

Driving Efficiency and Compliance in Wastewater Management Business Case for a Statewide Solution

Community Wastewater Innovation Fund 2025 - Application No. CWMS006

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This project has been supported by the LGA CWMS Program administered by the Local Government Association of South Australia on behalf of the South Australian Government.

EXECUTIVE SUMMARY

Local Government in South Australia (SA) manages 175 Community Wastewater Management Systems (CWMSs) across 50 councils. Effective oversight and maintenance of pretreatment devices that connect to these systems, such as septic tanks and trade waste arrestors, are crucial to CWMS performance and public and environmental health. However, current record-keeping practices by councils for the maintenance of these devices are fragmented and inconsistent, limiting councils' ability to manage compliance efficiently. This project has been supported by the Local Government Association (LGA) CWMS Program administered by the Local Government Association of South Australia on behalf of the South Australian Government.

Environmental Health Australia (EHA) appointed Healthy Environs Pty Ltd (Healthy Environs) in June 2025 to prepare a business case for a proposal to pursue state-wide rollout of a digital platform for the management of wastewater pretreatment devices by councils. Notably, two of four LGA policy and advocacy priorities (as voted on at the 2025 LGA Annual General Meeting) are relevant to this project: 1) a coordinated sector-wide approach to sustainable procurement and 2) equitable funding for CWMS networks through extending community service obligation payments to water industry entities other than SA Water.

To begin, a systematic business case analysis involving a structured six-stage methodology over six months (July to December 2025) was undertaken. Guided by a Project Reference Group, the project combined desktop research, extensive stakeholder engagement, and detailed cost-benefit analysis to ensure a strategic, inclusive approach. To inform the development of a state-wide Implementation Model, existing relevant example IT platforms (DACO, Squiz, Skytrust) were investigated, and 3 Strategic Options were compared by risk-benefit analysis across 7 categories (Economy & Human Resources, Customer Service, Wastewater Operational, IT Operational, Environmental, Compliance and Strategy):

EHA's grant proposal to the Community Wastewater Innovation Fund (CWIF) 2025 envisaged that the statewide adoption of a common and validated platform would deliver beneficial outcomes to local government by improving efficiencies in engagement between councils and third-party contractors, resulting in enhanced outcomes for business, compliance, and public and environmental health. The business case analysis found in favour of a statewide roll-out proposal, not only for the centralised context (septic tanks and tradewaste arrestors connected to CWMS), but also for the decentralised context (Aerated Wastewater Treatment Systems; AWTS). Key findings of the analysis support the rationale for a standardised, statewide digital solution:

- Effective maintenance and compliance of pretreatment devices are essential for protecting CWMS treatment plants and collection networks from solids and organic pollutants.
- Maintenance and compliance oversight are essential to promoting reliable, efficient CWMS operation and improved public and environmental health outcomes.
- There is currently no centralised dataset for pre-treatment devices in South Australia and the reliability of council data on trade waste devices and septic tanks within their regions varies considerably, underscoring the need for improved information management.
- A survey of sector staff within South Australian councils revealed systemic challenges in effectively monitoring pre-treatment compliance, including fragmented record-keeping, limited oversight, and resource constraints.
- SA Water (the State's largest water industry entity), as well as Greater Mount Barker Water (GMB Water), have adopted the use of WastelD for trade waste management across their networks. Alexandrina Council has established a contract with WastelD to adopt the platform to commence managing septic tank desludge and trade waste arrestors over a two-year period. There is an opportunity to leverage this existing water industry entity experience. Digital platforms, such as WastelD, offer councils real-time, mobile data capture of maintenance activity (such as desludging or system servicing) and centralised reporting, presenting significant opportunities to streamline administration and enhance compliance tracking.

- Financial modelling, in applying a commercially available digital platform to septic tank compliance, indicates that, while small-scale implementations (defined as less than 950 septs) may see a modest initial cost increase, medium and large-scale rollouts are projected to deliver immediate and growing cost savings resulting from reduced administration and system blockages. While these resource efficiencies may not immediately appear as direct financial savings, they could enable councils to reallocate human resources to other essential activities, asset maintenance budgets or further compliance education and enforcement.

With compelling justification in favour of the proposal, the project progressed to development of an implementation strategy, resulting in the following recommendations:

1. **A central agency to lead coordinated digital platform procurement process and contract management approach** - It is recommended that a centralised lead agency (such as the LGA) oversee initial governance establishment, due diligence assessment and the establishment of a head procurement agreement for a digital platform vendor on behalf of the local government sector, with ongoing contract management support.
2. **Voluntary participation by councils enabling them to choose when and which of the 3 application modules (i.e. septic tank, tradewaste and/or AWTs) they adopt** - It is recommended that councils should have the flexibility to 'opt in' based on their needs, reflecting feedback from broad consultation. This approach leverages economies of scale, offers standardised templates and training, and aligns with previous digital transformation roadmaps in the sector. An expression of interest process is recommended to secure council member support for a joint procurement process for a consistent platform. With this approach ready and willing councils (early adopters) are welcome to participate and will provide an example to other councils to join at a later stage (later adopters).
3. **Seed funding in the first two to three start-up years to support project management resources within the central agency.** The highest likelihood of success would be achieved with seed funding in the first two to three start-up years, with cost-recovery by users thereafter. A total seed funding value of approximately \$323,000 is recommended to support a full-time project resource for up to 18 months, followed by a part-time resource allocation for 12 months. It is recommended that grant opportunities be fully explored to establish seed funding. Councils would need to fund their own implementation costs (either via a cost-recovery agreement with the central agency or directly to the digital provider via a secondary contract under the Head Contract). Costs would vary at the council level based on their wastewater pretreatment infrastructure numbers and the extent of platform application modules they adopt (i.e., septic tanks, tradewaste, and/or AWTs).

A detailed, pragmatic, and flexible Roadmap for adopting governance and implementation frameworks over 3 years is presented.

Adopting a consistent digital compliance platform for wastewater pretreatment device maintenance across South Australian councils is a strategic opportunity to enhance data quality, streamline operations, strengthen compliance monitoring, and deliver better public and environmental health outcomes.

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PROJECT AIM

Local Government in South Australia (SA) currently operates about 175 Community Wastewater Management Systems (CWMS) across 50 councils. Where wastewater pretreatment devices such as septic tanks or trade waste arrestors connect to a CWMS, effective oversight and maintenance of these devices is critical to the overall system performance. Water industry entities, including some local councils, are adopting digital platforms to aid in the effective administration, records management and compliance oversight of pretreatment device maintenance within their areas. SA Water and GMB Water have implemented a digital platform designed to manage trade waste arrestors across their network.

This business case, supported by the LGA CWMS Program administered by the LGA of South Australia on behalf of the South Australian Government, includes an analysis of costs and benefits of adopting a consistent digital platform for local government water entities across the State and a plan for implementation of such a platform.

The project's aim was to prepare a business case for a proposal to pursue the statewide rollout of a digital platform for the management of wastewater pretreatment devices by SA councils.

Background

In parallel to this project, an ongoing initiative which follows on from a separate Local Government Research and Development Scheme (LGRDS) Project envisages the development of a statewide online portal for the lodgement of Aerated Wastewater Treatment System (AWTS) service reports by third-party service agents. The Phase 1 project 'Building regulatory efficiencies for sustainable onsite wastewater system management' (reference no. 2023.68) successfully developed a standardised AWTS service report template to provide clear and consistent guidance for service agents and regulators.

While the projects are concerned with the management of pretreatment devices in different contexts (i.e. centralised compared with de-centralised wastewater management), both share common goals around digital transformation, regulatory compliance, and improved service delivery. Related studies are summarised in Table 1.

Table 1: Related Projects

Grant Program	Project Title	Status	Wastewater Management context; types of pretreatment devices
Local Government Research and Development Scheme	Phase 1 project 'Building regulatory efficiencies for sustainable onsite wastewater system management'	Complete	Decentralised wastewater management; AWTS
Community Wastewater Innovation Fund	Impact of septic tank desludge frequency on CWMS	Complete	Centralised wastewater management, septic tanks
Community Wastewater Innovation Fund*	Driving efficiency and compliance in wastewater management: business case for a statewide solution	In Progress	Centralised wastewater management; trade waste arrestors, septic tanks

*Note: The subject of this report is the Community Wastewater Innovation Fund study.

PROJECT METHODOLOGY

Environmental Health Australia (EHA) appointed Healthy Environs Pty Ltd (Healthy Environs) to undertake the business case analysis in June 2025. The Healthy Environs project team comprised Sally Modystach (Project Director) and Caroline Fuentes (Principal Consultant). The project was delivered over approximately six months, with oversight and advice provided by a Project Reference Group established at the initiation phase.

The delivery followed a structured six-stage process to ensure a comprehensive and strategic approach to the business case analysis (Figure 1: Project Stages):

1. **Business Case Analysis Initiation:** Finalisation of the contract with EHA, establishment of a Project Reference Group and Terms of Reference (Appendix A), Reference Group Meeting 1, and preparation of the Project Engagement Plan.
2. **Desktop Research: Business Case Rationale and Needs Analysis:** Performed a desktop review of the related LGRDS background study, assessed online examples of the use of online platforms, reviewed relevant research studies and noted roles in wastewater management (Appendix B).
3. **Stakeholder Engagement Plan Implementation** – Implemented the Stakeholder Engagement Plan to gather statewide data on CWMSs, septs and trade waste schemes, survey councils (Appendix C) and documented current approaches to the maintenance of pretreatment devices by local government water entities.
4. **Model Exploration and Options Development:** Explored different rollout and implementation approaches. This included investigating commercial off-the-shelf (COTS) software for device maintenance (WasteID), exploring examples of a statewide software approach adopted by the LGA (Skytrust for OHS and the Squiz platform), and developing options for the cost-benefit analysis.
5. **Cost-Benefit Analysis:** Assessed the costs and benefits of future roll-out options. These options included 1) maintaining the *status quo* of majority manual (non-digital) systems 2) councils individually adopting or promoting digital platforms without central coordination and 3) central coordination of a digital solution across the State. The cost-benefit analysis considered economic, human resource, operational, IT, consumer impacts and public and environmental health impacts.
6. **Implementation Planning:** Designed a plan for the recommended option rollout project plan, governance model and responsibilities framework.

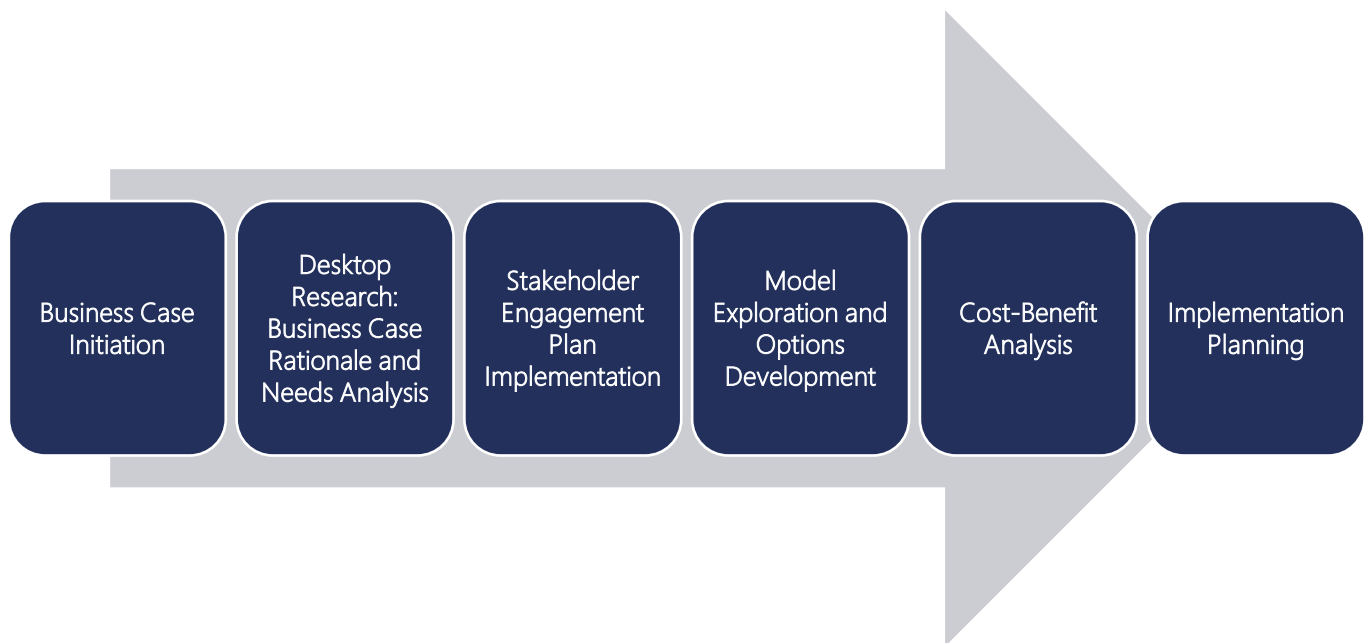


Figure 1: Project Stages

Stakeholder Engagement

A comprehensive stakeholder engagement strategy was central to the business case analysis. The approach aimed to ensure broad and meaningful involvement of local government entities, state agencies, private sector partners, and other key stakeholders.

Key stakeholder target groups are summarised in Figure 2.

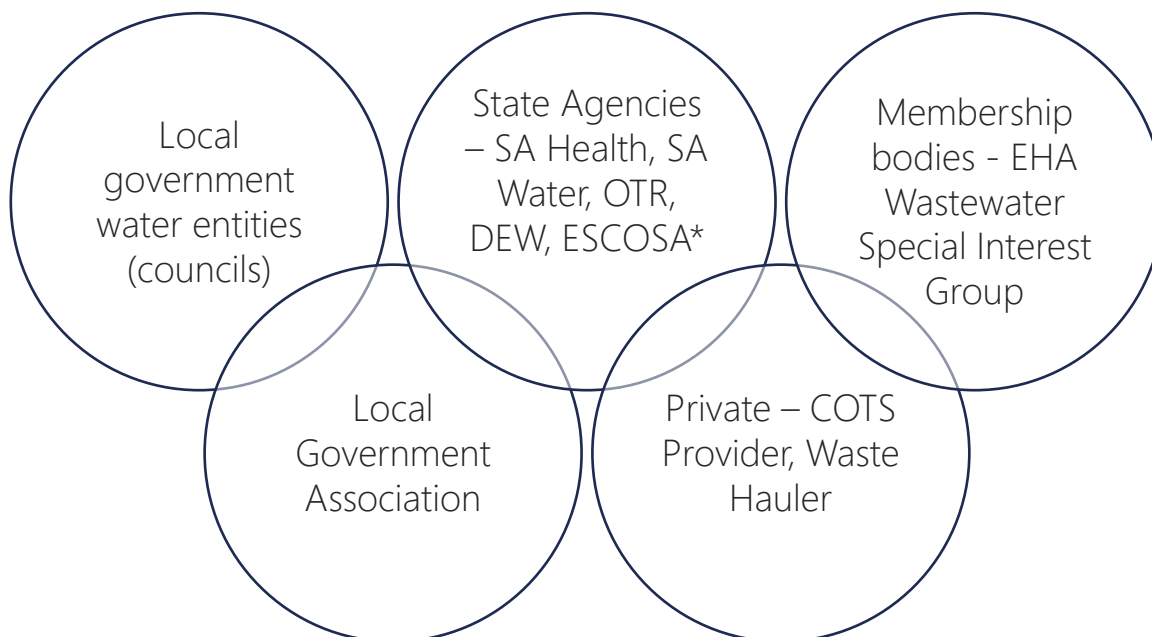


Figure 2: Stakeholder Groups

*OTR – Office of the Technical Regulator, DEW – Department for Environment and Water, ESCOSA – Essential Services Commission of South Australia.

