GREATER SHEPPARTON CITY COUNCIL

ONSITE WASTEWATER MANAGEMENT PLAN

2025-2030

GREATER SHEPPARTON

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Definitions

Name	Definition
Authorised officer (AOs)	Environmental Health Officer, Environmental Health Technical Officer or plumber engaged and authorised by Council.
Blackwater	Wastewater directly from the toilet.
Community	Refers to residents, rate payers, business owners, property owners and visitors to the City of Greater Shepparton.
Enforcement	In this OWMP, enforcement is broadly defined to include informal education and advice to duty holders, through to formal legal directions or orders to compel compliance.
Environmental Significance Overlay (ESO)	To identify areas where the development of land may be affected by environmental constraints and to ensure that development is compatible with identified environmental values.
Failed OWMS with offsite discharge	Components of the OWMS are no longer functioning so that untreated effluent is discharging beyond the property boundaries.
General Environmental Duty (GED)	Means you must manage your activities to reduce the risk of harm: to human health and the environment. from pollution or waste
Greywater or sullage	Domestic wastewater from bathrooms, kitchens, and laundries.
Land capability Assessment (LCA)	The assessment of the capability of the land to support a particular use and in this case, effluent disposal. The LCA considers the risk of harm to human health and the environment from wastewater, taking into account existing and proposed septic systems.
Onsite Wastewater Management Plan (OWMP)	OWMP outlines Council's plan in relation to onsite domestic wastewater activities. It is also intended to be used as a reference document for external stakeholders, and the community
Onsite wastewater management system (OWMS)	Means an OWMS with a design or actual flow rate of sewage not exceeding 5000 litres on any day and includes all beds, sewers, drains, pipes, fittings, appliances, and land used in connection with the treatment plant.
Treated effluent with onsite discharge	The OWMS is satisfactorily treating the waste, but the distribution of the treated effluent is not functioning satisfactorily and is discharging within the property boundary.
Treated effluent with offsite discharge	The OWMS is satisfactorily treating the waste, but the distribution of the treated effluent is not functioning satisfactorily and is discharging beyond the property boundaries.
Sewage	Means any wastewater containing any human excreta or domestic wastewater, and includes greywater.
Special Water Supply Catchment	An area where water is collected by the natural landscape and all rain and surface water eventually flow to a creek, river, lake, ocean or ground water system.
Stormwater	Rainfall run-off carried through the stormwater system.
Wastewater	Water containing sewage and other human derived waste.

1. Introduction

Onsite wastewater management is one of the public health functions delegated to local government under the *Environment Protection Act 2017*.

Councils first Onsite Wastewater Management Plan was developed in 2008 (previously known as a Domestic Wastewater Management Plan), which was reviewed during the development of this plan.

The Greater Shepparton City Council (Council) is committed to responsible and sustainable onsite wastewater management practices that will protect the health of the community and surrounding environment.

2. Purpose

In meeting Council's commitment, this Onsite Wastewater Management Plan (OWMP) aims to:

- Consider the cumulative risk from onsite wastewater systems installed with the City of Greater Shepparton, and identify actions Council will undertake to manage those risks.
- Build community awareness of the risks to the environment and human health associated with onsite wastewater management systems (OWMS).
- Focus on ensuring public health and environmental risks associated with OWMS are effectively managed through a range of internal capacity building and community engagement strategies.
- Inform owners of OWMS of their General Environmental Duty (GED) obligations under the *Environment Protection Act 2017* by preparing resources and engaging with the various stakeholders, including community.
- Assist with the long term planning and development of unsewered areas within the municipality and advocate for further investigation regarding connection to reticulated sewer of priority localities where appropriate.
- Outlines the framework for consistent regulatory decision-making to ensure compliance with the *Environment Protection Act 2017*.

This OWMP has been prepared to align with Council policies and strategic plans, and recent changes to *Environment Protection Act 2017*, the regulations and supporting guidelines.

3. Scope

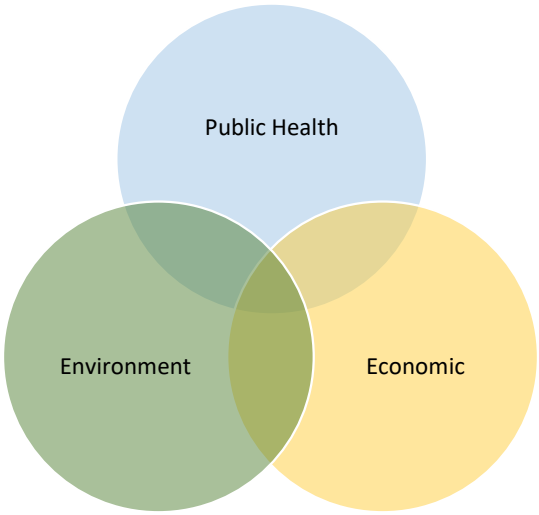
Council's OWMP applies to OWMS with a treats and disposes sewage of human origin with a design or actual flow rate of less than 5,000 Litres of wastewater on any given day. This includes the treatment tank, all trenches/beds, sewers, drains, pipes, fittings and fixtures, and the land used in connection with the disposal of effluent.

4. Why is managing onsite wastewater important?

While the protection of health and the environment is always at the center of any decision made, authorised officers must also consider economic and legal implications when making decisions.

Public Health

- Raw sewage can carry a range of pathogens including bacteria, viruses, protozoa, intestinal worms, and inhaled molds and fungi
- Human diseases caused from these pathogens range from mild to severe gastroenteritis, cholera, dysentery, and hepatitis
- Septic overflows can cause organically rich pooling of waste water, increasing mosquito breeding sites including those mosquitoes species known to carry disease to humans, and are endemic in the Greater Shepparton area.



Environment

- Contamination of groundwater by nitrate, ammonia and faecal pathogen
- Seepage can raise the groundwater table causing salinity in certain areas
- Surface runoff adds nitrogen and phosphorus to water catchments, stimulating algal and weed growth and causes land degradation such as erosion
- Effluent carries suspended solids, ammonia, and organic matter, which can affect some aquatic plants, and microorganisms
- Effluent can be carried into other bodies of water, causing further downstream pollution

Economic

- Costs to homeowners to replace poorly performing or failed OWS systems or connection to reticulated sewage
- Poor OWMS management decreases land amenity and economic value
- Algal blooms or large mosquito outbreaks can impact on tourism potential
- Registered food premises may require alterations or replacement of OWMS if practice or capacity changes
- Commercial development and growth is limited to the design capacity of the OWMS.
- Failing or poorly performing OWMS can be expensive to repair or replace resulting in financial stress.

Many aspects of onsite wastewater management are embedded within the Planning Scheme, the *Environment Protection Act 2017* and guidelines produced by the Environment Protection Authority, and are well managed by Greater Shepparton City Council. This is particularly the case in relation to ensuring new development is undertaken sustainably.

5. Our achievements since the previous OWMP

The Greater Shepparton City Council's previous OWMP was published in 2008 (formerly referred to as a Domestic Wastewater Management Plan or DWMP). Throughout the life of the previous plan, Council has continued to make progress in relation to the action items committed, and adapt to ongoing changes relating to wastewater, such as system and legislative changes.

Key achievements include:

- Responding to October 2022 flood event and assisting and supporting the community in preparing/managing the impacts of the flood event on septic systems.
- Completion of the Dookie Groundwater Assessment and report.
- Participation in the EPA funded Officer for Protection of the Local Environment (OPLE) program which resulted in an EPA officer based at Greater Shepparton City Council.
- Responding to complaints, and achieving outcomes that protect human health and the environment.
- Appointment of Environmental Health Support Officer in 2016 whose primary function has been to enter the backlog of septic tank permits onto a corporate database and integrate this data onto Council's GIS system. Currently entered over 4780 old permits including all carbon copy permits from the Shire of Rodney and Shire of Shepparton.
- Backlog data entry of old septic system permits is nearly complete, with approximately 1000 remaining. Approximately 550 cannot be matched due to lack of identifying property information. Many of these permits date back to the 1960's – 1970's. This number is likely to increase as the old permits are matched.
- Identification of Council properties with an onsite wastewater system.

6. Legislative context

There are a number of key pieces of legislation, policies and guidelines that assist Council and other stakeholders in ensuring best practice management of domestic wastewater. These include:

- *Building Act 1993* and *Regulations 2018*
- *Catchment and Land Protection Act 1994*
- *Environment Protection Act 2017* and *Regulations 2021*
- *Infringements Act 2006* and *Regulation 2015*
- *Local Government Act 2020*
- *Planning and Environment Act 1987*
- *Public Health and Wellbeing Act 2008* and *Regulations 2019*
- *Safe Drinking Water Act 2003* and *Regulations 2015*
- *Subdivisions Act 1988*
- *Water Act 1989*
- *State Environment Protection Policy (Waters) 2018 (until July 2023)*
- EPA Guidelines for onsite wastewater management (May 2024)
- EPA Guideline for onsite wastewater effluent dispersal and recycling systems (May 2024)
- Victorian Land Capability Assessment Framework (MAV) (currently under review)
- AS/NZS 1547:2012, On-site domestic wastewater management
- AS/NZS 1546.1: 2008, On-site domestic wastewater treatment units, Part 1: Septic tanks
- AS/NZS 1546.2: 2008, On-site domestic wastewater treatment units, Part 2: Waterless composting toilets
- AS 1546.3:2017, On-site domestic wastewater treatment units, Part 3: Secondary treatment systems
- AS 1546.4:2016 On-site domestic wastewater treatment units, Part 4: Domestic greywater treatment systems.

6.1 *Building Act 1993* and *Building/Plumbing Regulations 2018*

Building permits are issued by registered building surveyors in accordance with the Building Regulations. The building surveyor must be satisfied that an A20 permit issued under the Environment Protection Act has been granted by the Council before issuing a building permit for the new dwelling or a 'report and consent' is obtained for an alteration of dwelling.

Licensed Plumbers must submit a compliance certificate upon completion of an OWMS installation before an Occupancy Permit can be issued for a new dwelling or Certificate of Final Inspection for alterations to a dwelling.

6.2 *Environment Protection Act 2017* and *Environment Protection Regulations 2021*

The *Environment Protection Act 2017* and *Environment Protection Regulations 2021* are the primary pieces of legislation that regulate and control on-site wastewater management in Victoria.

Under delegation from the Environment Protection Authority, Council considers onsite wastewater management systems that give rise to risk of harm to human health or the environment.

It is a requirement of the *Environment Protection Act*, for a person to obtain a permit from Council to construct, alter or install a wastewater system up to 5,000 litres a day.

The *Environment Protection Act 2017* introduces an overarching "General Environmental Duty" for all Victorians to reduce the risk of harm to human health and the environment.

The GED and *Environment Protection Regulations 2021* place obligations on owners and operators of onsite wastewater management systems to ensure they are:

- Maintaining the system in good working order,
- Ensuring those operating the system have the information they need to maintain and operate it effectively, and;
- Responding to any failures.

Councils are also responsible for identifying and investigating failing wastewater systems that are causing environmental, public health and amenity risks and ensuring owners and operators of onsite wastewater management systems are meeting their maintenance obligations under the *Environment Protection Act and regulations.*

Council has a duty to exercise its enforcement powers where it knows there is a breach of legislation and there is the likelihood of impact to public health and the environment.

The *Environment Protection Act* outlines various enforcement tools available to local government to manage risks associated with non-compliance.

The *Environment Protection Act 2017* recently introduced an Order for Obligations of Managers of Land or Infrastructure (Urban stormwater management and On-site wastewater management) (OMLI) as a new legislative instrument, under section 156.

The OMLI sets out requirements for councils regarding strategic management of on-site wastewater systems within its municipality and requires water corporations to work collaboratively in response to councils' on-site wastewater management plans. The OMLI replaces clauses which were previously covered in the State Environment Protection Policy (SEPP) (Waters) to ensure water authorities assist council investigate and future plan for sewerage identified as high priorities in Council's OWMP.

6.3 *Local Government Act 2020*

The *Local Government Act 2020* outlines the provisions under which council operates, and empowers Council's to have local laws and regulations for OWMS.

6.4 *Planning and Environment Act 1987*

The *Planning and Environment Act* sets out the planning provisions, planning schemes, procedures for obtaining permits and enforcing compliance with planning schemes. Planning schemes set out how land may be used and developed.

The *Planning and Environment Act* requires councils to consider the environmental issues when assessing land development in unsewered areas. This includes:

- Any significant effects the use or development may have on the environment or the environment may have on the use or development.
- Any strategic plan, policy statement, code or guideline, which has been adopted by a Minister, government department, public authority or municipal council.

The *Planning and Environment Act* states the objectives for wastewater management for all land use applications is to provide a wastewater system that is adequate for the maintenance of public health and the management of domestic wastewater in an environmentally friendly manner. It also states, wastewater systems must be:

- designed, constructed and managed in accordance with the requirements and to the satisfaction of the relevant water authority and the EPA; and
- consistent with any relevant approved OWMP.

6.5 *Public Health & Wellbeing Act 2008*

The *Public Health and Wellbeing Act 2008* enables authorised officers to investigate and remedy nuisances which are, or are liable to be, dangerous to health or offensive. Council has a duty to investigate all complaints relating to nuisance such as the illegal installation, alteration or poorly managed Onsite Wastewater Management Systems (OWMS) and take action to abate the nuisance where necessary.

7. Stakeholders

There are a range of stakeholders that contribute to the protection of health and the environment.

7.1 Environment Protection Authority Victoria

The Environment Protection Authority (EPA) is the environmental regulator and has the overall responsibility for

- administering the *Environment Protection Act* and *Environment Protection Regulations*
- developing policies and guidelines for regulators to apply
- providing guidance material for the community
- provide information regarding the types of OWMS that can be installed in Victoria via the Certificate of Conformance process issued by an accredited conformity assessment body under the relevant Australian Standard
- approval of systems discharging more than 5,000 litres per day, usually from large commercial and industrial sites not connected to reticulated sewer.

The EPA delegates responsibilities for on-site wastewater management that treat and disposes less than 5,000 Litres of wastewater a day to Local Government Environmental Health Officers.

7.2 Department of Energy, Environment and Climate Action (DEECA)

DEECA is responsible for the management of water resources, climate change, bushfires, public land, forests, and ecosystems in Victoria. DEECA may be referred to by Council for specialist advice in circumstances where OWMS may impact on land or water resources.

7.3 Victorian Department of Health

The Victorian Department of Health (DH) have responsibilities under the *Public Health and Wellbeing Act 2008* (PHWA) in relation to public health protection from nuisances arising from wastewater and administering the *Safe Drinking Water Act 2003.*

7.4 Water Corporations

Water Corporations have a major interest in the correct functioning of onsite systems under the *Water Act 1989* (as amended), the *Planning and Environment Act 1987* and the *Catchment and Land Protection Act 1994*.

