,000 m³/day in 2019-2020 (before summer water use) to around 33,000 m³/day in 2020-2021 (Summer Water Use trial) and 2021-2022.

That's a saving of 1 million litres a day, with voluntary conservation measures.

Summer 2022 was given a helping hand by La Nina though, and some heavy storms which helped keep our dams nice and full.

Water warriors

Palmy's urban streams are quite literally coming back to life, thanks to a partnership between the city council and Rangitāne.

When lightning strikes for the first time after February, that's when the tangata whenua Rangitāne knew it was time to catch extra tuna (eel) before they begin to migrate downstream on the tuna heke (spawning run). The vital food source would then be preserved for kai (food) for the winter months.

Back then, just 180 years ago, tuna filled Hokowhitu Lagoon, the Manawatū Awa and our urban streams, the Mangaone and Te Kawau.

But after over a century of major residential and industrial

urbanisation, channel management and intensive fishing, tuna are no longer a common sight.

Now, that's changing.

In 2019, the Palmerston North City Council and Rangitāne teamed up to start a programme focused on revitalising and restoring our city's streams.

Vital flooding role

Council's Chief Engineer Robert van Bentum, Activity Manager for Stormwater Veni Demado and Rangitāne are the brains behind the

multi-faceted programme.

They look at our urban streams a bit differently from how most people do. Instead of being a nice walkway or view, for the engineers and tangata whenua these streams play a vital role in reducing the chance of flooding.

In heavy rain, water flows from our roads into the grates and underground pipes, which move the water to these streams. If these streams are in a poor state, choked with weeds and trees, then the water backs up in the pipes. In



severe weather events, this can cause water to flood homes and businesses.

For now, the work primarily focuses on Te Kawau, a stream that runs from Milson near Colquhoun Park to the Trotting Club in Awapuni. A significant chunk of Te Kawau is piped underground through the middle of the city, before re-emerging on the other side of Wood Street. It continues as a highly modified channel until it joins the Mangaone Stream near the trotting racecourse.

Te Kawau simply hasn't had the love it's needed. One of the biggest problems is the lack of access to maintain the stream with many homes and businesses backing immediately onto the bank of the stream.

"The stream has been neglected and unloved for many years. There are lots of weeds and plants and trees that have clogged it up, and throughout the city people have been littering and dumping rubbish and green waste in or next to it. The first step for us was arranging access through private property, and in some cases removing and rebuilding fences, so we could do the work," van Bentum says.

Demado says the weeds were so bad that in some locations it was difficult to tell there was even a stream there.

"The stream was completely covered in weeds, so you couldn't even see there was a channel with water underneath."

Tumuaki Danielle Harris of Tanenuiarangi Manawatū Incorporated Roopu says we all have a kaitiaki role to play. "We want to educate our community to be proud of our waterways

and protect them from further degradation."

She says the programme starts with council staff removing the majority of the weeds, mechanically or with environmentally friendly sprays, to protect what mahinga kai is left.

"They then stabilise the channel banks, where necessary replanting them with Carex grass which both helps with stabilisation and allows water to pass through."

The cost of this intensive work does add up. Since 2019, just over \$400,000 has been spent. Council has also committed another \$250,000 over the next few years. Van Bentum says the costs will decrease significantly over time, with only basic maintenance required in years to come.

While council is especially focused on reducing flooding risk, the biodiversity improvements are a major drawcard and necessary with the likes of climate change.

"We're essentially trying to clean the streams and replant them so they become a natural environment friendly for fish, plants and therefore enhance biodiversity within the city. We want people to view them as an asset and start spending more time walking along them. We want those people neighbouring them to consider lowering their fences to enjoy the views, and most importantly we want people to stop littering near them."

An exciting part of the programme for Demado and van Bentum is getting Rangitāne involved.

The city's tangata whenua is conducting cultural monitoring of 12 sites across the city's stream network as part of an extensive monitoring programme they undertake across their rohe.

"We want to see these streams restored to as close as possible to what Rangitāne ancestors would remember. We are one of only a few cities in New Zealand recognising the significant knowledge Rangitāne have in caring for our waterways. We are early adopters, this is ground-breaking stuff," van Bentum says.

Rangitāne monitoring streams

Te Ao Turoa Environmental Centre, Rangitāne environmental arm is leading the charge for Rangitāne. The team are out surveying our city's streams taking typical scientific measurements such as water oxygen levels and macro-invertebrates, but also measuring other indicators important to Rangitāne using matauranga māori, such as fish diversity and the abundance of other kai moana, to develop an overall measure of the health of our city's waterways.

"Each site we've been to has been very distinctive. Te Kawau was known for lots of shags circling, knowing it was a prime fishing area for them and for Rangitāne people," says Paul Horton a Kaitiaki for Te Ao Turoa.

Te Kawau, near Rangitikei Street, Horton says: "Unfortunately, in this 100m stretch we have only seen two tuna [eel]. In other spots in Te Kawau we've inspected 19, seen many others, and they've been a good size. At the point where the Mangaone and Te Kawau meet we found watercress and koura [freshwater crayfish], and less pollution and litter. This indicates the water quality is better, which is good to see, but still not good enough to drink it."



When Te Ao Turoa team locates tuna, they're weighed, measured, have their eyes checked and are inspected for other signs of ill health such as lesion's or abrasions, which can be a sign of poor water quality. Te Ao Turoa hasn't found any lesions on tuna in Palmy yet.

One of Te Ao Turoa's biggest pride and joys is the new Urban Eels platform on the Turitea Stream.

Te Ao Turoa were a key player in bringing to life the award-winning attraction, where you can feed tuna for free.

It opened in late 2020, and has since become one of the highlights

for the city's residents and visitors.

It is also one of the streams Horton measures.

"The Turitea [Stream] has good water quality. There are a lot of eel here come October when they start coming upstream, and it's also a spawning site for lamprey, which are genetically different, but look like miniature eels."

Horton says he's been heartened by the public shift regarding waterways over the past few years.

"We've seen a number of groups getting involved in cleaning up our streams, and communities are now

engaging with water bodies in their neighbourhoods. We also have a proactive council who are getting on with doing the job and this important work. For us in Rangitāne undertaking research that helps us and council make decisions is very important, and is recognition for Rangitāne and our knowledge.