The engagement process began with early outreach and endorsement from several councils and agencies. Letters of support for the grant were received from Mount Barker District Council, District Council of Loxton Waikerie, Alexandrina Council, and SA Water.

To guide the project, a Reference Group was established comprising representatives from councils, technical experts, and regulatory bodies. Terms of Reference are provided in Appendix A. This group provided strategic advice, reviewed deliverables, and assisted in promoting the study. The Reference Group comprised:

- Tricia Franks - Wastewater Public Health Lead at Alexandrina Council.
- Dr. Michael Short - Water & Environmental Consultant at Fluid Environmental
- David Eggers - CWMS Program Manager, Local Government Association
- Aruma Samaraweera - Trade Waste Officer, GMB Water
- Michelle Jordan - Environmental Health Officer, District Council of Loxton Waikerie

Engagement activities were diverse and targeted. Councils were consulted through multiple channels including:

- Participation in the CWMS Conference (June 2025), where a presentation introduced the project and provided the rationale for the business case analysis.
- An online survey distributed via the EHA and LGA networks
- A consultation session with the EHA SA Wastewater Special Interest Group (SIG)
- Individual meetings with key councils such as Alexandrina, Mount Barker, Onkaparinga, and Loxton Waikerie.

State agencies and regulators, including Office of the Technical Regulator (OTR), the Essential Services Commission of South Australia (ESCOSA), Department for Environment and Water (DEW) and SA Water were engaged through network events, meetings and/or email correspondence.

COTS service providers such as Amtac Professional Service Pty Ltd (developer of WasteID) and a licensed liquid waste hauler contributed insights into existing platform functionality and capability.

BUSINESS CASE RATIONALE AND NEEDS ANALYSIS

The Importance of Community Wastewater Management

Providing access to safe and reliable sewerage services to all South Australians, no matter where they live, is essential for public health, the economic growth and development of communities and the environment. The State Government (via SA Water) provides sewage collection, treatment and disposal services for metropolitan Adelaide and the major provincial cities, which comprise about 90% of the State's wastewater population.

Where SA Water sewerage infrastructure is unavailable, councils or other private entities provide CWMS infrastructure for centralised wastewater management. Alternatively, wastewater must be handled by de-centralised wastewater management systems such as AWTSS.

This business case analysis focuses on reviewing the costs and benefits of a statewide coordination of a digital platform to manage compliance of pretreatment devices (trade waste arrestors and septic tanks) in the context of centralised wastewater management.

The responsibilities of the authorities involved in community wastewater management schemes are outlined in Appendix B.

The Importance of Effective Pretreatment on CWMS Performance

STEDS in South Australia: History and Design Insights

The evolution of STEDS in South Australia began in the early 1960s as a response to widespread failures of septic tank soakage trenches in country towns. Initially intended as a temporary fix, STEDS quickly proved to be a practical and affordable long-term alternative to conventional sewerage, leading to their adoption across most regional communities. Over time, responsibility for STEDS shifted from state agencies to councils, with government subsidies supporting their expansion.

A key feature of STEDS design is the use of shallow, smaller-diameter drains, typically 100 mm pipes at a 0.4% grade, made possible because solids are removed at the septic tank before effluent enters the network. This approach allows for simpler, less expensive infrastructure, such as flushing points instead of manholes, and results in significant cost savings. For example, construction costs for STEDS were historically around \$4,300 per connection, compared to \$13,800 for conventional sewerage (1998 values). These design efficiencies have enabled widespread, cost-effective wastewater management throughout South Australia, demonstrating a model that balances public health, affordability, and ease of maintenance¹.

Pretreatment and System Performance

Effective maintenance of septic tanks and trade waste arrestors is essential to CWMS performance. System performance can be improved through effective interaction between councils and property owners to oversee compliance and best-practice maintenance (such as optimal septic desludging frequency). The consequences of poor device maintenance vary, yet include, increased risk of blockages and overflows, increased odour and corrosion, and poorer wastewater treatment plant influent quality as summarised in the following sections.

¹ Australia's Most Successful Alternative to Sewerage: South Australia's Septic Tank Effluent Disposal Schemes. N. Palmer, P. Lightbody, H. Fallowfield, B. Harve.

1. Preventing Blockages and Overflows

Septic tanks trap settled sludge and floating scum/fats and oils, allowing only clarified effluent to proceed into the CWMS sewer network.

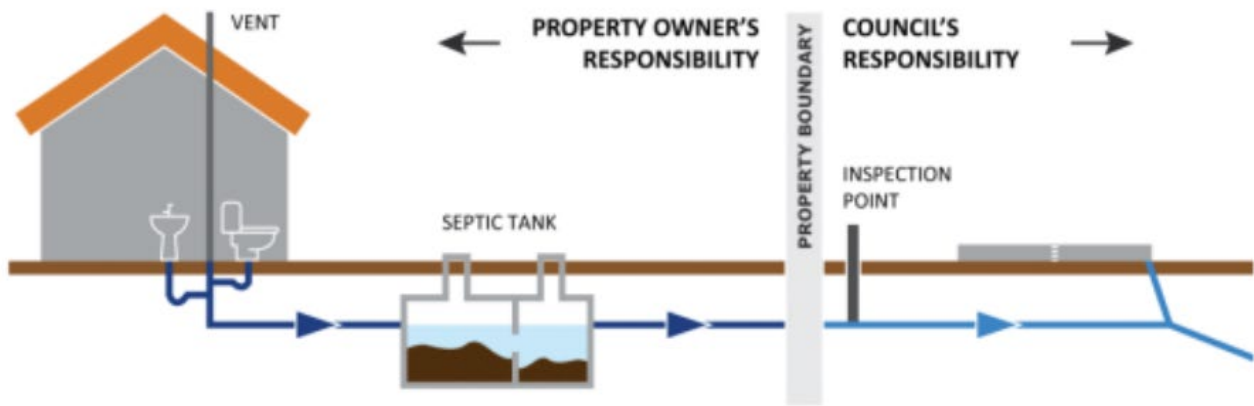


Figure 3: Septic system tank effluent disposal²

This function is essential for preventing solid materials and grease from entering the collection system, where they could accumulate and cause blockages. If a septic tank is not emptied on schedule and becomes overfilled with sludge/scum or solids, it will eventually flow out with the effluent and into the CWMS collection network. Such carryover can obstruct gravity drains or clog pump stations, potentially leading to sewage overflows into the environment or back-ups in customers' yards. Effective septic tank maintenance and desludging is essential to CWMS operation by significantly reducing the risk of pipe blockage incidents. Figure 4 gives an overview of STED schemes.

Trade waste pretreatment devices (for non-residential sources) are similarly important in blockage prevention. Grease traps at restaurants, oil separators at mechanical workshops, and other arrestors remove fats, oils, grit, and heavy organic loads that could harden or congeal and stick to internal surfaces of the sewer mains. Discharging untreated trade waste into a CWMS is prohibited, as it can block pipes or disrupt treatment. Theoretically, councils should set trade waste discharge standards that define acceptable water quality, assess risk, and apply charges to businesses accordingly). However, in practice, this is often not consistently implemented, and many councils lack the systems or resources to enforce these standards effectively. Businesses and property owners are responsible for their own trade waste device maintenance.

2. Minimising Odours and Corrosion

When excessive organic matter accumulates in septic tanks or sewer networks, it becomes anaerobic and produces unpleasant odours and corrosive gases like hydrogen sulphide that can damage or degrade network infrastructure. Well-maintained septic systems manage this by digesting waste in a controlled environment and minimising solids discharge to sewers, reducing the odour and corrosion risk. If neglected, excess organic load (i.e. sludge escaped from septic tanks) can lead to odours and potentially dangerous gases like methane emanating from pump stations and other network access points. Controlling odours through effective pretreatment also helps prevent infrastructure

² Source: Wakefield Regional Council CWMS flyer

corrosion, whereby hydrogen sulphide can transform into sulphuric acid and damage concrete pipes and metal parts. Maintaining low sulphide levels prolongs CWMS system life.

3. Supporting Treatment Efficiency and Effluent Quality

Septic tanks and trade waste devices act as critical buffers, capturing solids and organic pollutants before wastewater reaches the treatment plant. For example, septic tanks remove a substantial portion of suspended solids and organics (BOD_5), while grease traps intercept high-strength fatty waste. This stabilisation of the waste stream prevents ragging in pumps, clogging of inlet screens, and reduces the risk of shock loads that can disrupt biological treatment processes. By lowering the treatment burden, pretreatment enables more efficient and reliable plant performance, which is essential for maintaining public and environmental health outcomes.

With effective pretreatment, CWMS systems can consistently produce treated water that meets discharge or reuse standards, such as BOD_5 below 20 mg/L and total suspended solids below 30 mg/L, as South Australian and national guidelines require.

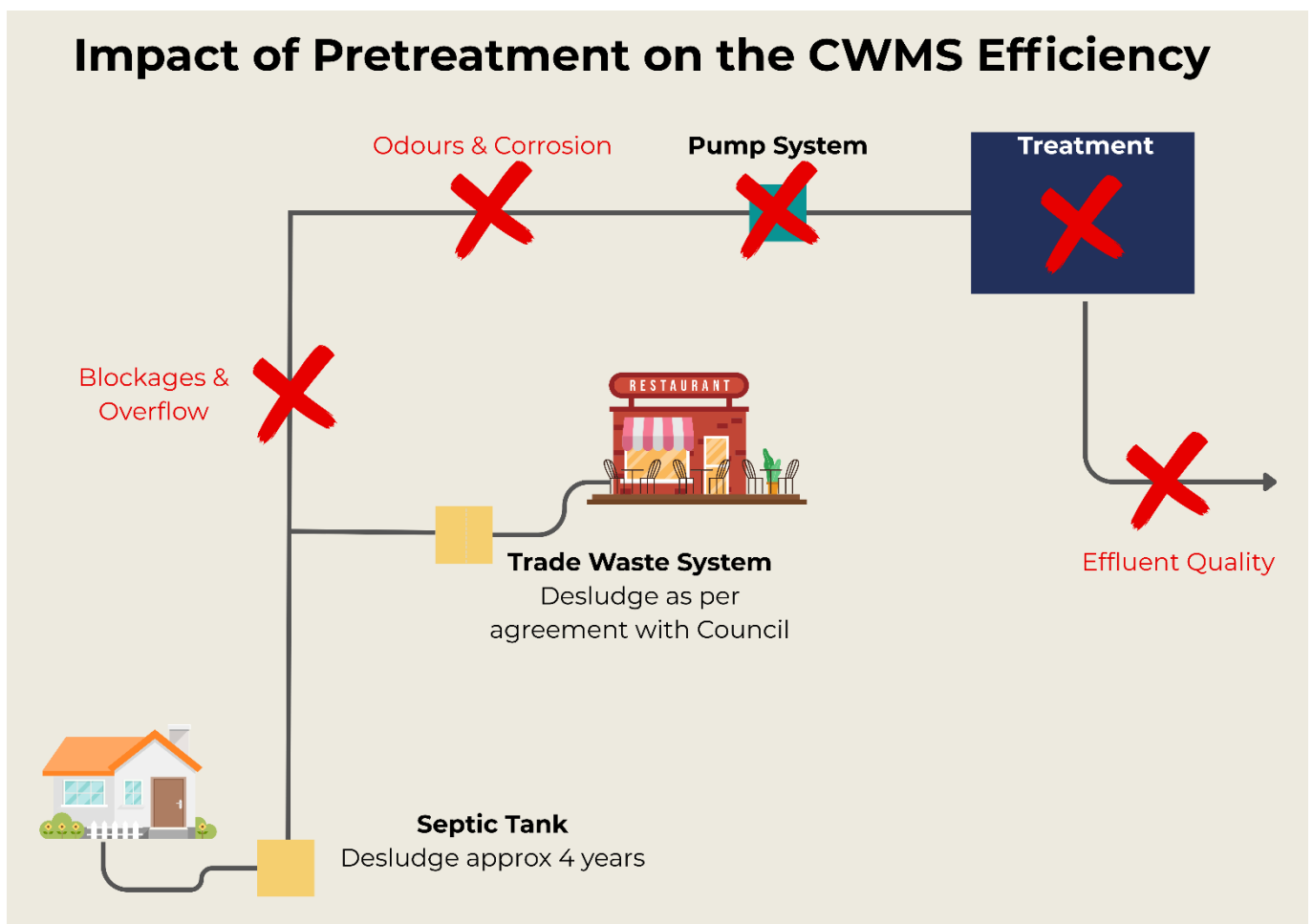


Figure 4: Pretreatment impact on the CWMS efficiency – Summary Diagram

Pretreatment Device Numbers – Implications for the Business Case Analysis

SA Water currently oversees close to 9,200 trade waste arrestors throughout its wastewater networks. These devices are primarily located in metropolitan and larger regional council areas.

In contrast, local councils manage trade waste devices and septic tanks connected to CWMS in rural and regional areas. Data provided by the OTR indicates that there are as many as 93,000 STEDS CWMS connections (residential and non-residential) and that CWMS networks are most commonly STEDS networks (out of 177 CWMS networks across the State, 172 are STEDS-type CWMS networks): STEDS-type CWMS connections substantially outnumber sewer-type CWMS connections.³

While there is currently no centralised or validated dataset quantifying the number of trade waste devices managed by councils, it is estimated that South Australian councils collectively manage at least 1,000 trade waste customers who discharge into CWMS networks via trade waste devices. This figure is extrapolated from SA Water's network, which services approximately 90% of the state's wastewater population and oversees around 9,000 trade waste customers—suggesting that the remaining 10% managed by councils could reasonably account for 1,000 or more trade waste connections.

The survey issued during this study to all SA councils (Appendix C) provided valuable insights, despite limited statewide coverage with 13 of 50 affected councils (25%) participating. Responses indicate the scale and diversity of pretreatment devices in use in council areas. The number of septic tanks per participating council ranged from 640 to 10,753, while the number of trade waste arrestors reported ranged from 1 to 210. The examples below illustrate the range from smaller to larger councils.

Table 2: Pretreatment Device Estimated for a Small, Medium and Large Council

	<i>Small Council – Kingston District Council</i>	<i>Small to Medium Council – Loxton Waikerie Council</i>	<i>Medium Council – Alexandrina Council</i>	<i>Large Council – Mount Barker District Council</i>
Septic Tanks	950	3,068	6,500	10,753
Trade Waste Arrestors	2 known	Unknown	200	101

While septic tank numbers are better understood, councils rely on self-reported data. This variability and lack of comprehensive data underscore the need for enhanced records and information management regarding CWMS pretreatment devices.

3

These figures, sourced from the OTR, represent the best available data, though some ambiguity remains due to mixed schemes and varying data collection timelines.

THE ROLE OF DIGITAL PLATFORMS IN PRETREATMENT DEVICE MAINTENANCE

Notification and Compliance Management Processes

A range of stakeholders are involved in pretreatment device maintenance, with communication and information transferring between councils, property owners, and liquid waste hauler contractors. This section details the typical processes for notification and compliance reporting for septic tank and trade waste maintenance. These are examples only and it needs to be noted that there is variation between councils.

Septic Tank Maintenance – Notification and Compliance Management

Figure 5 illustrates the process flow for a typical Septic Tank Desludge Program, where the council contracts a liquid waste hauler to deliver the desludge service. The process begins with the council preparing a report on septic tanks that are due for desludging in the upcoming months, including property owner contact details. This information is then passed to the liquid waste hauler contractor, who alerts the property owner to arrange a date for desludging. Desludge servicing fees are typically determined by council 'Fee and Charges Policies or Schedules'.