Water Corporations are responsible for providing safe potable drinking water under *Safe Drinking Water Act 2003*. It is important for water corporations to be aware of OWS installed within their water supply catchment, and for Councils to ensure that the OWS are being maintained, in order to mitigate potential risks of contamination to potable water quality.

Both rural and urban water corporations have a responsibility for assessing and responding to all referred applications under clause 66 of Council planning schemes for Special Water Supply Catchments as listed in schedule 5 of the *Catchment and Land Protection Act 1994*.

The key area of concern is of failing or poorly performing onsite systems which may:

1. Impact water quality in waterways, channels and reservoirs, especially in Special Water Supply Catchments (This may result in increased health risks to customers and increased operational costs to manage the problems associated with additional treatment of that water.) **Note** – there are no declared Special Water Supply Catchments within the City of Greater Shepparton. It is acknowledge that the Goulburn River is an important water asset and that the EPA Guidelines for Wastewater Management require septic tank systems to be located 100m from the river.
2. Lead to reviewing the reticulated sewerage network and enforcing connection to the sewer mains within the sewerage district. (This involves major works and a significant capital cost that is ultimately passed on to the community.) If this is not feasible, an upgrade of the existing system will be required.

7.4.1 Urban Water Corporations

Urban Water Corporations provide water supply and sewage service to regional urban customers.

Section 147 of the *Water Act* gives a Water Corporations the power to require a property to connect to sewer once the property has been declared as a serviced property by the water corporation.

Goulburn Valley Water

Goulburn Valley Water is the Urban Water Corporation that services the City of Greater Shepparton, and provides urban water and wastewater services to a population of nearly 129,000 people, spanning from the outskirts of Melbourne in the south, to the Murray River in the north. GVW manage over 3000 kilometres of water and wastewater pipeline as well as 37 Water Treatment Plants and 26 Wastewater Management Facilities.

The Corporation also provides water and sewerage services to a large and diverse food manufacturing industry in the Goulburn Valley region.

7.4.2 Rural Water Corporations

Rural Water Corporations provide rural water services for irrigation, recreation, domestic, stock and bulk water to urban water corporations for drinking water purposes. Goulburn-Murray Water manages the storage, drainage infrastructure and delivery of irrigation water within Greater Shepparton municipal area.

Goulburn-Murray Water

Goulburn-Murray Water (GMW) is the largest rural water corporation in Australia. GMW manages the storage, delivery, and drainage systems for 70% of Victoria's stored water resources, 50% of Victoria's underground water supplies and 35% of unregulated water resources. GMW has functions, requirements, and powers under various Acts, including (but not limited to) the *Water Act 1989*, the *Safe Water Drinking Act 2003*, the *Planning and Environment Act 1987*, and the *Catchment and Land Protection Act 1994*. GMW manages 23 water storages, which can hold approximately 11,400GL of water, and have the responsibility for managing more than 100,000ha of public land surrounding these storages. GMW provides the following customer services:

- irrigation water supply
- domestic and stock water supply
- environmental watering
- supply of bulk water to various urban water corporations for urban water supply

GMW's functions are focused on:

- delivering water services to the region
- monitoring the quality of water
- building and maintaining infrastructure
- managing GMW's water supply
- meeting legislative and reporting requirements

GMW licences and manages services to customers who extract surface and ground water under the *Water Act 1989*. GMW issues and administers groundwater licences and develops and implements management plans on behalf of the Minister for Water.

Current and historic data on water monitoring from across Victoria, including surface and ground water is provided on Victoria's water measurement information system - https://data.water.vic.gov.au/

7.4.3 Catchment Management Authorities

The Catchment Management Authority is responsible under the *Water Act 1989* for being a caretaker of waterway health and has statutory functions relating to receiving waterways and for maintaining the quality of those waterways.

This includes being a statutory referral authority for planning applications where a proposed development has the potential to impact on waterways/ floodplains, such as ensuring appropriate setback distances are adhered to as part of planning referrals. The CMA also has an obligation to advise Local Government and other water authorities on issues about their operations that may impact on waterway heatlh.

The Goulburn Broken Catchment Management Authority is responsible for the area within Greater Shepparton municipality.

7.5 Community

The community is responsible for complying with the General Environmental Duty outlined under the *Environment Protection Act.*

> ***"The general environmental duty (GED) is at the centre of the Environment Protection Act 2017 and it applies to all Victorians, and all businesses located in Victoria. The GED states that you must manage your activities to reduce the risk of harm to human health and the environment from pollution or waste".***
>
> Environment Protection Authority statement

To satisfy the GED in relation to onsite wastewater systems, owners are required to:

- obtain the required Permits and Certificates prior to installation and use;
- obtain a permit to make alterations to an existing OWMS;
- engage with qualified plumbers and land capability assessors;
- comply with the conditions of the relevant permits and certificates; and
- maintain existing OWMS as per certificate requirements.

7.6 Other Service providers

- Land capability assessors - undertake land capability assessments for OWMS.
- Plumbers – a licenced or registered plumber must install all sanitary plumbing, including septic tank systems and the associated pipework. Only licenced plumbers can issue a compliance certificate for plumbing work.
- Building surveyors - building surveyors must ensure any development with sanitary fixture have appropriate permits/certification before issuing an occupancy permit or a certificate of final inspection
- Service technicians - complete prescribed servicing and provide service reports to Council when required

8. City of Greater Shepparton Context

Greater Shepparton is in the heart of the Goulburn Valley and is the fourth largest regional centre in Victoria extending over 2,421 square kilometres.

Shepparton is the major population centre located at the confluence of the Goulburn and Broken Rivers. The Goulburn River and Broken River corridors are key natural features, and they provide the most significant stands of remnant vegetation with associated habitat values. Flooding is a feature of the area and thus, poses constraints on development.

Greater Shepparton's population is almost evenly split between the main urban centres of Shepparton, Mooroopna and Tatura (53%) and with the remaining 47% of the population residing in the surrounding rural areas including the smaller townships of Murchison, Dookie, Merrigum, Congupna, Toolamba, Undera, Katandra West and Tallygaroopna.

The OWMP considers and applies the following Council plans and strategies:

- *Greater Shepparton Council Plan 2021 - 2025*
- *Greater Shepparton Council Planning Scheme*
- *Greater Shepparton Council Climate Emergency Action Plan*
- *Stormwater Management Plan*
- *Environmental Sustainability Strategy*
- *Climate Adaptation Plan*
- *2030 Zero Emission Plan*
- *Greater Shepparton Public Health Strategic Plan 2018 - 2028*
- *The Shepparton and Mooroopna 2050: Regional City Growth Plan*
- *Greater Shepparton affordable housing strategy*

8.1 Population projections

Summary	2021	2026	2031	2036
Population	68,519	73,072	77,441	81,905
Change in population (5yrs)		4,553	4,369	4,464
Average annual change		1.30	1.17	1.13
Households	26,804	28,564	30,313	32,067
Average household size	2.50	2.50	2.50	2.50
Population in non-private dwellings	1,537	1,637	1,671	1,771
Dwellings	28,798	30,658	32,515	34,368
Dwelling occupancy rate	93.08	93.17	93.23	93.30

Table 1 - Source: Population and household forecasts, 2021 to 2036, prepared by .id (informed decisions), February 2023.

8.2 Residential development projection

Residential development is projected to grow at a steady rate over the next twenty years, with a predicted population growth to 83,000 by 2036.

Residential development forecasts assume the number of dwellings within Greater Shepparton will increase by an average of 374 dwellings per annum to 34,000 in 2036.

Residential development can take various forms depending on the availability of land. These include

- new housing estates on Greenfield sites,

- second dwellings on established sites to ease housing crisis,
- subdivision in existing residential neighbourhoods,
- conversion of industrial lands to residential lands, and
- infill development of existing urban areas increasing housing density by building up.

The provision of sewerage is an important tool in the management of wastewater in areas where the existing population density is high, new housing developments are planned or high levels of wastewater is generated – including areas popular with tourists.

The provision of sewer is generally dependent on a combination of factors including the level of identified risk, the feasibility of installation and cost effectiveness.

Council can work with local water corporations to help identify areas where sewer connection is most needed to help negate the potential risk created by wastewater treatment systems. This may include:

- properties recognised in existing sewerage backlog programs where new issues have been identified that increase the risk or consequences created by wastewater;
- townships that have been identified for increased residential infill development on small allotments (to assist with accommodating an increase in urban populations);
- providing historical data to water corporations regarding existing wastewater treatment systems; and
- working with the water corporations regarding alternative solutions to wastewater disposal where the feasibility of sewer connection is low.

Council is committed to the ongoing engagement with relevant stakeholders to explore (where possible) innovative and cost-effective solutions to wastewater disposal in recognition of potential concerns regarding maintaining public heath, the preservation of the natural environmental and the protection of local amenities.

If the OWMP identifies an area where reticulated sewerage as the preferred option for improved onsite wastewater management, Council will work with water authorities, the local community and the EPA to develop and submit to Government a sewerage management plan.

8.3 Onsite wastewater profile

The major population townships of Shepparton, Mooroopna, Tatura, Merrigum and Murchison are serviced with reticulated sewerage.

It is estimated that there are 7,000 septic tank systems installed across the municipality, including areas beyond the urban fringes of the reticulated sewer districts, smaller townships and villages including

- Arcadia Downs Drive
- Bunbartha
- Congupna
- Dobson Estate
- Dookie
- Katandra and Katandra West
- Kialla Central
- Kialla West
- Medlands Estate
- Murchison East
- Tallygaroopna
- Shepparton East
- Toolamba & Old Toolamba
- Undera

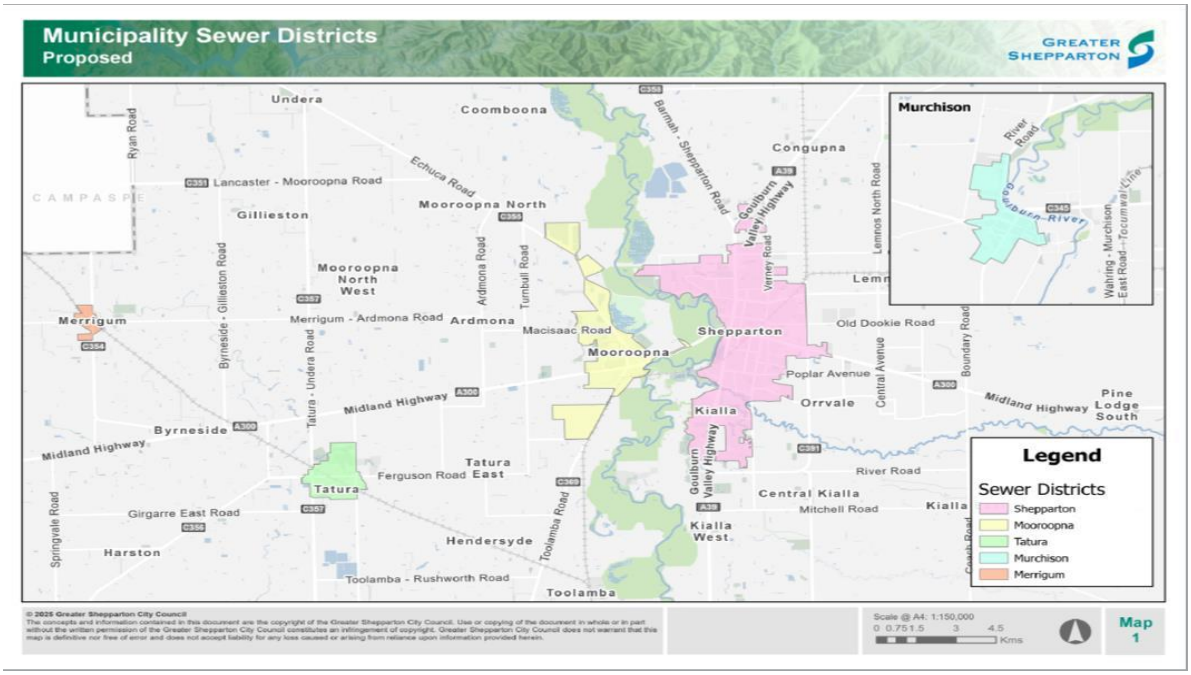


Image 1 – Outline of reticulated sewer district surrounding Shepparton, Mooroopna, Tatura, Merrigum and Murchison.

Council has around 6,300 septic tank records installed from the 1960's to 2024.

Council's authorised officers make decisions relating to onsite wastewater systems during -

- applications for subdivision
- applications for new installations or alterations of existing OWMS
- investigating community complaints relating to OWMS.

The trends on the number of septic tank Permits to Install/Alter, inspections conducted and Certificates to Use issued by Council over the last 10 years is outlined below.

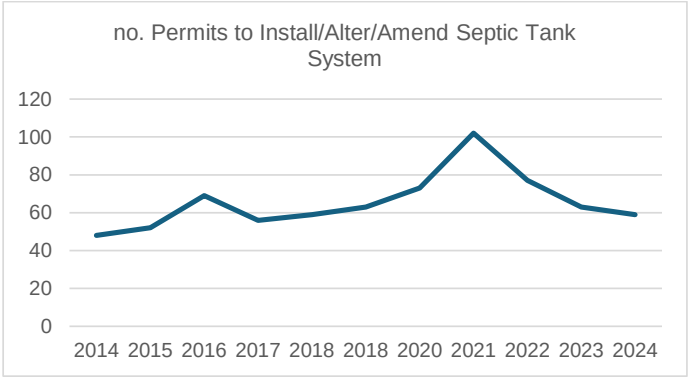


Table 2 – Number of Permits to Install/Alter a septic tank system

In June 2020, the Federal Government announced grants available to homeowners for new building construction and renovations to bolster the construction industry following Covid. This saw a spike in Applications for Permits to Install/Alter.

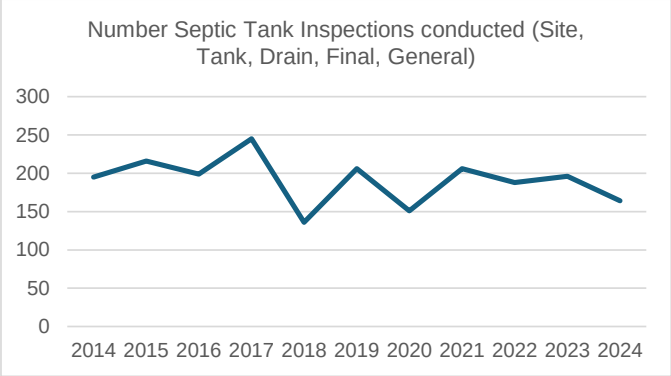


Table 3 – Number of Inspections conducted by Environmental Health Officers

Inspections include initial site visits, to assess the site prior to the granting of a permit. As well as inspections conducted during installation and a final inspection when all works are complete.

