INFRASTRUCTURE

MARLBOROUGH DISTRICT COUNCIL

High quality drinking water, safe roads, efficient sewerage and stormwater disposal make up the important infrastructure that keeps Marlborough functioning as a place to live and do business.

These services are at the less glamorous end of Council operations but require ongoing planning, maintenance and upgrading to cope with our growing population and industries.

As well as meeting the expectations of Marlborough residents, there are national standards that Council must meet in providing these basic but vital services.

Blenheim's Main Street roundabout

ROADS

Marlborough relies on good roads for business, schooling, community links and recreation. It is the Council's job to make sure all road users can travel safely and efficiently through the district.

The Council is responsible for 1,528 km of roads (889 km sealed), 367 bridges and 11,000 culverts, roadside drains and channels. There are also 260 km of State Highways in Marlborough that link in with the district roads. State Highways are funded and managed by the New Zealand Transport Agency while all other roads are funded and managed by the Council. A separate agency, Marlborough Roads, handles both contracts so there is an integrated approach.

The roading network provides access throughout the district and links up with water transport in the Marlborough Sounds. As well as the wide range of cars, vans and trucks on our roads, the Council caters for cyclists and pedestrians with 5 km of off-road cycleways and 234 km of footpaths, in addition to dedicated on-road cycleways in Blenheim.

CHANGES SINCE THE 2008 SOE REPORT

- There have been some significant changes to roads in Marlborough since 2008. Seal extensions have been completed on the Awatere Valley, Kenepuru and French Pass Roads. Widening and strengthening has occurred on Queen Charlotte Drive and the Northbank, Onamalutu and Waihopai Valley Roads.
- A number of substantial upgrades to SH1 have been completed, including the new two-lane Awatere River Bridge, the Lions Back realignment just south of Seddon, the Dashwood Overbridge realignment and the Butter Factory Corner improvements on the southern entrance to Blenheim.
- Intersection improvements on SH6 have been completed at Bells Road/St Leonards Roads and the Springlands roundabouts.

Awatere Bridge

PRESSURE

Network

The NZ Transport Agency uses a classification system to make sure roads throughout the country meet a consistent standard. Significant work is required to ensure roads in Marlborough meet these standards.

There is growing demand from dairy, forestry and aquaculture companies to run larger trucks with heavier loads. This is an issue, especially on narrow and often unsealed roads in the Sounds or on access roads at the far end of remote valleys. Some roads and bridges are not suitable for these large trucks and the safety of other road users is also at risk.

Another safety issue is the number of overseas tourist drivers who are not familiar with our road conditions and rules. This requires education and clear communication to ensure the roads are safe for all. These issues put increasing demands on funding, along with ageing infrastructure that needs to be closely monitored to plan for upgrades or replacement.

Road Slip

Growth

The number of vehicle kilometres (km) travelled in Marlborough increases each year, with an average growth in traffic of about 2.5% (Figure 1).

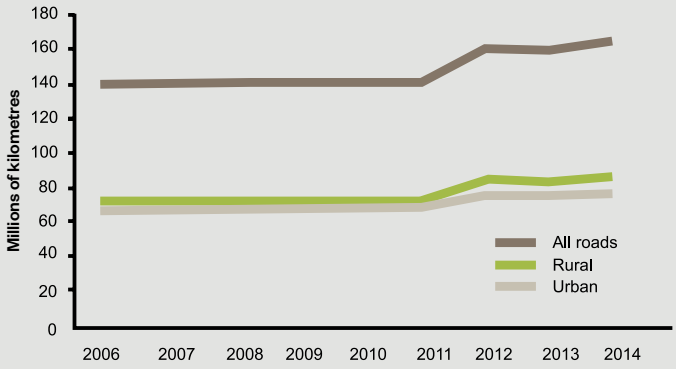


Figure 1. Vehicle kilometres travelled

More traffic means ongoing work is needed to provide safe roads that reduce crashes and injuries, especially where different users are on the same road, such as cyclists and trucks on SH1.

Changing land use to forestry, dairying and winegrowing brings more traffic, especially trucks, and pressure on existing roads. For example, rural roads that were built for pastoral farming cannot cope with the loads or dust from forestry harvesting.

Land subdivision can also be a pressure on the district roading network. However, this is not foreseen as a major issue in the short term as most roads within the district have spare capacity. This means that most issues can be controlled at the planning stage.

Freight trucks on SH1 and SH6 are increasing and impact upon Blenheim traffic, while an increase in local traffic is affecting the efficiency of the State Highways. There have been calls for a SH1 bypass around Blenheim, however, a 2006 study concluded that a bypass could not be justified and would not receive NZTA funding, so roads in Blenheim will continue to carry a large number of trucks.

Climate change

Severe weather events have cost the Council an average of $2.5 million per year over the past five years and will continue to be a significant and costly issue. Global warming is expected to have several impacts on roads in Marlborough, including more intense and frequent storms damaging roads and blocking access, droughts increasing dust and rising sea levels eroding coastal roads.

RESPONSE

Planning framework

Council approved a Regional Land Transport Strategy in 2012 for the ten years to 2022 (See Want to find out more?). Its vision includes providing a suitable and safe transport system for all users, co-ordinating the different forms of transport, managing the development and working to future-proof the network. To achieve this vision, the following eight objectives were identified:

1. Provide a land transport network that is suitable for existing use.

2. Recognise strategic significance of the land transport hierarchy.

3. Manage development to ensure the network has capacity to operate at the appropriate level of service.

4. Provide a safe land transport system for all users.

5. Maximise return on investment in the land transport network.

6. Consider future-proofing the land transport network.

7. Provide for the co-ordination of effective multimodal transport.

8. Maintain amenity values to a level at least consistent as exists at present.

The Regional Land Transport Plan gives effect to these objectives and sets the priorities for maintaining, operating and renewing roads and bridges. The key principle challenges to be addressed to meet these objectives, as follows:

- environmental sustainability
- climate change
- population, vehicle growth and type change
- continued pressure on key infrastructure items
- the need to sustain growth and innovation
- internal and external factors.

Network

All roads in the district have been classified as part of the national system and work is under way to meet those standards.