"Our vision is for our waterways to get to a healthier level, where we celebrate an urban fishery, while also enjoying a connection with nature. We know the streams won't get back to their pre-1850 versions, but we'd love to see them having a resemblance to their former state."



**WASTE
RECOVERY
SOLUTIONS
FOR
A
SUSTAINABLE
FUTURE**

Council's waste collection update

	2019/2020	2020/2021	difference
Recycling (Tonnes)	3303	3457	Up 4 per cent*
Rubbish (tonnes)	4751	4511	Down 5 per cent **
Glass (tonnes)	2511	2477	Down 1 per cent
Recycling at our Drop off Points	1077	1098	Up 2 per cent
E-waste (tonnes)	58.4	61.4	Up 5 per cent
Motor Oil recycling (litres)	7379	11051	Up 33 per cent
Green Waste Drop-off	8800	8953	Up 2 per cent
Compost sold	1622	2500	Up 35 per cent***
Compost made (m3)	2284	2871	Up 20 per cent

This data is only for people who use our waste services. Data in our Waste Management and Minimisation Plan is for the entire city's waste. That data is showcased over the coming pages.

*Covid-19 lockdowns likely impacted on these numbers, with lockdowns in both years. In 2020 recycling was landfilled for four weeks during the national lockdown.

**In our waste audit we are expecting to see a potential shift in people moving to commercial waste wheelie-bin services, but only our Waste Audit will be able to clarify this. Covid-19 may also have had an impact while shops were closed.

***Compost takes nine months to make so this means the previous year had a large increase in green waste drop offs.

RESOURCE RECOVERY

Every six years we conduct a city-wide audit of Palmy's waste habits- how much we are recycling; how much is going to landfill and trends. The last time we did this was in 2017, and during this year (2022) we will be completing this assessment again.

Our 2017 assessment found that Palmy sent just over 45,000 tonnes of waste to landfill. But, nearly half of this was potentially divertible- meaning it could have been composted, recovered, reused or recycled instead!

We're working to improve this, with a goal of increasing the proportion of waste diverted from landfill from 38 percent to 48 percent.

These assessments help provide the data for our Waste Management and Minimisation Plan which sets out what we are doing to look after our environment and new initiatives to help reduce our footprint.

Since our last sustainability report, the biggest factor in our waste collections has been the global Covid-19 pandemic. During both lockdowns we sent recycling to landfill in order to protect the health and wellbeing of our staff on our manual sorting line. The pandemic has also seen the use of more disposable items including tissues, wet wipes and face masks which is understandable.

We currently supply a range of waste management services to the city through a combination of rates and user fees. Whilst overall waste has increased as our city grows – as we've said above, we could be doing better.

Of the 45,000 tonnes of waste we send to landfill, about 15,000 comes from households through our kerbside collection. The rest comes from construction and demolition, industrial or commercial sectors, or residents taking their own rubbish to the dump or commercial waste bins they use.

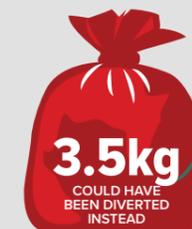
Many households use wheelie-bin services provided by private companies, with approximately 30 per cent of the city using our rubbish bag collection.

In 2028 our population is expected to reach just over 98,000 people. If we make no changes to how we manage waste, by then we will be sending 52,500 tonnes of waste to landfill annually. That's an increase of 7,000 tonnes.

To figure out how well we're doing in terms of waste minimisation, it's useful to compare ourselves with other parts of New Zealand.

- The total amount of waste per person that we send to landfill the district is mid-range: about 533kg per year
- When we look at how much waste from households we send to landfill, we generate about 180kg per person, per year which is also mid-range compared to other districts
- When it comes to household recycling we recycle about 67kg per person at the kerbside, which is on the low side – and households with large privately collected wheelie-bins recycle less than households using council's rubbish bag collection service.

A key issue is the different way households that use the council rubbish collection manage their waste, compared with households that use wheelie-bins. The bigger the bin, the more food and green waste they throw out.



There are some key things affecting the waste space currently

There are some factors that come into play that affect our ability to divert material, both positively and negatively.

Rubbish disposal will cost us more

From July 2021 to 2024, the Waste Disposal Levy will increase from \$10 a tonne to \$60 a tonne for Class 1 landfills. We will have to pay more for disposing of rubbish in the Bony Glen landfill. Assuming we will continue with the kerbside rubbish collection as a ring-fenced, costneutral, user pays service this may result in an increase in the cost of rubbish bags, and commercial services for residents/businesses.

Waste Levy Expansion

The Waste Levy will also be expanded to cover a wider range of landfill types; this will take effect from 1 July 2022 with the waste levy being applied to Construction and Demolition fills (Class 2) starting at \$20 per tonne increasing to \$30 per tonne by 1 July 2024, and a \$10 per tonne levy applying to Managed or Controlled fills (Class 3 and 4) from 1 July 2023. This is to further incentivize diversion of waste to these types of fills.

Law changes are imminent but uncertain

Waste management is also a national concern and hence, a key driver of change is new legislation and standards. Central Government has a New Zealand Waste Strategy and is phasing out some types of unrecyclable (including some polystyrene packaging) and single use plastics. Further changes are imminent. In December 2021, government consulted on a proposed new draft waste strategy and updated legislation – outcomes of this consultation are still pending.

A beverage container return scheme (CRS) is on the cards

A major benefit of having our own Material Recovery Centre (MRF) is the ability to separate out high-value commodities. Our MRF also has processing capacity to accommodate growth. Government funded the design of a CRS for New Zealand and is now considering next steps. A result of the CRS could mean that high value plastics and glass could be removed from kerbside collections. Therefore, it is in our interest to investigate how we can be involved in running a CRS locally.

Current consultations

Government released its latest consultation documents 'Te panoni te hangarua – Transforming Recycling' in mid-March 2022, with consultation closing 8 May 2022. This consultation sets out three proposals: A Container Return Scheme, Improvements to Household Kerbside Recycling and Separation of Business Food Waste. Council had already anticipated the move from government to standardize kerbside collections and recently changed the range of plastics we accept; this change is in line with the proposed consultation.

Covid-19 changed behaviour

In 2020 Covid-19 became a significant issue for contamination of waste in our mixed recycling residential wheelie bin service. In recent years we have worked hard to reduce contamination, but this work was undermined when people started to use the recycling service for disposing waste during Level 4 when we were unable to process the material and had to send it to landfill for health reasons. Since our normal service has resumed, recycling contamination levels have not returned to previous levels, costing us more to dispose of this waste.