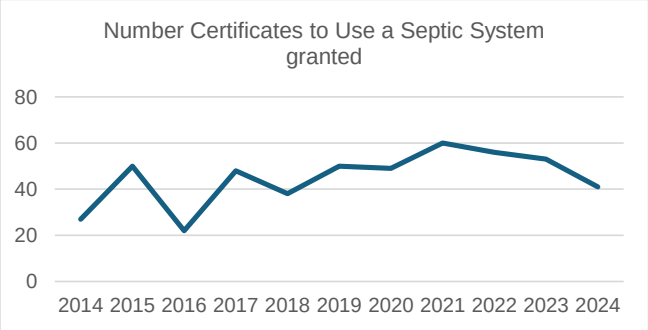


Table 4: Number of Certificate to Use issued

A Certificate to Use a Septic System must be granted before occupation of the dwelling, often 12 months after the Permit was granted.

The Septic Tank Code of Practice was introduced in 1990, which lead to conventional 'all waste' septic tank systems being installed and all effluent disposed of within the property boundaries (no off-site discharge).

Prior to the 1990's, on-site wastewater systems installed were typically a split system where the black water was disposed of via absorption trenches and greywater was disposed of into separate trenches or offsite. Prior to 1988, it was common practice for untreated greywater to be disposed of to the legal point of discharge which was often to the roadside or easement. Treated greywater was permitted to be discharged offsite until 1996. The exact number of installations that are discharging off-site (whether with or without approval) is currently unknown.

Based on our information about existing onsite wastewater treatment systems installed within the municipality, the common wastewater issues include:

- a high percentage of OWMS have continue to operate beyond their operational design performance (between 20-30 years);
- many older properties in smaller township were permitted at the time of construction of the dwelling to discharge greywater offsite into the stormwater system ending up in the natural environment and local waterways;
- many systems are not being serviced or maintained in accordance with manufacturer instructions and EPA Certificates of Conformance resulting in effluent not complying with prescribed standards;

- legacy systems are insufficient in size to treat wastewater generated from increased development activities;
- many properties have insufficient land available for onsite wastewater disposal should an upgrade to the current wastewater treatment system be required. This includes the encroachment of built structures over time;
- there are potentially illegally installed systems, given the size and rural nature of the municipality,
- owners and occupiers of properties with wastewater treatment systems may be unaware of their system type and capacity, location of components and wastewater disposal area;
- permit records of systems installed in many older properties will be difficult to identify due to the means of property identification at the time (CA or Pt. CA or lot numbers with many properties along a rural road being described as lot 1); and
- new housing development beyond the reticulated sewerage township fringes without strategic consideration for the extension of reticulated sewerage services, relying on OWMS in high housing densities.

In addition, older permits were issued in perpetuity, and Greater Shepparton has limited capacity to force compliance with current standards.

8.4 Impacts of climate change on onsite wastewater management systems

The land within the City of Greater Shepparton is a floodplain with the confluence of two waterways, being the Goulburn and Broken Rivers that then feeds into the Murray River near Echuca. The large open plains and relatively flat topography compared to other regions in Victoria, making it suitable for a variety of agricultural purposes.

One of the major risk factors for Greater Shepparton City Council is both riverine and overland flooding.

The river systems can rise and fall quickly within its banks in response to heavy upstream rainfall. The relatively flat topography means out of bank flooding tends to rise and fall more slowly. However, there are specific points and locations within the region that are more likely to experience more rapid changes in water levels.

In addition to riverine flooding, Greater Shepparton also experiences flash flooding events. The impacts from these types of events can have negative impacts, such as substantial damage to homes, business and agriculture.

In recent years our community has experienced significant flooding and storm events, with the most recent and significant being October 2022 flood event.

Secondary Impact Assessments conducted by Authorised Officers after emergencies consider the impact of the natural disaster on the performance of the OWMS.

Most on-site wastewater systems should not receive any structural damaged by flooding, because they are below ground.

If a wastewater system has been under flood water for prolonged periods, the tank and land application area may fill with silt and debris. Flooding of wastewater systems may wash solids from the tank into the disposal trenches, causing blockages or system damage. Usually allowing the disposal area to dry out after a flood event may be adequate to restore the operation of OWMS.

Indicators that there may be damage to the OWMS after a flood event include

- a pungent odour around the tank and land application area,
- slow to drain toilets and sinks,
- sewage overflowing outside from the overflow relief gully, or
- high sludge levels within the primary tank.

If there is found to be severe damage to an onsite wastewater system, the OWMS may need to be replaced and the dwelling could be considered uninhabitable.

Council needs to have an understanding of the OWMS installed in high-risk flooding areas, so that potential public health and pollution risks can be identified. Having an up to date data management system will enable property owners within these flood prone areas to receive information and advice in relation to managing their OWMS during these events.

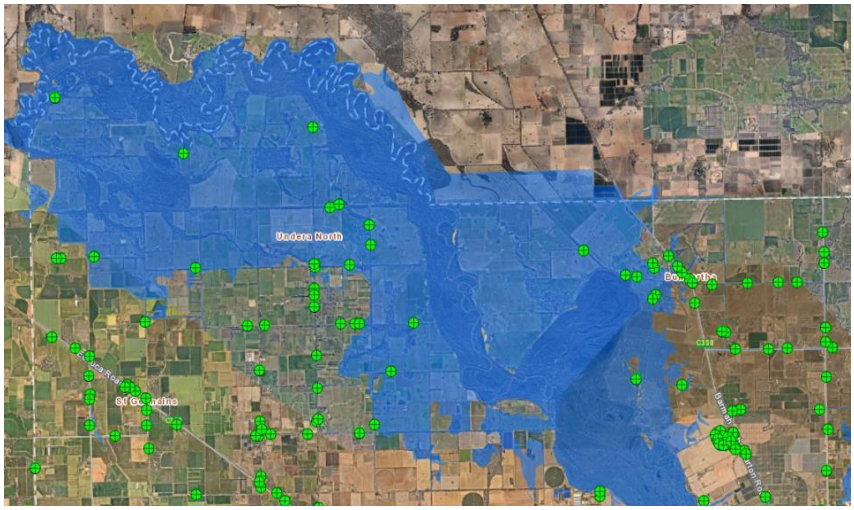


Image 2:
Septic systems (green dots) within areas impacted by October 2022 flood event in the Undera North / St Germains on the west side of the Goulburn River and Bunbartha on the right side.

When reviewing any application for an OWMS, an important risk factor that is considered is the location of the proposed OWMS in relation to flooding and land subject to inundation overlay. Various overlays are a planning control that can be used to identify properties that may be affected by flood or inundation. Where possible, OWMS are to be located out of these areas or systems selected that treat the effluent to a better quality.

Image 3:
Planning and development controls in areas liable to flooding for the Arcadia Downs Estate minimizing flood impacts to dwellings. Knowledge of flood overlays are used to ensure septic tank systems are not installed in land subject to inundation or flooding.

9. Risk Assessment Framework

The risk management process used is consistent with

- AS/NZS:1547:2012 Onsite domestic wastewater management and ISO 31000:2018 Risk management process
- EPA publication Onsite wastewater management plans
- Atom Consulting – Risk Assessment Guidance Final Report (v. 4.0)

Figure 1 below outlines the risk assessment process used to assess risks in this OWMP.

9.1. Scope and Context

Council's OWMP applies to OWMS with a treats and disposes sewage of human origin with a design or actual flow rate of less than 5,000 Litres of wastewater on any given day.

As previously outlined in section 4, OWMS that perform poorly can have adverse environmental, human health and amenity-related impacts. The effluent contains nutrient and pathogens when discharged into local drainage systems, waterways, and creeks, can create boggy lawns and offensive odours. This provides favourable environmental conditions for mosquitoes to breed. These conditions can also cause illness in humans following contact with effluent.

The end points requiring protection from OWMS include surface waters (rivers and creeks), ground waters and bores. It is acknowledge that the Goulburn and Broken Rivers are an important water asset, as are a number of creeks that flow into significant environmental wetlands. The EPA Guidelines for Wastewater Management (and previous Septic Tank Codes of Practices) require OWMS with primary treated effluent to be located 100m from rivers and 60m from channels.

There are no Special Water Supply Catchments declared under schedule 5 of the Catchment and Land Protection Act 1994 located within the City of Greater Shepparton.

This risk assessment considers existing onsite wastewater systems installed within the municipality, especially in localities where reticulated sewer is not provided and the cumulative risk is greater. Properties outside of the township zones (rural farming properties) are considered low risk.

A risk assessment of new applications for the installation or alteration of an OWMS are considered as part of the application process for the individual property. It is important to highlight the risk assessment serves as a guide to inform decision makers of important wastewater considerations based on a local geographical area.

9.2. Risk Assessment Criteria

The risk to human health and the environment from OWMS are the focus of this assessment.

Risk identification components relevant to OWMS include

Component	Detail
Consequences and impact on objectives	Contamination of drinking water source supplies, waterways (including areas of recreation) and the broader environment Stormwater infiltration into soil contaminating groundwater
Sources of risk	Pathogens, chemicals (nutrients) in sewage
Causes	Barrier failures, such as inadequate design, maintenance and operation of systems, rainfall events
Events	Discharge of contaminants from site (resulting from under-design, poorly operated or maintained OWMS)
Barriers	Treatment systems/effluent dispersal and recycling options are designed appropriately (considering location and capacity) Duty holder's General Environmental Duty (GED), including OWMS being operated and maintained in accordance with the design Environmental Health Officer has appropriate experience, knowledge and understanding including legislative enforcement powers
Threats	Risk factor metrics described below with the limitation and basis of the metrics outlined in DWELP Risk Assessment Guidance.

The risk factor metrics considered include:

- Land Characteristics
  - Lot size
  - Topography
  - Soil type
  - Groundwater depth and quality
  - Proximity to watercourse
  - Location of groundwater bores
  - Proximity to floodplains
- Development density and land use
- Weather conditions

These factors are further explained in section 9.2.1 and are summarised for each of the localities in section 9.3.

The level of risk is influenced by –

- Likelihood – is defined as the likelihood of endpoint contamination occurring, or the probability of the outcome occurring.
- Consequence – is the level of contamination and the impact of that contamination to the environment in a localised setting, and also more broadly such as ground or surface water.

Refer to Appendix 1 for Likelihood and Consequence Descriptors.

Risk bands are used in this risk classification process to quantify the threshold-

- High, where the criteria exceeds the limit
- Medium, where the criteria is close to being breached
- Low, where the criteria is low risk

It is generally agreed that while all wastewater generation inherently poses a risk to public health, not all risks are equal in likelihood. The assessment of comparative wastewater threats is generally dependent upon three particular variables:

- the proportion of effectively operating septic systems;
- the proportion of the types of systems installed; and
- concentration of effluent within the sub-catchment area.

This OWMP considers the risks more broadly in localised township and settlement areas across the municipality.

9.2.1 City of Greater Shepparton Risk Factor Metrics

Land Characteristics

Lot size

Lot size links to the likelihood of inadequately treated wastewater discharging offsite leading to contamination of water bodies (surface water and groundwater). Smaller lot sizes do not provide an alternative land application area for wastewater disposal, should the system reach its end of design life.

Risk factor bands relating to lot size		
Low	**Medium**	**High**
Greater than 1 hectare	0.4 – 1 hectare	Less than 0.4 hectare

Risk identification method was GIS mapping

Topography

Topography considers the landscape of the area, including mountains, valleys or surface rivers. Site topography can influence the likelihood of untreated onsite wastewater management system run-off entering water bodies.

As the Greater Shepparton City Council area is predominately flat, this risk factor has not been applied.

The risk identification method was the use of contours on GIS mapping.

Soil type

Soil types are an essential indicator for determining appropriate OWMS types. Effluent discharge to soils with low permeability are more likely to travel further with a higher pathogenic/nutrient load and contaminate nearby waterways.

Examples of soil types include:

- Gravels and sands – soil category 1
- Sandy loams – 2a and 2b
- Loams – 3a, 3b
- Clay loams – 4a, 4b and 4c
- Light clays – 5a, 5b and 5c
- Medium to heavy clays – 6a, 6b and 6c

Council receives this information for a given property in the Land Capability Assessment (LCA) report, and it is through a review of LCA's that soil types have been assessed for the purpose of the locality risk assessment.

Risk factor bands relating to soil type			
	Low	**Medium**	**high**
Surface water	Soil category 1,2,3,4	Soil category 5	Soil category 6
Ground water	Soil category 3,4,5,6	Soil category 2	Soil category 1

Groundwater depth and quality

A shallow groundwater depth increases the likelihood of contamination of groundwater. Council has applied the depth from disposal site to highest seasonal water table, and use submitted Land Capability Assessments and the Visualising Victoria's Groundwater mapping tools, which is shown below.

Risk factor bands		
Low	**Medium**	**high**
>10m or confined aquifer	5-10 meters	<5 meters

For the purpose of this risk assessment, all localities will be assessed as medium risk, however, will be assessed on a property-by-property basis.

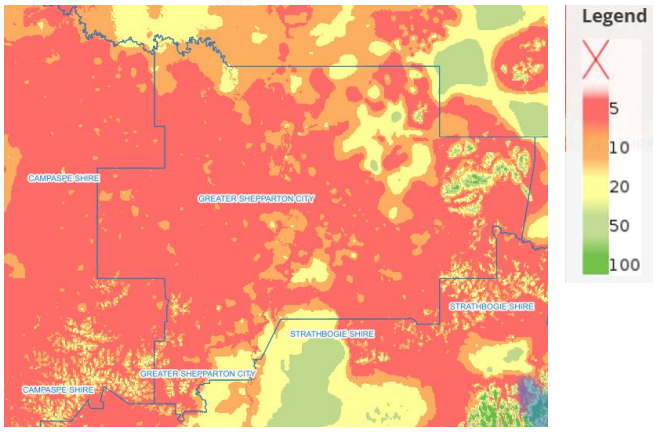


Image 4: Indicator of groundwater depth within City of Greater Shepparton

Proximity to watercourse

Proximity to a potable water supply offtake impacts the likelihood of contamination occurring from onsite treatment system failure in conjunction with risk factor parameters that impact the receptor pathways.

Risk factor bands relating to proximity to potable water supply offtake		
Low	**Medium**	**high**
Greater than 100 meter	60 - 100 meters	less than 60 meters

Risk identification methods:

- GIS mapping
- Visualising Victoria's Groundwater
- Land Capability Assessment data

Image 5: Groundwater-Surface Water Interaction

Location of groundwater bores

The number of systems within close proximity to groundwater bores increase the likelihood of contamination that can occur in the event of an overflow or seepage through soil from the onsite system.