The Council is making improvements to roads and structures to accommodate larger trucks. The focus is on forestry routes such as the Northbank, Onamalutu and Waihopai Valley Roads.

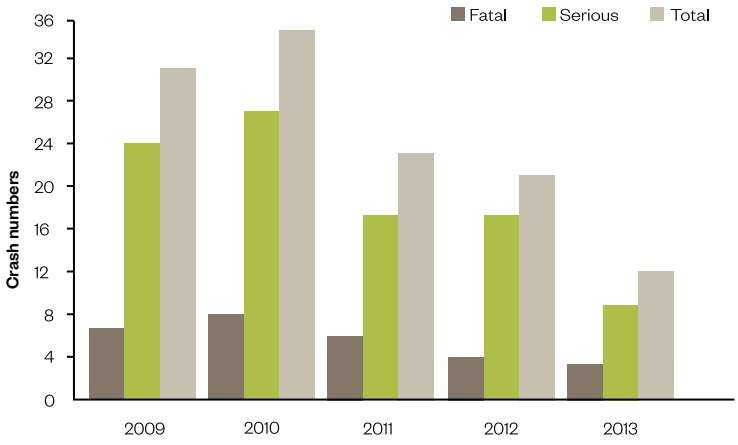


Figure 2: Motor vehicle crash statistics

Construction of the Dashwood Overbridge realignment

Popular tourist routes such as Queen Charlotte Drive and other roads in the Sounds will be assessed for improving alignment and signage. Information may be distributed to help tourists be more aware of local road safety issues.

Reducing serious and fatal crashes is a major national and local issue (Figure 2). The number of crashes in Marlborough dropped from 31 to 12 between 2009 and 2013. The social cost of those crashes fell from $49.7 million to $23 million over the same period. Reducing walking and cycling crashes will be the next focus.

Growth

Funding has been budgeted to maintain, operate and renew the road network at planned levels of service. Provision of adequate contract service providers and network asset managers is vital to ensure that there will always be sufficient contract capability and capacity in the district to enable all the planned activities to occur.

Clearing slip on road

WANT TO FIND OUT MORE?

- NZ Transport Agency road classification network:
  www.nzta.govt.nz/projects/road-efficiency-group/onrc.html.
- Marlborough District Council Land Transport System:
  www.marlborough.govt.nz/Services/Parking-Roads-and-Transport.aspx
- Marlborough Regional Land Transport Strategy:
  www.marlborough.govt.nz/Services/Parking-Roads-and-Transport


Port Underwood Road

Climate change

The Council has emergency management plans and funding in place to respond to the increasing number of severe weather events. In some places on the Kenepuru and Crail Bay roads in the Sounds, roads will have to be moved to higher ground to avoid rising sea levels.

Procedures are in place so that contractors and resources (such as road metal) are readily available to clear and repair roads and minimise disruption for drivers. This level of service is important in remote areas where there is no alternate route .

STATE

Marlborough's road network is in generally good health, which is a significant achievement considering the small population and large land area. The national road classification system has identified which parts of the network need work and these will be addressed by the Annual Plan budget.

Road conditions, safety levels and user comfort are regularly monitored to ensure appropriate planning and action in the future.

RESERVES

Marlborough has a wide choice of public open spaces, from the formality of Seymour Square in Blenheim to the rambling and ecologically important Victoria Domain in Picton. The parks, playgrounds, sports facilities and open areas managed by the Council provide plenty of places to be active and enjoy the outdoors as well as have community gatherings and commemorations.

Marlborough's reserves fall into seven categories: sport and recreation such as playing grounds, buildings and swimming pools; sports parks; neighbourhood parks; public gardens; nature areas including farm parks, bush and wetlands; cultural heritage areas such as historic sites and cemeteries; civic space for community gatherings and events; and recreational ecological areas such as river margins, planting corridors and open space.

The Council's Reserves staff work under statutes including the Local Government Act 2002, Reserves Act 1977, Burial and Cremation Act 1964, Walking Access Act 2008 and New Zealand Walkway Act 1990. The Resource Management Act 1991 also requires Council to look after our natural and physical resources for future generations.

CHANGES SINCE 2008 SOE REPORT

There have been many positive developments in the Council's Reserves network since 2008, including:

- building the Endeavour Park Pavilion in Picton and developing the playing fields
- building the Giesen Sports and Events Centre in Renwick
- redeveloping Stadium 2000's swimming pools and gym
- developing Lansdowne Park to include a softball park
- constructing Stage 1 of the Bothams Bend equestrian park
- upgrading the Seddon pool facilities
- Liz Davidson Park established in Queen Street
- new reserves developed in Blenheim including Hitaua, Nottinghill, Covent Garden, Rutledge Place, Kinross Street Pocket Park, Clearwater Place Reserve and Sheps Park
- new playgrounds at Rarangi Beach and Vorbach Reserve in Renwick
- artificial turf for hockey installed at College Park
- walking and mountain bike tracks in Victoria Domain and the Wither Hills Farm Park
- reserve management plans completed for the Taylor River, Picton Foreshore and Pollard Park
- designation of freedom camping areas in Picton, Blenheim and other parts of Marlborough
- shared sealed paths linking Blenheim to Riverlands and Blenheim to Grovetown
- a new reserve in Rai Valley township
- a new natural burials site at Fairhall Cemetery.

Royal visit - Seymour Square

PRESSURE

Council uses rates money to provide and maintain the network of reserves. If the community wants a higher level of service this may require an increase in rates.

Financial

There are high costs involved in seismic strengthening for buildings surveyed after the Christchurch and Seddon earthquakes. Those affected include the Athletic Park grandstand, A&P Park grandstand, Awatere Community Hall, Landsdowne Park ground standard, Waitaria Bay Hall and the Stadium 2000. Capital works such as new playgrounds and sports facilities are funded by contributions from developers when new subdivisions are created. Revenue from this Land Subdivision Account has been greatly reduced, with fewer subdivisions in recent years.

Sportsville facilities such as the Port Marlborough Pavilion at Endeavour Park in Picton and the Giesen Sports and Events Centre in Renwick require operating grants to ensure financial viability. The redevelopment of Landsdowne Park into a multi-use facility will require significant funding but will result in many shared user benefits for Marlborough sporting codes.