Limited markets for commodities

Another major driver is the change in commodity markets impacting on our ability to divert materials. Since China's "National Sword" policy in 2018 that banned importing of "waste" there has been a dramatic decline in markets willing to pay for recovered materials. We are now paying to supply some commodities instead of selling them.

Waste minimisation mitigates climate change

The government has further incentivised waste reduction by including landfills in the New Zealand Emissions Trading Scheme so the more we can divert from landfill, the greater part we play in reducing green-house gases.

How Palmy is doing by the numbers.

We have not completed a city-wide waste audit since the last sustainability review. We will be doing that in the second half of 2022, and the next review will have this data.

Our data shows some trends over the past two years in some key areas. This data only shows the information from people who use our services, not commercial waste providers. Therefore, we urge you not to compare them to the 2017 waste audit data. In our next sustainability review we will be comparing the new waste audit with the 2017 audit. In this update we wanted to give you some initial trend information that could provide helpful. For some areas we have indicated why we believe the data could have changed.

Reducing litter one step at a time

Over the past two years we've introduced two new measures to reduce the impact of litter around our city streets.

During the 21/22 summer we rolled out bin clips to homes and businesses across Palmy. The clips are attached to the recycling wheelie bins and allow residents to fasten the lid to the bin when they're placing it out for emptying. The bin clips mean that in strong winds when bins tip over, recycling doesn't blow around the street.

In early 2022 we also enacted a clause in our bylaw to require residents and businesses to ensure all recycling is contained. Cardboard had become a particular problem around the city centre, as it blew around in strong winds and also got wet which means it is harder to recycle. Businesses had the option to use either a council or commercial recycling service if they couldn't fit all their cardboard into their wheelie bins.

More things to recycle in Palmy now!

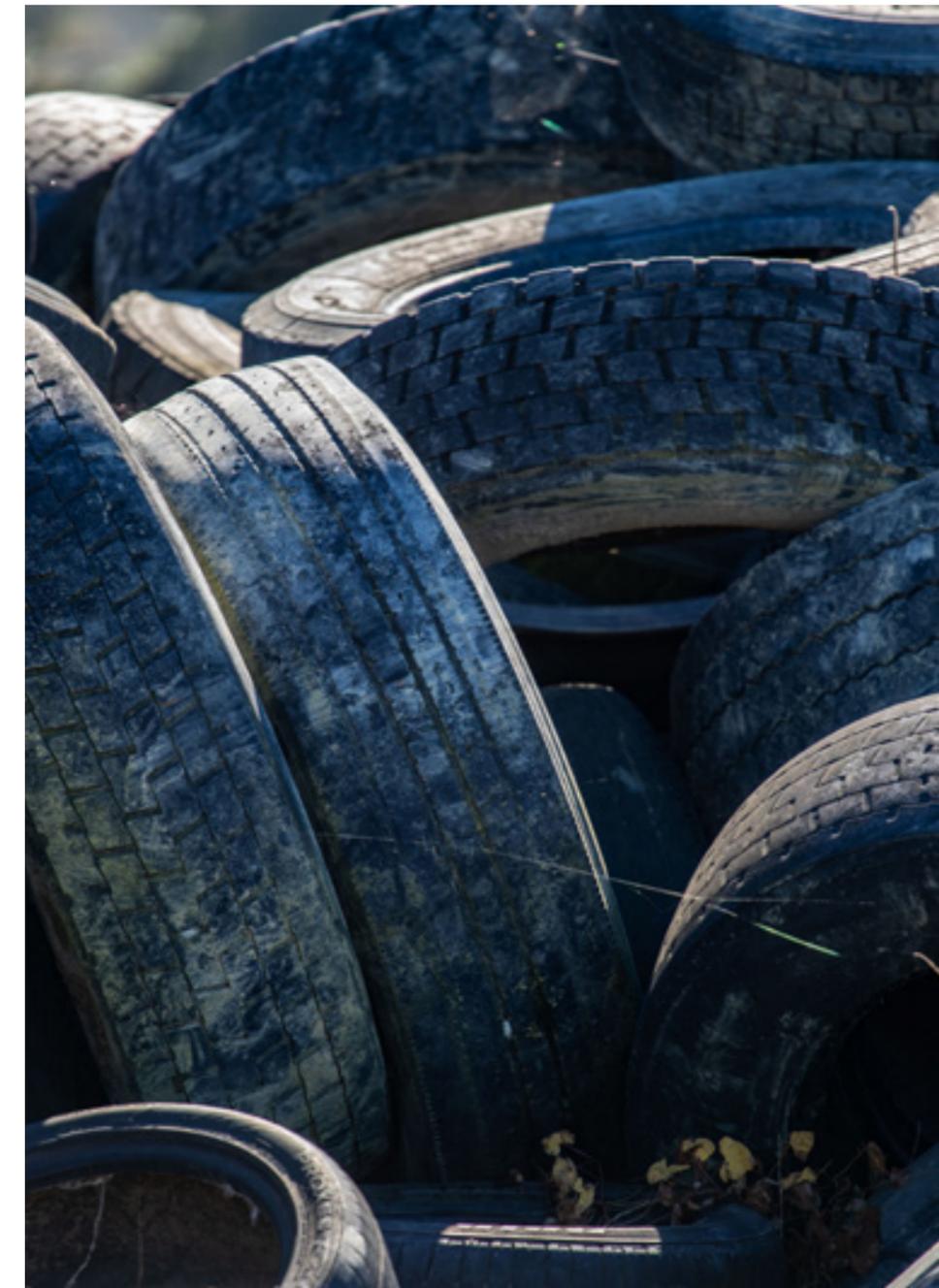
We're making it easier for residents to recycle, with the addition of cooking oil and tyre recycling!

Cooking oil can be dropped to our Ferguson St recycling centre, and tyres to our Awapuni Resource Recovery Centre.

The oil is refined and used in animal feed or cosmetics or turned into biofuel. Tyres are used by the construction industry.

In the first 10 days of offering tyre recycling, we received 128 tyres, and so far we've recycled 362 litres of cooking oil.

Flat glass (eg windscreens and window pane glass) are also now recovered through a third party recycler. This service, currently only available to businesses, has diverted 34 tonnes of glass. This material is used in wall insulation and incorporated into recycled bottles.



