Audit overview

Effective treatment and management of domestic wastewater—generated by kitchens, laundries and toilets—is integral to managing the public health and environmental risks posed by this waste. This is done either by treating the waste on site or by connecting to sewer.

Sewer is the network of pipes, pumps and equipment that transfers all sewage (including domestic wastewater) from homes and businesses to a central treatment plant.

Onsite systems are standalone systems designed to treat and contain waste within a property's boundaries—most commonly a septic tank.

Alternative services—the systems and servicing approaches, different to traditional sewer and onsite solutions, to treat and manage domestic wastewater in a way that provides equivalent environmental and public health outcomes to sewer.

Traditionally, sewering has been the preferred option for managing high-risk unsewered townships and properties. However, for remote townships or those with challenging topography or soils, providing sewer may not be the most cost-effective option. In these situations, water authorities must explore other wastewater treatment solutions that deliver similar environmental and human health benefits, such as contemporary onsite systems.

Councils oversee the installation, use and management of onsite systems by property owners. They must also ensure that property owners install an onsite system approved by the Environment Protection Authority Victoria (EPA). Owners are responsible for regularly servicing and maintaining the system so that their wastewater is treated and contained within the boundaries of their property.

In Victoria, the *State environment protection policy (Waters of Victoria)* (SEPP(WOV)) requires councils to develop a domestic wastewater management plan (DWMP) where they identify that an unsewered township is high risk due to either the number of unsewered properties or the risk posed by properties unable to contain their wastewater on site.

When developing their DWMPs councils must assess risks from properties unable to contain their wastewater on site, identify strategies to manage them and refer high-risk unsewered townships to water authorities so they can be connected to either a sewer system or an alternative service.

Water authorities are responsible for determining the most cost-effective, fit-for-purpose domestic wastewater treatment option for an unsewered high-risk township. They must consider community and other stakeholder views, costs, and environmental and health benefits in their decisions.

In our 2006 audit report *Protecting our environment and community from failing septic tanks*, we found that agencies were not effectively protecting the environment from poorly performing onsite systems. Since then policy has evolved, priorities for water authorities and community views have changed, and councils and water authorities have implemented a range of new initiatives to better understand and manage domestic wastewater risks. It is timely to examine this issue again to determine whether agencies are effectively protecting the environment and public health from poorly performing onsite systems.

In this audit, we focused on the management of domestic wastewater in two parts of metropolitan Melbourne where unsewered areas have been identified as high-risk—the Yarra Ranges and the Mornington Peninsula. We examined the performance of the two responsible councils, Yarra Ranges Council (YRC) and Mornington Peninsula Shire Council (MPSC), and the responsible water authorities, South East Water (SEW) and Yarra Valley Water (YVW). We also examined the regulatory and oversight roles of EPA and the Department of Environment, Land, Water and Planning (DELWP).

Conclusion

Since our 2006 audit, the responsible agencies have made some progress, but it is too little to sufficiently protect the environment and public health, and longstanding issues remain. The agencies are still not adequately managing the individual and cumulative risks and impacts from poorly performing onsite systems despite their attempts.

The ongoing issues are partly the result of poor leadership and limited collaboration between EPA and DELWP who are responsible for overseeing the regulatory framework that councils and water authorities use to manage the risks posed by poorly performing onsite systems. This has resulted in:

- an overly complex, onerous and duplicative regulatory framework
- a continued lack of clarity around roles and responsibilities
- regulatory tools that do not adequately drive property owners' compliance with planning permits and legislation
- councils not being held to account for their role in domestic wastewater management.

SEW and YVW's backlog programs for connecting high-risk unsewered townships to sewer have generally been successful. Both water authorities have implemented a range of innovative projects and actions to improve the timeliness and cost effectiveness of their services and sewer schemes, aimed at improving environmental and public health benefits. However, overall connection rates and the time taken to reach optimal sewer connections to mitigate risks vary significantly.