Once access is provided, the liquid waste hauler empties the septic tank and documents observations, notes, photos, and any defects found during servicing. The contractor compiles a monthly report detailing all desludge events and any defects identified. This report is transferred into an information management system managed by the council. If significant risks or non-compliance issues are detected from these reports, compliance action may be initiated by the council. Additionally, if defects are found during servicing, property owners are required to upgrade or repair their septic tanks as necessary.

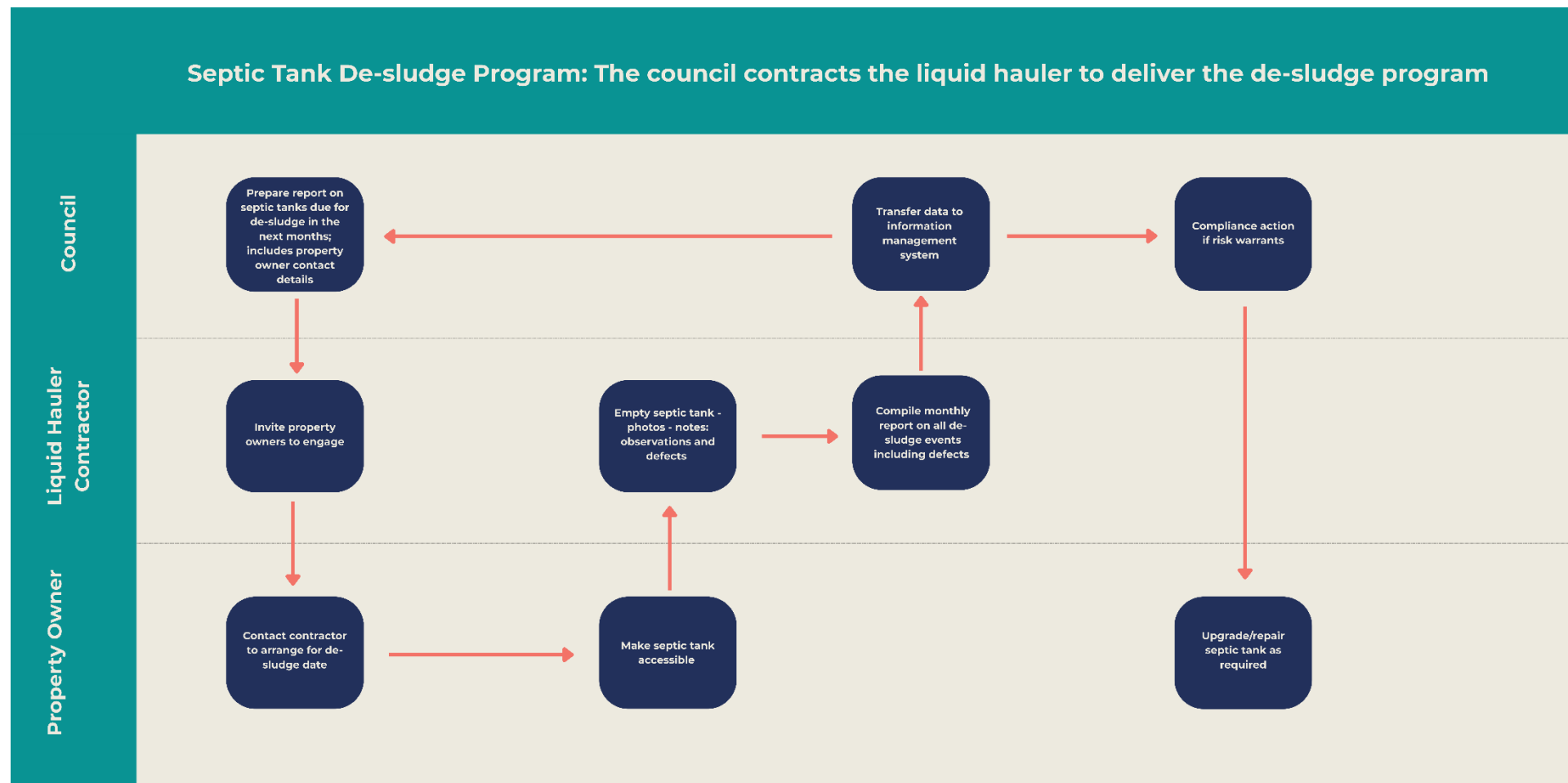


Figure 5: Septic Tank Maintenance – Notification and Compliance Management Process

Trade Waste Arrestor Maintenance – Notification and Compliance Management

Figure 6 illustrates the aspirational process for servicing trade waste pretreatment devices when a property or business owner directly engages a liquid waste hauler contractor. The process begins with the council approving the trade waste discharge pretreatment device and specifying the required service frequency. The property or business owner then engages a liquid waste hauler contractor to service the trade waste device. The contractor services the pretreatment device at the contracted frequency and subsequently reports on this service to both the council and the property/business owner.

Following this, both parties receive, review, and action the report if necessary. If issues are identified, such as insufficient servicing or equipment problems, there may be an increase in service frequency or upgrades/repairs to the tank as required. The council inspects devices periodically to validate that service frequencies are being met according to set points and that set points are sound. Reports are reviewed by council staff, who may take compliance action if risks warrant it.

Service of Tradewaste Pre-treatment devices: property/business owner engages liquid hauler contractor directly

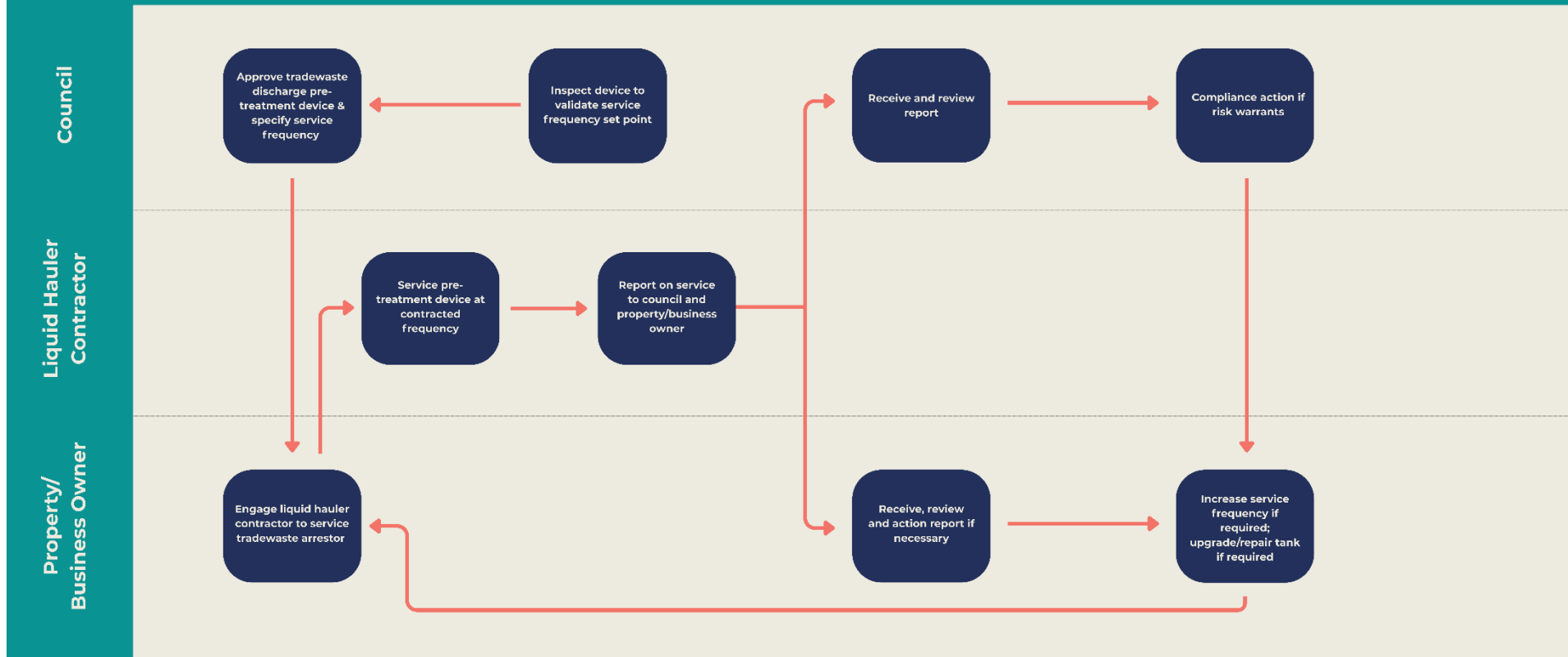


Figure 6: Trade Waste Maintenance – Notification and Compliance Management Process

Notification and Information Management – Digital and Manual Methods

To manage the compliance of pretreatment services effectively, councils require a notification and record-keeping framework that supports visibility and accountability across the network. Water industry entities, both at the state and local government level, are increasingly turning to digital platforms to manage CWMS maintenance and compliance records, aiming to improve data quality, streamline engagement with contractors, and support better public and environmental health outcomes.

This section outlines examples of record-keeping methods (both manual and digital) used by Australian water entities. The content is informed by desktop research and refined through stakeholder engagement outcomes gathered during the business case analysis.

Digital Record-Keeping Methods

Digital systems aim to improve efficiency and consistency, make analysis easier, and help meet reporting obligations. Examples of digital methods in use or being implemented by water industry entities are detailed here:

- **Digital Asset Management for Wastewater Infrastructure:** Digital systems are commonly used to catalogue infrastructure assets such as CWMS pipes, pumps, tanks, and pretreatment devices. Each asset entry can include attributes like installation date, size, and a log of maintenance activities e.g., pump-out dates and inspection notes. This centralised register ensures asset maintenance is planned effectively.
- **GIS Mapping for Wastewater Networks:** Geographic Information Systems (GIS) are used to spatially map CWMS networks, including locations of septic tanks and grease traps. Digitised maps with layered data improve accuracy and support preventive maintenance planning. Each mapped point, such as a grease trap at a business, can display details like inspection history and service frequency.
- **Electronic Document Management for CWMS Records:** While many CWMS-related documents, such as approval certificates, maintenance reports, and customer correspondence, are now commonly produced digitally, councils typically store these records within internal information management systems that function as customer databases. However, the completeness and accessibility of these records can vary, and in some cases, digitisation of historic or legacy documents may still be required. These are typically indexed by property address or asset ID, allowing quick retrieval via computer. Although not a database, this system improves record-keeping by ensuring historic documents, once digitised, can be searched and accessed.
- **Digital Tools for CWMS Maintenance:** Field crews and contractors increasingly use mobile devices to complete CWMS maintenance tasks. Instead of paper forms, digital apps or e-forms allow contractors to log pump-outs or inspections directly on tablets, with data uploaded to central systems or emailed in structured formats. This streamlines workflows and eliminates double data entry. Inspectors can generate compliance reports instantly, and customer complaints, such as odours from septic systems, can be logged, tracked, and resolved within a single digital system.
- **State-Level Reporting Platforms for CWMS:** Councils are required to submit annual CWMS performance data to regulatory bodies. To support consistency, some states have developed centralised digital platforms. Queensland, for example, uses SWIM (Statewide Water Information Management) to collect water and sewer metrics from councils. South Australia is now adopting SWIM to streamline CWMS reporting across the state.
- **Cloud-Based Compliance Registers:** For CWMS pretreatment management, some water entities use cloud-based systems, e.g. SA Water GMB Water uses WasteID to manage trade waste arrestors across their network and Alexandrina Council have recently procured Waste ID. These platforms allow multiple authorised staff to access and update records in real-time, even while in the field. For example, a council officer can log inspection results on a tablet, and the data is instantly available for office staff to review.

Manual Record-Keeping Methods

Many councils, especially smaller or regional ones, have traditionally used manual record-keeping for tracking CWMS maintenance. These methods require diligent human management and are prone to inconsistency but are still in use where resources for IT systems are limited. Key manual methods include:

- **Paper Files & Logbooks:** Councils typically keep a physical file for each property or CWMS scheme, storing installation approvals, inspection reports, and pump-out records. Officers may also maintain logbooks for daily tasks. These serve as official records and are archived.
- **Spreadsheets or Simple Databases:** Many councils use Excel spreadsheets to track CWMS properties and key dates, such as desludge schedules. In some cases, councils manually update dedicated information management platforms that serve similar functions. Both approaches require staff to maintain records manually, which can lead to missed tasks if not consistently managed. Despite these limitations, spreadsheets and basic platforms remain cost-effective tools for councils with limited resources or digital maturity.
- **Printed Schedules and Maps:** Some councils make paper schedules or wall planners showing maintenance timelines, marking completed areas manually. Asset maps may exist only on paper or PDFs.
- **Hardcopy Maintenance Forms:** Maintenance is often recorded on paper forms, such as checklists completed by contractors or notices issued by officers. These documents are stored in binders or scanned as PDFs for compliance but require careful filing and cross-referencing with the correct property or asset.

Case Study 1 - SA Water -WasteID for Trade Waste Arrestor Management

Overview

SA Water has implemented WasteID, a digital platform designed to manage trade waste arrestors and the offloading of septic waste across its network. The system enables real-time waste collection and disposal tracking through QR code scanning, automated notifications, and integration with internal asset and billing systems. Since its rollout in 2019, WasteID has become a core operational tool for improving service delivery, compliance, and data accuracy.

How WasteID Works

WasteID operates through a combination of QR2id tags, a mobile app, and a web-based dashboard. Each trade waste arrestor is tagged with a unique QR code, which haulers scan at the time of service using the QR2id app on a smartphone or tablet. The scan records the service event, including waste volume, location, and time. If internet connectivity is unavailable, the app stores data offline and syncs once reconnected. The system also tracks vehicle movements, allows photo uploads for service verification, and flags suspect activity based on GPS mismatches. All data is securely stored and accessible to SA Water for compliance monitoring and reporting.

Operational Impacts

Before WasteID, compliance officers manually verified grease trap servicing, relying on customer-submitted documentation. This process was inefficient and prone to error. The digital system eliminated manual audits and reduced ambiguity in service records. However, the system's effectiveness depends on haulers consistently scanning tags. Missed scans can result in customer complaints and administrative follow-up. Integration with SA Water's internal digital information management systems (Maximo and Ellipse) initially required significant IT support, and ongoing app support is needed to assist haulers and customers.

Strategic Opportunities

WasteID has delivered measurable operational benefits with 75 Haulers using the app. SA Water reports a 70% improvement in customer compliance with grease trap servicing, largely due to automated reminders and the introduction of monthly recovery fees for non-servicing. The system has reduced callouts for grease-related blockages, assisted in incident investigation and tracking, improved the accuracy of asset databases, and supported more stable business for haulers. Waste volumes are tracked digitally, aiding in billing and incident response.

Recovering Costs for Non-Compliance

WasteID has enabled more efficient monitoring of compliance and is the primary means of evidence for the servicing of pre-treatment devices. SA Water recovers costs for non-complaint discharges in accordance with its Fees and Charges, which are currently:

- | | |
|---|------------|
| • Failure to service grease arrestor/settling pit fee (up to 2,400 L, every four weeks) | \$193.00 |
| • Failure to service grease arrestor/settling pit fee (2,400 L and above, every four weeks) | \$387.00 |
| • Failure to install/upgrade/repair pre-treatment fee (every four weeks) | - \$554.00 |

Case Study 1 - SA Water -WasteID for Trade Waste Arrestor Management...continued.....