Education hub now live

In late 2021 we launched a hub on our website to help people reduce their waste. It includes info on our facilities and services, how to reduce waste at home or when you are out, where the best op shops

are, how we're helping Palmy reduce waste, facts and figures for educational purposes, how to compost and so much more.

Check it out at pncc.govt.nz/rubbishandrecycling

We're re-branding to meet the new Waste Minimisation standards

It will now be easier for people visiting Palmy to know what goes where now that we've adapted the new branding guidelines. Waste minimisation standards encourage all cities to use the same colours for each services as a way of educating residents and visitors of what bins to use for what item.

Red is rubbish, orange/yellow is recycling, blue is glass and green is organics.

A few of our new trucks are already on the street with their new colours

and we also moved from khaki to red rubbish bags. In 2022, blue glass crates will also be a more common site on our streets.

Our wheelie recycling bins already meet the colour guidelines!

We're transitioning the new look in over time as orders are placed as we don't want to create unnecessary cost to ratepayers or create waste by making the branding change. This means over the next 10 years the city is likely to all have the new brand.



Fantastic with plastic

When you put your plastics into your orange-lid wheelie bin, do you ever wonder where they go? Well, after coming into our Awapuni Recycling sorting facility, some of your plastics are transported just down the road to be recycled! Number two and number five plastics are sent to Aotearoa NZ Made Limited to get a new lease on life – in 2021 more than 300 tonnes of plastic was recycled, by the company from our residents wheelie bins!

Kevin Joe is the man behind Aotearoa NZ Made. His day-to-day is focused on keeping as many plastics out of the landfill as he can. He dashes from one end of Palmy to the other, from Aotearoa NZ Made Limited's distribution warehouse in Longburn to the business' manufacturing site in Milson.

Joe works hard and fast, but he is also quick with a smile. He will tell you his job is a challenge. "It's good though and every day is different. It's one of those jobs where you never quite catch up."

At Milson, the machinery is a constant loud hum. Big bales of recycled plastics wait to be chipped, washed and reprocessed into reusable pellets and Joe's staff all concentrate on their individual tasks.

"Our business is focused on reprocessing post-consumer plastic, mainly milk and detergent bottles, ice cream and yoghurt containers and plastic film. If we can divert things from landfill and put it into the cycle of being made into something else, then that is great."
– Kevin Joe

This constant hive of activity sees the Palmy business turn out 2000-plus tons a year of granules, damp-proof film and rubbish bags all manufactured from recycled materials. It's all go, says Joe, and they are in persistent forward-motion.

"I have really good staff. In the beginning, I only had four, so I was driving the little truck, on the machines and doing the paperwork and whatever else was needed. Now we have 24 staff and it's 24/7. It has grown and grown and grown."

Joe explains the process that sees the plastics we use every day being turned into granules to be repurposed into a new product. He points out a wash bay where the raw product gets a dip before being dried out and put into the extruder machine.



“It melts the plastic at about 260 degrees and then that pulls out into strings that then get cooled down in a water bath.”

It’s a bit magic this part – long spaghetti strands of melted plastic glisten like toffee before being chipped in the next machine into confetti-like granules. This is what happens to some of our discarded milk bottles so they can become something else.

“We are closing the loop. We have become a throwaway society and putting things in a big hole and covering it up and saying ‘don’t worry about it’ doesn’t work. Palmerston North City Council has been very supportive of us and if we can divert things from landfill and put it into the cycle of being made into something else, then that is great.

“Stage two at the manufacturing plant is for some of the recycled granules to continue in their plastic evolution.

Rubbish bag production is a growing part of the business and they are made mainly from reprocessed pallet wrap and coloured film.

“The bags are manufactured in New Zealand from recycled post-consumer materials, which means we are reducing the carbon footprint.

We recycle plastics for some of New Zealand’s largest companies who were previously landfilling their recycling because no one was interested in reprocessing it or exporting it.”

Joe enjoys that challenge. Keeping things out of the landfill is one of his measures of success. He has a common sense and practical approach, learnt from growing up in a market-gardening family. He says he “fell into the business” 14 years ago when his father suggested he went to take a look.

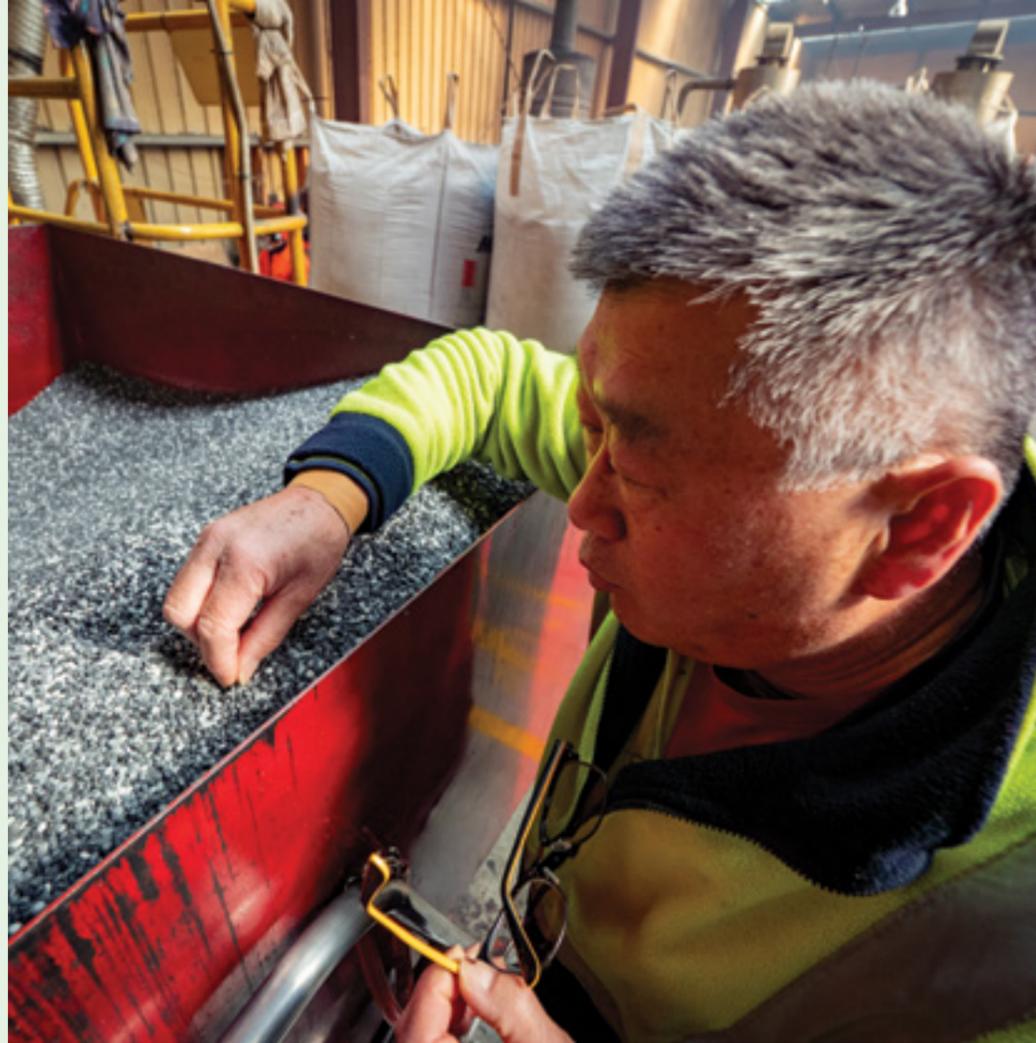
“I was born and bred in the Manawatū and my family started off in Whakarongo and then went a bit further up Napier Road and now I’m literally just up the road again,” Joe laughs.