SEW and YVW are exploring alternative service options for suitable properties in high-risk areas to improve the cost effectiveness and timeliness of services while achieving environmental and health benefits equivalent to sewer. However, regulatory barriers and gaps in governance and approval processes are hindering the timely implementation of these approaches.

Findings

Managing risks

MPSC and YRC have limited assurance that they are effectively managing the risks posed by poorly performing onsite systems and that the environment and their local communities are protected from the potential threats from inadequately treated domestic wastewater.

This is because councils have not adequately addressed information gaps about onsite systems in high-risk unsewered townships and because of limitations in the councils' risk assessment processes.

Information gaps

MPSC and, to a much lesser extent, YRC have improved the way they collect the information they need to accurately assess risks from poorly performing onsite systems. However, they still do not have comprehensive and accurate information about all onsite systems. Significant gaps in councils' information include the:

- ongoing performance of onsite systems in safely treating and maintaining domestic wastewater on site
- number, location and performance of legacy systems.

Legacy systems are onsite systems installed before 1996 that do not have a permit, have a permit without adequate maintenance requirements or were approved to discharge domestic wastewater offsite.

Within both municipalities, legacy systems represent a significant number of the estimated total number of onsite systems—77 per cent in the Yarra Ranges and between 12 to 60 per cent of onsite systems across the 11 Mornington Peninsula townships where the age of onsite systems is known.

Without this information, neither council has been able to accurately determine which unsewered areas they should prioritise for sewering. Both councils identified these information gaps in background papers that informed their DWMP development—MPSC in 2007 and 2014, and YRC in 2010—and also documented actions to address them in their DWMPs.

YRC did not finalise its draft DWMP, so it has not implemented its proposed actions and, as a result, has made limited progress in improving the information and data it collects about its onsite systems. In contrast, MPSC has implemented or partially implemented most of the actions identified in its approved DWMP to improve the gaps in its information.

Risk assessment frameworks

Both councils have improved their risk assessment processes to identify high-risk unsewered townships and properties since our 2006 audit. However, they do not address all the elements of a better practice risk assessment process, as outlined in AS/NZS ISO 31000:2009 *Risk management—Principles and guidelines* (ISO 31000) and the Victorian Managed Insurance Authority's (VMIA) 2016 *Victorian Government Risk Management Framework Practice Guide*. As a result, their risk assessments are not as rigorous as they need to be.

MPSC and YRC do not comprehensively assess their controls for managing risks from poorly performing onsite systems, which means they cannot accurately assess the residual risks or the effectiveness of the controls.

Consequently, councils may refer properties in unsewered areas to water authorities for servicing when an onsite system is a feasible option. Water authorities must and do undertake their own risk assessments to ensure they are not subsiding properties to connect to sewer if they could safely treat wastewater on site and, as a result, imposing unnecessary costs on their customers because of councils' risk assessment processes.

All agencies, including the two councils and water authorities, use property size to measure the risk of whether a property can safely contain wastewater on site. Victoria's planning zone controls for low-density residential areas state that properties under 4 000 square metres must be connected to sewer because, theoretically, they cannot safely treat and contain wastewater on site. As a result, councils initially deem any unsewered property larger than 4 000 square metres as low risk. SEW does not generally prioritise properties greater than 4 000 square metres for servicing.

In 2015 and 2017, YVW's risk assessments of individual properties in high-risk unsewered townships showed that:

- at least 50 per cent of properties assessed by YRC as low risk—greater than 4 000 square metres—were discharging wastewater offsite
- 40 per cent of properties assessed as high risk—less than 4 000 square metres—were safely containing wastewater on site.

Consequently, YVW now uses more comprehensive risk measures to prioritise properties for sewering, including:

- property owners' understanding of their onsite system and their willingness and ability to maintain it in accordance with system and permit requirements
- the effectiveness of council controls for overseeing the performance of onsite systems and compliance with permit conditions and policies.