Resources

The community has increasing expectations about the services to be provided and maintained. Resources are stretched in several key areas, including Growing Marlborough, a long-term strategy for planning and design improvements in central Blenheim, Picton and outlying townships. The new Asset Management System that collects data and integrates operations across Council will allow for a greater level of planning and improved asset provision.

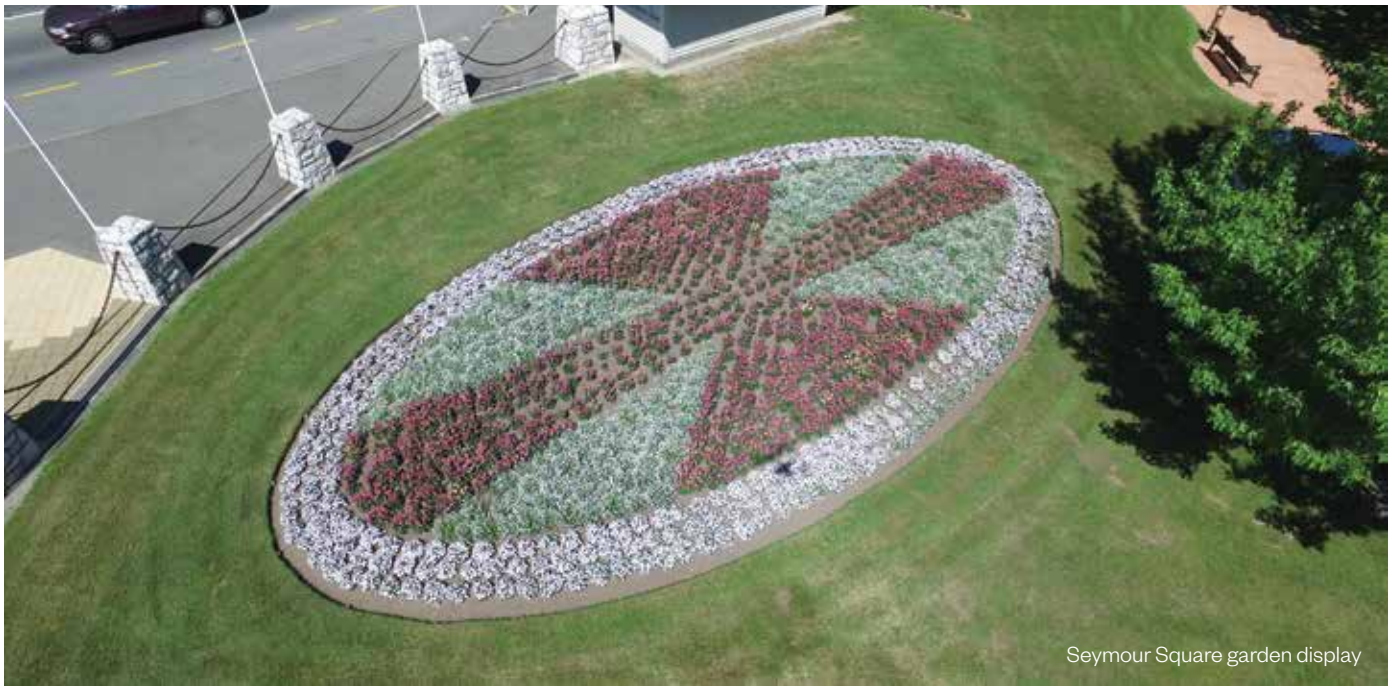
Soils

Soil erosion on the Wither Hills Farm Park has been an ongoing issue, with long-term funding required for soil conservation, erosion control and conservation farming (See Wither Hills Farm Park case study). Under the National Environmental Standard the Council is also responsible for assessing and managing soil contaminants in Marlborough's sports grounds and parks to protect human health. (see Contaminated Land Section).

RESPONSE

The safety of the community is a priority in the Council's reserves management. Seismic strengthening was carried out on the foundations of Stadium 2000 in 2014/15 and there are plans to upgrade the Awatere Community Hall in Seddon.

Alternative funding is being pursued to make up for the reduction in the Land Subdivision Account, with Council working more closely with organisations such as the Department of Conservation, Ministry of Education, Sport Tasman, sports codes and residents' groups to create community benefits as well as lowering costs. Sportsvilles (shared facilities



Seymour Square garden display

for different sports and recreational groups) and joint-funded projects are being considered by the Council.

New services can sometimes be accommodated by changing the use of existing reserves. For example, an area has been developed at Fairhall Cemetery for natural burials where there are no headstones. Instead, trees are planted as memorials that grow to create a park-like space.

Under the National Environmental Standard for soil contaminants, the Council is testing turf at sports parks to ensure safe standards are met.

The 2014 management plan for the Wither Hills Farm Park provides an integrated approach to managing soil erosion, providing recreational areas, biosecurity, housing around the farm park boundaries and managing fire risk.

Native biodiversity and restoration plantings are playing a larger role in the Council's parks and reserves. Good examples of this are the Victoria Domain in Picton (see: Victoria Domain Case Study),

WANT TO FIND OUT MORE?

- Freedom camping: www.marlborough.govt.nz/Recreation/Parks-and-Reserves/Camping/Freedom-Camping-Bylaw.aspx
- Growing Marlborough Strategy: www.marlborough.govt.nz/Your-Council/Growing-Marlborough/Growing-Marlborough-District-Wide-Strategy.aspx
- Outdoor Sports Facilities Plan: www.marlborough.govt.nz/Council-Publications/Plans-Policies-and-Documents/Outdoor-Sports-Facilities-Plan.aspx
- Wither Hills Farm Park management plan: www.marlborough.govt.nz/Council-Publications/Plans-Policies-and-Documents/~/media/Files/MDC/Home/Recreation/WHFPManagementPlan.pdf
- Contaminants in soils: www.mfe.govt.nz/land/nes-assessing-and-managing-contaminants-soil-protect-human-health/about-nes

Endeavour Park - Picton

Tui-to-Town plantings along the Taylor River reserve and the Spring Creek Kahikatea Reserve.