Implementation Considerations

SA Water's WasteID rollout took approximately six months and involved subcontractors tagging over 7,000 customer sites. Communication and user training were important in the initiation stage. Implementing and maintaining the system has also required additional administrative support to handle queries and issues from haulers and customers.

SA Water had forecast a reduction in 3 Full Time Officer's based on workload changes associated with the introduction of Waste ID. However there were a certain amount of administrative tasks with the introduction of the new system which counteracted this number. WasteID did enable a modification in procedures and alleviated workload for Trade Waste Officers will allowing an increased focus on non-compliant customers.

Conclusion

SA Water's experience with WasteID demonstrates the operational value of a digital platform for managing trade waste arrestors. The system has streamlined compliance tracking, reduced administrative burden, and improved service delivery. A staged implementation model, starting with trade waste arrestors and expanding to septic tanks, offers a practical and low risk pathway for councils to adopt a digital solution for pre-treatment device oversight and management. Aligning with SA Water's platform could enhance consistency, reduce duplication, and support statewide efficiencies in wastewater management.

CURRENT STATUS ACROSS LOCAL GOVERNMENT WATER ENTITIES

This section explores the current approaches adopted by South Australian councils in managing compliance of pretreatment devices connected to CWMS networks. Drawing on desktop research and refined through stakeholder engagement, the analysis highlights a range of operational and systemic challenges, such as fragmented record-keeping, limited oversight, and constrained resourcing. These findings reveal clear opportunities for sector-wide improvement through standardised practices and digital transformation, with the potential to enhance administrative efficiency, data quality, compliance monitoring, and public and environmental health outcomes.

Feedback from Local Government Water Industry Entities

Survey Outcomes

A survey was distributed to the South Australian Councils via the LGA and EHA networks, receiving responses from 13 councils operating CWMS/STEDS (representing a response rate of 25% of affected councils). Further survey results are detailed in Appendix C, with a summary of key outcomes provided below.

Widespread STEDS Operations

Thirteen of the surveyed councils operate STEDS networks, with one managing over 10,000 septic tank connections.

Confidence in Desludge Management Varies

While 57% of councils are very confident in their desludge program's effectiveness, 43% report only moderate confidence, citing data gaps and manual systems.

Trade Waste Oversight Is Inconsistent

Only 38% of councils monitor trade waste pretreatment devices, and just 19% feel confident in their oversight. Over half do not know how many devices are connected to their networks.

Documentation Systems Are Fragmented

Councils report reliance on outdated platforms, spreadsheets, and manual processes with significant workload

Need for Sector-Wide Standardisation

Councils expressed interest in standardised reporting formats and shared platforms to improve data quality, collaboration, and regulatory compliance

Desludge Programs Are Common but Varied

Thirteen of the surveyed councils run a septic tank desludge program, typically on a 4-year cycle. However, some rely partially on customers to manage desludging between scheduled council services.

Limited Resources and Staffing

Most councils allocate only 0.1–0.3 FTE to desludge program management, with some relying entirely on contractors. Smaller councils report significant resource constraints.

Non-Compliance Detection Is Weak

Only 25% of councils are confident in detecting non-compliant pretreatment devices. Many rely on contractor reports or community feedback, with delays in issue identification.

Strong Interest in Digital Tools

Councils identified cloud-based platforms, mobile data capture, and consistent templates as key solutions to improve administration and record-keeping. WastelD was mentioned as an effective tool.

Mount Barker as a Leading Example

Mount Barker District Council is actively rolling out WastelD for trade waste management and exploring its use for septic tank desludging and recycled water monitoring, highlighting its value and scalability

Council Case Studies

Representatives from select councils of various sizes were interviewed about their practices, challenges, and options for improving their wastewater management. The following case studies highlight key barriers and improvement opportunities.

- **Case Study 2** - City of Onkaparinga - Enhancing Operational Efficiency in CWMS Management
- **Case Study 3** - Alexandrina Council Case Study - Strengthening Pre-treatment Device Management through Digital Transformation
- **Case Study 4** – District Council of Loxton Waikerie - Improving Wastewater Pretreatment Oversight

Case Study 2 - City of Onkaparinga - Enhancing Operational Efficiency in CWMS Management

Network Overview

The City of Onkaparinga operates seven STEDS/CWMS networks, servicing approximately 4,470 septic tanks. A pump-out program is in place on a 4–5 year cycle, managed manually via spreadsheets. Notifications are sent by post, and bookings are coordinated by contractors. Only 0.1 FTE is allocated to this function, and the program accounts for 5–10% of the CWMS operating budget.

Operational Challenges

The current system is functional but resource-intensive. Manual data entry, lack of integration with council systems, and reliance on customer compliance contribute to inefficiencies and result in errors. Process mapping has identified pain points, including inconsistent scheduling and limited visibility of tank conditions. The council has moderate confidence in its data. As the current system does not support a risk-based approach, it is recognised that some tanks may be pumped more frequently than necessary, potentially increasing costs and reducing treatment plant efficiency (research into optimal pump out frequencies is the subject of another CWIF program study).

Trade Waste Oversight

Council oversight of trade waste pretreatment devices is limited. While influent is monitored and contaminated tanks are promptly addressed, no formal program or consistent data capture exists. The council has not experienced significant operational issues from trade waste but acknowledges that better visibility could support more proactive maintenance planning. Any future increase in trade waste-related impacts would require a business case to justify and prioritise action.

Digital Platform Opportunity

Council feedback indicates that a digital platform could significantly improve operational efficiency. Desired features include automated owner notifications, online bookings, real-time service reporting by contractors, and integration with internal finance and environmental health information management systems. These capabilities would reduce administrative burden, improve data accuracy, improve customer service, support risk-based scheduling and improve the ability to audit work. The council has expressed interest in mobile data capture and consistent templates to streamline operations.

Implementation Considerations

Challenges include contractor adoption of new technology and IT department prioritisation. While Onkaparinga sees limited benefit in a statewide platform for septic tank management due to direct contractor relationships, there is greater potential value for trade waste and aerobic servicing. Shared templates, consistent data capture, and inter-council collaboration could deliver long-term benefits.

Conclusion

Onkaparinga's experience highlights the operational benefits of transitioning to a digital platform. A coordinated, statewide approach could streamline service delivery, improve data management, and enhance collaboration between councils and contractors delivering long-term value for local government and the communities they serve. However, council priorities for a digital platform would depend on their wastewater risk profile and contractor systems in place.

Case Study 3 - Alexandrina Council Case Study - Strengthening Pre-treatment Device Management through Digital Transformation

Overview of STEDS septic tank management

Between 6000 and 6500 septic tanks are connected to STEDS networks which are serviced by four of the five council-owned and operated treatment plants. None of the council networks are attached to SA Water infrastructure. The five-year septic tank desludge program is delivered by a third party. Administration of the program requires about 0.1–0.2 FTE of council staff time. Administrators are somewhat confident in the septic tank count and related data and report challenges around oversight and control of large privately owned septic tanks that should be desludged more often than once every 5 years.

Late in 2024 a dedicated digital platform for managing the desludge program was retired when the council adopted a new information management system. Since then, spreadsheets have been used to program desludge events and to record other relevant data, with associated impacts on administration efficiency and data integrity. Access to legacy data in the retired platform requires specialist skills and knowledge, and the data becomes increasingly outdated over time.

Network failures such as odour, corrosion, blockages and overflows do of course occur, and are controlled using programmed preventative maintenance (e.g. network flushing and infrastructure upgrades). In any case, it's generally very difficult to attribute instances of network failure directly to influent quality relating to failure of oversight of septic tanks.

Trade Waste Oversight

Around 200 tradewaste pre-treatment devices are connected to the council's networks, and there is presently no formal program to proactively monitor their management by private owners and their respective third-party contractors. Oversight is typically reactive and triggered by network blockages, complaints or visible faults, and there is as yet no framework in place to support consistent capture of relevant data.

Regulatory Response

There is preparedness to enforce correction of faults (e.g. underserviced pre-treatment devices, damaged devices, stormwater ingress etc) using the *South Australian Public Health (Wastewater) Regulations 2013* and/or the *Water Industry Act 2012*, and there is optimism that a digital platform with appropriate capability would provide opportunities for improvement in effectiveness and efficiency of regulatory response.

Digital Platform Opportunity

With retirement of the legacy digital platform for managing the septic tank desludge program, the council has very recently procured the same WasteID digital platform that is used in South Australia by SA Water and GMB to manage oversight of tradewaste pre-treatment devices. While its early days yet, administrators are optimistic that the new platform will bring improved efficiencies and effectiveness in the management of septic tanks as well as trade waste pretreatment devices through functionality that supports automated notifications to administrators and regulators, secure cloud-based data storage, and mobile tools for real-time service reporting by contractors etc. **Council's journey in acquiring and implementing an IT solution is shown in Appendix D.**

Conclusion

According to our survey results, this case study is generally representative of the status of management of CWMS pre-treatment devices across the State. In this case, the loss of a dedicated digital platform has driven adoption of a new one that is already in use by the two largest water utilities in South Australia. This represents a first small step towards a unified approach to management of wastewater pre-treatment devices across the State and offers the potential for gains made through coordinated collaboration.

Case Study 4 - District Council of Loxton & Waikerie Case Study: Improving Wastewater Pretreatment Oversight

Network Overview

The District Council of Loxton Waikerie operates approximately 3,068 STEDS connections. The total number of septic tanks is unknown, and confidence in this data is low. A desludge program is in place, managed by 0.2 FTE (1 staff member, 1 day/week. Desludging frequency targets every 4 years, but compliance monitoring is lacking.

Operational Challenges

The CWMS network experiences blockages due to incomplete removal of fats, oils and grease (FOG), solids, and soil. These lead to overflows into septic systems and require manual flushing of gravity mains. While corrosion is a concern in some trade waste areas, no significant infrastructure deterioration has been observed. Incident records are inconsistent, limited to emails and photos. Each blockage incurs an estimated \$400 call-out cost, but broader financial impacts remain unknown.

Trade Waste Oversight

Trade waste pretreatment oversight is minimal. The council does not actively monitor devices and is not confident in detecting or responding to non-compliance. Reports from contractors are forwarded to council and stored in the record management system, but no live or interactive system exists. There is interest in improving integration and oversight.

Digital Platform Opportunity

A statewide digital platform could enhance consistency, compliance, and environmental outcomes. Desired features include integration with existing council systems, cloud-based tools, mobile data capture, and GIS compatibility. These would support inter-departmental monitoring and help build a complete picture of waste generation and infrastructure health.

Implementation Considerations

Key concerns include cost and system compatibility. The council is open to exploring digital solutions but emphasises the need for seamless integration with current internal information management systems. Existing initiatives are known but not yet adopted due to resource constraints.

Conclusion

Loxton Waikerie's wastewater management faces challenges in data accuracy, operational efficiency, and compliance oversight. A statewide digital platform offers strategic value by improving record-keeping, reducing maintenance costs, and supporting environmental stewardship, provided it aligns with existing council systems and budget realities.

Challenges in Oversight of Pretreatment Devices

Councils across South Australia face significant and persistent challenges in managing compliance and maintenance of wastewater pretreatment devices connected to their CWMS. These challenges are both operational and systemic.

One issue is the fragmentation of record-keeping systems. Many councils rely on outdated and/or non-digital platforms and processes such as manual spreadsheets, which are not integrated with newer systems. In some cases, the transition to newer platforms has resulted in the loss of dedicated modules for septic tank management, forcing councils to revert to manual data entry. This increases the risk of errors, delays, and incomplete records.

Resourcing constraints further exacerbate the problem. Most councils allocate 0.1–0.3 FTE to CWMS oversight, and responsibilities are often shared across departments. This limits capacity for inspections, data entry, and follow-up on non-compliance. Councils report delays in receiving contractor service reports and difficulty verifying whether customer-led desludging has occurred. Monitoring trade waste pretreatment devices is particularly weak: 57% of councils do not know how many devices are connected to their networks, and only one-third actively monitor them.

Only 21% of council survey participants are very confident in their ability to detect issues such as leaking tanks or stormwater ingress. Many rely on community feedback or contractor reports to identify problems, and delays between pump-outs and issue reporting are common. Operational coordination remains a challenge in many councils, where Environmental Health Officers have historically managed septic tank desludge programs but are not always responsible for overseeing STEDS systems. This separation of roles between CWMS Operations Teams and Environmental Health Teams can lead to gaps in communication, fragmented oversight, and reduced visibility of system performance.

Nearly 70% of councils that participated in the council survey (Appendix C) reported relying on property owners to manage desludging between scheduled council pump-outs. However, confidence in whether this is being done at the appropriate frequency is low, with several councils noting they have no monitoring systems in place or receive no reports when customer-led desludging occurs.

Opportunities Through Existing Digital Platforms

Several digital platforms offer practical solutions to address these challenges and meet councils' record-keeping needs. A prominent example is WastelD, a cloud-based field reporting platform tailored for managing maintenance of tradewaste arrestors connected to reticulated wastewater networks. WastelD uses QR-code tags linked to GPS coordinates, allowing liquid haulers to rapidly identify assets with a mobile device and record service data in real time. The app supports offline mode, photo documentation, and automatic syncing to a centralised database. Each service event is time-stamped and accessible to council officers and regulators, replacing paper forms and reducing transcription errors. WastelD also includes built-in audit trails, service reminders, and issue reporting functions. SA Water uses it for tradewaste compliance (see Case Study 1). Mount Barker Council (GMB Water) has fully adopted the Waste ID system for trade waste, integrating about 50% of pretreatment devices. Alexandrina Council has recently procured WastelD to manage its septic tank desludge program as well as trade waste arrestors, having recognised its potential to improve operational efficiency and compliance tracking.

While this project did not involve a full market assessment, Waste ID is recognised as a well-established model for managing trade waste pretreatment devices within centralised wastewater systems. Other COTS providers also demonstrate relevant capabilities that could emulate or adapt similar functionality to meet the needs of South Australian councils. For example, Onsite Wastewater Reporting Australia (OWRA), which enables service companies to record maintenance activities and submit digital reports; Onsite Management App (OMA), which allows residents and inspectors to conduct AWTs inspections remotely using smartphone image analysis; and SWIMLocal, developed by the Queensland Water Directorate, which integrates mobile field data with regulatory reporting systems to support operational decision-making and improve data consistency. Defining the IT and technical requirements of councils is recommended to inform a complete assessment of platform options (refer to the Implementation Plan section).

Existing platforms demonstrate the potential for a statewide digital solution that integrates field reporting, centralised data storage, and automated compliance tracking. The feedback from council survey participants indicates interest in cloud-based systems, mobile data capture tools, and standardised templates to improve administration and service delivery.

Examples of Coordinated Statewide Digital Platform Approaches

To explore opportunities for statewide digital platform coordination, examples of digital platforms promoted to councils at a statewide level were investigated. Here we refer to 3 examples of statewide coordination:

Squiz

The Squiz Digital Experience Platform is a Content Management System (CMS) that is being utilised by SA LGA council members for website hosting and creation. The LGA contracted LGA Procurement to run the Request for Tender process following which Squiz was selected. LGA SA has created significant efficiencies for member councils by adopting the Squiz platform for website development and management. By leveraging Squiz's highly flexible content management system and a shared library of over 40 reusable interface components and templates, councils could rapidly build and deploy websites tailored to their individual branding and content needs. This approach has enabled councils to share content across multiple sites, automate workflows, and integrate with existing systems, dramatically reducing site-building time by 75% and saving over \$2 million in digital costs. The platform's low-code tools have allowed even non-technical teams to manage and update sites easily, further streamlining operations. As a result, uptake has been strong, with more than 65 South Australian councils migrating to and actively using the Squiz platform for their web presence. During business hours the LGA's Web Solutions team provides councils with personalised website support.