These two critical factors better allow agencies to determine whether a system and the property can safely treat and contain wastewater on site rather than relying on property size alone.

Environmental and health impacts

In our 2006 audit, we found that the impacts of poorly performing onsite systems on the environment and public health were unclear. This was because of the lack of water quality monitoring, and poor information collation and sharing of available data.

Water quality monitoring programs

Rigorous water quality monitoring programs can be correlated with information about onsite systems to help identify impacts on the environment and public health from onsite systems.

Since 2006, the four audited agencies have improved their water quality monitoring programs, particularly SEW and MPSC. Monitoring by YVW and YRC remains limited.

YVW monitored four townships it provided with sewer, only one of which is in Yarra Ranges, but it found it difficult to measure the effectiveness of its service because of the short-term, limited nature of its monitoring programs. It is undertaking extensive monitoring of its trial of alternative service options in Park Orchards and will use the results to inform the implementation of alternative services in the Yarra Ranges.

SEW and MPSC undertake a more comprehensive monitoring program of groundwater, drains and local waterways to assess the environmental impacts of poorly performing onsite systems on the Mornington Peninsula. These programs provide significant data to help SEW and MPSC prioritise townships for sewering and are a significant step forward. However, reviews show that improving the coverage and frequency of their sampling would allow both agencies to better determine the source of pollutants and extent of environmental and health impacts. SEW and MPSC must weigh the cost of monitoring programs against the risks posed by poorly performing systems.

Pooling of domestic wastewater from failing onsite system. Photo: South East Water.

There is limited data about health impacts from poorly performing onsite systems. This type of monitoring has typically been cost prohibitive and, until recently, the required technology was not available.

YRC is attempting to understand the specific human pathogen load in waterways from poorly performing onsite systems through a small-scale pilot study in an unsewered township in the Yarra Ranges. SEW has also conducted sampling on the Mornington Peninsula to determine human pathogen loads in two catchments but at fewer sampling sites.

There is still limited evidence that the audited agencies are using all available water quality data effectively in their risk assessments and prioritisation processes. This includes data from EPA, Melbourne Water (MW) and the Bureau of Meteorology.

MPSC and SEW have a collaborative working relationship, and YVW and YRC have both indicated the need to improve their collaboration. EPA and DELWP interact with councils and water authorities in a reactive manner. All the audited agencies must continue to work together to better share knowledge, data and costs involved in protecting environmental and human health from poorly performing onsite systems.

Exposure to potential risks and impacts

Poorly performing onsite systems in unsewered areas continue to expose communities to risk. This is because property owners and the two councils generally do not manage performance of onsite systems well, though MPSC is taking significant steps to rectify this in high-risk unsewered townships. The two councils do not assess how well the controls they have implemented are mitigating risks.

Permits for onsite systems

Permits for onsite systems are a key legislative tool for managing potential risks and impacts. Property owners apply to their local council for a planning permit to ensure an onsite system is compatible with the land use zone, permitted land uses and property size under the *Planning and Environment Act 1987* (P&E Act). Once the council has approved the permit, applicants must then apply to council for a permit to install, use and alter these systems under the *Environment Protection Act 1970* (EP Act). There are also associated approvals under the *Building Act 1993*.

The audited councils are effectively assessing applications for onsite systems under the P&E Act and the EP Act. However, councils find the approval process duplicative and onerous. Council resources for onsite systems mostly focus on approving systems, rather than monitoring their ongoing performance, resulting in greater risks to the environment and public health.

Permits require that onsite systems safely treat and maintain wastewater on site and that property owners ensure this through regular servicing and maintenance in accordance with the system's EPA approval certificate. However, this does not apply to:

- permits issued prior to 1996, before the implementation of the EPA code of practice—onsite wastewater management (CoP), when maintenance requirements were less stringent
- permits issued for systems before 1988, which were able to discharge offsite.