Risk identification methods:

- GIS mapping
- catchment data from the water authorities
- data sharing with Goulburn Murray Water
- publicly available information such as Visualising Victoria's Groundwater (VVG)

Risk factor bands relating to proximity to bores		
Low	**Medium**	**high**
Greater than 100 meters	50 – 100 meters	Less than within 50 meters

Risk identification methods:

- GIS mapping
- Catchment data from the water authorities

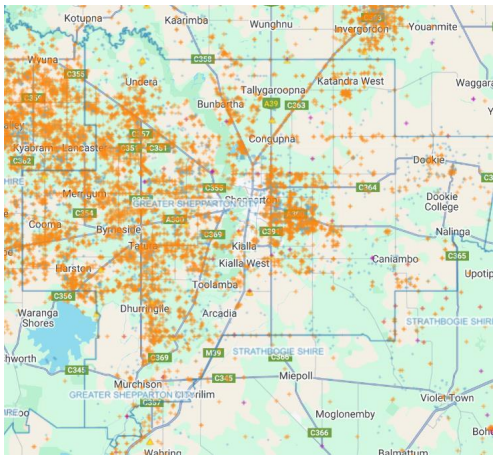


Image 6: Location of Groundwater Bores and Monitoring Status – most of the bores are not routinely monitored

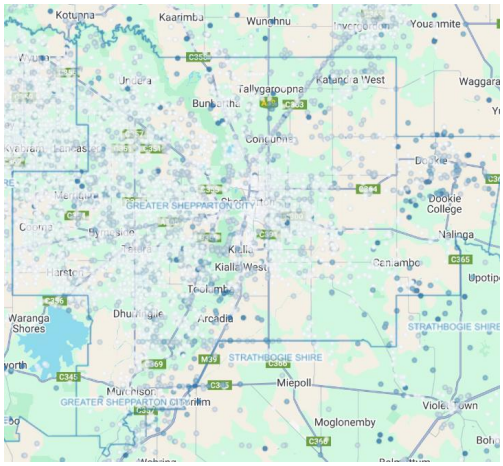


Image 7: Depth of Bores

Proximity to flood plains

Proximity of onsite wastewater management systems to flood plains is a threat to groundwater, surface water and potable water offtakes through inundation of systems and transport of contaminants. The higher the AEP rating the more likely that a flood will occur on the system site and the system may fail.

Data was obtained by assessing the Land Subject to Inundation overlay

Risk factor bands relating to proximity to a flood plain		
Low	**Medium**	**high**
<1% AEP	1 – 5% AEP	>5% AEP

Risk identification methods:

- GIS mapping
- Council Planning Scheme Overlays, such as land subject to inundation overlays

Greater Shepparton is a floodplain and large areas of the municipality along the creeks and river systems have a land subject to inundation (LSIO) or flood overlay (FO). There is also a large area of the municipality that are not impacted by LSIO of FO.

Development density and land use

Number of onsite systems in the population centre

Increasing the number of onsite systems in a population centre increases the likelihood that contaminants will reach an endpoint. This risk factor is an indicator of density and assumes increased likelihood of contamination in a highly dense area. Calculations of cumulative load is covered through the number of onsite systems and other consequence risk factors.

Risk factor bands relating to OWMS density		
Low	**Medium**	**high**
<10	10 – 200	>200

Risk identification methods:

- GIS mapping
- Council data relating to active systems (certificate to use)

Weather conditions

Rainfall

The frequency and level of rainfall events increases the likelihood of contamination occurring, with overland runoff one of the key pathway mechanisms for which contaminants are carried offsite and enter waterways as well as increasing soil infiltration. Increased frequency of rainfall also increases risk of saturation impacting evapotranspiration.

	Risk factor bands		
	Low	**Medium**	**high**
No. of days (annual average) above 10mm	Less than 10 days	10 – 40 days	Greater than 40 days

Risk identification method includes publicly available information at the Australian Government Bureau of Meteorology.

Greater Shepparton City Council has a high evapotranspiration rate compared to rainfall.

9.3 Summary of Wastewater Risk Characteristics by Locality

Locality	Risk Characteristics							
	Lot Size	Soil Type	Groundwater depth & quality	Proximity to water source	Location of groundwater bores	Proximity to floodplains	Number of onsite systems	Rainfall
Arcadia								
Arcadia Downs Drive Estate								
Congupna								
Dobson's Estate & Surround								
Dookie								
Katandra West & Katandra								
Kialla Central								
Kialla West								
Matilda Drive Estate								
Medland's Estate								
Murchison East								
Shepparton East								
Tallygaroopna								
Toolamba & Old Toolamba								
Undera								

Colour Key	Low	Medium	High
For each characteristic			

9.3.1 Arcadia

Key features | challenges | priorities

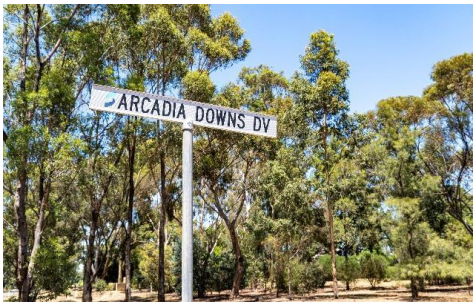
- 23 properties within Arcadia of varying land sizes (less than 10 properties under 1000m^2 with the remainder over 4000m^2).
- Small settlement township with a community hall and tennis club.
- Many systems are at the end of their operational design life.
- Properties rely on private water supply (rain water tanks).
- This estate is located on the east side of the Goulburn River and in close proximity. None of the properties experienced flooding during October 2022 flood event.

Permit status

Not many OWMS permits exist for this estate that have been matched and are probably included in the outstanding backlog. Secondary treatment systems installed to those properties that are less than 100m from the river.

Arcadia	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

9.3.2 Arcadia Downs Drive Estate



Key features | challenges | priorities

- Large residential sub-division from the 1980"s with an average allotment size of 4,000m^2 . Some of the larger size allotments are due to a flood overlay within of the allotment.
- Over development of site with additional and larger structures, encroaching on land available for replacement of septic system.
- Many systems are nearing the end of their design life.
- Town water is provided to properties within the estate.
- This estate is located between the Goulburn River on the west, and Sevens Creek to the east.
- There is an old sandbar that runs close to the Goulburn River. Some properties have sandy soil, while others have a heavy clay soil profile.

Permit status

All 104 OWMS on Councils record management system.

Arcadia Downs	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake		X	
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

9.3.3 Congupna

Key features | challenges | priorities

- 44 properties within Congupna of varying land sizes (between 1000 – 4000m^2).
- Congupna has a primary school, general store, recreation reserve and caravan park.
- Many systems are at the end of their operational design life.
- Town water is provided to properties within the town.
- Some properties discharge greywater to the street.

Permit status

Almost all properties have a OWMS permit on Councils record management system within the township.

Congupna	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

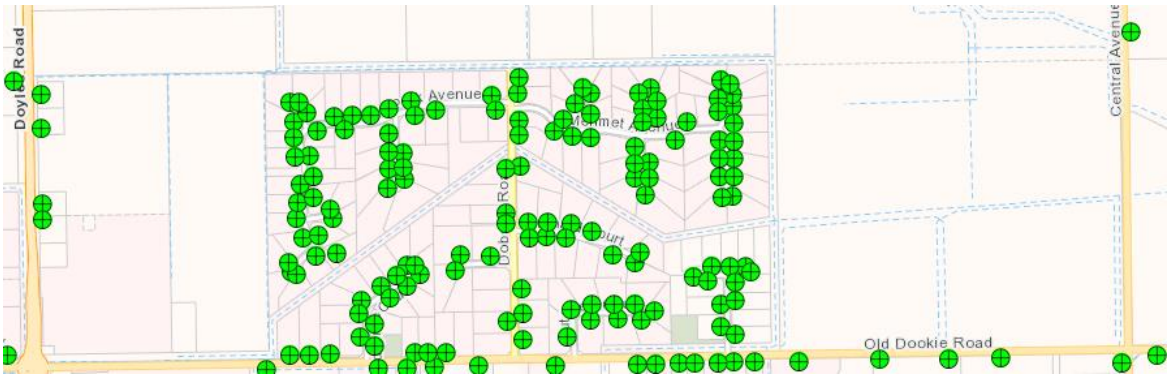
9.3.4 Dobson's Estate

Key features | challenges | priorities

- Large residential sub-division with an average allotment size of 4,000m^2 .
- Over development of some properties with additional and larger structures, encroaching on land available for replacement of septic system.
- Many systems are nearing the end of their design life, and some systems have failed in recent years. Due to limited lot sizes, this is becoming problematic when considering available space for replacement systems.
- Town water is provided to properties within the estate. The estate is located on the eastern fringe of the Shepparton township.
- There are no commercial businesses.
- Poor absorption of the soil in the area has resulted in some system failure.

Permit status

There are 144 active OWMS according to Councils record management system.



Dobson's Estate	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

9.3.5 Dookie

Key features | challenges | priorities

- Dookie has a general store, primary school, pre-school, recreation reserve with ovals and tennis courts. There is also an engineering business and a popular pub.
- There is a strong community support for sewer connection.
- Important natural features include significant slope of the land (not a factor anywhere else in the municipality), rocky outcrops and small allotments. These contribute to challenges in site constraints for new OWMS.
- Greywater discharged to the street.

Permit status

There are 150 active OWMS according to Council records. 72 of the OWMS are less than 1000 square meters, which is an important consideration during the risk assessment process.

Properties within the Dookie township with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Dookie	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

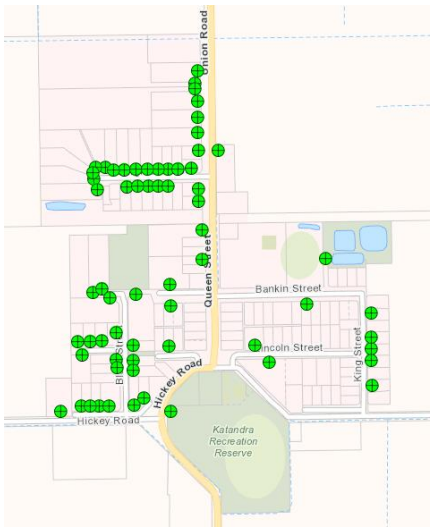
9.3.6 Katandra West and Katandra

Key features | challenges | priorities

- 128 properties within Katandra and Katandra West of varying land sizes (from under 1000 – 4000m^2).
- Katandra West has a multi-purpose recreation reserve, primary school, general store, scout hall and kindergarten/maternal child health centre.
- Many systems are at the end of their operational design life.
- Town water is provided to properties within the town.
- Greywater is discharged to the street.

Permit status

Council has half (67) OWMS permits on its record management system. The other half are old systems with greywater discharge to the street.



Properties within Katandra West with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Katandra and Katandra West	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

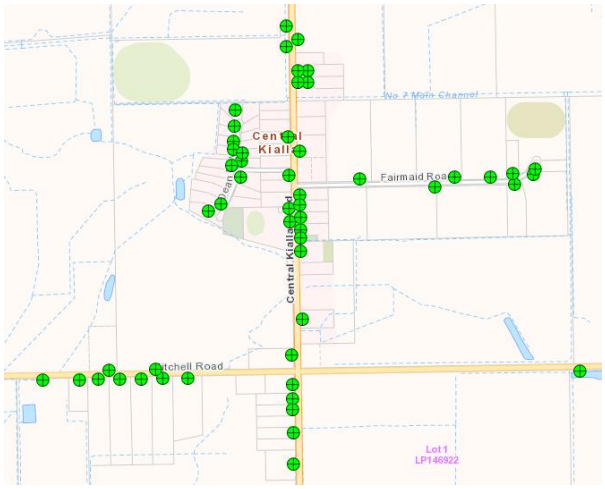
9.3.7 Kialla Central

Key features | challenges | priorities

- A small satellite district with a primary school and community hall.
- Recent issues related to wastewater containment within the property boundary.
- Large residential sub-division with allotments between 2,000 – 4,000m$^{2.}$.
- Over development of site with limited land available for replacement of septic system.
- Many systems are nearing the end of their design life.
- Greywater discharged to the street.

Permit status

There are 65 active OWMS according to Councils record management system.



Properties within Kialla Central with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Kialla Central	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

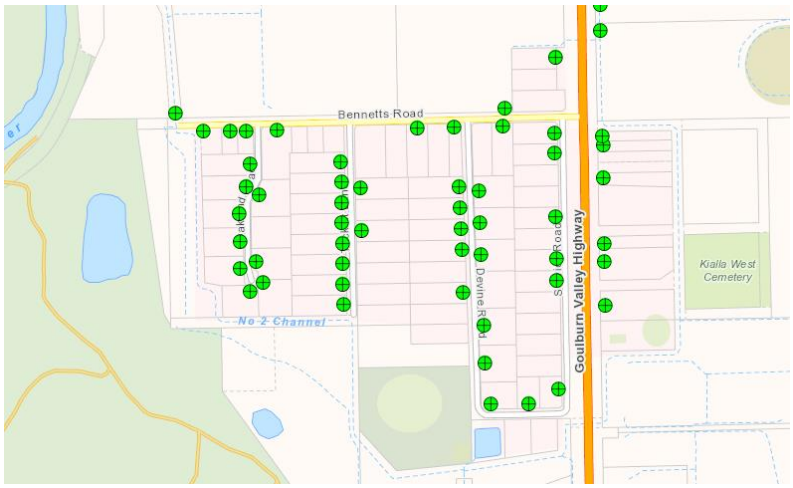
9.3.8 Kialla West

Key features | challenges | priorities

- 93 properties within Kialla West of varying land sizes (from over 2000 – 4000m^2).
- Kialla West has a cemetery and primary school.
- Many systems are at the end of their operational design life.
- Town water is provided to properties within the town.

Permit status

Council does not have records for all OWMS installed, due to the age of the dwellings. The properties are well vegetated, and less constrained should an OWMS require an upgrade.



Properties within Kialla West township with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Kialla West	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

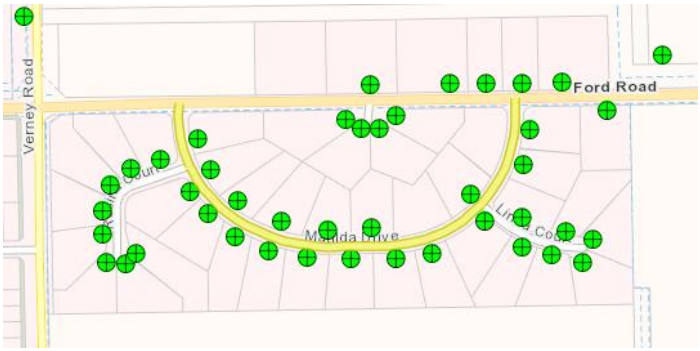
9.3.9 Matilda Drive

Key features | challenges | priorities

- Medium sized residential sub-division with an average 4,000m^2 allotments.
- This estate is connected to town water supply.
- A new estate (The North Quarter) is under construction and adjoins the Matilda Drive estate. The North Quarter is connected to reticulated sewer.
- There are no commercial businesses.
- Poor absorption of the soil in the area has resulted in some system failure.

Permit status

- There are 45 active OWMS according to Councils record management system.