- **The Funding Roll-out Model:** In 2001, the **Unity** CMS was developed and funded through a Federal Government grant of approximately \$1.0 million (the Networking the Nation – local government fund) and further developed as part of a wider Electronic Services Program the LGA facilitated at the time. To ensure participating councils understood there would be an ongoing cost for website hosting and development, the LGA sent them an invoice for the first year of website hosting, marked PAID. In year 2 the LGA invoiced councils for website licence and hosting and continued thereafter to do so. Financial business models have been developed along the way to fund ongoing upgrades and development of the system for councils. In 2018, the LGA began a process to seek a new website platform provider and went to tender. In 2018, the LGA launched a campaign requesting existing council clients to commit to a new offering, and in March 2019, the LGA signed a deal with Squiz to provide the LGA Squiz platform.

Dogs and Cats Online

The Dogs and Cats Online (DACO) platform in South Australia is an example of statewide coordination of a digital platform for compliance management by councils and was developed to support State Government legislation requiring all dogs and cats to be microchipped from July 1, 2018. Dogs (and cats in some councils) also need to be registered and recorded on a state-wide basis.

DACO is a solution for the Dog and Cat Management Board within the Department for Environment and Water, as well as local councils, that replaces 69 individual council dog and cat registers with a single, central, secure online database accessible 24/7, including via mobile devices. DACO is funded through the Dog and Cat Management Fund, which receives a percentage of dog and cat registration fees

SRA Information Technology Pty Ltd was engaged by the Dog and Cat Management Board to develop the initial platform⁴. It's noted that software provision was re-tendered in 2023.

⁴ <https://www.sra.com.au/case-study/dogs-and-cats-online-registration-software-development-daco/>

Skytrust – Work Health and Safety Management for Councils

LGA SA successfully developed and implemented a centralised digital platform model that offers valuable insights for the business case analysis. The Skytrust model demonstrates how a unified system, supported by structured governance and sector-wide collaboration, can deliver consistent, scalable outcomes across councils.

Skytrust (a cloud-based Work Health and Safety (WHS) platform) is used to streamline hazard reporting, incident management, and WHS procedures across South Australian local governments. The introduction of Skytrust to the sector was driven by Local Government Risk Services (LGRS) and Return-to-Work requirements approximately 10 years ago. There was a need for council members to report hazards and incidents as part of the Work Health and Safety (WHS) performance standards for self-insurer requirements.

Uptake and the use of Skytrust tools by council members is voluntary. A video with pilot members speaking of their experiences and a promotional brochure, were produced to promote the platform to LGA members. Promotion to council WHS representatives has continued through relevant sector forums.

This voluntary uptake approach recognised that council members have full autonomy in how they manage their own organisation. As of July 2025, approximately 58% of members had started using the documents/tools through Skytrust.

Skytrust is managed under a new governance framework (LG Safe) which is depicted in Figure 8. The development and review of each WHS procedure for the platform followed a consistent process (as summarised in Case Study 5).

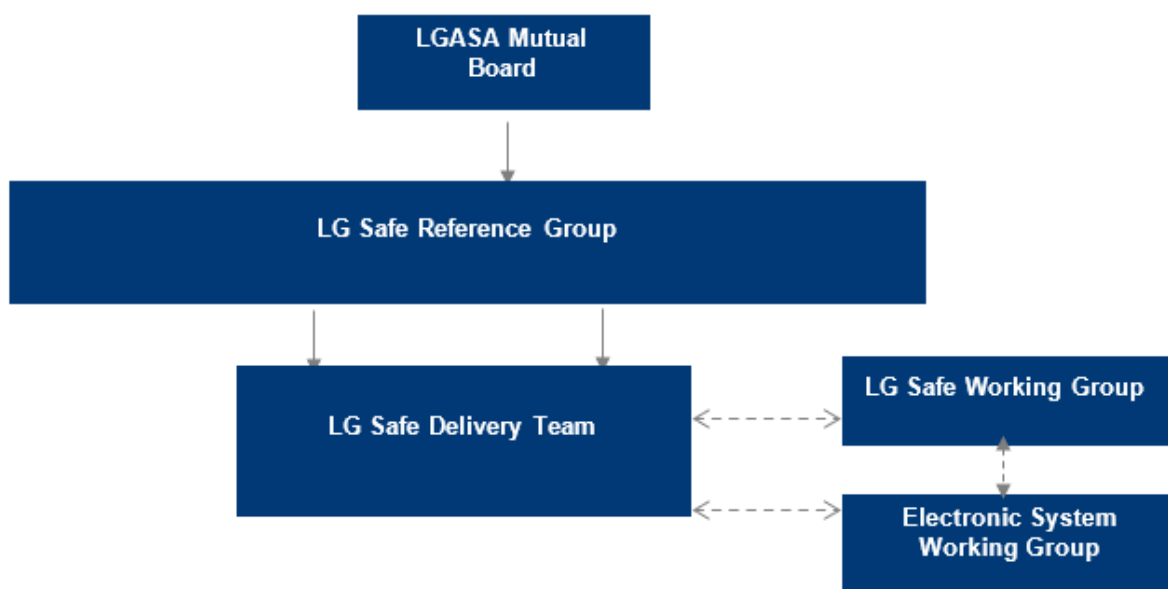
One of the project aims was to improve mutuality and efficiencies across the sector. A key benefit of a statewide approach is that Skytrust provides a tried and tested electronic system available to all members. There are efficiencies, especially for smaller councils, in having access to a suite of reviewed WHS resources to form part of their WHS management system. It has contributed to a positive WHS culture across the sector.

Case Study 5 illustrates the Skytrust implementation and its relevance as an example for developing a statewide CWMS platform.

- **The Skytrust Funding Model:** Skytrust access is funded through LGRS contributions. LG Safe doesn't charge Members any additional costs beyond their LGRS contributions for access to the platform.

The LG Safe project governance model is depicted in Figure 8.

Figure 7: LG Safe Governance Model



Case Study 5: Governance and Sector-Wide Implementation of Skytrust for South Australian Local Government

Overview

Skytrust is a cloud-based WHS platform that has been used within South Australia's local government sector for over a decade. Initially introduced by Local Government Risk Services (LGRS) to support hazard and incident reporting under self-insurer WHS performance standards, Skytrust has since become the foundation for the LG Safe project, a sector-wide initiative to standardise WHS procedures and tools.

Purpose and Approach

The LG Safe project aimed to improve mutuality and operational efficiency across councils by developing a new WHS management framework. This included a full suite of procedures and tools stored within Skytrust. While use of the platform is not mandated, approximately 58% of member councils have adopted the tools, with further uptake expected as the framework is completed.

Governance Model

The governance structure for LG Safe and Skytrust content development is multi-tiered:

1. Initial drafting of procedures
2. Review by LGRS
3. Targeted review by WHS practitioners
4. Final review by the LG Safe Working Group
5. Legal review and formal ownership by LGRS

This structured process ensures broad consultation, legal compliance, and sector relevance. The Working Group plays a key role in guiding decisions and maintaining alignment with council needs.

Promotion and Engagement

Promotion has focused on product quality and operational efficiency. A video featuring pilot councils and a promotional brochure were developed. Regular communications and updates were shared through WHS & Risk forums, with the Project Manager attending to provide direct engagement with practitioners.

Funding and Access

Skytrust access is included within existing member contributions to LG Safe, with no additional costs. Contract management is handled by LGRS, ensuring consistency and scalability across councils of varying sizes.

Lessons Learned

While Skytrust is a proven system, uptake is not guaranteed. Councils retain autonomy in managing their operations, and adoption depends on perceived value and alignment with local practices. The project highlights the importance of stakeholder consultation, governance clarity, and sustained engagement.

DIGITAL SOLUTION - ESTIMATED COSTS AND SAVINGS

The cost for councils to implement a digital solution would depend on their scale of use, including the number of wastewater devices in their area and whether they seek to apply the digital application to some or all wastewater management applications: septic tanks, trade waste devices or both. Councils may also apply in the decentralised context to AWTs (the subject of the LGRDS project no. 2023.68).

If a statewide approach is taken, costs would need to be confirmed through a procurement and commercial negotiation process. In this section, Rough Order of Magnitude (ROM) cost estimates for applying a digital approach to septic system compliance management have been developed using pricing from an indicative COTS digital solution (see Appendix E for full details).

Costs Applied to a Case Study Regional Council

Cost estimates using a reasonably large case study regional council are shown in Appendix F. The following number of devices which have been applied to the cost estimate:

- Septic tank systems – 6500
- Trade waste systems – 200
- AWTs - 2500

In the first instance, Councils would need to audit their number of systems to inform the digital platform rollout and associated costs for their jurisdiction. As the survey of councils highlighted, many councils would need to determine more accurately how many trade waste devices are connected to their networks.

Cost Estimates Statewide

Appendix G outlines the projected costs for rolling out a COTS solution to manage pretreatment devices and AWTs on a statewide scale, using indicative figures. It details itemised expenses over three years, including annual subscription fees for 50 councils, implementation support (applied in the first year only), and costs associated with QR2id stickers for AWTs, data matching for septic tanks, trade waste arrestors, and related tagging and support services. The costs are broken down by unit, quantity, and total expenditure for each year, illustrating both one-off setup costs (such as initial sticker deployment and implementation support) and ongoing annual fees (like data support and subscription renewals).

At a statewide level, cost drivers in the first year include the solution subscription (\$120,000), implementation support (\$125,000), and the initial issue of QR2id stickers for 40,000 AWTs (\$260,000). Subsequent years reflect lower ongoing costs, with annual subscription and support fees, sticker replacements (at 10% per year for AWTs and 25% for trade waste tags), and consistent charges for data matching and support across septic tanks and trade waste devices. The total projected expenditure is \$923,740 for the first year, mainly due to initial setup activities, which then stabilises at \$490,000 per year as the program shifts to a maintenance and operations phase. This financial breakdown provides a clear picture of both the upfront and recurring investments required for a statewide rollout of the COTS solution for managing pretreatment and AWT devices.

Cost and Saving Estimates – Septic Tank Compliance Management

Costs for septic tank compliance management have been modelled based on the COTS example (refer Appendix D) based on three scales:

- Small – defined as council with 950 septs within the region
- Medium – a council with 6500 septs within the region
- Large – a council with 10500 septs within the region

Modelling is provided in Appendix G.

Startup expenses include additional fees for digital platform setup and implementation. In each case, a \$10,000 allowance has been included for initial auditing and preparation for data migration by the council.

Once established, the adoption of a digital platform is expected to reduce the allocation of human resources dedicated to administrative tasks, potentially leading to resource savings within council wastewater management budgets. While these efficiencies may not immediately appear as direct financial savings, they could enable councils to reallocate human resources to other essential activities or towards addressing compliance (as was the experience in the SA Water Case Study – refer to Case Study 1)

A conservative estimate for avoided blockage costs was calculated at \$6,600 per 5,000 connections annually, based on the proportion of maintenance costs attributable to blockages.

Summarised results of the modelling provided in Appendix H are provided in Table 3.

Table 3: Digital Costs for Septic Tank Compliance Management – Small, Medium and Large Council

Scale	Septic Tanks	Cost Year 1	Cost Year 2	Human Resource Impact	Reduced Blockages Impact	Cost Impact Year 1	Cost Impact Year 2	5 Year Cumulative Saving
Small	950	\$20,825.00	\$7,250.00	-\$12,000.00	-\$1,254.00	\$7,571.00	-\$6,004.00	-\$16,445.00
Medium	6,500	\$29,150.00	\$14,150.00	-\$24,000.00	-\$8,580.00	-\$3,430.00	-\$18,430.00	-\$77,150.00
Large	10,500	\$35,150.00	\$20,150.00	-\$36,000.00	-\$14,194.00	-\$15,044.00	-\$30,044.00	-\$135,220.00

As shown in Table 3, the impact of the introduction of a platform to wastewater management administration budgets is summarised as follows:

- Small scale: Year 1 shows a cost increase of \$7,571, while Year 2 shows a cost saving of \$6,004. Over five years, the cumulative savings are projected to be -\$16,445.
- Medium scale: Cost savings of \$3,430 are projected in Year 1 and \$18,430 in Year 2, reflecting growing savings. The five-year cumulative savings for the medium scale are estimated at \$77,150.
- Large scale: Savings are even larger, with \$15,044 saved in Year 1 and \$30,044 in Year 2. For large-scale implementations, the total savings over five years are projected to reach \$135,220.

Overall, medium to larger-scale utilities are estimated to yield greater cost savings from the first year. While small-scale utilities would, on balance, incur costs in the initial set-up year, savings are projected for the second year of implementation onwards. Using data on retailers licensed by ESCOSA⁵, it is estimated that 26 of the 50 affected councils (i.e. 52%) have more than 950 STEDS connections. This means that we can say with reasonable confidence that at least 52% of affected councils would experience appreciable savings from the second year of implementation – if not before. It should be noted that these are conservative estimates based on our understanding of market prices for an existing COTS solution, and we anticipate additional savings to be realised through open-market procurement.

⁵ Essential Services Commission of South Australia (2025). Review of the small-scale water regulatory framework. August 2025.

TOWARD A STATEWIDE DIGITAL SYSTEM – RISK BENEFIT ASSESSMENT

This section presents a risk-benefit comparative evaluation of three strategic options for coordination of wastewater pretreatment device compliance and maintenance across South Australia’s local government water entities. The assessment is based on three options derived from the project research and stakeholder engagement. These include:

Option 1 – Majority of councils using manual systems. This option is based on the majority councils continuing to operate independently, relying on a mix of manual systems, spreadsheets, and contractor reports to manage wastewater pretreatment devices.

Option 2 – Council-level digital uptake – This option is based the assumption that councils would adopt and procure digital platforms independently. Central coordination would involve promoting awareness of a consistent platform and joint training for councils and contractors. Councils can retain control over procurement and implementation, enabling them to tailor solutions to their operational contexts and integrate with existing systems such as TechOne or Synergy.

Summary of Assessment Option 3 – Statewide Digital Solution – This option proposes the implementation of a centrally coordinated digital platform to manage wastewater pretreatment oversight across South Australian councils. Under this model, a statewide central agency, would oversee procurement, governance, and implementation, ensuring structured coordination and consistent support across the sector.

The three strategic options assessed are summarised in the table below:

Table 4: Three Strategic Options for the Risk Benefit Assessment

Option	Title	Description
Option 1	Majority of councils using manual systems	Current <i>status quo</i> situation where councils maintain autonomy. Limited statewide coordination between councils.
Option 2	Council-level digital uptake	There is promotion of a consistent platform at a statewide level. Councils undertake their own procurement. Centralised coordination to provide training and support to councils (and contractors within their areas) that opt in for the promoted platform.
Option 3	Coordinated Statewide Digital Solution	Centralised platform with structured statewide coordination and procurement by a lead agency. This option proposes a centralised, cloud-based platform, with features such as Application Programming Interface (API) integration, access control model, and emergency notification features managed statewide (through a lead agency). Training and support (e.g. IT, administration, technical) are coordinated through the lead agency. A defined scope, IT and technical requirements of SA councils would inform the statewide solution.

Risk-Benefit Parameters

The assessment is structured around six key categories that reflect the operational, regulatory, and strategic dimensions of CWMS management:

1. **Economy & Human Resources** – Evaluates staffing, administrative burden, and procurement efficiency impacts.
2. **Customer Service** – Evaluates the impact on customers such as residents of businesses with pre-treatment systems as well as liquid haulers that work across jurisdictions.