As it stands, permits are issued in perpetuity. This means that these older systems continue to operate with insufficient maintenance requirements and can continue to discharge wastewater offsite, posing a high-risk to the environment and public health.

Compliance inspections

The Municipal Association of Victoria's (MAV) 2005 model DWMP states that a council should develop an inspection program for all onsite systems to ensure they comply with permit conditions and other legislative requirements.

MPSC's compliance inspection program has significantly improved since our 2006 audit, with the introduction of maintenance and servicing inspections through its Septic Track system, risk-based compliance inspections and audits of three high-risk unsewered townships.

However, MPSC's compliance inspection program is still not systematic or rigorous. It has not implemented all the actions in its 2014 DWMP to address this issue, and its compliance inspections currently cover only 23 per cent of all onsite systems while its audits cover 3 per cent of onsite systems on the Mornington Peninsula. There is also no overarching compliance strategy outlining MPSC's approach, particularly for systematic follow ups to determine if property owners have rectified noncompliance and reported outcomes in a timely manner.

For onsite systems approved since 2007, MPSC is also improving its oversight of property owners' compliance with maintenance conditions in permits. Property owners must submit maintenance reports to MPSC through paper-based reports, or have contractors submit reports electronically through MPSC and SEW's Septic Track system. However, this only captures property owners who comply with their permit conditions for maintenance, not those who do not. MPSC's intention is that Septic Track will capture all property owners with onsite systems in the future.

YRC does not undertake any regular compliance inspections or audits to ensure that property owners meet permit conditions and that systems comply with legislative requirements. Council officers only inspect an onsite system after receiving a complaint.

Neither council has a comprehensive inspection program for townships where sewer is available but property owners have chosen not to connect. While properties over 4 000 square metres may be able to contain wastewater safely on site, inspections by MPSC and YVW have shown a significant number of these properties are not safely doing so.

Both councils indicated that the extent of compliance tasks for onsite systems exceeds available council resources, particularly given the unknown number of legacy systems in each municipality.

Education of property owners

MPSC and YRC, in 2007 and 2010 respectively, found the need to improve property owners' knowledge about how to properly manage their onsite systems. They noted that education programs were particularly important in the absence of regular inspections and tools to upgrade legacy systems.

Both councils—particularly MPSC—have improved their education for property owners through a wide range of activities. However, neither has an overarching community information and education strategy for onsite system maintenance and management, nor a formal evaluation mechanism to ensure that the community education program is reaching its audience and is effective.

Councils and water authorities also need to provide more information to property owners about the life cycle costs of onsite systems, including ongoing maintenance. This will allow property owners to compare the costs of onsite systems against the cost of connecting to sewer.

Provision of sewer to backlog areas

Water authorities can control potential risks and impacts from onsite systems in high-risk unsewered townships by connecting properties to sewer, but it is difficult to assess with any accuracy the real number of high-risk properties that water authorities should include in their backlog programs.

Councils do not have accurate information about onsite systems within their municipalities that would help them to assess individual and cumulative risks from poorly performing systems. Neither council has good annual records of the number of systems decommissioned, nor do the two water authorities provide them with up-to-date, timely records of properties that have connected to sewer.

Backlog programs

SEW and YVW have generally met the targets in their water plans for providing sewerage services through their backlog programs since 2008.

Sewering of high-risk unsewered townships is a staged process, and it can take more than 30 years from when a water authority first identifies a township as high risk. In 2005, the then Minister for Water wrote to the metropolitan water authorities requesting they accelerate the provision of sewer to backlog areas by 2025.

YVW developed its backlog program in 2005–06 to service 17 200 properties by 2025 across a range of municipalities. It revised the target to 15 742 in 2014. There are currently 7 482 properties in the Yarra Ranges on YVW's backlog program.

In 2005–06, SEW's backlog program aimed to provide 19 766 properties across MPSC with access to sewer. Approximately 16 900 of these properties were in the southern Mornington Peninsula. SEW accelerated the provision of sewer to these properties—the Peninsula Early Connection Option (Peninsula ECO)—in addition to its traditional backlog program.