Matilda Drive	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

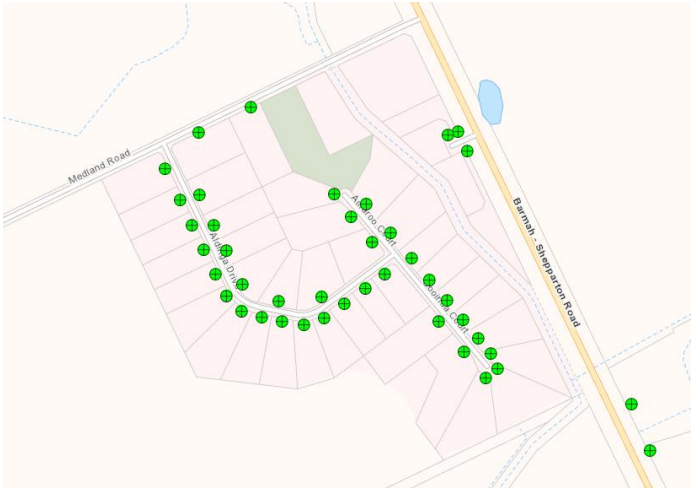
9.3.10 Medland's Estate Bunbartha

Key features | challenges | priorities

- Medium sized residential sub-division with an average 4,000m^2 allotments developed in the 1980's.
- This estate is connected to private water supply (rainwater tanks).
- There are no commercial businesses.
- Poor absorption of the soil in the area has resulted in some system failure.

Permit status

- There are 45 active OWMS according to Councils record management system.



Medland Estate	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

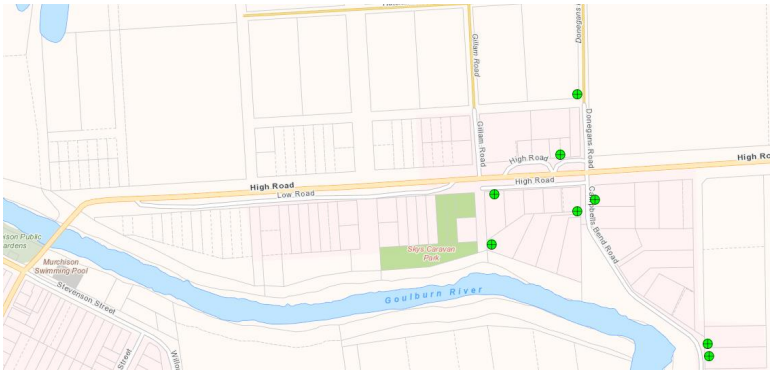
9.3.11 Murchison East

Key features | challenges | priorities

- Despite the number of allotments around 1,000 – 2,000m^{2,}, many of the land is undeveloped due to flood overlays and are unable to be built upon.
- Many houses built in the 1950's, and are well past their operational design life.
- The Goulburn River is just to the south, and many properties were severely impacted by October 2022 flood event.
- This town is connected to reticulated water supply.
- There are 2 caravan parks, a railway station, a service station, and a pub/hotel. There are other commercial properties that are restrained due to limitations from the OWMS.
- Poor absorption of the soil in the area has resulted in some system failure.

Permit status

- There are 96 properties, however Council does not have many records due to property identification and council amalgamation.



Murchison East	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake		X	
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

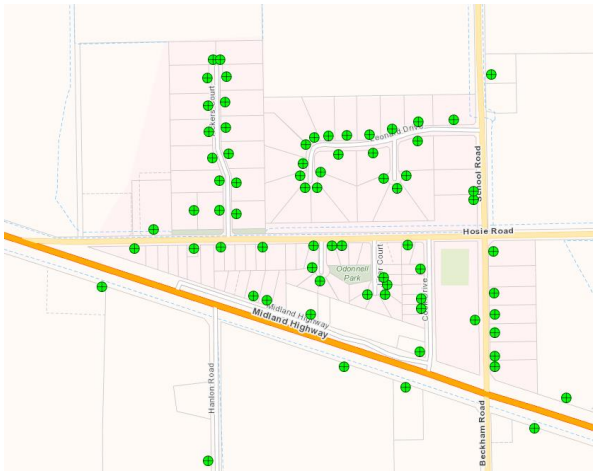
9.3.12 Shepparton East

Key features | challenges | priorities

- The town has a general store, primary school, community hall, car yard and plumbing supply store.
- Recent issues related to wastewater containment within the property boundary.
- A high number of properties are less than 1000 square meters, which elevates the risk rating. Recent subdivisions are 4,000m^2.

Permit status

There are 85 active OWMS according to Councils record management system. 38 of these systems are less than 1000 square meters, which is an important consideration during the risk assessment process.



Properties within Shepparton East township with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Shepparton East	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

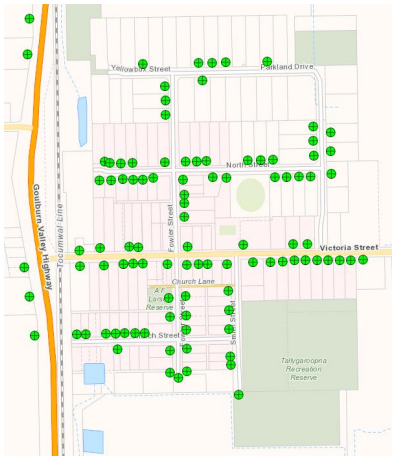
9.3.13 Tallygaroopna

Key features | challenges | priorities

- The town has a general store, primary school, pre-school, recreation reserve with oval and tennis courts.
- The township is currently experiencing growth with the 46 new housing allotments created in the Woodlands Estate.
- Recent issues related to wastewater containment within the property boundary.
- A high number of properties are less than 1000 square meters, which elevates the risk rating.

Permit status

There are 118 active OWMS according to Councils record management system. 50 of these systems are less than 1000 square meters, which is an important consideration during the risk assessment process



Properties within Tallygaroopna township with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Parklands Estate located to the north is a new housing estate under development.

Tallygaroopna	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

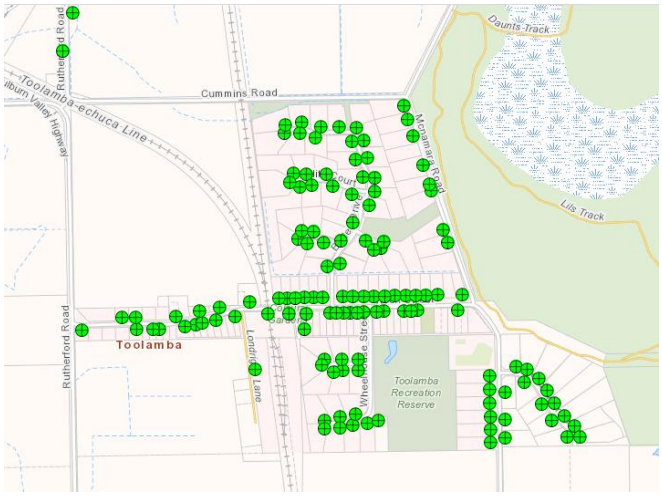
9.3.14 Toolamba and Old Toolamba

Key features | challenges | priorities

- The town has a pub, primary school, pre-school, recreation reserve with oval and tennis courts
- Two new multi-lot subdivisions in last 20 years.
- Currently Council is working with consultants to prepare a structure plan for future growth as part of the Toolamba Growth Plan 2020. It is proposed to develop farmland into an estimated new housing sites of varying lot sizes. The ability to connect new houses to sewer is being investigated.
- Recent issues related to wastewater containment within the property boundary

Permit Status

- There are 114 active OWMS according to Councils record management system.



Properties within Toolamba township with a septic tank system recorded on Council's septic tank database.

Noting that records may exist for other properties under a previous property identification system that has not been matched to current property identification methods.

Council is working on a structure plan as part of the Toolamba Growth Plan 2020 to the west of Toolamba.

Toolamba and Old Toolamba	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake	X		
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

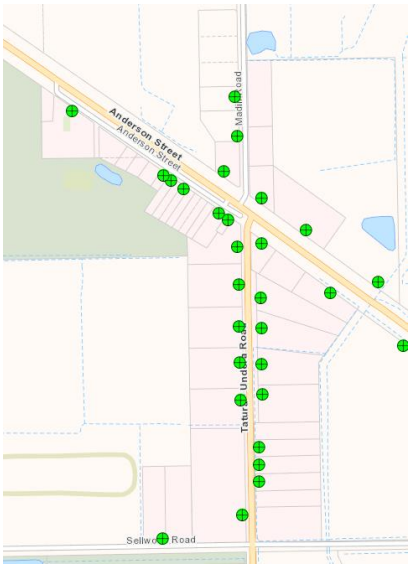
9.3.15 Undera

Key features | challenges | priorities

- A variety of allotments from around 1,000m^2 (older homes) to an average of 4,000m^2 newer subdivision and rural residential allotments of just under 1 hectare developed in the 1980's.
- This estate is connected to rainwater tank water supply.
- There is a pub with accommodation, a general store, primary school, public toilets with a rest area and recreation reserve.
- Poor absorption of the soil in the area has resulted in some system failure.

Permit status

- There are 45 active OWMS according to Councils record management system.



Undera	Low	Medium	High
Lot size			
Soil type			
Groundwater depth and quality			
Proximity to water source and potable water supply offtake			
Location of groundwater bores			
Proximity to flood plains			
Number of onsite systems in the population centre			
Rainfall			

9.4 Risk Analysis

The risk analysis tool in terms of likelihood and consequence has been used for this assessment.

The guidance provided in Atom Consulting - Risk Assessment Guidance has been used to establish environmental and human health criteria.

Contamination of Watercourses:

Threat	Factors affecting likelihood	Factors affecting consequence	Pollution event
Discharge of effluent from sites with OWS on the surface of the ground	Ongoing performance of OWMS (age of systems) Lot size Topography Soil type Proximity to watercourse Weather conditions (rainfall) No. of OWMS in a population centre	Ongoing performance of system (type of system) Number of OWMS	Contamination of waterway Supports breeding of mosquitoes Direct human exposure with primary treated effluent

Contamination of Groundwater:

Threat	Factors affecting likelihood of infiltration	Factors affecting likelihood of bore contamination	Factors affecting consequence	Pollution event
Discharge of effluent from sites with OWS	Soil type Groundwater depth Weather conditions (rainfall)	Topography (slope) Proximity to groundwater bores (no. of bores & no. of OWMS) Density of groundwater bores	Number of OWMS Ongoing performance of system (type of system)	Contamination of groundwater

Critical failure from flooding:

Threat	Factors affecting likelihood	Factors affecting consequence	Pollution event
Discharge of contamination from sites with OWMS	Proximity to floodplains (AEP)	Ongoing performance of system (type of system) Number of OWMS	Contamination of waterway, SWSC and groundwater

The descriptors for likelihood and consequences and the risk rating matrix are outlined in Appendix 1. The results of the risk assessment are provided below.

9.4.1 Risk of contamination of nearest watercourse:

Risk component	Arcadia	Arcadia Downs	Congupna	Dobsons Estate	Dookie	Katandra West & Old Katandra	Kialla Central	Kialla West	Matilda Drive	Medland's Estate	Murchison East	Shepparton East	Tallygaroopna	Toolamba & Old Toolamba	Undera
Likelihood - treatment failure	Unlikely	Rare	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Rare	Rare	Possible	Unlikely	Unlikely	Unlikely	Unlikely
Likelihood - transfer offsite	Unlikely	Rare	Possible	Rare	Possible	Possible	Possible	Unlikely	Rare	Rare	Possible	Unlikely	Possible	Possible	Unlikely
Likelihood - offsite to end point	Rare	Unlikely	Unlikely	Rare	Unlikely	Rare	Unlikely	Unlikely	Rare	Unlikely	Possible	Unlikely	Unlikely	Possible	Unlikely
Likelihood - contamination of water course	Unlikely	Unlikely	Possible	Rare	Unlikely	Unlikely	Possible	Unlikely	Rare	Unlikely	Possible	Unlikely	Possible	Possible	Unlikely
Consequence (Human health)	Insignificant	Insignificant	Minor	Minor	Minor	Minor	Insignificant	Insignificant	Insignificant	Insignificant	Minor	Insignificant	Minor	Insignificant	Insignificant
Consequence (Environment)	Minor	Insignificant	Minor	Insignificant	Minor	Minor	Insignificant	Minor	Insignificant	Insignificant	Minor	Insignificant	Minor	Minor	Insignificant

Risk Evaluation

Risk Rating (Human health)	Low	Low	Moderate	Low	Low	Low	Low	Low	Low	Low	Moderate	Low	Moderate	Low	Low
Risk Rating (Environment)	Low	Low	Moderate	Low	Low	Low	Low	Low	Low	Low	Moderate	Low	Moderate	Moderate	Low

9.4.2 Risk of contamination of nearest groundwater:

Risk component	Arcadia	Arcadia Downs	Congupna	Dobsons Estate	Dookie	Katandra West & Old Katandra	Kialla Central	Kialla West	Matilda Drive	Medland's Estate	Murchison East	Shepparton East	Tallygaroopna	Toolamba & Old Toolamba	Undera
Likelihood - treatment failure	Unlikely	Unlikely	Rare	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Rare	Rare	Possible	Unlikely	Unlikely	Unlikely
Likelihood - groundwater contamination from	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Rare	Unlikely	Rare	Rare	Rare	Unlikely	Unlikely	Unlikely	Unlikely	Rare
Likelihood – groundwater contamination from bore ingress	Rare	Unlikely	Unlikely	Rare	Unlikely	Rare	Unlikely	Unlikely	Rare	Unlikely	Rare	Unlikely	Unlikely	Rare	Unlikely
Likelihood – groundwater contamination	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Rare	Rare	Rare	Unlikely	Unlikely	Unlikely	Unlikely

Consequence (Human health)	Insignificant	Insignificant	Insignificant	Min Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Consequence (Environment)	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

Risk Evaluation

Risk Rating (Human health)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Risk Rating (Environment)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low

9.4.3 Risk of Catastrophic Failure (Flooding)

Risk component	Arcadia	Arcadia Downs	Congupna	Dobsons Estate	Dookie	Katandra West & Old Katandra	Kialla Central	Kialla West	Matilda Drive	Medland's Estate	Murchison East	Shepparton East	Tallygaroopna	Toolamba & Old Toolamba	Undera
Likelihood - flooding	Unlikely	Unlikely	Unlikely	Rare	Rare	Rare	Unlikely	Unlikely	Rare	Unlikely	Possible	Rare	Rare	Unlikely	Unlikely
Consequence (Human health)	Minor	Minor	Minor	Insignificant	Insignificant	Insignificant	Minor	Minor	Insignificant	Minor	Moderate	Insignificant	Insignificant	Minor	Minor
Consequence (Environment)	Minor	Minor	Minor	Insignificant	Insignificant	Insignificant	Minor	Minor	Insignificant	Minor	Moderate	Insignificant	Insignificant	Minor	Minor

Risk Evaluation

Risk (Human health)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Moderate	Low	Low	Low	Low
Risk (Environment)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Moderate	Low	Low	Low	Low

9.5 Risk Evaluation and Treatment

Only moderate and low levels of risk evaluation for human health and environmental impacts were identified across each of the locations. For low risk outcomes, no further actions are being considered.