3. **Wastewater Operational** – Assesses effects on desludge scheduling, asset performance, and influent quality.
4. **IT Operational** – Considers system compatibility, integration challenges, and digital maturity.
5. **Environmental** – Examines the ability to detect and respond to environmental risks.
6. **Compliance** – Reviews capacity to meet regulatory obligations and maintain audit trails.
7. **Strategy** – Analyses alignment with sector-wide digital transformation goals and long-term planning.

Each category includes a description of risks and benefits for the following three implementation options.

Risk-Benefit Assessment

Table 5 Summarises the risks and benefits associated with three options across the six categories. It draws on evidence obtained through stakeholder feedback, council survey data, platform capability analysis, and case studies documented throughout this report. This assessment was undertaken in consultation with the Project Reference Group and provides a structured comparison to inform decision-making.

Note 1: The three strategic options presented in this assessment are conceptual models developed to support the comparative risk-benefit analysis. It is acknowledged that councils may adopt hybrid or transitional approaches that fall between these options, depending on their infrastructure, resources, and readiness.

Note 2: The matrix provides a high-level summary of risks and benefits associated with each option. While it offers a general framework for comparison, actual impacts may vary across councils due to differences in operational context, digital maturity, and wastewater risk profiles.

Table 5: Business Case Analysis Options Risk-Benefit Assessment:

Category	Option 1 – Majority of councils using manual systems. Current status quo situation where councils maintain autonomy. Limited statewide coordination between councils.	Option 2 – Council-level digital uptake. Promotion of a consistent platform at a statewide level. Councils undertake their own procurement. Centralised coordination to provide training and support to councils (and contractors within their areas) that opt in for the promoted platform.	Option 3 – Statewide Digital Solution – Statewide coordination and procurement by lead agency. A centralised, cloud-based platform, with features such as Application Programming Interface (API), integration, access control model, and emergency notification features. Training and support coordinated through lead agency.
Economy & Human Resources	Risk: Higher administrative burden; duplication of effort; inefficient use of staff time; no economies of scale; increased maintenance costs due to poor influent quality. Opportunities for resource sharing between councils are limited. Benefit: No imposed upfront cost or change management required; councils retain autonomy.	Risk: Uneven uptake; smaller councils may lack resources; duplication of procurement effort; council-specific API development costs where councils' software differs, leading to duplication of software development needs and greater cost at sector level. Resistance to change and inconsistent levels of digital literacy (for staff/private operators). Benefit: Councils can tailor solutions to local needs; early adopters may realise efficiency gains; administrative efficiencies in reporting, forecast overall cost savings beyond set-up year. Shared training & support – reducing overall training burden and increasing user uptake.	Risk: Initial investment in governance, integration, and training; requires cross-council coordination; technology readiness and need for a digital solution varies across councils. Resistance to change/level of digital literacy (for staff/private operators). Requires funding and resourcing at the lead agency level. Benefit: Economies of scale and improved buying power at sector level; reduced admin burden delivers efficiency gains and substantial financial savings to council for cost offsetting elsewhere; shared training and support; improved workforce efficiency and flow-on council productivity gains; potential to negotiate unit costings, forecast overall cost savings beyond set-up year.

Category	Option 1 – Majority of councils using manual systems. Current status quo situation where councils maintain autonomy. Limited statewide coordination between councils.	Option 2 – Council-level digital uptake. Promotion of a consistent platform at a statewide level. Councils undertake their own procurement. Centralised coordination to provide training and support to councils (and contractors within their areas) that opt in for the promoted platform.	Option 3 – Statewide Digital Solution – Statewide coordination and procurement by lead agency. A centralised, cloud-based platform, with features such as Application Programming Interface (API), integration, access control model, and emergency notification features. Training and support coordinated through lead agency.
			Resource-sharing between councils is better enabled. Common platform provides a mechanism for adopting consistent resources, e.g. tools for implementing trade waste management framework (as per Skytrust Case Study).
Customer service	Risk: Community and businesses that engage with more than one council/water industry entity encounter inconsistency that creates inefficiency and dissatisfaction. Benefit: No need for community and business to adjust current relevant practice	Risk: Community and businesses that engage with more than one council/water industry entity encounter some inconsistency that creates inefficiency and dissatisfaction. Benefit: Some consistency across councils enables some efficiency for community and businesses	Risk: Community and businesses that don't engage with more than one council/water industry entity may be resistant to whole-scale change Benefit: Community and businesses that engage with more than one council/water industry entity enjoy interface consistency that promotes improved efficiency and customer satisfaction
Wastewater Operational	Risk: Resource-intensive and/or inconsistent oversight of maintenance scheduling; poor visibility of tank condition; increased risk of blockages, odour, corrosion, and overflows wherever maintenance oversight is sub-optimal; reactive management of sewer assets and treatment process operations in response to variable wastewater quality; potentially variable effluent quality wherever treatment performance suffers from variable influent quality.	Risk: With limited coordination in place: data collection continues to be fragmented; limited ability to benchmark or share learnings across councils; integration challenges with existing systems (workflow & process). Benefit: Improved CWMS maintenance scheduling, real-time service reporting, and asset tracking; process mapping promotes role clarification.	Risk: Less flexibility in data flow and process customisation; requires standardisation across councils. Benefit: More efficient and better maintenance oversight and tracking; reduced network blockages and asset degradation/corrosion risks, enhanced process performance and improved effluent quality; consistent data templates and protocols.

Category	Option 1 – Majority of councils using manual systems. Current status quo situation where councils maintain autonomy. Limited statewide coordination between councils.	Option 2 – Council-level digital uptake. Promotion of a consistent platform at a statewide level. Councils undertake their own procurement. Centralised coordination to provide training and support to councils (and contractors within their areas) that opt in for the promoted platform.	Option 3 – Statewide Digital Solution – Statewide coordination and procurement by lead agency. A centralised, cloud-based platform, with features such as Application Programming Interface (API), integration, access control model, and emergency notification features. Training and support coordinated through lead agency.
	Benefit: Councils retain full control of CWMS operations; existing processes are familiar.		
IT Operational	Risk: Legacy systems (e.g. manual system, spreadsheets) are inefficient and prone to data loss and/or corruption; no integration with mobile tools and limited user accessibility; limited digital maturity. Benefit: No IT change required.	Risk: Varying IT maturity across councils; integration challenges where councils' software differs; potential limited compatibility with mobile apps; potential individual API development required. Benefit: Councils can have tailored platforms compatible with their systems (e.g., TechOne, Synergy); cloud-based systems enable consistent templates within council and opportunities for state-wide template standardisation.	Risk: Requires robust governance and vendor management; less flexibility for council-specific needs; data ownership/confidentiality concerns if externally hosted. Benefit: Centralised integration, cloud-based access, mobile data capture, and consistent templates; common approach among councils delivers reduced duplication of implementation effort and cost, and delivers sector-level efficiency benefits; scalable infrastructure (support economies of scale, and future growth, ensuring use for small and large councils alike).
Environmental	Risk: Delayed detection of non-compliance; reactive management of overflows and odours; increased risk to public health and environment. Benefit: Existing processes are familiar to staff; risk mitigation via audits and existing complaint response processes.	Risk: Environmental health outcomes depend on council's capacity to implement and maintain an effective digital solution; inconsistent monitoring of pretreatment devices across councils. Benefit: Improved monitoring and faster response to issues; enhanced capture of pretreatment systems through integration with internal information management systems; enables emergency notification system between council and user. Opportunities for centralised training and processes.	Risk: Environmental health outcomes depend on council's capacity to operationalise the digital solution; requires training and adoption. Benefit: Real-time alerts; improved monitoring and faster response to issues; improved oversight of septic and trade waste systems; improved prevention of environmental incidents; enables emergency notification system between council and user.

Category	Option 1 – Majority of councils using manual systems. Current status quo situation where councils maintain autonomy. Limited statewide coordination between councils.	Option 2 – Council-level digital uptake. Promotion of a consistent platform at a statewide level. Councils undertake their own procurement. Centralised coordination to provide training and support to councils (and contractors within their areas) that opt in for the promoted platform.	Option 3 – Statewide Digital Solution – Statewide coordination and procurement by lead agency. A centralised, cloud-based platform, with features such as Application Programming Interface (API), integration, access control model, and emergency notification features. Training and support coordinated through lead agency.
Compliance	Risk: Incomplete records; inconsistent enforcement; less efficiency in meeting SA Health, OTR, and ESCOSA reporting requirements; increased risk of non-compliance with CWMS treatment and effluent discharge standards. Benefit: Councils maintain autonomy and familiarity with current approaches	Risk: Compliance improvements vary by council; no shared audit trail; limited standardisation. Benefit: Digital logs, photo evidence, and automated reporting to improve local compliance. Option for streamlined reporting to SA Health, OTR, and ESCOSA. Improve compliance with environmental regulations and reduce potential legal risks and penalties. Opportunities for lead agency standardisation and shared audit frameworks.	Risk: Requires standardised reporting formats and regulator alignment; data governance must be robust. Benefit: Centralised compliance tracking; automated alerts; option for streamlined reporting to SA Health, OTR, and ESCOSA; supports regulatory consistency and allows transparency, accountability and sustainability. Extension opportunity – AWTs service reporting.
Strategy	Risk: No alignment with statewide digital transformation goals; missed opportunity for sector-wide improvement; limited capacity to evaluate digital solutions. Benefit: No strategic shift required; councils retain control.	Risk: Fragmented approach limits strategic leverage and sector-wide learning and productivity gains; limited sector-wide knowledge sharing. Benefit: Councils control timing, can pilot and refine solutions before broader adoption; tailored solutions to meet internal organisational needs; enhanced oversight of pretreatment systems through integration with internal information management systems. Opportunity for sector-wide learning.	Risk: Requires strong leadership and governance from central lead agency; reduced scope to tailor digital platform according to individual councils needs in the absence of an aligned community of practice. Benefit: Aligns with LGA digital strategy; supports long-term sector reform to deliver efficiency and productivity reform gains; enables shared innovation, procurement (with associated economies of scale) and inter-council collaboration, supports standardisation, community of practice; meets sector-wide desire for performance benchmarking and fostering a culture of continuous improvement.

Risk-Benefit Summary

A descriptive summary of the risk-benefit assessment outcomes is provided below.

Summary of Assessment Option 1 – Majority of councils using manual systems (current *status quo*)

Under this Option 1, councils would avoid the upfront costs of a digital platform. However, human resource requirements for manual administration would remain high. Manual data entry is less efficient and carries an increased likelihood of errors and data loss.

The assessment outcomes highlight that the consequences of this fragmented approach would be felt across operational, environmental, and compliance domains. Blockages, odours, and overflows are more likely to occur due to poor maintenance oversight and reactive rather than preventative asset management approach. Effluent quality may suffer where influent conditions are variable and uncontrolled. Councils would lack the tools to detect non-compliance promptly and respond to incidents. Compliance reporting is more resource-intensive.

Strategically, this option does not align with the sector's digital transformation goals. Councils miss opportunities for shared learning, procurement buying power, and consistent reporting formats.

Summary of Assessment Option 2 – Council-level digital uptake

With councils undertaking their own procurement of digital platforms under this option, they can retain control over their implementation, enabling them to tailor solutions to their operational contexts and integrate with existing systems such as TechOne or Synergy. Early adopters may realise improvements in scheduling, real-time service reporting, and asset tracking. Existing COTS platforms have demonstrated success in similar contexts, offering mobile data capture, automated notifications, and integration with internal systems. These platforms can reduce administrative burden and improve oversight of pretreatment devices.

The decentralised nature of this option means that uptake is likely to be uneven, particularly among smaller councils with limited resources. Duplication of procurement across councils increases sector-wide costs and limits potential sector productivity gains. Integration challenges arise when councils use different internal software systems, often requiring custom API development. This fragmentation hinders strategic learning and benchmarking, and there is no shared audit trail to support consistent compliance tracking. Reliance on private vendors also raises concerns about data ownership, long-term sustainability, and cost control. If a vendor changes pricing models or ceases operations, councils may face service disruption.

From a compliance standpoint, benefits would vary by council. While digital logs and photo evidence can enhance local compliance, the lack of a shared framework reduces transparency and accountability. Councils may also struggle to align with broader sector goals without central coordination. Community and businesses that engage with more than one council would encounter inconsistency.

Strategically, this option offers flexibility and allows councils to pilot and refine solutions at their own pace. However, the fragmented approach limits sector-wide leverage and potential sector-wide productivity gains. Without a shared platform, opportunities for inter-council collaboration and standardisation remain limited.

Summary of Assessment Option 3 – Coordinated Statewide Digital Solution

While the initial upfront investment is greater, a statewide digital solution offers substantial strategic and operational benefits. Amongst other things, councils would benefit through:

- economies of scale,
- improved procurement power (including in relation to ensuring data sovereignty and data protection)
- improved power to avoid monopoly pricing/long-term vendor dependency (or other compromise) through unified negotiations with vendor(s) into the future
- shared training resources
- improved workforce efficiency
- increased opportunities for shared knowledge exchange between councils and across the sector more broadly

This approach would reduce duplication of effort, streamline procurement and administrative processes, and enable resource sharing across councils. However, project management resources at the central agency level would be required. A statewide coordination project would also provide a mechanism for rolling out related tools, such as standardised policies and procedures for wastewater management, and facilitate integration with existing asset databases and GIS systems.

Operationally, centralised coordination of a platform, would enhance oversight of pretreatment devices, improving maintenance and is hence expected to reduce the frequency and severity of blockages, odours, and overflows. Real-time alerts and emergency notification features would allow councils to respond more quickly to environmental incidents, improving public health outcomes and improving wastewater asset management.

Strategically, this option aligns with the LGA's digital transformation goals and supports long-term sector reform through shared innovation, procurement, and inter-council collaboration. It responds directly to the sector's identified need for a consistent digital information framework to improve performance benchmarking, financial accountability, and service transparency, priorities highlighted in the Local Government Inquiry Final Report⁶. In addition, the success of Skytrust, a cloud-based Work Health and Safety platform adopted by 58% of South Australian councils, demonstrates the viability of a centrally managed digital solution. Skytrust's sector-wide rollout was supported by a multi-tiered governance model, shared procedures, and sustained engagement, offering a valuable precedent for CWMS digital transformation (see Skytrust Case Study).

Flexibility across councils would need to be considered. Standardisation across councils means less ability to customise data flows and processes for individual council needs. Councils vary in digital maturity; some may struggle with adoption, requiring targeted training and support to ensure effective operationalisation.

While a centrally coordinated platform would require initial investment in governance, integration, and training, there are long-term benefits. Councils of varying sizes and digital maturity levels would be supported through coordinated implementation. Risks related to change management and digital literacy can be mitigated through targeted training and engagement strategies and in unity councils will have more power through procurement and ongoing business with the vendor.

⁶ Inquiry into Local Government Costs and Efficiency, Final Report. 22 November 2019. South Australian Productivity Commission

DISCUSSION - TOWARD A STATEWIDE SOLUTION

Project Proposition

The initial CWIF 2025 grant application envisaged that the future adoption of a common and validated platform would deliver beneficial outcomes to local government through improving efficiencies around engagement between councils and third-party contractors, resulting in enhanced outcomes for business, compliance and public and environmental health.

The project rationale stressed the importance of the effective operation of wastewater pretreatment devices. Recognising that the quality of water disposed into CWMSs is critical for the performance of wastewater collection networks and treatment facilities.