Water authorities have a general target that 80 per cent of households connect to sewer within 10 years of having access to it.

Both water authorities have reviewed their backlog programs in response to challenges they have identified and, as a result, have taken a different approach or added projects to meet their Statement of Obligations (SoO), issued by the Minister for Water, and their water plan targets.

South East Water's Peninsula ECO project

Prior to Peninsula ECO, SEW met its 80 per cent connection rate target for all townships sewered for 10 years or more.

SEW's 2015 Peninsula ECO is an innovative $357 million project. It aims to provide sewer for 16 900 unsewered lots in four townships between Rye and Portsea. It has saved over $100 million through technological innovation and competitive procurement strategies compared to a traditional backlog roll out. For example, properties in Sorrento and Portsea can connect up to 13 years earlier than originally planned. A post-implementation review of the Peninsula ECO project noted that SEW delivered the project under budget and ahead of schedule.

Due to Peninsula ECO, SEW has now provided a sewer service to all properties on its current backlog program. SEW exceeded its target of 2 160 early connections by 2019. As at July 2018, 2 396 properties had connected. In the five years of Peninsula ECO being available, 16 per cent of all properties have connected early. However, SEW capped its targets for early connection to allow for the upgrade of the local treatment plant. SEW advises that the upgrade will commence in early 2019.

The extra cost of early connections through the Peninsula ECO project—between $3 317 and $9 260 for an early connection compared to $2 500 for the traditional backlog program—may deter some property owners. Within the Peninsula ECO area, 569 property owners who had applied to connect early cancelled their application, with one-third of these identifying cost as their reason.

While it is too early to see any impact on groundwater from the properties connected through Peninsula ECO, SEW plans further monitoring in three years when more properties have connected.

Overall, through both SEW's traditional backlog program from 2006 and the Peninsula ECO project, 6 401 properties—32 per cent of the total high-risk unsewered properties—have connected to sewer across the Mornington Peninsula.

YVW Community Sewerage Program

YVW reviewed its traditional backlog program in 2008. This indicated that providing blanket sewer to all 17 200 remaining unsewered properties was not likely to be delivered until 2045 due to the remoteness of townships, pushback from the community and difficult terrain.

YVW replaced its traditional backlog program with the Community Sewerage Program (CSP) to achieve environmental and health benefits sooner and more cost-effectively for both its customers and itself.

By January 2016, YVW had provided 3 863 properties with the opportunity to connect to sewer in the CSP's first 10 years. As of 2016, 2 945 of these properties—76 per cent—have now connected. YVW provided 140 properties in the Yarra Ranges with sewer, of which 77 per cent connected. To date, this means 19 per cent of YVW's total CSP properties, across all the municipalities it serves, have connected to sewer.

YVW currently has 10 900 high-risk unsewered properties still on its CSP, 7 482 of which are in the Yarra Ranges.

In contrast to SEW, YVW does not yet have an evaluation framework to measure the success of its CSP. It also does not have an ongoing water quality monitoring program.

Overall, due to the infancy of CSP, it is difficult to assess its success in providing properties with connection to sewer and delivering the intended environmental and public health benefits.

Alternative wastewater services

Water authorities are evaluating innovative approaches to manage domestic wastewater through alternative service options that will deliver equivalent environmental and health benefits to sewer more cost-effectively and efficiently and with the community's support.

South East Water

To date, SEW has found that sewer is the most cost-effective option for most of the townships in its backlog program. As SEW begins to investigate more remote, less densely populated townships—identified as high risk by MPSC—it plans to evaluate alternative service options. It has found that at least one township—Guys Hill—will need an alternative to sewer due to the prohibitive connection cost of providing sewer, at $50 000 for each customer. This is much higher than SEW's current benchmark of $6 500 to $9 500 per customer.