For moderate risk levels, mitigation actions should be planned and implemented to reduce the level of risk.

Table 4 Risk evaluation criteria

Risk Level	Risk treatment required
Low	No further actions needed to eliminate risks. Existing controls must be maintained and monitored appropriately
Moderate	Risk mitigation actions should be planned and implemented to reduce the level of risk. Timelines may be longer term. Existing controls must be maintained and monitored appropriately.
High	Implement relevant controls as soon as possible to mitigate the level of risk. High priority timeframes should be implemented (planned and budgeted for within the current or next financial year). Existing controls must be maintained and implementation reviewed on an ongoing basis. .
Very High	Implement relevant controls to reduce risk as soon as possible to mitigate the level of risk. Immediate priority timeframes should be set. Existing controls must be maintained and implementation reviewed on an ongoing basis.

Preventative actions such as planning, maintenance and inspection programs are important measures to maintain existing controls and reduce any escalation in risk. This is achieved by:

- Adhering to Victorian Land Capability Assessment Framework and Planning Provisions for new development
- Follow AS/NZS 1547:2012
- Adhering to EPA Guideline for onsite wastewater management and Guideline for onsite wastewater effluent dispersal and recycling systems
- Engagement and consultation with Water Corporations
- Environment Protection Act 2017 and Regulations 2021 for the permitting process, GED and enforcement action
- Inspection and remedial action to address any gaps in knowledge
- Monitoring of maintenance programs by owners to ensure regular servicing of systems occur
- Monitoring environmental catchments for impacts from OWMS
- Education and information resources
- Upgrades of existing systems when land disposal area is compromised due to development or system failure.

These points have been incorporated into the strategies and action plan outlined in section 10.

9.5.1 Addressing Common Challenges Associated with Existing OWMS

- *OWS operating beyond its design life*

  All OWMS have a lifespan, and in time systems will become less effective in controlling the risks associated with wastewater management. Although it is the responsibility of all property owners to ensure that their OWMS are working effectively, the Greater Shepparton City Council has an important role in ensuring that these risks are managed, such as:
  - providing education to the community about good management practices to avoid system failures;

- investigating community complaints relating to alleged system failures, such as wastewater discharges or odour, and when these occur ensuring compliance is achieved; and
- assisting applicants where new OWMS are to be installed or systems require alteration.

Council will develop an audit schedule to assess compliance of active systems. This audit schedule will prioritise high risk localities, and at-risk properties such as high OWMS density or proximity to potable water source. It is intended that the audit program will provide meaningful data on the compliance of OWMS in use within the municipality and provide opportunities for compliance to be achieved should non-compliance be identified.

- *Existing OWMS in declared sewer districts*

  Council does not have any power under the *Water Act 1989* to direct existing properties with OWMS that fall within an extension to the sewer district to connect to sewer once it becomes available. This is the responsibility of Goulburn Valley Water (GV Water).

  Council will recommend to the applicant at the time of a planning application for a proposed new housing estate that abuts a sewer district, to investigate connection to sewer, as reticulated sewer is the best option for managing wastewater in higher density housing estates.

  For existing dwellings that have an existing OWMS within a sewer district, Councils approach is that property owners will not be required to connect to sewer unless the property owner cannot manage the risks associated with the OWMS as detailed in their GED obligations, or where it is feasible to connect to new sewer infrastructure provided in growing housing development areas. Council will advocate and work collaboratively with GV Water and property owners in this process of transitioning to reticulated sewer connection if feasible.

  For any new dwellings inside a declared sewer district, connection to the reticulated sewer network is a mandatory requirement.

- *Existing OWMS with offsite greywater discharge*

  Properties that were permitted at the time of development to discharge greywater offsite will not be required to upgrade their system once this OWMP is adopted, unless one of the following applies:
  - the owner proposes to undertake an extension to the existing dwelling or structure or install a new structure (for example a shed or pool); and/or
  - the existing OWS is no longer functioning efficiently.

  Council, in consultation with the land owner and Land Capability Assessor, will review options to ensure all wastewater is treated and disposed of within the property boundary that complies with the current Guideline for onsite wastewater management and Guideline for onsite wastewater effluent dispersal and recycling systems.

- *Existing OWMS limit growth of townships*

  During community consultation, there was a strong desire in the Dookie and Toolamba community for connection to sewer to enable growth of the town. Onsite wastewater management systems limit growth and expansion especially in the local primary schools, pubs and recreation facilities. The Dookie community highly value the agricultural land and therefore a strong desire to protect it from contamination from OWMS. The Toolamba community is concerned its close proximity to the Goulburn River and discharge of effluent to the Goulburn River. These communities would like to know the process for connection to sewer. Council's role would be to act as a facilitator between the community and GV Water. Council will need to conduct an audit of OWMS installed within these areas and share that information to assist with planning and discussions.

10. Onsite Wastewater Management Strategies

This section outlines Council's approach to the management of onsite wastewater issues that have been identified through the review of the OWMP.

Council's management strategies for wastewater continue to be informed by three factors:

1. Council's statutory duty.
2. Council's capacity to undertake wastewater management services.
3. The risks posed by ineffective septic tanks systems.

Given the diversity of wastewater management performance in our townships, the OWMP identifies the current challenges being experienced, the wastewater management designs or requirements, and any recommended system improvement options.

This OWMP identifies six key strategies for the management of wastewater systems within Greater Shepparton.

The capacity of council to undertake these activities and services requires a range of resources including:

- the collection of appropriate data at the point source through an ongoing monitoring program, development of a domestic wastewater information management system, and analysis of this information;
- review and development of operating policies and procedures;
- ensure that the OWMP is strategically linked to other Council plans; and
- the development of, and access to, a range of information by owners of septic tank systems and other stakeholders.

Council is committed to implementing these strategies to improve the management of wastewater across the municipality. The success of this OWMP relies upon the active involvement of all stakeholders and Council. Actions identified will contribute to the achievement of these strategies and will be monitored annually and reviewed every five years.

Our onsite wastewater strategies for the period 2025-2030 include:

Strategy 1 – Information Management

To create a well-developed, centralised and comprehensive Onsite Wastewater Systems (OWS) dataset that supports the Environmental Health Unit.

Strategy 2 – Education

To develop and implement a comprehensive range of education resources about on-site wastewater systems to ensure property owners fulfil their obligations under the EP Act to prevent risks to public health and the environment.

Strategy 3 – Strategic planning, infrastructure development and stakeholder engagement

To investigate innovative and sustainable community onsite wastewater treatment and water cycle management solutions for small townships, in partnership with key stakeholders.

Strategy 4 – Environmental monitoring program

To develop an environmental monitoring program including stormwater and groundwater sources, and to actively engage with other agencies and community groups to allow for the collection, storage, analysis, and sharing of environmental data that monitors the impacts of on-site wastewater systems.

Strategy 5 – Policy and regulatory management

To develop Council policies and procedures to manage wastewater reflecting regulatory frameworks and utilising available tools to assist with clear, accountable, transparent decision-making and enforcement.

Strategy 6 – Reporting, audits and review

To report on the actions within this Onsite Wastewater Management Plan (this plan), and review procedures and policy annually. A full audit of the OWMP is to be conducted every four years.

In order to achieve these strategies, Council has developed a number of specific actions to be completed over the course of this plan and are further outlined in the following table.

Strategy 1 - Information Management

A well-developed, centralised and comprehensive Onsite Wastewater Systems (OWS) dataset that supports the Environmental Health Unit (EH Unit) that:

- Is easily accessible and supported by current software systems
- Improves processing of applications
- Capable of generating various maps and reports (such as the ongoing maintenance of OWS, identification of systems that have reached their operational end of life and heat maps of system types in certain areas)
- Facilitates the review of processes and staff resources needed to respond to changes to legislation, policies, system design, growth and development
- Assist in strategic wastewater planning to include a response to the impacts of climate change

Goals	Proposed actions	Timeframe
Goal 1: Effectively manage the installation, servicing/maintenance and reporting of OWS within the municipality.	• Utilise data management system for monitoring the servicing and maintenance of systems, generation of reports and letters to owners. • Utilise data management systems to transition to a streamlined electronic application and permitting process that complies with legislation, guidelines and policies.	Year 1/Ongoing Year 1
Goal 2: Identify areas of concern due to site limiting features, soil types, age of OWS, and restriction of further development due to allotment size.	• Investigate costs and potential benefits of GIS based wastewater mapping system for new installations and inputting retrospective data entry. • Investigate costs to implement “in-field” ICT tools to efficiently collect and store wastewater data (such as GIS plotting of individual OWS installations) and record on-site wastewater treatment systems that are known to be failing and causing risks to public and environmental health (low, medium, low-risk rating).	Year 2 Year 2
Goal 3: Assist in the review and preparation of risk mitigation strategies, especially in times of climate emergencies (flood events).	• Conduct a wastewater risk profile across the municipality that investigates data sources for groundwater levels, soil types, effective transpiration rates, treatment ability, and impacts of flood events to identify high-risk areas.	Year 2
Goal 4: Identify, plan and advocate for the provision of sewerage infrastructure in growth areas	• Investigate alternative, community scale treatment systems for priority townships, and availability of funding in collaboration with water corporations. • Liaise with appropriate departments to ensure that planning and infrastructure proposals adequately address wastewater management needs for townships.	Year 3 Ongoing

Strategy 2 – Education

To implement an efficient and comprehensive program of education, facilitation, and enforcement to ensure property owners fulfil their responsibilities for the maintenance of their on-site wastewater systems by the Council's Wastewater Management Policy to prevent risks to public health or the environment.

Goals	Proposed actions	Timeframe
Goal 1: Provide fair, accurate, and accessible information on good wastewater management principles, practices, and improvement options	• Develop a suite of education resources to assist developers, plumbers and property owners to understand and comply with their legal responsibilities for monitoring and maintenance of their wastewater systems, including ➢ website, factsheets, ➢ installation guide, ➢ DWMP, ➢ approvals process, ➢ connect to sewer information, ➢ development of content that can be used for various media platform • Implement targeted education campaigns to property owners, occupiers and developers to build their knowledge on the impacts that OWMS have on waterways and why certain measures exits to protect these (such as setback distances)	Year 1 Year 1
Goal 2: Raise profile of wastewater system operation and maintenance requirements within the municipality and region	• Implement targeted education campaigns to property owners, occupiers and agents in high-risk areas at appropriate times. • Provide readily accessible wastewater management information in other languages and in both hard copy and web-based formats.	Year 2 Year 2
Goal 3: Provide regular opportunities to improve community and stakeholder understanding and support of improved wastewater management projects and programs.	• Provide information on septic tank system best practice to property owners via community outlets and Council publications. • Liaise with communities and local water authorities to progress community sewerage, where appropriate. • Work with the EPA, Water Authorities, Catchment Management Authorities (CMAs) and other interested stakeholders to achieve shared goals. • Establish an audit and enforcement program to ensure that property owners and service technicians or agents adequately fulfil their respective responsibilities	Year 2 Year 3 Year 3 Year 2

Strategy 3 – Strategic planning and Infrastructure development

Investigate innovative and sustainable community onsite wastewater treatment and water cycle management solutions for small townships, in partnership with key stakeholders.

Goals	Proposed actions	Timeframe
Goal 1: Utilise a Risk Management Framework to identify townships and high-risk sites that require a review of their wastewater treatment and disposal options to enable long term sustainability and future growth of townships.	• Investigate innovative and sustainable community-scale or on-site wastewater treatment and water cycle management solutions in partnership with key stakeholders • Regularly engage with relevant water authorities to discuss sustainable and future on-site wastewater disposal system needs for townships and high-risk sites that reduce environmental impacts.	Year 4 Year 2
Goal 2: Liaise with appropriate departments to ensure that planning and infrastructure proposals adequately address wastewater management needs for townships	• Assess existing block density in unsewered townships and investigate options to reduce density to sustainable levels. • Develop clear policy guidelines for future developments with unsewered townships and for unsewered allotments within sewered townships. • Review Planning Scheme and other relevant Council policies to identify opportunities for improvements to existing wastewater management clauses and/or policies. • Continue to investigate and update appropriate design standards for high-risk townships so as to inform any future improvement plans.	Ongoing Year 1 Ongoing Ongoing
Goal 3: Reduce impact of off-site discharges through available mitigation remedies	• Investigate health protection measures to address high-risk and accessible contaminated stormwater drains or groundwaters. • Seek improved maintenance and development of stormwater drainage in priority townships in partnership with Council's Projects and Infrastructure departments.	Year 4 Year 4

Strategy 4 – Environmental Monitoring Program

To develop an environmental monitoring program including stormwater and groundwater sources, and to actively engage with other agencies and community groups to allow for the collection, storage, analysis, and sharing of environmental data that monitors the impacts of on-site wastewater systems.

Goals	Proposed actions	Timeframe
Goal 1: Improve electronic data capture and storage to maximise administrative efficiencies and assist in appropriate targeting of resources	• Combine data sets from other Council teams, Water Authorities, Catchment Authority, community and environmental groups to assist in understanding wastewater threats and proposing solutions.	Year 2
	• Explore the integration of messaging services to notify landowners of septic tanks systems in an extreme event i.e. fire, flooding	Year 4
	• Identify source locations for environmental monitoring and produce a publicly available map which shows these locations.	Year 4
Goal 2: Develop an environmental monitoring program in collaboration with other agencies.	• Implement a comprehensive environmental monitoring program including the collection of water samples from selected locations and arranging their analysis at a NATA-approved laboratory.	Year 4
	• Prepare an annual report outlining the results of the environmental monitoring program and any improvements that have been made.	Year 4
	• Seek and source an ongoing funding stream for environmental monitoring sampling and analysis	Year 4

Strategy 5 – Regulatory Management

To develop Council policies and procedures to manage wastewater reflecting regulatory frameworks and utilising available tools to assist with clear, accountable, transparent decision-making and enforcement.

Goals	Proposed actions	Timeframe
Goal 1: Develop Council wastewater policy through evidence-based investigation, including enforcement protocols	• Wastewater policy to include: ➢ New OWS approvals process, including the introduction of a fee structure to address human wastewater from large scale commercial, industrial or agricultural development ; ➢ Upgrade OWS approvals process; ➢ Transition from existing OWS to upgrade and connection to sewer process; ➢ Changes to permits (eg system changes, transfer property ownership) ➢ Non-permit (eg older dwellings with no records) to permit process ➢ Rebuilding of dwellings destroyed by fire/flood; ➢ Enforcement (eg failing/aged/non-maintained systems) process; ➢ Green energy home design and greywater reuse; ➢ EHO training procedures (including induction)	Year 1
Goal 2: Explore alternative or innovative uses of existing legislative provisions to enhance wastewater management processes	• Develop and implement a septic tank inspection program (prioritised by risk, including age of system) to gather system details at property level. • Influence and assist Government agencies (Water Corporations and CMA) and other stakeholders to improve the regulatory framework within which the Council operates.	Year 2 Ongoing
Goal 3: Establish an audit and enforcement program to ensure that property owners and service technicians or agents adequately fulfil their respective responsibilities	• Advocate to government agencies and other stakeholders to improve the regulatory framework within which Council operates. • Develop robust wastewater compliance processes including procedures for managing non-compliance. • Introduce procedural fairness into regulatory management/enforcement.	Year 2 Year 1 Year 1

Strategy 6 – Reporting, audits and review

To prepare annual reporting against the actions in the Onsite Wastewater Management Plan (this plan), procedures, and regular review and auditing of the plan. An audit of the plan is to be conducted every four years.