“I haven’t moved far eh?”.

“When things fall into place it’s great and then sometimes you get sticks in your spokes and things come to a grinding halt. But you just tackle each thing as it comes along.”

Joe encourages people to recycle. Plastic is not an infinite resource he says, “but if you can get as much life out of a product as you can, then that has to be better in the long run”.

So, if you see Joe doing his mad-dash from Longburn to Milson, give him a wave. He’s a man on a mission, reducing landfill waste one plastic bottle at a time and helping our city reduce its carbon footprint.





**NEW
BIG
PRE
DO**

1242 building consents granted in 2020

1476 granted in 2021

484 resource consents submitted in 2019/2020

571 submitted in 2020/21



54 per cent of building consents are for intensification

e.g. building more houses on existing sections

URBAN DESIGN

Palmy is growing faster than ever and alongside the opportunities this brings are also risks to our urban environment and lifestyle if not managed properly. Our city's growth will need to be guided by urban design that promotes the health and wellbeing of our people, economy and natural environment.

Though urban planning impacts many areas of our cityscape some of our most significant drivers at the moment are around housing. With house prices rising to their highest levels ever, the need to provide more stock comes with the responsibility of creating great places to live, while designing and building as sustainably as possible. This will require council to lead by example, as well as working with developers in a way that meets our Eco City vision.

Many current residential and commercial subdivision plans show little demonstration of green building design, construction or maintenance practices. Housing in Palmy is still highly dependent on allocation of space for cars, resulting in poor street function and restricted choice in how we connect and move around.

Our recent residential zone review enabled increased intensification across the city, with a goal of over half our housing development taking place within Palmy's existing urban footprint through redevelopment and infill subdivision.

This promotes more sustainable development outcomes by encouraging people to live close to employment, education, facilities and amenities. It also means people become less reliant on cars to move around which assists in reducing congestion and emissions. We've seen a huge increase in infill housing in recent years and it is now our predominant form of development. Last year, intensification accounted for 54 per cent of our building consents.

Our planning for new greenfield suburbs looks to create communities whose everyday needs can be met within their catchments. This means planning new growth areas to make sure shopping areas, employment and education are included so everyday

short trips can also be easily made by foot, bike or e-mobility. We're also incorporating sustainable stormwater practices into development. This will set aside land for managing stormwater with biodiversity plantings to improve water quality, create habitat and where possible recreational amenity. A recent example of this is under creation at our own Tamakuku Terrace development.

Part of this change in development patterns means we're also seeing loss across the city of valuable 'green' infrastructure – mature trees, other established vegetation and permeable space. Increased urban heat and flooding in the face of climate change means we must turn our focus to our green assets and better understand their critical role in enhancing our urban spaces. Our Vegetation Framework is currently in review. Its purpose will be to build a comprehensive picture of citywide vegetation issues and look at how we best address and manage these, including how vegetation enhances and sustains our sense of identity and connection with the whenua.

Our urban design vision seeks to enrich the quality of life for individuals and communities in all our city environments. We want to encourage development that applies sustainable design practices like maximising sunlight, energy conservation, waste and cost reduction, connections to transport choice and enhanced biodiversity.

We aim to work alongside developers in providing more intensive and varied housing, using existing city spaces to house a greater number and range of residents close to city amenities. We also want new housing and commercial builds to use less resources, providing Palmy with more mixed use options around accommodation, business and retail, particularly within our city centre and key neighbourhood centres. To achieve this our strategic planning and building service units are continuing to foster relationships with the development community, and working together on urban design best practice, with some recently finished developments providing good examples of where we're heading.

Great urban design in Palmy

These before and after's show some great examples of local businesses showcasing great sustainable environmental design.



Soho Group and Isles Construction: **Housing, Pioneer Highway**

Before construction the site held 5 single storey detached house lots. It now has 46 Units of different scopes and sizes.



Rangitāne o Manawatū Development Trust and Wallace Development Co: **Quest Hotel, Ferguson Street**



PN Māori Reserves Trust and Colspec: **Steves Tyre Service, Grey Street**

We're helping our community with simple improvements they can make.

We want all our Palmy homes to be comfortable and sustainable and our Eco Design Advisor does a great job helping people make their homes warmer, more energy-efficient, and comfortable through education and implementation of sustainable practices.

The service is free to Palmy residents, architects, designers and builders, offering advice on sustainable design and energy options for homes. This could be on anything from properly installed curtains to insulation and damp protection, to energy-efficient lightbulbs and making the most of heating options.

In a typical year, the eco design advice service works with around 300 people as face-to-face consultations in people's homes,

phone calls or presentations. Most of those occur during colder months when people want to learn about how to make their homes warmer.

People have told us the eco-design advice has meant their homes are warmer and more comfortable to live in, with less mould and moisture, lower water use, and a lower energy bill. 88 per cent of users say it meant they changed the way they do things, and 93 per cent saying they noticed benefits to their health and quality of life. Nearly all clients say they'd recommend others to try the service.