MPSC has also identified four high-risk unsewered townships—Arthurs Seat, Cape Schanck, Red Hill and Red Hill South—for SEW to consider including in its backlog program. SEW, with MPSC, will continue to monitor these townships until it can determine an appropriate and cost-effective servicing strategy.

Yarra Valley Water

YVW has undertaken significant technical, cost-evaluation and performance investigations for alternative service options for remote and challenging terrain within the Yarra Ranges.

These investigations have shown that the cost per property will be between $30 000 to $50 000 for sewer, which is shared between YVW and its customers. In some high-risk unsewered townships, the provision of sewer has been shown to have no extra environmental or human health benefits compared to upgrading or improving the management of onsite systems, which is quicker and costs less.

YVW's Park Orchards trial, undertaken with Manningham Council and the local community, explores alternative service options for 100 properties with poorly performing onsite systems. The trial is investigating a range of innovative approaches. Unanswered questions about who owns and maintains the ongoing performance of these systems should be answered during the trial.

The regulatory framework and its tools

Longstanding issues with the regulatory framework for domestic wastewater management continue to hinder effective management of poorly performing onsite systems by councils and water authorities. As a result, the framework does not adequately drive councils' and property owners' compliance with legislative obligations.

EPA and DELWP are responsible for the regulatory framework—DELWP for developing environmental policy, and EPA for overseeing its effectiveness and implementation, as stated in the 2010 signed agreement between these agencies. However, poor collaboration and central leadership by these agencies means longstanding issues with the framework and its tools, a number of which we identified in our audit in 2006, remain unaddressed including issues with land capability assessments (LCA), DWMPs and standard risk assessments.

For example, our 2006 audit recommended that EPA establish a suitable mechanism for assuring the quality of LCAs. EPA has not effectively addressed this—we reviewed 10 permit applications for onsite systems and found significant variance in the quality and accuracy of LCAs. An LCA is important as councils use it to decide if a property can properly contain treated wastewater on site. EPA's CoP recommends that a suitably qualified person complete the LCA, but this is not mandatory.

Councils told us that they have limited faith in the LCA process and, as such, YRC has developed its own tool—a water balance spreadsheet—to check the accuracy of LCA assessments but at an extra cost and effort to council.

EPA has also not acted to ensure, where relevant, that councils comply with the SEPP (WoV) requirement to develop a DWMP and that these plans are effective and implemented. A council's DWMP identifies risks from unsewered townships and, where applicable, councils refer high-risk areas to water authorities for potential inclusion in their backlog programs. The current 2005 proforma model for DWMPs, developed by MAV with advice from EPA, is outdated and should be reviewed to meet current risk management standards.

Of most importance is the gap in the regulatory framework and powers that hinder the audited agencies from addressing noncomplying legacy systems. These systems make up a significant proportion of the onsite systems in the two audited municipalities.

While elements of the regulatory framework have been reviewed, they considered the elements in isolation and did not improve its fragmentation, duplication or complexity. As a result, there is still a lack of clarity around roles, responsibilities, enforcement powers and processes which impedes the effective implementation of the framework by councils and water authorities.

The regulatory framework also complicates water authorities' investigation of alternative service options. Issues include:

- the regulatory framework's focus on sewer as the preferred servicing option
- lack of clarity around governance responsibilities for alternative approaches
- the lengthy and unwarranted approval processes that water authorities must undertake when implementing alternative approaches
- lack of clarity around water authorities' and councils' ability to charge fees for alternative approaches, if water authorities install and manage onsite systems, rather than property owners, as in the Park Orchards trial.

Enforcing connection to sewer

Section 147 of the *Water Act 1989* allows water authorities to force property owners to connect to sewer. However, difficulties in attributing environmental or health impacts to a specific onsite system, a lack of clarity around the use of the power, and perceived social equity issues associated with its use mean that both audited water authorities have been reluctant to use this power and do so rarely.