STATE

The Council's reserve network is in good heart. Parks and facilities are generally well presented and enjoyed by the public. For example, Seymour Square has been the centrepiece for public events such as hosting the Duke and Duchess of Cambridge in 2014 and the 100th anniversary commemoration of the Gallipoli landings in 2015.

Council's asset management system will help with the financial and physical care of the community's parks, reserves, facilities and amenities.

FUTURE RESPONSE

The Council will focus its energies on ensuring the reserves network is maintained and managed sustainably as well as working on improvements and new projects. These include:

- seismic strengthening and redevelopment of the Awatere Community Hall and grandstands at Athletic Park and A&P Park
- redevelopment of the lower High Street car park in Blenheim into a public park as part of the Growing Marlborough Strategy
- continuing to implement the Taylor River Reserve management plan and the Picton Foreshore Reserve management plan
- redevelopment of Lansdowne Park as a Sportsville site
- increasing recreational opportunities particularly for mountain biking in Picton and Blenheim.

Victoria Domain

CASE STUDY
Victoria Domain

The 200 ha Victoria Domain covers the ridge between Picton and Waikawa and is a popular bush reserve for walking, biking, picnics and enjoying the views across Queen Charlotte Sound / Totaranui.

Like much of the Sounds, the Domain would have originally have been a mixed beech, podocarp and hardwood forest before it was cleared for farmland. Today it is regenerating bush, with mahoe, five finger, ake ake, kanuka and mamuku. This area has strong potential as an ecological reserve and home for native birds spilling over from the nearby Kaipupu Point Wildlife Sanctuary.

The Council is working with the community on weed and pest control in the Domain to improve the habitat for native birds and plants. Invasive weeds and trees such as old man's beard, banana passionfruit, jasmine, wilding pines, sycamore and wattles are gradually being removed to allow the native bush to return.

Areas badly infested with weeds were initially sprayed by helicopter, with follow up control done on the ground by hand.

Animal pests including possums, pigs, stoats, rats and wasps threaten native plants and birds. Wasps are also a nuisance for people using the reserve. Possums, pigs and wasps have been targeted over the years but more pest control is needed as funding allows.

The following work is planned to continue to restore Victoria Domain:

- an ongoing programme to remove sycamores and other weeds over the next five years
- community education to increase awareness and encourage residents to become active in weed control
- support for the newly formed Guardians of Victoria Domain, a community group taking action to look after this special area.

WANT TO FIND OUT MORE?

www.marlborough.govt.nz/Recreation/Parks-and-Reserves/Reserves/Picton

CASE STUDY
Wither Hills Farm Park

The Wither Hills provide a spectacular backdrop to Blenheim and a popular destination for walkers, runners, mountain bikers and anyone wanting a great view of the Wairau Valley landscape. Alongside these recreational opportunities, the Withers are also a working farm leased from the Council.

However, this is a challenging area for land management, with a history of erosion caused by over-grazing, rabbit plagues, burn-offs and water carving channels through the unstable hillsides (tunnel-gully erosion).

The Government bought the Wither Hills Reserve in 1944 as a "hopeless case" when the land was too eroded for farming to continue. Blenheim also needed protection from the debris running off the Withers after severe rains.

The Wither Hills Catchment Scheme tackled the erosion, with unstable areas recontoured by bulldozers and sown with grass species better suited to holding the soil. Tree planting also helped to hold the hills. The Council took over the management, of the 1,100 hectare Wither Hills Farm Park in 1993 but the challenges continue (see Table 1).

In 2013 Council reviewed its management of the Wither Hills Farm Park and established a significant works maintenance programme with long-term funding.

There are three key management areas: soil conservation and erosion control, conservation farming and recreation. The work is based on a programme of five Es:

- engineering – controlling waterways and access
- erosion-control – land rehabilitation, strategic plantings, sustainable grazing practices
- enforcement – signage, bollards, ranger
- environmental protection – weed and pest control, fire management, restoration plantings
- education – interpretation signs, media coverage.

As well as focusing on erosion control and fire protection, the Council is developing a continuity of management so that long-term knowledge and expertise is passed on to the next generation of custodians of this iconic Marlborough landscape.

WANT TO FIND OUT MORE?

- Wither Hills Farm Management Plan www.marlborough.govt.nz/Council-Publications/Plans-Policies-and-Documents
- Soils of the Wither Hills www.marlborough.govt.nz/Environment/Land/Soils/Soils
- Wither Hills Farm Park www.marlborough.govt.nz/Recreation/Parks-and-Reserves/Reserves/Blenheim

Wither Hills

Table 1: : Management influences and pressures on the Withers Hills.

INFLUENCE	PRESSURE
Soil loss	Sheet and tunnel-gully erosion; gully collapse; slips; flood debris; sedimentation in water-ways
Waterways	Floods; sediment traps, debris catchers, water table construction and management for runoff control; slips into residential waterways; reduction of in-stream and berm habitats; reduction of flood-carrying capacity, increase in sediment into downstream waterways, drains and rivers
Farming	Reduction in the flats as residential development encroaches; drop in soil fertility; stock fencing around steep gullies; desire for smarter and efficient farming providing higher returns
Weeds	Biosecurity Act requirements to keep boundaries clear; noxious plants such as Nassella tussock, Chilean needle grass, gorse and broom
Pests	Possums, rabbits, mustelids and cats
Vegetation	Pasture management; need to plant for erosion control and protect plants; drought
Public use	Expectations for recreation; people-stock conflict; increased fire risk from more visitors and closer residential development; health and safety; demand for all-weather tracks and increased access; demand for conservation plantings; litter
Facilities	Toilets, facilities, memorials, radio/repeaters; mountain bike and walking tracks; regional dump site; town reservoirs
Building	Aging infrastructure - cost of replacement and maintenance
Water	Age of infrastructure – pipework, fittings, pumps and tanks; suitability of water for stock
Contaminated sites	Contaminated sites due to old woolshed and sheep dip areas and chemical storage

Wither Hills

WATER SUPPLY

Access to a reliable source of clean drinking water is important for all of our community and about 82% of Marlborough's people are supplied water from a Council scheme. Water is reticulated in Blenheim, Picton, Havelock, Renwick, Riverlands, Wairau Valley and Awatere (including Seddon) at a pressure to meet household needs as well as firefighting in urban areas.