We want to make knowledge about sustainable living readily available to all. This is why we

have resources on our website (including videos), give about 40 presentations each year, and are always happy to have a chat with people or to give a free consult.

Our Eco Design Advisor is dedicated to educating and enabling Palmy to live more sustainably and comfortably. By having more sustainable homes, we're not only becoming a more sustainable city, but we're also creating homes that are warmer, healthier, cheaper to run, and more comfortable.

To book your free home consultation, book a presentation, or ask questions over the phone, contact Nelson Lebo. Email Nelson at nelson.lebo@pncc.govt.nz or call him on **06 356 8199**.





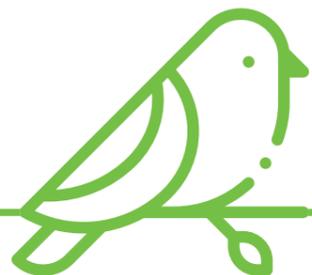
BIODIVERSITY

41,229 native trees and bushes planted by Green Corridors from 2019 – 2021



120 kms of monitored predator traps in Turitea pest control programme

60 per cent rise in Kererū spotted during bird counts between 2003-2020



18 gullies and stream banks planted with natives between Tararua Ranges and Manawatū River



BIODIVERSITY

The combination of long-term pest control and regeneration of habitats is seeing native species within Palmy being given the chance to return to areas where they once thrived. Efforts to protect and revive significant areas of forest and bush, in both our forest reserves and within the city itself, are paying off with native plants and animals beginning to bounce back and become part of local landscapes once again.

Bird counts in the Turitea Reserve show significant rises in native bird numbers, particularly for the most deeply endemic species like the Bellbird, Kererū, Rifleman, Tūi and Pōpokatea (whiteheads). Kererū numbers have increased by a factor of roughly 15x since monitoring began in 2003, while Tūi are 20x more numerous than they once were. On clear nights, thousands of Tūi can now be seen in the Turitea and Kahuterawa Valleys, flying overhead back to the reserve from their foraging in the parks and private gardens of Palmy.

The almost complete eradication of possums from the site, along with sustained suppression of deer and other browsing species, has allowed for a transformation of the bush understory health, with increased plant and seedfall density, and possum induced dieback no longer being observed. However, this improvement has recently been seen to have had some unintended side effects. With an increase in the volume of food available, rat numbers have been slowly increasing from the very low numbers (~5 per cent tracking tunnel rates) observed early last decade, to roughly 4x as many at ~20 per cent tracking tunnel rates in summer 2022. This increase has put the newly reintroduced Toutouwai under pressure, and council is currently preparing a renewed offensive against the rats to provide Toutouwai with additional protection while they establish themselves in the reserve.

Due to the lack of predator control at the nearby Gordon Kear Forest, bird numbers have flatlined at low numbers over the past two decades. However, there is some good news for biodiversity in the forest coming in the form of fish passages recently installed by Horizon Council in partnership with Palmerston North City Council and Massey University. The area is home to the headwater catchment of Kahuterawa Stream and fish monitoring there over the 18 months has shown good populations of some of our native fish species like Koaro (adult whitebait), shortjaw and banded kokopu, and Tuna (eels).

The project has seen the installation of nine flexi baffles under bridges and through culverts in the waterway, providing the fish somewhere to hide and rest as they make their way upstream to mate. The baffles act as artificial rocks fastened into place on the areas of smooth concrete, which allows fish to get past them and into the more pristine areas of the waterways up in the Tararua Ranges. So far nine of these 'fish passages' have been installed over 15kms of the stream, with more planned. It is hoped the initiative will lead to increasingly healthier populations for our local native fish stocks.

As you'll see in the following spotlight story, our long running partnership with hardworking community group Green Corridors is providing connected areas of habitat from the Tararua Ranges that look out over Palmy to the river which flows through it. Planted and maintained along the gullies and freshwater tributaries which feed into the Manawatū river, these corridors form a living connection from our wild areas to our parks and backyards, fostering everyday connections with the local flora and fauna that are part of Palmy's DNA and identity. The continued protection of our natural environment will require us to keep collaborating with iwi, other organisations and our community to nurture our areas of native habitat, and the living taonga they hold.

Pest control enables robins return: Turitea's toutouwai toanga

With its fluffy grey feathers, long lanky legs and confident attitude the tiny Toutouwai, or North Island Robin, is friendly and intelligent. After many decades of being unable to live in the region, last year saw the successful release of 40 toutouwai into our 3600-hectare Turitea Reserve.

After being wiped out locally, and in many other areas, by predators like rats, possums and stoats it's hoped the relocation of the birds from Whanganui's Bushy Park reserve will be the foundation of a new population in the Manawatū.

The small bird's return has been enabled through a dedicated 15-year conservation effort including widespread restoration of native

plants and a massive pest control operation across the reserve.

Council has been carrying out some level of pest control since 1997, with the current serious control programme operational since 2006. Our current pest control contractor maintains a network of over 3500 bait stations and 1100 predator traps in the area, serviced by more than 120km of tracks.

The benefits are seen in reduced foliar browse by possums, increased forest floor regeneration, and increased bird life. Bait stations are serviced quarterly, predator traps checked fortnightly and 150 deer culled per year, with constant vigilance needed to counter reinvasion of pest species from surrounding farmland.

Palmerston North City Council's Senior Climate Change Advisor Adam Jarvis says the toutouwai project was only possible due to years of investment and work

from council, iwi and volunteers. "We've worked with the community to place thousands of traps in over 40 square kilometres of the Turitea Reserve and connect the bush to the city through the Green Corridors restoration projects, so it's very exciting."

As kaitiaki of the Turitea Reserve Rangitāne is a project partner of this initiative. Te Ao Turoa environmental officer Paul Horton agrees the robins' translocation is an awesome opportunity.

"We're reintroducing a species that would have once been here. The robin is a very charismatic bird. They hop around your feet with their own personality and quirks. Seeing them flying around in the ngahere and interacting with them is something Rangitāne respects as a huge responsibility. We hope they flourish and we're appreciative of all the support from the council, Massey and the other organisations and people who have worked together to make this happen."

We're wild about flowers

To reduce grass mowing in low-profile reserves in Palmy we're planting a combination of wildflowers and fescue grass.