The Environment Protection Amendment Bill 2018 (2018 EP Amendment Bill), which passed in August 2018, includes a general duty of care provision that requires an individual or a business to take all reasonable measures to prevent an impact or harm from happening, rather than requiring proof of an impact. EPA advises that this will allow regulators to take action if property owners are not adequately managing their onsite systems.

The 2018 EP Amendment Bill removes some but not all of the barriers around the use of water authorities' enforcement powers. Regulators need to do further work to improve the use of this provision.

Reporting and accountability

Councils must plan effectively and report their results to ensure that their activities are transparent and that they are accountable to the community and other levels of government.

Councils do not report to EPA on their monitoring and compliance activities for onsite systems, as legislated under the EP Act. The required annual reports should document the number of onsite systems in use, the number inspected, and the number disconnected.

In 2002, EPA assessed this requirement as offering limited value for its oversight of councils' performance. Reporting is critical, however, to ensuring accountability, as is government's oversight of this reporting.

The 2005 model DWMP requires councils to report to council management and the community on their actions to assess and manage risks from onsite systems listed in their DWMP. EPA and DELWP have limited oversight of whether relevant councils—those with a large number of onsite systems or whose systems pose a significant risk to the environment and public health—complete a DWMP, review it periodically, or report annually on its implementation report. YRC, which received funding for the completion of its DWMP, did not finalise it. The new draft SEPP (Waters) proposes to address a number of these issues.

Similarly, property owners' reporting of maintenance activities to councils, as required by their permit conditions, is critical for demonstrating the performance of onsite systems. Councils need to oversee this reporting to hold property owners to account. MPSC's oversight of maintenance reporting is improving, but YRC does not require property owners to report on their onsite systems.

Water authorities need to report to councils the number of properties that connect to sewer in a timely way, so that councils can inspect high-risk unsewered properties systematically. Currently, YVW does not report sewer connections to YRC, while SEW reports connection numbers to MPSC every six months. Both councils advised that real-time reporting is required to ensure they can target their compliance inspections appropriately.

Integrated water cycle management

Government's 2016 plan *Water for Victoria*, administered by DELWP, and the 2017 urban water strategies developed by SEW and YVW identify integrated water cycle management (IWCM) as an important element for creating sustainable towns and cities. IWCM requires the consideration of how an integrated approach to stormwater, sewerage and alternative water services can benefit the community and the environment, rather than planning and managing different water and wastewater streams in isolation.

SEW and YVW are currently evaluating new place-based IWCM opportunities that deliver benefits for the community through collaboration with state government departments, local governments, and other water authorities.

Recommendations

We recommend that Mornington Peninsula Shire Council and Yarra Ranges Council:

1. consult with water authorities, the Environment Protection Authority, the Department of Environment, Land, Water and Planning, and other key stakeholders in undertaking integrated water cycle management planning processes for their municipalities so that the management of domestic wastewater risks is not planned in isolation of the management of stormwater, floods, alternative water supplies and drinking water supplies (see Section 5.8)
2. implement a rolling annual program of compliance inspections in high-risk properties and townships to bring onsite systems in line with permit and/or policy requirements and follow-up noncompliance (see Section 3.3)
3. develop and implement a data management plan to collect accurate information on the number, location and performance of onsite systems—data collection should be prioritised using a risk-based approach to identify areas for collection based on highest to lowest risk (see Section 2.2)
4. develop an education plan to inform property owners of their responsibilities and requirements to maintain and upgrade their onsite systems as required, which must include an evaluation framework to assess its effectiveness (see Section 3.5).

We recommend that Yarra Ranges Council:

5. finalise its domestic wastewater management plan by 2019 identifying high-risk unsewered townships for servicing in collaboration with Yarra Valley Water, the community and other key stakeholders (see Section 2.2).