Smaller settlements are supplied by either small, community-run schemes or abstraction from individual boreholes, springs, creeks, streams or rainwater tanks.

Water has traditionally been regarded as an unlimited and virtually free resource for many users. The water supply is unmeasured and generally unrestricted for domestic consumers on all Council networks except in the Awatere and Wairau Valley schemes where meters are fitted.

Council operates a piped irrigation scheme for the Southern Valleys near Renwick and a small irrigation supply to the Riverlands area. Plans are also underway for a community irrigation scheme in the Flaxbourne area near Ward. This water is mainly used for intensive farming, such as growing grapes.

PRESSURES

Since 2007 the Council has been required to plan to meet the Drinking Water Standards for New Zealand set by the Government. Compliance to the drinking water standards is being phased in over a number years and will require significant spending. The affordability of this will be an issue for smaller communities such as Seddon, Awatere, Havelock, Renwick and Wairau Valley. The standards require thorough monitoring for bacteria, protozoa, chemicals and physical characteristics and water is tested from source to distribution.

CHANGES SINCE THE 2008 SOE REPORT

- $12.3M upgrade to Blenheim water treatment plants to meet the national drinking water standards.
- Essons Valley WTP upgraded in 2012 and new water treatment design and plan for Speeds Road to meet the standards.
- New storage reservoirs built at Blenheim and Picton to improve the security of supply and old concrete tanks at Havelock replaced with a modern steel tank.
- Water tanks replaced in Awatere following the 2013 earthquake and the Te Koko-o-Kupe / Cloudy Bay Business Park reservoir strengthened for earthquake resilience.
- In 2014 the water supply infrastructure was valued at $224 million dollars as a response to demand and to meet the Drinking Water Standards.

Customers expect good water pressure for general household use, including showers and watering the garden. Firefighters also need adequate flow and pressure from fire hydrants. The more users at any one time, the lower the pressure in the system. The water pressure in some areas of the networks does not meet the NZ Fire Service's guidelines for firefighting during the peak days of summer.

In contrast to this, high pressure can be a problem for some properties in Picton. To achieve the minimum pressure for houses on the top of a hill, properties in the valley below may receive very high pressure that can cause leaks and wear and tear on plumbing.

The Council faces major capital upgrades to meet the demand for more water. Renwick and Havelock have experienced summer water restrictions in recent years as demand exceeds the availability of water from existing well fields. Peak demand in Picton is soon likely to outstrip the existing water sources.

Watering the road is an inefficient use of water

Water reticulation systems are expensive to install and maintain and need a minimum population level to be cost effective. For example, the Awatere scheme was initially designed to provide drinking water for stock. It has a similar length of reticulation as Blenheim, but only 7% of the population. Meeting the costs of infrastructure operation and upgrades (particularly to meet drinking water standards) is an ongoing issue.

The Canterbury earthquakes raised awareness about the risk to water supplies in a natural disaster. The Seddon earthquakes of 2013 further highlighted the need for greater resilience in our infrastructure.

RESPONSE

The Council has upgraded the two water treatment plants that supply Blenheim to meet the national drinking water standards. In Picton, the Essons Valley water treatment plant has been upgraded and work is planned for the Speeds Road plant to ensure the water supply meets the standard. Council has approved a project to upgrade Seddon's water treatment and initial design work has been prepared for improving the Renwick and Havelock supplies.

The Council has been unable to find an additional water supply near Picton to meet the growing demand. Water demand management techniques such as universal metering, pressure management zones and leakage control will help to conserve the current supply. This approach is also being considered for Renwick and Havelock.

Bores have been drilled to supply additional water to Renwick. A new pipeline to connect these to the Renwick supply is required and will be incorporated in the water treatment plant upgrade once the output of the wells has been proven.

Pipes will be upgraded in parts of Blenheim, Picton, Renwick and Havelock to improve minimum water pressure all year round. It may be too expensive to provide water flows and pressure to comply with fire-fighting guidelines in all circumstances. The Fire Service guidelines may not be met and they will be advised accordingly.

To keep the water infrastructure fit for purpose, the Council continues to repair, renew and upgrade the network. When faults occur staff work to remedy the breakdowns as quickly as possible, with call-outs prioritised depending on the severity and impact to customers supplies.

STATE

The Council supplies an average of 600 litres of water per person per day. This volume can double during peak times in summer as people water their gardens and fill their pools. This level of consumption is very high when compared to some countries where water is in short supply. In Melbourne, for example, residents have reduced their average daily consumption down to just 140 litres/person/day through water saving initiatives.

The Council's water assets have grown considerably in recent years. The growth has occurred due to increased demand (both domestic and industrial) and to meet the drinking water standards introduced in 2007. The water supply infrastructure was valued at $128 million in 2014.

Details of the water supply infrastructure and performance are set out in the Water Supply Asset Management Plan 2015. This is regularly updated in line with the Council's three-yearly Long-Term Plan.

FUTURE RESPONSE

Water treatment plant upgrades are planned for Seddon, Renwick, Havelock and rural Awatere to meet the drinking water standards. 'Point of entry' treatment is being considered for the domestic supplies in rural Awatere.

Pipeline upgrades are required to improve the flow and pressure of water to areas of the network. New sources of water are being developed where possible and water demand management techniques are being deployed to help ensure a sustainable supply.

Additional water storage reservoirs are planned for Blenheim and Havelock.

Further work is planned to improve the resilience of the infrastructure to natural hazards.

Ageing pipelines will need to be renewed across all of the networks, particularly Awatere and Renwick.

Havelock's supply wells are being closely monitored after raised levels of chloride were recorded in 2013 and 2014. The water continues to be safe to drink but if the concentration of chloride increases in the future, it may affect the taste of the water and corrode plumbing.

The Renwick water supply will be upgraded to ensure supply can better meet demand.

Water hydrant testing

WANT TO FIND OUT MORE?