Wildflowers – great food for bees – are pretty, colorful flowers that last about two years before they need to be resown. The seeds require water to germinate, but once established they can survive with

low rainfall. The best times to sow are in spring and autumn, with their peak flowering stage in summer between January and March.

We started introducing wildflowers in 2019 to areas where there are few pedestrians or recreational users – such as in some places along the Manawatū River shared pathway. Mowing was both time and cost heavy, so this offered us a cheap solution that also looks great in summer.

In other low-profile areas, we are also replacing rye grass with

fescue. Fescue has a coarse dense blade and grows well in shady areas. Its foliage falls over itself, rather than growing tall, making it a great grass for areas of low maintenance or where mowing is not possible.

It has a dense root system, which makes it resilient to drought conditions while staying green year-round. It can endure heavy foot traffic and other forms of wear and compaction – making it a hardy trustworthy grass for some of our less frequented reserves in Palmy.

Green Corridors: Keeping it green

The benefits of having areas of natural biodiversity close to urban areas can be measured in many ways, including conservation, amenity and community wellbeing. Every year the Green Corridors programme helps Palmy to grow and strengthen this important connection.

Now in its 21st year Green Corridor's vision is long-term and in partnership with the community. The programme enhances areas of native bush along streams and valleys, providing places for wildlife to thrive, improving water quality, and creating biodiverse green spaces from the Tararua Range to the Manawatū River.

Green Corridors is a voluntary group that works with council to

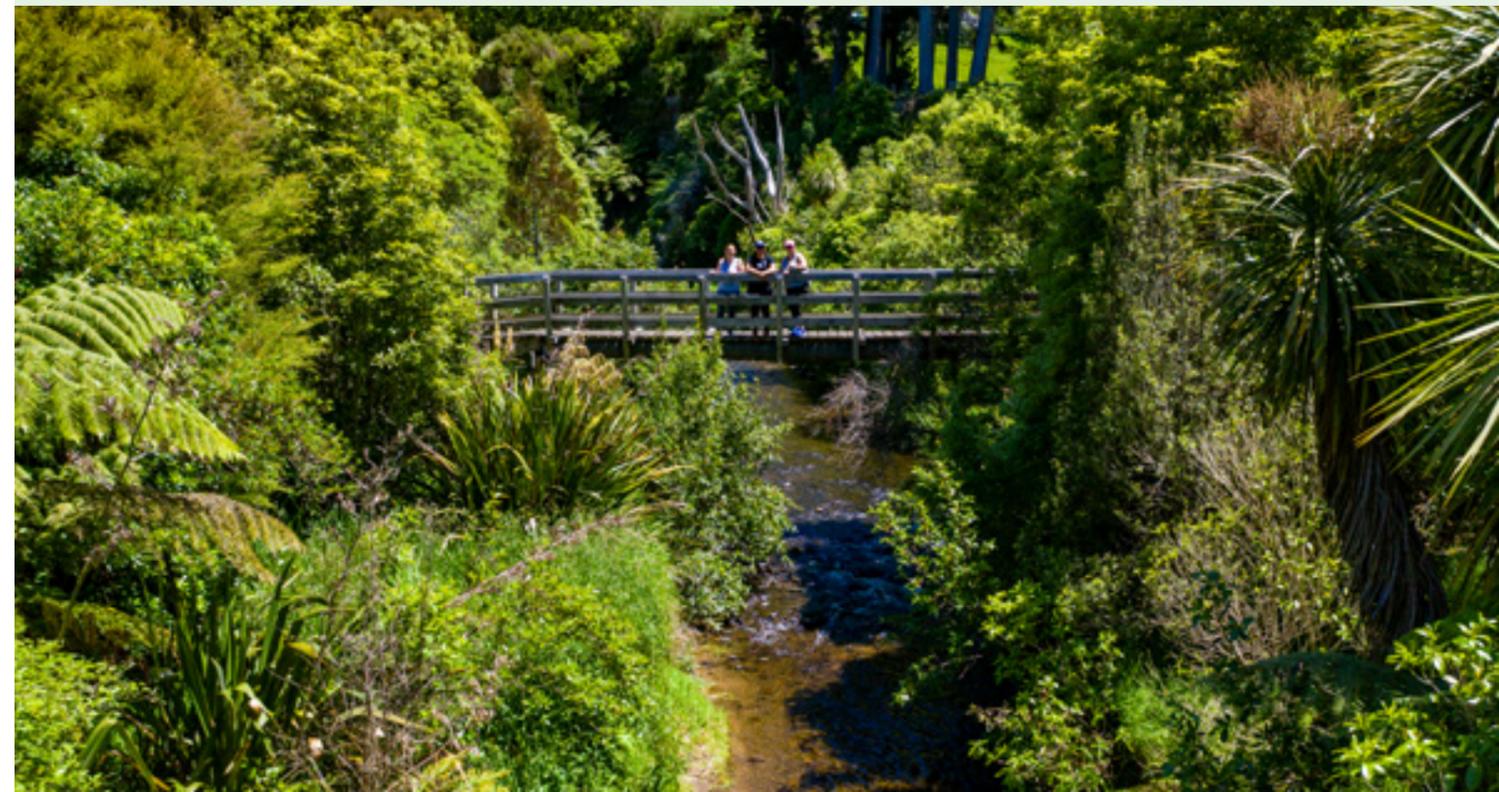
plan and oversee the planting of reserve areas. Since 2001 they've planted more than 140,000 trees in Turitea Valley and Summerhill, creating a habitat for native fauna and a beautiful bush network for exercise and enjoyment.