What We've Discovered through Developing this Business Case

This business case analysis has confirmed the original project proposition and the opportunities of a statewide coordinated approach to pretreatment device management. Drawing on evidence obtained through stakeholder feedback during this project, council survey data, platform capability analysis, and case studies, the following conclusions can be drawn:

1. Pretreatment is essential for CWMS performance

Effective maintenance of pretreatment devices is important for the proper functioning of CWMSs. Pretreatment system performance can be improved through cooperation between councils and property owners to support compliance with regulations, standards, and best-practice maintenance. Inadequate maintenance can increase the likelihood of blockages and overflows, result in higher levels of odour and corrosion, and reduce influent quality at wastewater treatment plants. While the full effects are not always quantified, these impacts are recognised in system performance.

2. There is a need for improved baseline data and oversight

Local government water entities experience challenges in maintaining oversight of pretreatment devices. One issue is the absence of a clear baseline for the number and condition of these devices across the State. Additionally, our survey of councils indicated inconsistencies in record-keeping practices, limited visibility into asset performance, and fragmented oversight of pretreatment devices. These factors contribute to operational inefficiencies, data gaps, and increased compliance risks, especially where manual systems are still used.

3. Current manual systems are resource intensive

Most councils assign less than 0.3 FTE to CWMS oversight, and many report limited confidence in their ability to detect and address non-compliance. Manual approaches to data collection, communication, maintenance scheduling, and follow-up actions create additional administrative work, making these tasks more time-consuming and labour intensive. The reliance on manual systems also constrains data and resource sharing across councils.

4. Statewide coordination offers a transformative opportunity to improve the management of pre-treatment devices

The risk benefit assessment highlights that a centrally coordinated statewide digital solution presents the strongest pathway for improving wastewater pretreatment device oversight. Adopting a centrally coordinated statewide digital solution offers a transformative opportunity to improve the management of pretreatment devices by the South Australian local government sector. One of the primary opportunities lies in boosting operational efficiency to deliver cost savings to council. A consistent digital platform is anticipated to reduce administrative burden, streamline service scheduling, improve data accuracy, and more easily enable resource sharing across councils – delivering sector-wide productivity gains. Automated reporting and audit trails support regulatory compliance and early detection of non-compliance.

5. There is opportunity for improved consistency and economies of scale through a coordinated approach

By leveraging collective purchasing power benefits, councils will have greater buying power, negotiate costs more effectively, share procurement processes, coordinate training and support, and take advantage of available sector-wide knowledge sharing opportunities afforded by a coordinated statewide approach. This reduces implementation costs and supports the digital transformation goals of local government, aligning with the LGA's broader infrastructure and governance initiatives. Council survey feedback has revealed strong interest in adopting digital tools, including mobile data capture, cloud-based platforms, and consistent templates, to modernise record-keeping, streamline field operations, and foster improved collaboration and knowledge sharing.

6. Leveraging proven solutions provides a practical pathway

Leveraging proven COTS solutions provides a practical pathway for sector-wide adoption. SA Water's as well as GMB Water's use of WastelD for trade waste management, demonstrates tangible operational and compliance benefits. Alexandrina Council have also recently executed a contract with WastelD to adopt the platform for managing septic tank desludge as well as trade waste arrestors over a two-year period. Consistency in digital systems across councils and alignment with established SA Water practices would deliver further efficiencies, particularly for liquid waste hauler businesses operating in multiple jurisdictions. Local government-led implementations, such as those in Mount Barker and also in progress at Alexandrina Council, offer valuable reference points as the sector refines governance, procurement, and technical specifications for statewide rollout.

7. Standardisation of policy and practice would complement a statewide approach

The business case analysis revealed broader sector changes needed to complement the rollout of a digital platform. Standardisation of council communication and compliance approaches, through template policies, management plans, service templates and procedures, would aid in the consistent set-up and statewide rollout of a digital system. For example, councils vary in their adoption of Trade Waste Policies and compliance oversight of trade waste devices. Efforts to standardise approaches would support digital platform set-up for trade waste management.

8. Digital transformation opportunities apply across all Wastewater Infrastructure

The AWTs initiative (ref Table 1) aims to deliver a universal online platform for lodging AWTs service reports, streamlining compliance and maintenance tracking for on-site wastewater systems. This business case analysis and the AWTs initiative share common goals: improving operational efficiency, regulatory compliance, and public health outcomes through digital transformation. Aligning both project roadmaps would enable a modular assessment of digital applications for councils across: AWTs, septic tanks, and trade waste devices. This is important as the priority focus of applying a digital platform would depend on each council's risk profile.

9. Priorities and risk profiles differ across councils and enabling flexibility of uptake is important

Council feedback highlights that the benefits and priorities of adopting digital compliance solutions differ according to their wastewater infrastructure and risk profile. The priority for improved maintenance practice and compliance may vary between trade waste device compliance and septic tank compliance (refer to Case Study 2 for example). Therefore, similar to the Skytrust model, councils should retain operational autonomy and have the flexibility to opt in to digital systems as suits their local needs and practices.

It is noted that while some councils obtain septic maintenance data through contractor relationships, that a consistent statewide platform for septic tank management would enable councils' oversight of septic tank desludge events that happen outside of the council-run program

PROPOSED STATEWIDE COORDINATION MODEL

Summary of the Proposed Model

A statewide coordination model is proposed. This model recognises the benefits that Option 3 offers, while also enabling voluntary uptake and autonomy for councils (Option 2), which were clear themes identified through stakeholder engagement and analysis of the Skytrust Case study experience (Figure 8)

Figure 8: Components of a Statewide Coordination Model

- ✓ An expression of interest to seek council member uptake in a joint procurement process for a consistent platform. With this approach ready and willing councils (early adopters) will be welcome to participate and will serve as an example to other councils to join at a later stage (later adopters).
- ✓ Project management resources within the central agency to lead the establishment of a new governance framework (refer to the governance framework shown in Figure 9). Procurement, and selection as well as coordination of contract management and technical support in a manner that allows for voluntary, modular uptake by councils (refer to the phased implementation roadmap in Table 8). A project management resource allocation of \$170,000 for a full time equivalent role (inclusive of overheads) has been assumed. A full time human resource within the central agency, for at least the first 18 months, with declining human resource requirements after initial set-up.
- ✓ The establishment of a Head Agreement by the central agency with the successful digital provider, which is structured to enable either:
 - Ease of sub-agreements (and direct purchase) between participating council members and the digital provider.
 - Or the central agency to represent the participating councils in payment with mechanisms to recover the purchase cost from council members.
- ✓ Provision within the Head Agreement with the digital provider for statewide training for participating councils and contractors/liquid waste haulers in relevant areas.*
- ✓ Implementation structure and platform access mechanisms would need to be confirmed based on the capabilities of the successful vendor. An implementation guide is recommended to assist councils with their in-house platform establishment, including steps to audit pre-treatment devices in their areas and upload and maintain system data in the platform.
- ✓ Similar to the Skytrust model, a knowledge base of standardised management plans and compliance correspondence templates and procedures are recommended to complement a statewide digital approach. This would be a complementary sector-wide project. Working groups have been proposed in the governance model to oversee this development.

*Note: Local Buy, the largest provider of legislatively compliant pre-qualified supplier Arrangements in Queensland and the Northern Territory, provides an example of this model. Whereby their due diligence and pre-qualification process makes it easy, efficient and effective for local governments to connect with trusted suppliers.

The statewide coordination model is designed to streamline council participation in a unified procurement and management process for wastewater pre-treatment systems. Below is a summary of how this approach meets the risk-benefit evaluation criteria used the risk benefit assessment (Table 6):

- **Economy & Human Resources:** Centralising project management and procurement through a joint process reduces administrative burden for individual councils, improves staffing efficiency, and leverages economies of scale. The allocation of dedicated resources for initial setup further supports this efficiency.

- **Customer Service:** A consistent digital platform enhances service delivery to residents and businesses by standardising processes, improving access to information, and facilitating smoother interactions with council services.
- **Wastewater Operational:** Improved maintenance monitoring would improve CWMS system performance and influent quality. Councils benefit from access to standardised templates and audit tools, aiding operational consistency and effectiveness.
- **IT Operational:** The model encourages system compatibility and integration, supporting councils at varying stages of digital maturity. Modular uptake allows councils to adopt the platform according to their readiness, reducing technology risks.
- **Environmental:** Standardised data collection and reporting boost the sector's ability to detect and respond swiftly to environmental risks, helping councils maintain high environmental standards.
- **Compliance:** The digital platform supports robust audit trails and regulatory reporting, increasing transparency and the capacity to meet obligations. The provision of standard templates and procedures further underpins compliance.
- **Strategy:** The approach aligns with sector-wide digital transformation objectives, facilitating long-term planning and continuous improvement in the local government sector through shared governance and collaborative knowledge development.

Implementation Stages

We propose an implementation strategy which brings together digital transformation for management of wastewater pre-treatment devices in the centralised (this study) as well as decentralised (previous LGRDS project no. 2023.68; Table 1) contexts.

Table 6 summarises the funding model options which consider both initial establishment and ongoing implementation. We propose that grant funding be sought for project management resources for the initial set-up functions over the first two years, to encourage council uptake. Some potential grant funding sources to explore for the initial set-up phase include:

- The Digital Investment Fund of the Department of Treasury and Finance – although this would require sponsorship of a grant application by a State Government Department.
- Potentially the Local Government CWMS Program (by negotiation with program stakeholders)
- Future funding rounds of the Local Government Research and Development Scheme (LGRDS)

Table 6: Funding Model Options

Phase	Set-up Phase – Procurement, Head Agreement, Training	Implementation Phase 1-2 Years– Council Set-Up and Platform Transactional Fees	Comments on longer term – Platform Transactional Fees (beyond 2 years)
Funding Option 1	Grant (seed funding) - Central Statewide Agency	Grant (further seed funding)- Central Statewide Agency	Option 2 or 3 to apply after lead agency grant funding expires (this would be dependent on the level of funding achieved) Potential cost recovery at Council level for CWMS fees and non-compliance*.
Funding Option 2	Grant (seed funding) - Central Statewide Agency	Cost Recovery - Central Statewide Agency from participating council	Cost Recovery - Central Statewide Agency from participating council Potential cost recovery at Council level for CWMS fees and non-compliance*.
Funding Option 3	Grant (seed funding) - Central Statewide Agency	Pay direct - Council implement via subcontract and pay direct to vendor	Pay direct -Council implement via subcontract and pay direct to vendor. Potential cost recovery at Council level for CWMS fees and non-compliance*.
Funding Option 4	Cost Recovery - Central Statewide Agency from participating council	Cost Recovery - Central Statewide Agency from participating council	Cost Recovery - Central Statewide Agency from participating council Potential cost recovery at Council level for CWMS fees and non-compliance*.

*Explore cost recovery mechanisms under the *Local Government Act 1999*, the *Water Industry Act 2012* and National Water Initiative principles.

Note: In addition to the above funding options. Value-added investment from potential vendors should be explored through the procurement process.

Table 7: Phased Implementation Roadmap

	1 – Socialise Report Outcomes	2 - Governance and Resourcing	3 – Specification and Procurement Strategy	Phase 4 – Procurement and Vendor Agreement	Phase 5 –Promotion and Implementation	Phase 6 – Longer Term Monitoring
Phase Details	Present on CWIF Project Report Present the implementation roadmap Identify funding opportunities Advocacy	Establish Wastewater Reference Group Terms of Reference established Secure funding for project management and support resources	Finalise procurement strategy Finalise specification Project launch and awareness to councils	Partner with LGA Procurement to execute sourcing Tender evaluation and selection Finalise Head (Framework) Contract Agreement Make provision for sub-contract agreements	Promotion to LGA members in partnership with vendor Standardisation of policies, procedures and training resources to complement roll-out Support council readiness assessments	Continued promotion Project reporting Monitoring and compliance Contract audit
Calendar Year	Q1 2026	Q2 2026	Q3 2026	Q4 - 2026	Q1 to Q4 - 2027	2028 onwards
Statewide Central Agency Role	Strategic Stakeholder Engagement	Participate in Report Presentations Appoint Executive to Wastewater Reference Group	Executive to Wastewater Reference Group Host Project Manager	Executive to Wastewater Reference Group Procurement Partner to LGA Procurement	Head (Framework) Contract Management Support Statewide training	Head Contract Management Evaluation
Council Role	Advocate	Nominate Wastewater Reference Group Representatives	Support Wastewater Reference Group	Conduct wastewater infrastructure audits and prepare for platform setup	Opt-in – subcontracts under Head Agreement Data migration, implementation and management	Platform data maintenance Potential cost recovery through CWMS fees and non-compliance
Funding – Statewide Central Agency			\$85,000 (Q3 and Q4 2026, 1 FTE inclusive of overheads)		\$170,000 (Q1 to Q4 2027, 1 FTE inclusive of overheads)	\$68,000 (Q1 to Q4 2028, 0.4 FTE inclusive of overheads).
Funding – Councils					Council Implementation Funding*	Council Implementation Funding*
Statewide Implementation						

*Council implementation funding will depend on their 'opt-in' scope. Refer to Indicative Solution unit costings in Appendix E and the example modelling for a case study council and septic tank compliance roll-out in Appendix F.

Phase 1 – Socialise Report Outcomes and Advocacy

Securing commitment to a statewide approach from councils and relevant state authorities is a foundational step for successful implementation. Presentations to the following bodies to gain feedback and engage support for the Implementation Strategy are recommended:

- The CWIF Funding Committee
- The CWMS Management Committee
- The Environmental Health Australia Board and Wastewater SIG
- The LGA Trade Waste Working Group
- Relevant LG professionals' networks

Continued advocacy is needed to support the adoption of a standardised service report template for AWTs through amendments to the SA Health On-site Wastewater Systems Code, which is currently under review.

Parallel to awareness efforts, continued exploration of Commonwealth and State grants is crucial to secure financial support for the pilot rollout, namely project management and support resources within the central agency.