- 30 year Infrastructure Strategy 2015 See Part 3 of www.marlborough.govt.nz/Council-Publications/Plans-Policies-and-Documents/2015-25-Final-Long-Term-Plan.aspx
- Water Supply Asset Management Plan 2015 - www.marlborough.govt.nz/Council-Publications/Plans-Policies-and-Documents/Asset-Management-Plans.aspx

CASE STUDY
Irrigation Schemes

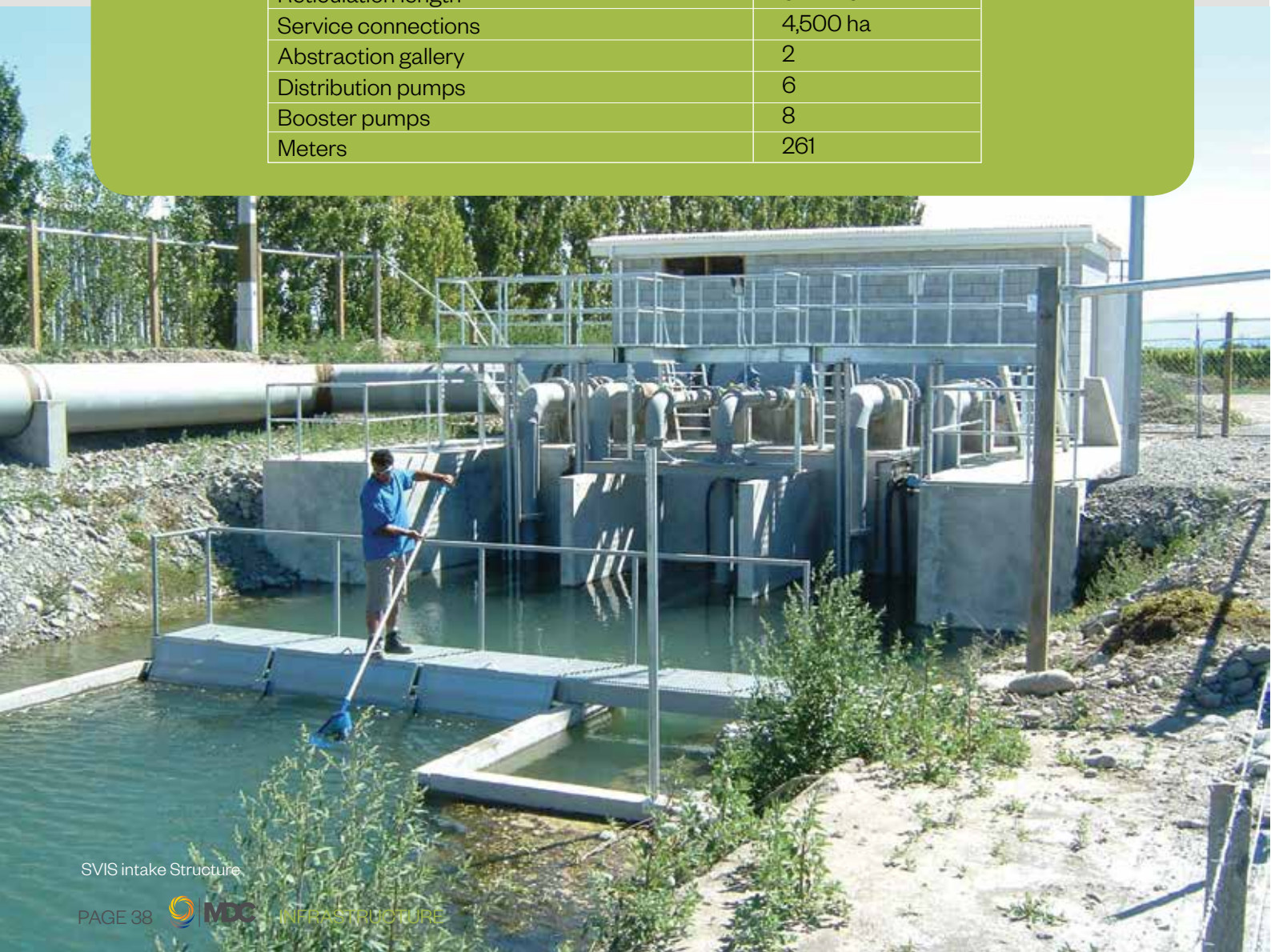
Sourcing water for irrigation is of critical importance to our primary industries, particularly in areas of shortage such as south Marlborough. Council has significant expertise and experience in providing water infrastructure in Marlborough and in 2004/05 developed an irrigation scheme for the Southern Valleys (SVIS.) The scheme serves horticultural, farming and rural residential properties to an area south of Renwick of approximately 4,500 ha. The scheme is operated during the drier months of the year providing there is sufficient water available in the Wairau River.

A proposed irrigation scheme for the Flaxbourne area, estimated to cost up to $30.2m, is under investigation. It will provide similar benefits to the Southern Valley scheme in supporting the development of productive agricultural land and be paid for the beneficiaries through a targeted rate. Council has agreed to support the development of this scheme subject to a number of conditions:

- securing sufficient water
- satisfactory final design, estimates and funding
- securing 100% commitment to fund the scheme from landowners and/or the Crown Irrigation Fund, and
- the actual cost of construction being within the funding secured.

Council supports in principle other community irrigation schemes if environmental effects can be managed and mitigated.

Southern Valleys' Irrigation Scheme (SVIS)	Length/Quantity
Reticulation length	57 kms
Service connections	4,500 ha
Abstraction gallery	2
Distribution pumps	6
Booster pumps	8
Meters	261



SVIS intake Structure

STORMWATER DISPOSAL

Housing, commercial development and roading have created more hard surfaces, which mean rain runs off rather than draining away naturally. The Council's stormwater infrastructure carries this excess surface water to nearby waterways to help reduce the risk of flooding.

There are reticulated stormwater systems in Blenheim, Picton, Havelock, Seddon, Spring Creek, Grovetown, Renwick, Rai Valley, Okiwi Bay and Riverlands. Rural areas rely on natural drainage and channels to avoid flooding.