Goals	Proposed actions	Timeframe
Goal 1: Determine priorities for implementation and recommend to Council for consideration via the annual budget process as a result of the annual review.	• Annual review of the action plan and reporting to Council and stakeholders on progress, including results of inspection and monitoring program. • A full review of the OWMP (including independent audit) four years after its adoption by Council.	Year 1 - 4 Year 44
Goal 2: Develop and strengthen external stakeholder relationships and collaboration.	• Identify shared water/ wastewater objectives and strategies with external water authorities and stakeholders. • Promote and facilitate ongoing coordination of internal resources into wastewater management strategies and projects. • Develop and strengthen external stakeholder relationships and collaboration on wastewater management projects and programs.	Year 1 Ongoing Year 1

11. Funding and budget allocation

This OWMP will require the allocation of budget and resources throughout the full 5-year implementation. The majority of actions will be absorbed into the existing Environmental Health budget. Where there are specific projects, funding in the form of grants will be required to deliver actions. Additional funding may also be sought in the respective budgets for each year of the plan.

12. Consultation

In developing this OWMP, the Council consulted the plans and policies established by the following agencies in developing this OWMP:

- Environment Protection Authority
- Goulburn Valley Water
- Goulburn Murray Water
- Goulburn Broken Catchment Management Authority

Goulburn Valley Water and Goulburn Murray Water were consulted directly regarding its plans for wastewater infrastructure, risks related to water catchments, and approach to development approval processes.

Regional strategies, mapping and Goulburn Broken Catchment Management Authority plans were used to provide guidance on surface and groundwater management in the region.

Public consultation was sought from the community during 26 February – 14 March 2025. Council included the draft OWMP on its website and sought community feedback via an online survey. Fifty one responses were received. Council attended 2 community meetings to introduce the draft OWMP:

- Dookie Community Planning meeting on 24 February 2025
- Toolamba and District Community Planning meeting on 12 March 2025

Council also received specific feedback via email and discussions with individuals.

Appendix 1 – Likelihood and Consequence Descriptors

Table 5 - Likelihood Descriptors (source Atom Consulting Risk Assessment Guidance):

Likelihood	Descriptor
Rare	Endpoint contamination may occur only in exceptional circumstances
Unlikely	Endpoint contamination could occur at some time
Possible	Endpoint contamination should occur at some time
Likely	Endpoint contamination will probably occur some of the time
Almost Certain	Endpoint contamination is expected to occur most of the time

Table 6 - Consequence Descriptors for environmental and human health considerations (source: Atom Consulting Risk Assessment Guidance):

Consequence	Area	Descriptor
Insignificant	Environmental	Insignificant impact on ecosystems not detectable
	Human Health	Negligible or not detectable level of contamination
Minor	Environmental	Minor localised effects without long term impacts
	Human Health	Minimal level of pathogenic contamination at a local level. No detectable impact to human health.
Moderate	Environmental	Potentially harmful to regional ecosystems with local impacts primarily contained to on-site, potential long-term impacts e.g. temporary change to ecosystem.
	Human Health	Moderate level of pathogenic contamination at a sub catchment level. Potential impact to human health without further intervention e.g. waterways cannot be used for primary recreation some of the time.
Major	Environmental	Potentially lethal to local ecosystems; predominantly local, but potential for off-site impacts e.g. change to ecosystems.
	Human Health	Major level of pathogenic contamination at a sub-catchment or catchment level. Considerable impact to human health from pathogenic contamination without further intervention e.g. waterways cannot be used for primary recreation more than half of the time.
Catastrophic	Environmental	Potentially lethal to regional ecosystems or threatened species, widespread impacts. Catastrophic local impact e.g. permanent change to ecosystem.
	Human Health	Significant level of widespread pathogenic contamination and serious impact to human health without further intervention e.g. waterways cannot be used for primary recreation.

The following Risk Matrix was used based on the Risk Assessment Guideline and the assessment toolkit provided by the EPA.

Table 7 Risk evaluation (source Atom Consulting Risk Assessment Guidance)

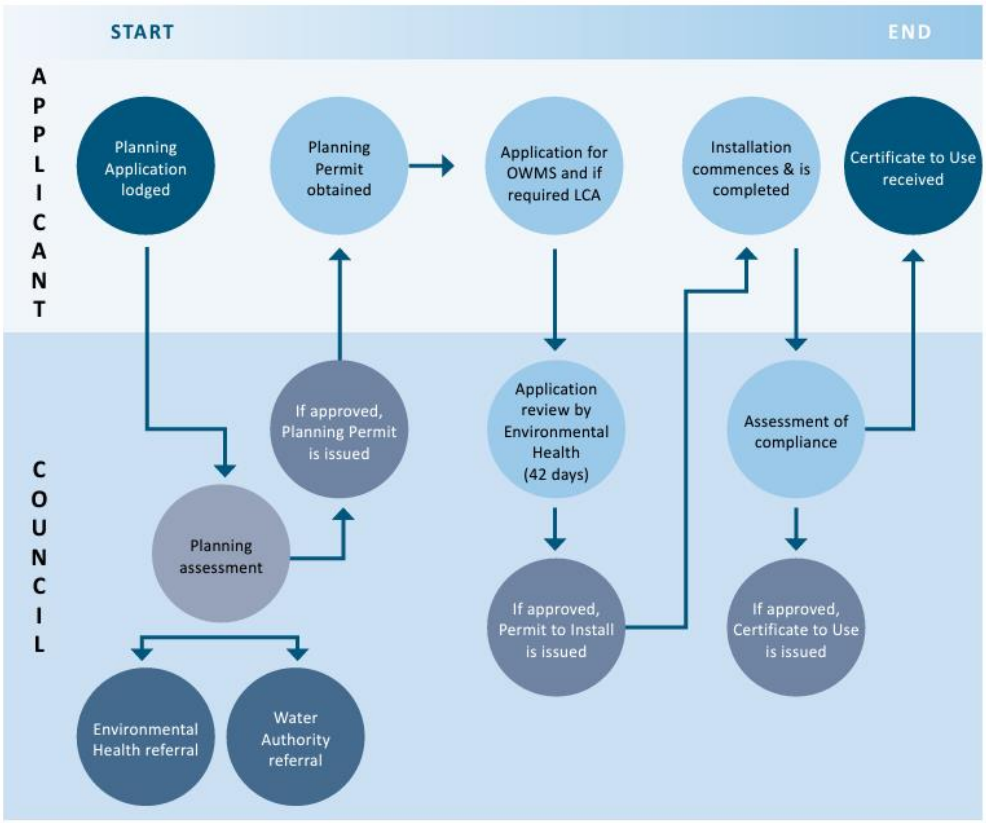
Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Rare	Low	Low	Low	Moderate	High
Unlikely	Low	Low	Moderate	High	High
Possible	Low	Moderate	Moderate	High	Very High
Likely	Low	Moderate	High	High	Very High
Almost certain	Low	Moderate	High	Very High	Very High

Appendix 2 – Relationship between Planning Application process and an Application for the Installation of Onsite Wastewater System (OWS)

An overview of the steps required by people wishing to build a new dwelling, or the alteration of an existing building or dwelling that is not able to connect to reticulated sewerage and therefore requires an onsite wastewater system.

A person may be required to obtain a planning permit, before any building permits are obtained. Greater Shepparton City Council has established internal referral procedures across the relevant Council departments to facilitate consistency and quicken the application process.

As part of the planning permit process, the application will be referred to Council's Environmental Health department and other water authorities for review and any conditions required to be placed on the planning permit. This process is explained below.



For all new installations and alterations of existing OWS with a daily design or actual flow rate of wastewater not more than 5000 L/day, landholders must apply for a permit from their Local Council.

The figure below provides an overview of the considerations for OWS:

PLANNING APPLICATION

What are the wastewater considerations during the Planning Permit application process?

The Planning and Environment Act 1987 requires Council to consider environmental issues in decision-making. This is done via a Planning Referral to the Council's Environmental Health Officer who assesses the proposal against the requirements of the legislation.

At this point, Council's Environmental Health Officer may advise the Planning Department of any conditions that may be required on the Planning Permit.

PERMIT TO INSTALL OR ALTER OWMS

What is a Permit to Install or Alter a OWMS?

Under the EP Act, a permit is required from Council before the installation or alteration of an OWMS. This permit is a homeowner's opportunity to inform Council of their intentions, such as:

- Details of what is proposed, such as a new dwelling, building or extension of existing dwelling.
- Descriptions and details of the number of habitable rooms.
- Confirmation of OWMS proposed, and plumber details.
- Site plan, including where the OWMS will be located.

How do I lodge a Permit to Install or Alter?

Applications are available via:

- Council's website.
- Customer service.
- Phone request to Council's Environmental Health Officer.

Council must assess this application within 42 business days of the submission.

APPROVAL OF AN OWMS - CERTIFICATE TO USE

What is a Certificate to Use an OWMS?

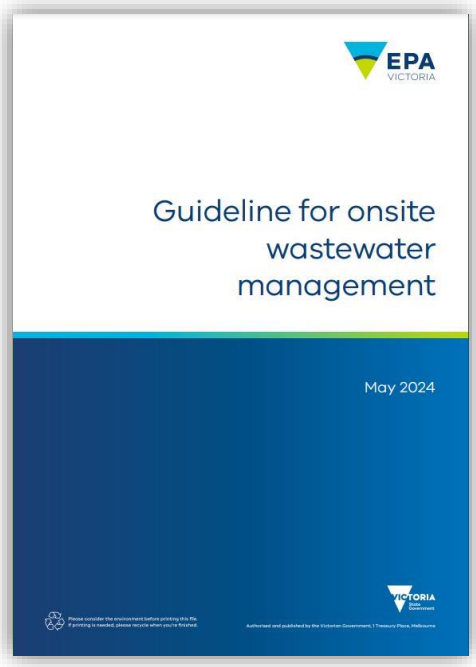
Before using an OWMS, Council must inspect the OWMS, preferably during the installation process. If Council is satisfied that the OWMS complies with the Permit to Install, a Certificate to Use will be issued after receiving the as-installed plans of the OWMS, commissioning certificate, and plumbing compliance certificate. In some instances, electrical compliance certificate may be required.

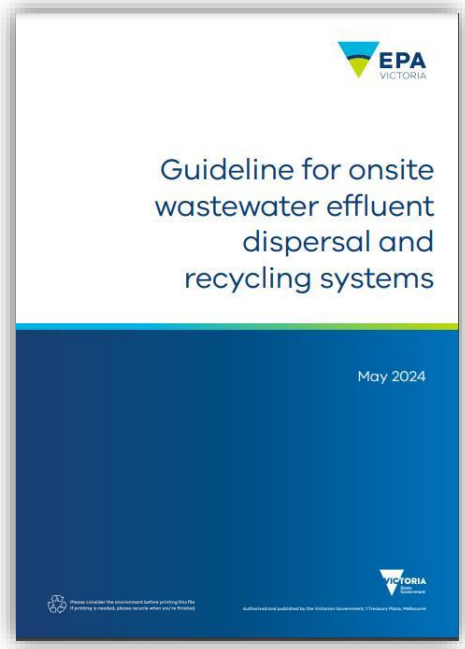
A Certificate of Use which details the conditions of compliance will be sent to the applicant within 7 days of approval

Under the *Environment Protection Act 2017*, Greater Shepparton Council can only approve the installation of wastewater treatment plants that have a current certificate of conformance with the relevant Australian and New Zealand standard.

The Environment Protection Authority maintains a list of these on its website - https://www.epa.vic.gov.au/for-community/environmental-information/water/about-wastewater/onsite-wastewater-systems . If an application to install a treatment system does not appear on this list, then Council cannot process the application or issue a permit and the applicant asked to amend the application.

Council's Environmental Health Officers consider and review applications for the alteration or installation of an OWMS in accordance with the *Environment Protection Authority Guidelines for Onsite Wastewater Management (May 2024)* and *Guideline for Onsite Wastewater Effluent Dispersal and Recycling Systems (May 2024)*.





Council can refuse a permit if the proposed OWS does not meet the *Environment Protection Act's* requirements.

A Permit to Install/Alter a septic tank system is valid for up to 5 years.

Appendix 3 - Commonly installed wastewater treatment and effluent disposal systems

Below are examples of the most common wastewater treatment and effluent disposal systems installed within Greater Shepparton. Other types of systems are also considered, in accordance with the Guidelines for onsite wastewater management and Guideline for onsite wastewater effluent dispersal and recycling systems.

There are 2 parts to an on-site waste water disposal system used to treat wastewater from a dwelling -

Part 1 - A tank or series of tanks that collects the wastewater from the dwelling and treats it. Common methods used are

- **Septic Tank** (otherwise known as a conventional all waste septic tank). This tank collects all waste from the dwelling and separation of the floaty fats to sit on the surface and form a crust and the heavy solids to settle at the bottom. The size of the tank allows water to remain in the tank for the anaerobic bacteria to digest the effluent. This process is referred to as primary treatment and produces a grey looking effluent.
- **Treatment Plant** (otherwise known as a secondary treatment plant or aerobic wastewater treatment plant). These systems do the same work as a septic tank, but also aerate the effluent in another chamber that allows aerobic bacteria to further digest the effluent. After this process, chlorine is applied. This is a mechanical process and is referred to as secondary treatment. It produces a clearer effluent for disposal. This type of treatment process requires quarterly servicing as part of the Certificate of Conformance under the Environment Protection Act, which the homeowner must pay.

Because Shepparton is relatively flat, the tanks are buried deep in the ground. A pump well is used after the septic tank to provide additional storage after treatment of a capacity of half the estimated daily flow. Pump wells are useful for regulating the dosing of effluent to the disposal trenches.

All lids of the septic tanks, pump wells and distribution pits must be finished above natural ground level to assist with servicing.

Images below are examples of a conventional all waste septic tank with a pump well.

Image 8 – Septic tank with riser lids finished at ground level. All waste septic tank with risers extended to ground level to ensure access for pump out and other maintenance. Pump well installed at the outlet of the septic tank to pump to effluent disposal trenches.

Image 9: Only the lid of the septic tank and pumpwell with alarm are visible when backfilled.

The image below is an example of secondary wastewater treatment plant.