We recommend that the Department of Environment, Land, Water and Planning and the Environment Protection Authority:

6. in consultation with councils, water authorities and other key stakeholders work together to review the regulatory framework, tools and guidance for domestic wastewater management to address issues and gaps including:
    - lack of clarity around roles and responsibilities, particularly for enforcement and power to force connection
    - systems approved prior to 1988 that allowed discharge of treated and/or untreated wastewater offsite or systems approved without a permit
    - the overlapping, onerous and duplicative approval system
    - governance and approval processes for alternative service options, including onsite installation and servicing
    - issuing ongoing permits for the use of onsite systems (see Section 4.2).

We recommend that the Department of Environment, Land, Water and Planning and the Environment Protection Authority work with councils to:

7. develop a standard risk assessment framework based on relevant Australian standards that includes comprehensive measures to assess both land capability, environmental factors and the ongoing performance of a system (see Section 2.3)
8. implement an accredited third-party approval system for undertaking land capability assessments and inspections for the installation, use and ongoing maintenance of onsite domestic systems, or introduce a mandatory requirement that a suitably qualified assessor undertakes these assessments (see Section 4.4)
9. review the model domestic wastewater management plan and ensure it is based on better practice risk assessment methodology outlined in the relevant Australian standards (see Section 2.2)
10. evaluate and implement a better practice model for the ongoing maintenance of onsite systems including examining:
    - risk-based maintenance models
    - use of levies to support third-party maintenance options
    - the requirement for property owners to gain an onsite system compliance certificate prior to sale of the property (see Section 3.3).

We recommend that the Department of Environment, Land, Water and Planning and the Environment Protection Authority work together to:

11. improve centralised leadership arrangements to effectively oversight the performance and implementation of the regulatory framework to manage the risks posed by poorly performing onsite systems (see Section 4.2)
12. oversee the development and ongoing operation of a steering committee to review issues and recommend solutions to improve the management of domestic wastewater (see Section 4.3)
13. explore legislative opportunities to ensure properties connect to sewer at the point of sale or have an onsite system compliant with legislative requirements (see Section 4.3).

We recommend that water authorities:

14. investigate and implement a process to report to councils on the number and locations of properties connecting to sewer within agreed time frames (see Section 4.2)
15. work together to share information around alternative approaches to service unsewered remote townships and those in difficult terrain (see Section 5.5)
16. together with councils, educate their customers and ratepayers about the life cycle costs of installing, operating and maintaining onsite systems, alternative service options and sewer as part of the decision-making process to determine the most cost-effective fit-for-purpose servicing option (see Section 5.6).

We recommend that Yarra Valley Water:

17. implement an ongoing monitoring program, in consultation with YRC and other relevant catchment agencies, to confirm areas prioritised by councils for servicing and to confirm that the servicing option implemented has reduced environmental and public health risks (see Section 2.4)
18. oversee the formation of a steering committee comprising key stakeholders to review the outcomes of the Park Orchards alternative service options trial to inform any future review of regulatory issues and the implementation of any proven alternatives (see Section 5.7).

Responses to recommendations

We have consulted with DELWP, EPA, MPSC, YRC, SEW and YVW, and we considered their views when reaching our audit conclusions. As required by section 16(3) of the *Audit Act 1994*, we gave a draft copy of this report to those agencies and asked for their submissions or comments. We also provided a copy of the report to the Department of Premier and Cabinet.

The following is a summary of those responses. The full responses are included in Appendix A.

The agencies welcomed the report's findings, accepted all recommendations to improve the management of domestic wastewater and developed detailed action plans to address the recommendations relevant to them.

SEW and YVW commented that the successful implementation of recommendations will result in continuous improvements in managing the risks associated with poorly managed domestic wastewater.

MPSC and YRC stated that the audit findings and recommendations will significantly assist them in addressing the long-term issues surrounding the management of onsite systems to safely treat domestic wastewater.

In response to the report's recommendations, DELWP and EPA have agreed to work together to oversee the improvement of domestic wastewater management in Victoria.