The urban stormwater system is in two parts: natural drainage such as waterways, drains and ponding areas, and the constructed system of pipes, culverts, manholes, sumps, pump stations, retention areas and soak holes. There are over 169 km of pipe network and 50 km of natural streams, artificial drains or modified natural streams transporting stormwater in Marlborough. In addition to the network there are 15 pumping stations for when stormwater run-off coincides with high river levels. More than 90% of Marlborough's stormwater infrastructure is in Blenheim and Picton.

PRESSURE

Most of Blenheim is built on the flat, with little natural gradient to help the drainage system. Stormwater is piped to natural water courses or man-made drains used originally for farm drainage that now need to be upgraded to cope with growth in the town.

Rainwater flowing across hard surfaces picks up a variety of materials and dissolved substances which enter the stormwater system and discharge into waterways. There is a risk of these pollutants affecting the natural environment.

Stormwater discharges are regulated through resource consents which are monitored and enforced by the Council. However, many of these urban consents were granted many years ago and require a review.

Stormwater system design is based on historical rainfall information and flood levels as well as sophisticated mathematical models to predict storms and their effects. However, each storm is unique in its intensity, duration and the area it covers. Changing patterns of land use and run-off must also be considered.

The impact of climate change is becoming increasingly important in future planning. More frequent and intense extreme weather events are expected and will severely test the Council's design standards and infrastructure.

CHANGES SINCE THE 2008 SOE REPORT

- New pipelines and infrastructure installed to accommodate urban growth, particularly in Blenheim, Renwick and Riverlands.
- The Blenheim Stormwater Strategy has been adopted and provides a comprehensive framework to design and plan stormwater infrastructure to meet modern standards for flood protection and water quality.
- A study has been undertaken into ground permeability and run-off. Detailed hydraulic models have been developed to assist with stormwater planning and design.
- Planning of stormwater services for Marlborough Urban Growth Strategy.

Roadside stormwater collection

Figure 1: Stormwater reticulation in each area

AREA	RETICULATION LENGTH (KILOMETRES)	PUMP STATIONS
Blenheim	122.7	2
Picton/Waikawa	28.6	1
Renwick	4.9	
Okiwi Bay	0.8	
Riverlands	5.5	
Spring Creek	3.4	
Seddon/Grovetown/Anakiwa	1.3	
Rai Valley	0.3	
Havelock	1.4	
Total	**168.9**	

Other stormwater issues include:

- increased public expectations to reduce flooding
- enlargement of urban stormwater systems and associated river drainage to allow for growth of Blenheim and Picton
- increased water quality standards and awareness of the impact of discharges to the natural environment
- lack of stormwater reticulation systems in rural towns
- renewal of ageing infrastructure.

RESPONSE

Keeping pollution out of the stormwater system is being approached through education and regulation. High-risk industries (e.g. winery storage/loading areas, vehicle washes) are required to install interceptors in their drains and cover hard run-off areas from rain. Council investigates pollution events and works with those responsible to deal with the effects.

A continuous recorder has recently been set up on Murphys Creek to monitor the effects of stormwater on both water quality and quantity.

There is a major project underway to overhaul Blenheim discharge resource consents to bring them up to date with current practice. This is likely to be extended to areas beyond Blenheim.

WANT TO FIND OUT MORE?

- Marlborough District Council Infrastructure Strategy Plan 2015-45
- Stormwater Asset Management Plan 2014

Council has also approved a stormwater strategy which provides an integrated and modern approach to managing the quality and quantity of Blenheim's stormwater. This strategy is expected to improve the drainage system and limit the impact on the natural environment. The stormwater system is managed in close co-operation with the Rivers and Drainage Department who are responsible for the main waterways in the region.

The Council mobilises the Incident Management Centre during severe storms and floods to co-ordinate the response to emergency calls. Highest priority is given to houses or commercial buildings threatened by flood water. The most severe storms can overwhelm the stormwater infrastructure and natural waterways, in which case the top priority is to keep the public safe and limit damage to property.

The Council repairs, upgrades and if necessary replaces stormwater infrastructure to keep it fit for purpose. Decisions are influenced by the need for additional capacity and higher environmental standards for stormwater discharges.

Floodgate discharge

STATE

Marlborough's stormwater reticulation system is 169 km long and was valued at $69 million in 2014.

WASTEWATER (SEWAGE)

Management of wastewater is not one of the most glamorous functions of the Council, but without an efficient sewerage system Marlborough's urban areas would not be desirable places to live. The Council has wastewater treatment plants in Blenheim, Picton, Havelock and Seddon which manage the sewage for about 85% of the people in Marlborough. Properties that are not connected to one of the Council's sewerage systems have small community schemes or their own septic tanks.

PRESSURE

It is increasingly expensive to install and maintain wastewater infrastructure to meet the higher standards of discharge. These costs are usually borne by those using the scheme and are only economic for more populated centres.

Rural areas rely on individual treatment and disposal systems or community schemes. They require suitable ground conditions including permeable soils, a low water table, reasonably flat land and on-going monitoring and maintenance. Many places in Marlborough, including the Sounds, struggle to meet these requirements and wastewater disposal becomes problematic. Treatment systems that are not up to scratch create insanitary conditions and cause pollution that may harm the environment and affect recreational use.

With the expansion of vineyards there has been a large increase in winery wastewater from grape processing, which has added to pressure on the wastewater system.

Wastewater pipes should carry only sewage or treated waste, but stormwater and ground water can get into the system through illegal connections or leaks. Blocked pipes and pump breakdowns must be detected and repaired quickly to prevent sewage overflows.

The more frequent and intense storms expected with climate change may exacerbate sewer overflow problems. Wastewater infrastructure is also at risk from earthquakes and liquefaction.

CHANGES SINCE THE 2008 SOE REPORT

- The upgrade of the Blenheim Sewage Treatment Plant has been completed and includes eight tertiary treatment wetland ponds, a new pump station, an outfall pipeline into the Wairau River estuary and an effluent irrigation system. Discharge to the Ōpaoa River stopped in 2013.
- Treatment capacity was increased to cope with the growth in winery waste with a dissolved air flotation unit and increased aeration commissioned in time for the 2010 vintage.
- Reticulated sewerage has been provided to Grovetown, parts of St Andrews, David Street and Severne Street.
- The outfall for the Spring Creek Sewage Treatment Plant was de-commissioned in 2010 and the effluent is now pumped to the Blenheim Wastewater Treatment Plant.
- A new outfall pipeline has been constructed at Picton.