Image 10: Top of a packaged treatment plant – only the lid, control box and filter visible once backfilled

Part 2 – Disposal of effluent to land

The choice of effluent disposal depends on the method of treatment. The effluent is either disposed of into

- A series of **disposal trenches** of different widths, lengths and construction methods (evapotranspiration trenches or Wick trenches). The maximum length of each trench is 30m to ensure the effluent reaches the end of the trench. A distribution pit is use to interlink each trench. Trenches are spaced 2m apart (trench wall to trench wall). The trenches must be laid along the contours of the land. Either method of trenching requires a reserve area of land for future effluent disposal for when the trenches reach the end of their design life (around 30 years). See diagram below for a cross section of each type of trench.

- **Pressurized sub-surface drip irrigation**. A series of interconnected purple pipe buried just below the root zone of grass approximately 200mm below surface of the ground. The maximum length of each line is 50m long. This method does not require a reserve area of land and can be located closed to site limiting features and is often used in these situations.

Images below are examples of standard evapotranspiration trenches installed after a conventional septic tank.

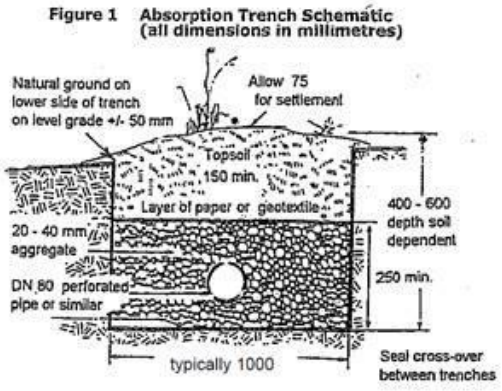


Image11: Evapotranspiration trenches are installed after a septic tank and are 400mm deep and 1m wide. A deeper trench would be used if the absorption of effluent into the structure of the soil was utilized. In Shepparton, the evaporation rate is high making it ideal for transpiration.

Image 12: Evapotranspiration trench with gypsum sprinkled along the bottom of the trench. Trench is 400mm deep and 1m wide

Image 13: Rock that is 20 – 40mm in size and free from dust and fines is used to backfill trenches

Image 14: Inside the distribution pit installed at the beginning of each trench.

Image 15: An example of trenches laid in a series, spaced 2m apart.

Image 16: Completed work – top of each trench is domed above natural ground so that surface water/rain does not sit on top of the trences.

Images below are examples of effluent disposal using Wick Trenches installed after the secondary wastewater treatment plant

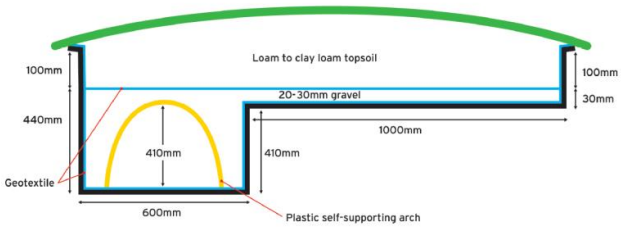


Image 17: Excavation for a Wick Trench

Image 18: Backfilling of Wick Trenches, with Geotextile fabric lining the trench before backfilling with suitable sized rock and arch drain.

Image below shows the installation of pressurized sub-surface drip irrigation lines installed after the secondary wastewater treatment plant
(top left of image).

Image 19: pressurized sub-surface drip irrigation

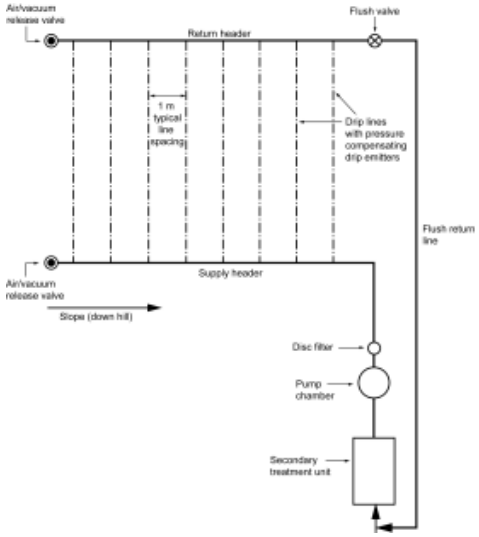


Image 20: Diagram of pressurized sub-surface drip irrigation

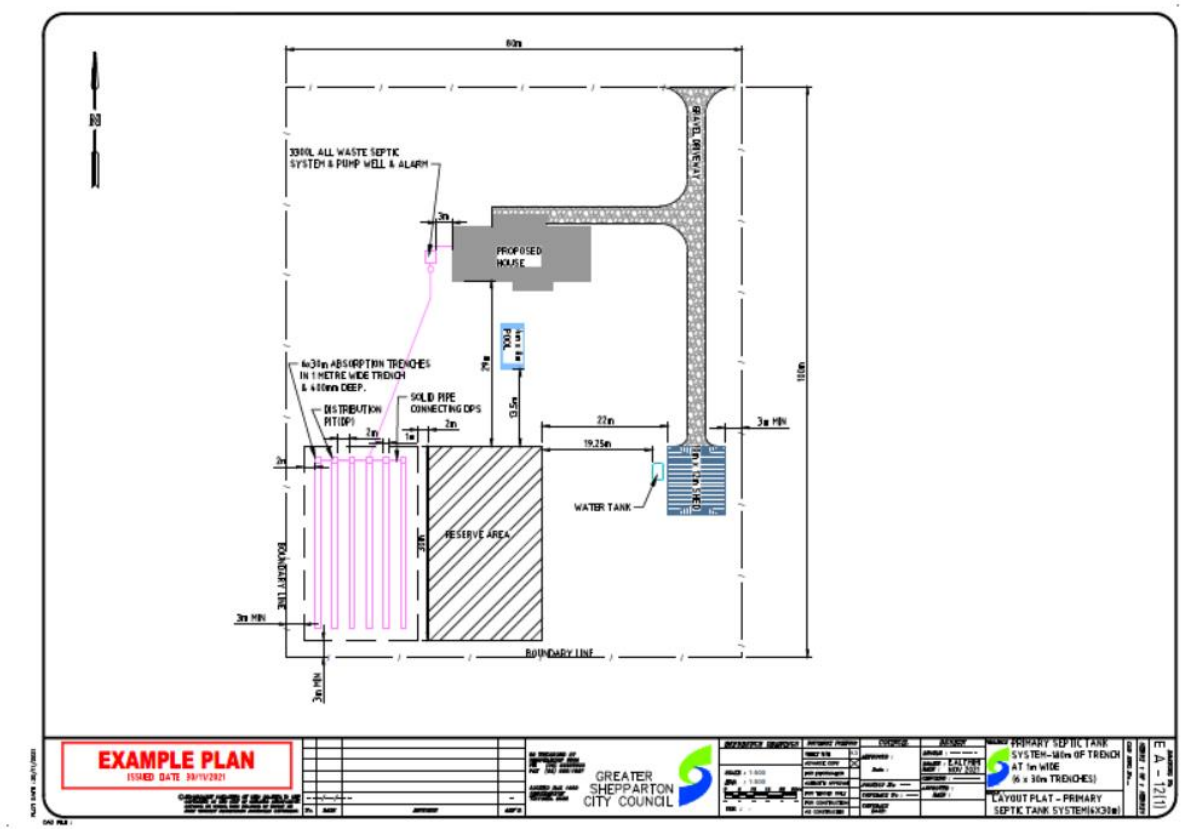


Image 21 – An example of a proposed site plan showing built structures, septic tank syslem and land required for effluent disposal.

Appendix 4 - Land Capability Assessments (LCA)

A land capability assessment is an assessment of the risks of harm to human health and the environment from a proposed or existing onsite wastewater management system. A LCA provides information about the site and soil conditions, including the land's capability to sustainably manage effluent disposal onsite. The LCA will provide recommendations on proposed onsite wastewater treatment options available, the level of treatment required, the effluent disposal design and management strategies applicable to the proposal.

An LCA assist applicants, Council and Water Authorities by providing specific and relevant information about the ability for wastewater to be contained within the property.

The process for conducting a LCA, including the land and soil assessment tests required, nutrient and water balance and calculations for deigning the land application area are outlined in the Victorian Land Capability Assessment Framework, produced by the Municipal Association of Victoria (currently under review).

Only suitably qualified person can carry out a LCA, and is someone who has accreditation in land assessment and experience as a soil specialist or soil engineer.

The table below outlines the information required to be provided within an LCA.

LCA Topics	Examples
Background and proposal detail	• overview of the proposal • limitations and assumptions
Land features	• topography and drainage • slope and rock outcrop, • landslip potential • soil characteristics, soil permeability and dispersion, salinity and vegetation across the site. With a focus on the land capability areas • average rainfall, and flooding potential • proximity to surface waters and other catchments • bores, dams and groundwater sources nearby • building envelope • erosion potential • local climate and aspect of the site
Site information	• property location • property title • easements • zoning and overlays • land use (past and present) • use of surrounding areas
Infrastructure	• available services
Land capability	• land constraints • soil percolation • risk rating and summary • management protocols
Recommendations	• recommended OWMS • OWMS design and specifications including scaled site plan of proposal system recommendations • disposal fields and reserve area allocations

Management and maintenance	Ongoing management, maintenance, reporting and other requirements
Supporting data and mapping	• accurate mapping • supporting soil classification test data
Site plan	• to scale • direction of north • identification of property and owner • version/revision number

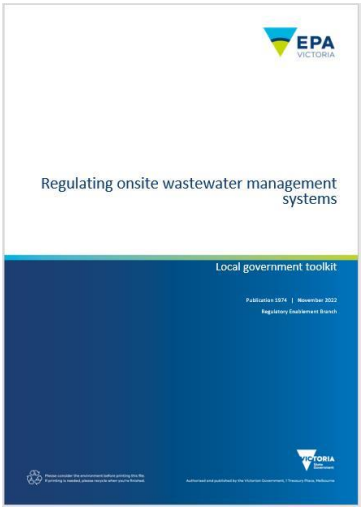
Council will require the owner of land that cannot connect to reticulated sewer, to obtain a land capability assessment (LCA) from a suitably qualified assessor in circumstances such as:

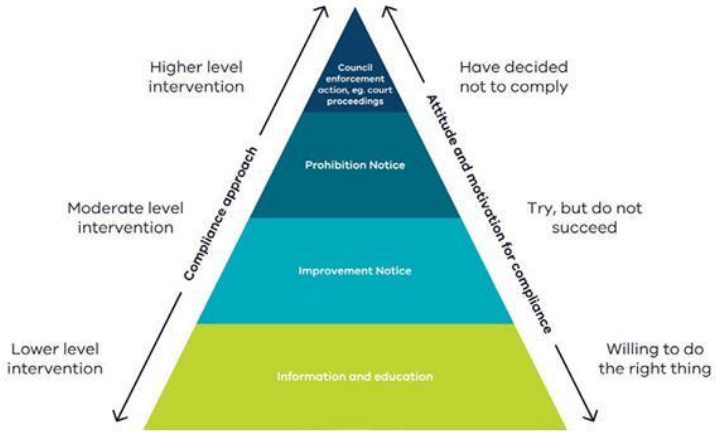
- as part of a proposal to sub-divide land for housing, or proposal to create housing lots under 1 hectare;
- on vacant land under 1 hectare;
- a proposed extension to an existing dwelling or structure, or new structures on land under 1 hectare;
- when extensions or new structures impact on any component of the existing OWS;
- when the OWMS is no longer functioning effectively and investigations reveal the OWMS is at the end of its designed life (wastewater is surfacing and measures to remedy this have failed) and an upgrade is required;
- where they may be site limited features on the parcel of land or adjoining the parcel of land that indicate a conventional septic tank system cannot be installed; and
- any other situation recommended by Council's Environmental Health Officer to achieve the compliance with the current Guideline for onsite wastewater management and Guideline for onsite wastewater effluent dispersal and recycling systems.

Appendix 5 - Our approach to compliance and education

Greater Shepparton City Council is committed to fair and consistent application of legislation relating to OWMS.

To achieve this commitment, authorised officers will make compliance and enforcement decisions in-line with guidance published by the Environment Protection Authority – Regulating Onsite Wastewater Management Systems (November 2022).





Council is also committed to developing education material that is consistent with resources prepared by Environment Protection Authority.

Following are examples of how Council may apply various education, compliance and enforcement options outlined in the Environment Protection Act:

Compliance and Enforcement tools	Scenario
Education	"I called the owner of the property and reminded them that the quarterly reports are required to be submitted."
Notice ordering maintenance	"After notification of an OWMS overflow, a Notice ordering maintenance was issued providing a direction for desludging."
Official Warning	"As the permit condition was breached, Council issued an Official Warning to the property owner."
Improvement Notice	"As the permit condition was breached, Council issued an Improvement Notice on the property owner."
Prohibition Notice	"Due to the public health risk, a Prohibition Notice has been issued. This means the OWMS cannot be used until compliance has been achieved."
Infringement Notice	"Due to the owner of the property not complying with the Improvement Notice, Council is issuing an Infringement Notice under the EP Regulation 163(4) - Comply with Council notice requiring maintenance."
Prosecution	"The occupier continued to use the OWMS after the Prohibition Notice had been issued. Council has decided to support a prosecution."

Appendix 6 - References

- EPA, Onsite wastewater management plans, Guidelines for developing, reviewing and updating
- Regulating onsite wastewater management systems: local government toolkit, 2021
- Victorian water sources online
- Land capability assessments
- Council held GIS databases, Council records (permits, LCA)
- Data Vic (vic.gov.au) – flood mapping, groundwater depths
- Flood studies
- WMIS Database (https://data.water.vic.gov.au/) bore sites, groundwater catchments
- Bureau of Meteorology: Climate Data Online - Map search (bom.gov.au)
- VIC Department of Agriculture Soil Surveys
- Vicmap Elevation DEMs
- Atom Consulting (2022) *Onsite wastewater management plans risk assessment guidance.*
- EPA Victoria (2023) *Guideline for onsite wastewater management (under development)*.
- Department of Sustainability and Environment (2012) *Planning permit applications in open, potable water supply catchment areas.*
- Municipal Association of Victoria, Department of Environment and Primary Industries and EPA Victoria (2014) *Victorian Land Capability Assessment Framework*.
- Standards Australia 2012, AS/NZS 1547: *Onsite domestic-wastewater management*

CONTACT US

Business hours: 8.15am to 5pm weekdays
In person: 90 Welsford Street, Shepparton
Mail: Locked Bag 1000, Shepparton, VIC, 3632
Phone: (03) 5832 9700 **SMS:** 0427 767 846
Email: council@shepparton.vic.gov.au **Web:** www.greatershepparton.com.au

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TTY users: 133 677 then ask for (03) 5832 9700.

Speak & Listen users: (speech-to-speech relay) 1300 555 727 then ask for (03) 5832 9700.

Internet relay users: Connect to the National Relay Service via www.relayservice.com.au and then ask for (03) 5832 9700.

A hearing loop is also available at Council's customer service centre and Council meeting rooms.

Interpreter service available.