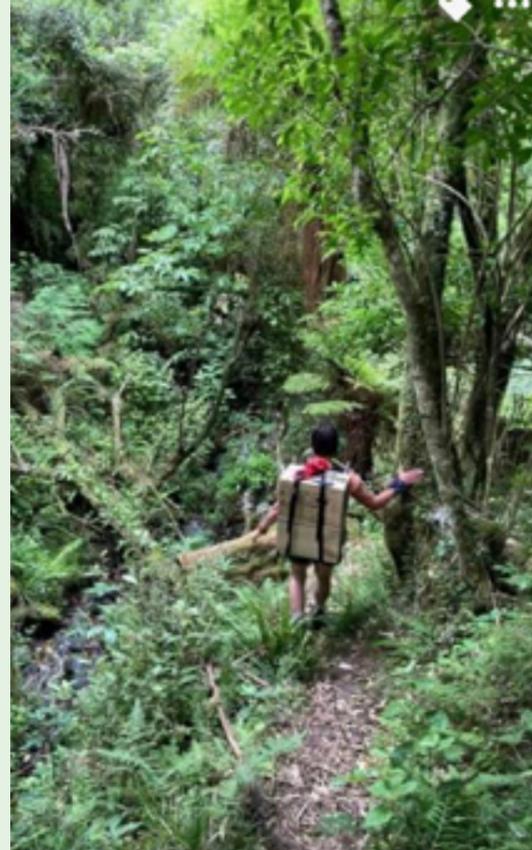
Council aspires to make the city a more welcoming place for plants, birds, pollinators and fish. Increased planting contributes to this goal. The group has given considerable time and expertise to establishing a series of revegetation projects and continues to seek new locations for further planting in the city.

Each hectare of native plants around the city will offset 3,825 tonnes of CO² over the next 50 years and the amount council would have to pay to have this

work done professionally would be substantial. By supporting this community-led initiative we not only offset carbon emissions but also enhance the ecological and recreational features of the region.

Each year volunteers collect about 30,000 seeds from 30 to 40 species including rata, rimu, miro, totara, rewa rewa, tawa, matai, kahikatea and lacebark. They also keep down invasive weeds and trap hundreds of nasty predators. The increasing number of Tūi, Kererū and Piwakawaka now evident in many parts of Palmy is evidence of Green Corridor's success, as is the many members of the community now enjoying these enriching spaces in their spare time.





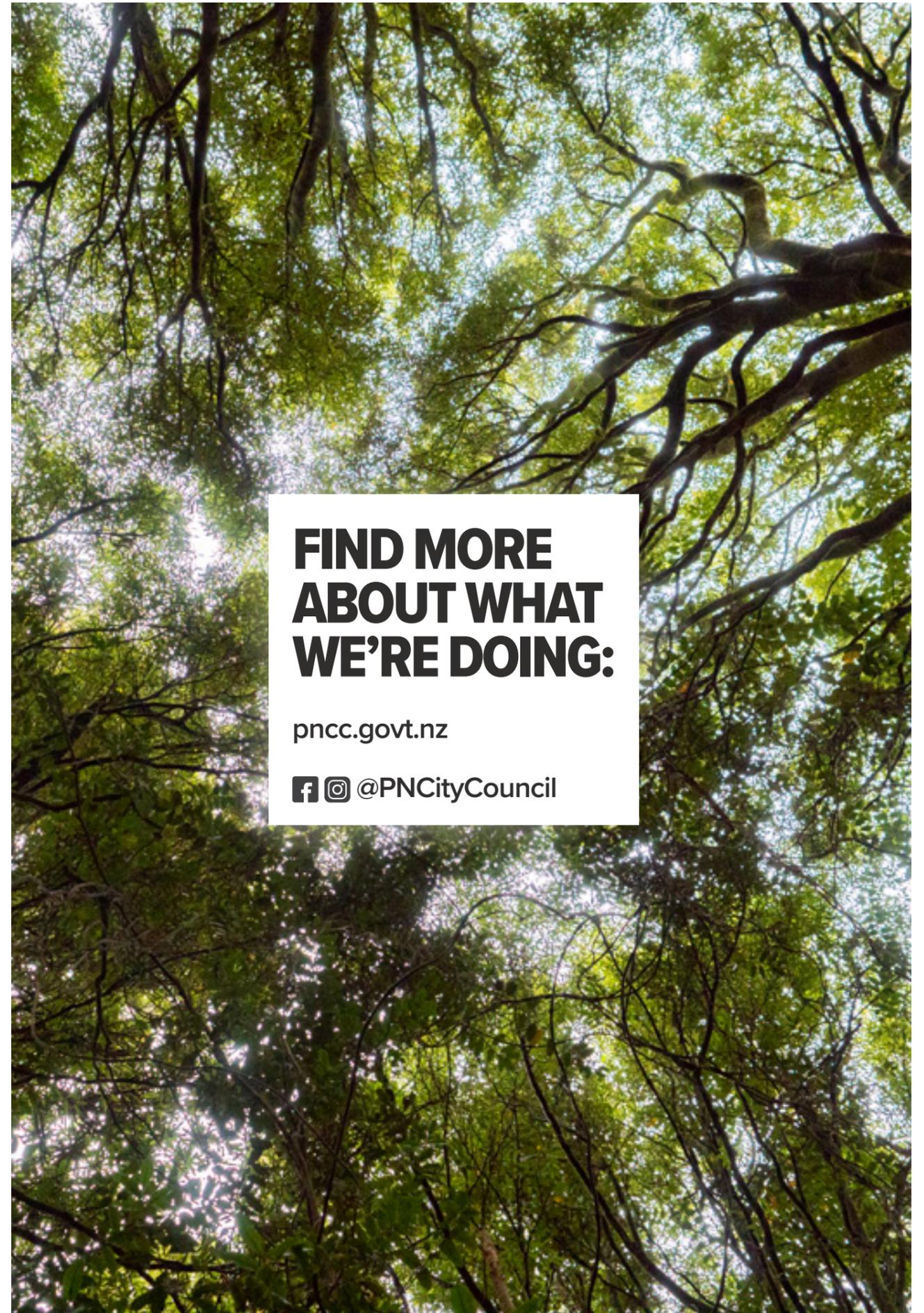
The Southern Ruahine Kiwi Habitat Restoration Project

The Southern Ruahine Kiwi Habitat Restoration Project is managed by Environment Network Manawatu (ENM) via a collaboration between Manawatū River Source to Sea (S2S) and Te Kāuru Eastern Manawatū River Hapū Collective (Te Kāuru).

The project is funded by the Department of Conservation (DoC) Jobs for Nature initiative and aims to control predator pests in

13,000 ha of the Southern Ruahine Ranges, with the dream of returning Kiwi to the area by 2026. The project is delivered in alignment with neighbouring predator control projects in the area, presenting a fantastic opportunity to return a taonga species to a significant proportion of the Ruahine Ranges.

You can find out more about the project by visiting @ruahinekiwi on facebook.



FIND MORE ABOUT WHAT WE'RE DOING:

pncc.govt.nz

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