Blenheim sewerage infrastructure upgrade

Table 1: The Council's sewerage reticulation network

AREA	Sub Area	Pipeline Length (kilometres)	Number of Connections
Blenheim	Blenheim	202	12,106
	Renwick	13.9	Included in Blenheim
	Spring Creek	3.9	Included in Blenheim
	Riverlands	4.0	Included in Blenheim
	Grovetown	16.9	Included in Blenheim
Picton		48.8	2,497
Havelock		10.2	287
Seddon		7.4	224
Total		**307.1**	**15,114**

RESPONSE

The Blenheim treatment plant was extensively upgraded in 2013/14. A new wetland pond system provides a more consistent, higher quality effluent. Part of the effluent can be returned to irrigate land and the remainder discharged to the Wairau Estuary through the new pump station and outfall pipeline. The treatment of tradewaste from wineries was considerably extended at the Blenheim plant following an upgrade completed in 2009. Further work may be required as wine production increases.

Wastewater reticulation schemes have been installed in Grovetown, St Andrews and the David/Severne Street areas of Blenheim. Costs were reduced by each property having a system that grinds the sewage into small particles before pumping into the main reticulation system.

There is an ongoing programme to identify and remedy leaks and infiltration into the wastewater system from storms and other sources, though this can be a difficult task with the ageing infrastructure.

WANT TO FIND OUT MORE?

- Marlborough District Council 30 year Infrastructure Strategy 2015-45
- Wastewater Asset Management Plan 2014

Effluent from the treatment plants is strictly controlled by resource consent. Regular sampling and testing is carried out to monitor the quality of the effluent discharged by each of the treatment plants. Shellfish near the Wairau River Estuary and Picton Harbour outfall pipes are checked for any adverse effects.

Partially-blocked sewers may drain slowly and restrict the service. More severe blockages will quickly back up and risk overflowing. The Council aims to restore toilet facilities to customers within six hours of a breakdown. Householders are responsible for repairs if the blockage is within their property boundary.

In light of the experience of the Canterbury earthquakes, further spending is needed to minimise the effects of earthquakes on Marlborough's sewage systems.

STATE

The Council has treatment plants in Blenheim (Hardings Road), Havelock, Picton and Seddon, 59 sewer pump stations and about 150 sewer grinder pumps. These assets have grown considerably over the past 10 years to meet the growing demand for wastewater treatment (domestic and industrial), higher standards imposed by central government and public pressure. The total asset value for sewerage activity was $146 million in June 2014. The Wastewater Asset Management Plan has more detail - See Want to find out more?

AGRICULTURAL DRAINAGE ON THE WAIRAU FLOODPLAIN

Much of the 8000 ha of the lower Wairau floodplain is low-lying land that used to be very swampy. Excavation work, including upgrading stream channels and digging new drains, has transformed the swamp into valuable agricultural and viticultural land.

There are about 175 km of drains and maintained streams and 21 pumping stations. These have been built over the years by various public and at times, private bodies. The network of drains and pumping station maintenance was taken over and expanded by the Marlborough Catchment Board in 1960 and transferred to the Marlborough District Council in 1992. The drains are mainly on private land.

The flat land of the lower Wairau Plain means there is not much slope on the drains, so they need to be kept clear and hydraulically efficient for good water flow while ensuring habitat for native fish and invertebrates is maintained. Pumping stations are required to remove water when the Wairau and Ōpaoa rivers are both running high and some areas have pumps working when there is a high tide.

PRESSURES

Drains are easily choked by fast-growing weeds that need to be removed in an economic and environmentally acceptable way. Without weed removal, sediment and contaminants entering the drains tend to settle, smothering habitats and the species that live there. Nutrients encourage excessive weed growth, making drain maintenance an ongoing challenge.

CHANGES SINCE THE 2008 SOE REPORT

- New procedures have been developed for removing nuisance aquatic vegetation to minimise the impact on fish and other stream life.
- Subdivision on the Wairau Plain has meant that the drainage network needs to be expanded to provide drainage for properties greater than 1 ha.

Ponding water on Wairau Plain after significant rainfall

Removing weed with excavators can also remove eels, disturb other fish and stream life and interfere with habitat along the banks of the waterways. All landowners need to have access to a Council drain but this has been complicated by subdivision. With most of the drains on private land access agreements are required with the landowners to allow maintenance. Council has few easements – which are expensive – and this could be an issue in the future.

Machine access is required to all drains for maintenance, so riparian plantings are limited to one side of the drain. This can be difficult if the land on each side of a drain has different owners who both wish to put in riparian plantings.

With the predicted increase in sea levels, drainage of low-lying land will be more difficult and increased pumping may be required.

RESPONSE

Weeds are controlled by spraying with approved herbicides or removal by excavation. Weed control is usually carried out twice a year.

Spraying is regulated by a 10 year resource consent for agrichemical application that was granted in 2009. The resource consent conditions include how and when sprays may be applied and requires monitoring of impact. Renewal of the resource consent in 2019 is likely to receive a similar degree of public scrutiny to ensure that spraying is carried out responsibly and that there is a less-than-minor impact on the environment.

New procedures have been developed for removing weed by excavator to minimise the impact on eels, fish and other streamlife. Using an excavator rake rather than a scoop bucket allows eels and fish to escape and there is less risk if work is timed to avoid fish spawning season. Weed is lifted up and over banks to preserve streamside habitat.

The Council is expanding its drainage network so all property owners with more than a hectare of land will have access to a Council drain. This will increase the drainage network by about 10 km.

Keeping up good communication and relationships with landowners is seen as the best way to ensure Council maintenance crews have access to drains and streams on private land while allowing for riparian plantings. The move to viticulture has helped improve drain/stream access as the "headlands" for vineyard operations also provide access for Council maintenance.

Pumping stations are reviewed from time to time to see if an increase in capacity is needed.

WANT TO FIND OUT MORE?

Rivers and Land Drainage Asset Management Plan 2015