Phase 2 – Governance and Resourcing

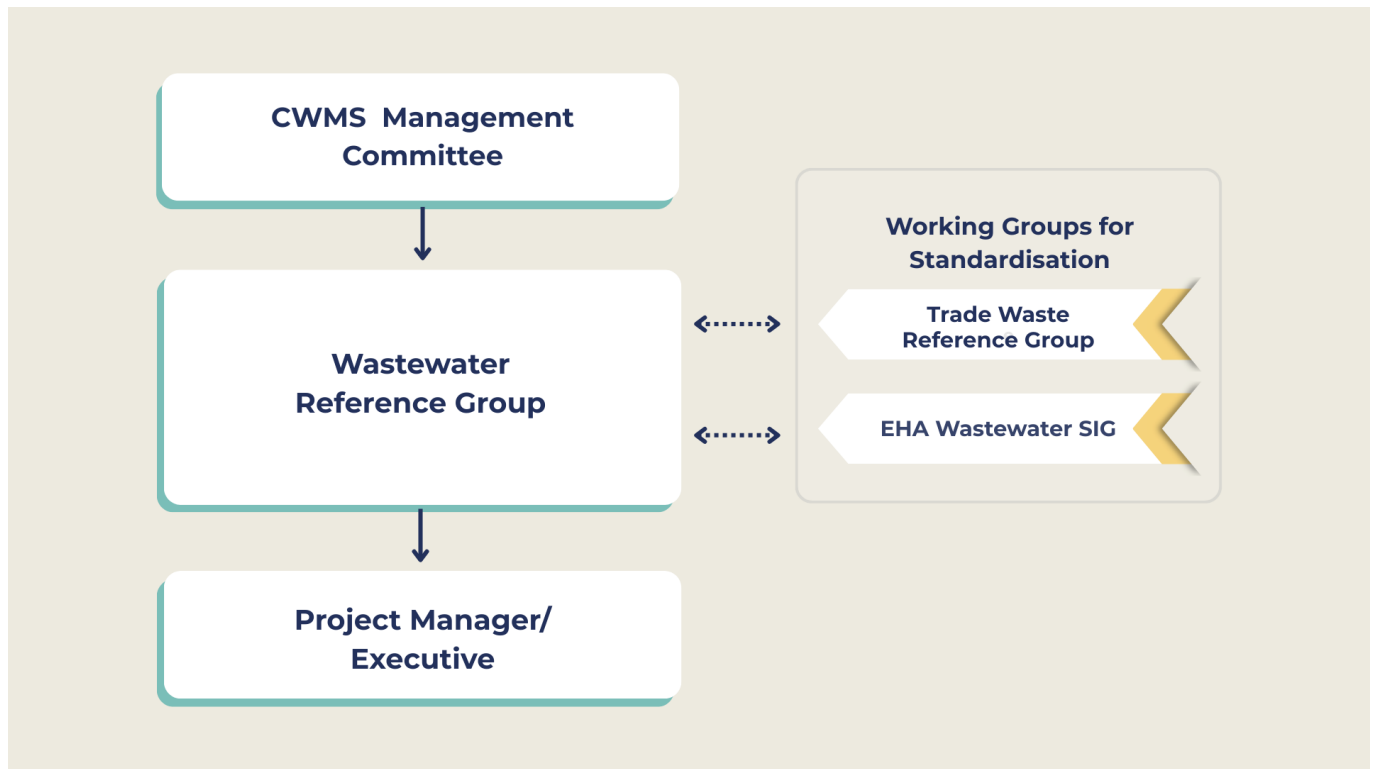
A Wastewater Reference Group with executive and project management resourcing would oversee the project (similar to the LG Safe's Skytrust model). Establishing a governing body that spans all aspects of wastewater management would create a more streamlined foundation for the project. This entity would be responsible for overseeing procurement planning, tendering, evaluation, and contracting through LGA procurement processes.

The Reference Group should include:

- Representation from council CEOs or senior executives
- Responsibility for keeping the project aligned with its implementation strategy and timelines
- A requirement to meet either in person or online six times per year

An example governance model is depicted in Figure 9.

Figure 9: Example Governance for Project Rollout



Phases 3 and 4 – Specification, Procurement and Head Agreement

A multidisciplinary team with environmental health, IT, finance and procurement expertise is recommended to oversee the procurement strategy and execution in accordance with the LGA Procurement Model Policy.

The following stages are recommended:

1. Technical planning – begin with the development of a detailed Scope of Works and technical specifications for the digital solution. An example specification is provided in Appendix I.
2. Confirmation and execution of sourcing strategy - considering Expressions of Interest, Requests for Quotation, sole sourcing, or open/select tenders. The chosen procurement method is executed, and market responses are evaluated to select the preferred tenderer.
3. Evaluate market responses and select preferred tenderer in accordance with the example specification in Appendix I and evaluation criteria. Example evaluation criteria are provided in Table 8.
4. Establish a 'Head (Framework) Agreement' with selected vendor. Make provision for Council sub-contract agreements to enable Councils to 'opt in' under this framework contract.

Table 8: Example Evaluation Criteria

Criterion	Considerations
Functionality	Meets core requirements for asset tracking, compliance, reporting, and integration.
Integration	Compatibility with council systems (e.g. TechOne, Synergy), GIS
Capability and experience	Related experience, case studies and referees within the wastewater management sector.
Cost and Pricing	Total cost of ownership, including: • Licensing/subscription fees • Implementation and onboarding • Customisation and integration • Ongoing support and maintenance • Scalability and future expansion • Potential for shared procurement savings
Support and Maintenance	Availability of helpdesk, training, updates, and vendor responsiveness.
Governance and Data Ownership	Alignment with sector-wide governance models, data sovereignty, and privacy compliance.
Scalability and Flexibility	Ability to support councils of varying sizes and digital maturity.
Risk Profile	Implementation risk, vendor dependency, and long-term sustainability.
Value Add	Additional value from the provider such as in-kind investment in statewide roll-out opportunities, promotion and training.

Phase 5 – Promotion and Implementation

During this phase, extensive promotion to SA Councils of the Head contract agreement is recommended. This could be undertaken in partnership with the successful vendor. The promotional video established for the LG Safe project provides a useful example.

Further standardisation of policies, procedures, and training resources are recommended to support the rollout. Tools to assist councils in auditing their systems and preparing for data migration into the platform could also be provided.

It is recommended that Councils opt-in to use the platform (via a sub-contract/clause under the Head Agreement). Councils differ in their risk profiles and have varying waste infrastructure priorities.

It is recommended that a platform implementation guide be provided to participating councils, or that it be required from the digital provider. Likely implementation activities required at the council level would include:

- Migration data from their existing information management or manual systems to the new platform, and/or linking systems via APIs.
- Auditing pre-treatment device numbers and locations within the council area to upload details into the new platform.
- One-way data integration is established to ensure seamless information flow.
- If required, device identifier tags are installed as part of the setup process.
- Training stakeholders, including service agents and property owners.

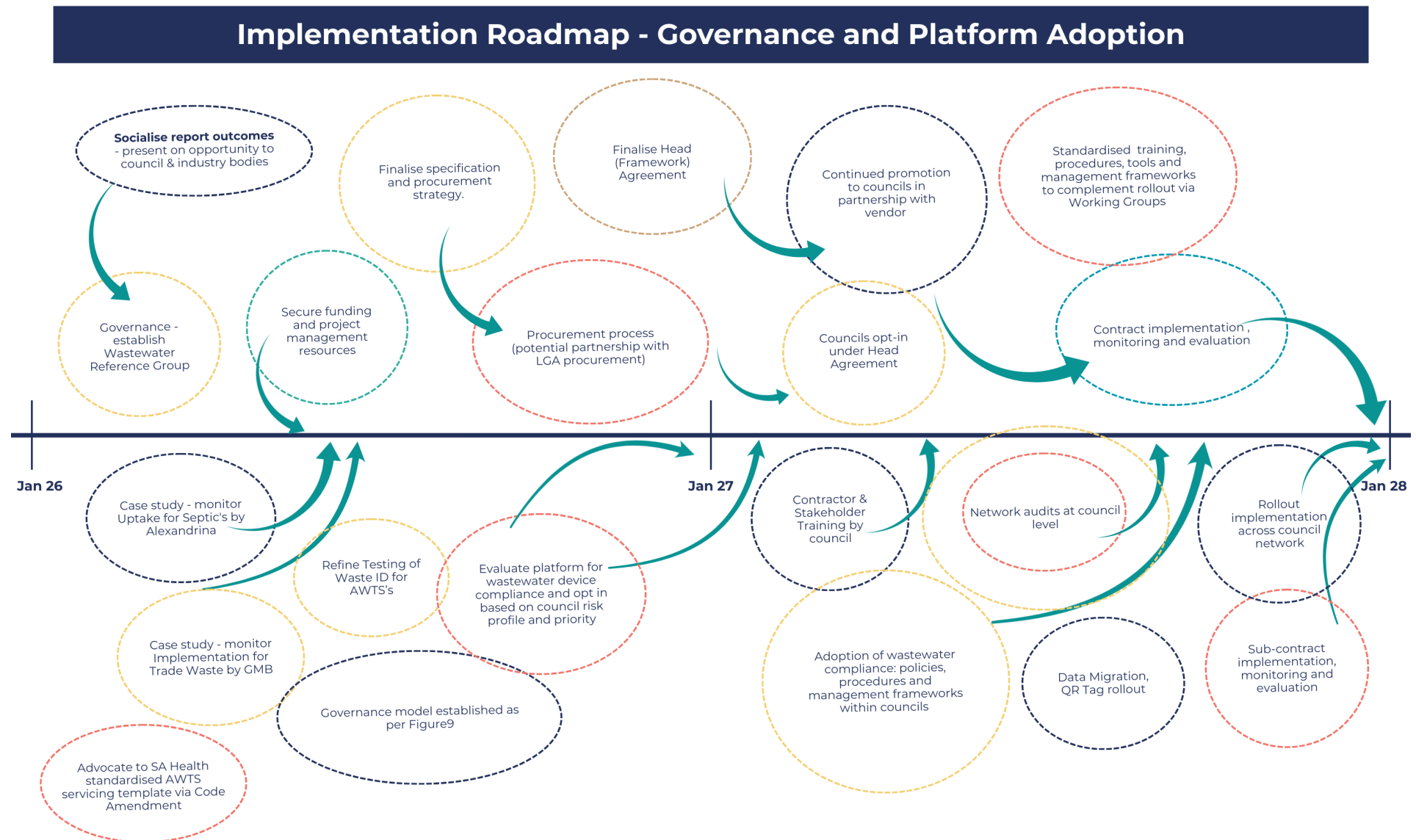
Standardised educational materials for service agents, liquid waste haulers and property owners are recommended to achieve efficiencies during this stage.

Phase 6 – Project Monitoring

During this phase, the lead agency would undertake continued promotion of the platform, regular project reporting, and monitoring compliance with the new system. Contract audits are conducted to ensure that both the vendor and participating councils are meeting their obligations and that the system is delivering the intended benefits. This stage is essential for maintaining accountability, supporting continuous improvement, and ensuring the long-term sustainability and effectiveness of the statewide digital platform.

During this phase of the project rollout, the lead agency role would gradually scale back to one of monitoring and evaluation.

Figure 10: Implementation Roadmap – Governance and Platform Adoption



ACRONYMS AND GLOSSARY

ABS (Australian Bureau of Statistics) – Australia’s national statistical agency

API – Application Programming Interface

AWTS (Aerated Wastewater Treatment System) – A self-contained on-site wastewater treatment unit that uses aeration and clarification to biologically treat sewage, producing a high-quality effluent suitable for safe disposal or reuse

BOD₅ (5-day Biochemical Oxygen Demand) – The amount of dissolved oxygen required by aerobic organisms to break down organic material in water. It indicates the strength of organic pollution in wastewater.

COTS – Commercial off-the-shelf

DEW – Department for Environment and Water

CWMS (Community Wastewater Management System) – As defined under South Australian Public Health Regulations 2013, “a system for the collection and management of wastewater generated in a town, regional area or other community, but does not include SA Water sewerage infrastructure.”

DHW (Department for Health and Wellbeing) – The South Australian state health department (Wastewater Section) responsible for regulating on-site wastewater systems and setting operating standards for CWMS

DO (Dissolved Oxygen) – The amount of oxygen dissolved in water. Adequate DO in wastewater is essential for aerobic biological treatment processes

DPTI (Department of Planning, Transport and Infrastructure) – A former South Australian government department (now restructured) which, among other roles, hosted the Office of Local Government responsible for CWMS subsidy programs

EDMS (Electronic Document Management System) – A digital system for storing and organizing documents electronically (e.g. scanned permits, maintenance records, correspondence), often used by councils to manage CWMS files and ensure records are easily retrievable

EHA – Environmental Health Australia

EHO (Environmental Health Officer) – A council officer responsible for enforcing public health regulations (including wastewater management rules) and monitoring compliance of on-site systems to protect community health

EPA (Environment Protection Authority) – The environmental regulator in South Australia. The EPA issues licenses for larger CWMS and sets environmental discharge standards (e.g. effluent quality requirements).

ESCOSA (Essential Services Commission of South Australia) – The independent economic regulator in SA that oversees financial sustainability and customer service standards for water services, including council-operated CWMS. (ESCOSA requires annual performance reports on asset management, pricing, etc.)

FOG – Fats, oils and grease

GIS – Geographic Information System

GMB Water – Greater Mount Barker Water

LGA (Local Government Association of SA) – The peak body representing South Australian councils. The LGA manages the state government’s CWMS subsidy program and provides technical advice to councils on wastewater matters

LGRS – Local Government Risk Services

LGRDS – Local Government Research and Development Scheme

NPR (National Performance Report) – The annual nationwide report on water utilities’ performance (published by the Bureau of Meteorology). For SA councils, the NPR provides contextual benchmarks for CWMS operations (e.g. service levels, costs), though smaller CWMS data is being incorporated starting 2024–25.

OMA – Onsite Management App

OTR (Office of the Technical Regulator) – The SA regulatory office responsible for safety and technical standards in the water industry. OTR ensures councils have Safety, Reliability, Maintenance and Technical Management Plans (SRMTMPs) for CWMS and audits compliance with technical regulations (under the Water Industry Act 2012).

OWRA – Onsite Wastewater Reporting Australia

Pretreatment device – In the context of this report a pretreatment device refers to a Septic Tank or Trade Waste Arrestor

SRMTMP (Safety, Reliability, Maintenance and Technical Management Plan) – A comprehensive management plan that SA water service providers (including councils with CWMS) must maintain under the Water Industry Act. It covers how the utility ensures safe, reliable operation, regular maintenance, and technical compliance of its infrastructure.

SS (Suspended Solids) – Solid particles floating in wastewater. *Total Suspended Solids (TSS)* is a key water quality parameter measuring the concentration of suspended matter. (Effective pretreatment and settling processes in CWMS help reduce SS in the effluent)

STEDS (Septic Tank Effluent Drainage Scheme) – A type of community wastewater system where each property has a septic tank and the clarified effluent is conveyed via a council-operated collection network (common in SA regional towns before “CWMS” became the standard term)

SWIM (Statewide Water Information Management system) – A centralized reporting system being implemented for SA councils’ water utilities. SWIM will allow councils to submit annual CWMS performance data (public health, technical, and financial metrics) online to regulators like SA Health and OTR, improving data consistency and reducing duplicate reporting.

ROM – Rough Order of Magnitude

Waste ID – a tool for tracking, monitoring and managing waste. It is used across Australia by a range of government authorities, utilities companies and private waste contractor

WHS – Work Health and Safety

APPENDIX A - PROJECT REFERENCE GROUP TERMS OF REFERENCE

Driving Efficiency and Compliance in Wastewater Management: Business Case for a State-Wide Solution

Project Reference Group Terms of Reference

Purpose:

The Working Group will serve an advisory role throughout the duration of the project, ensuring that the views of local government and other stakeholders are considered in the delivery of this project. Information about the project can be found in the Grant application document (Application-CWMS006).

Scope and Responsibilities:

1. Advisory Role: Provide expert advice and guidance on all aspects of the project, ensuring alignment with the objectives outlined in the Grant application document.
2. Review and Feedback: Critically review project deliverables, including the business case, and provide constructive feedback to ensure high-quality outputs that meet the needs of all stakeholders.
3. Collaboration: Promote collaboration and resource sharing among participating councils and other stakeholders to enhance the project's outcomes and ensure a unified approach.
4. Monitoring and Evaluation: Oversee the progress of the project, ensuring that milestones are met and that the project stays on track. Evaluate the effectiveness of the project activities and provide recommendations for improvement.
5. Reporting: To ensure transparent and timely reporting of project progress and outcomes to all stakeholders.

Meetings:

The Working Group will meet online up to five times over the life of the project, with additional meetings scheduled as needed to address specific issues or milestones.

Duration:

The Working Group will operate for the project's duration, from May 2025 to November 2025.

"This project has been supported by the LGA CWMS Program administered by the Local Government Association of South Australia on behalf of the South Australian Government."

APPENDIX B - ROLES AND RESPONSIBILITIES FOR COMMUNITY WASTEWATER MANAGEMENT

Table - Roles and Responsibilities for Community Wastewater Management Systems

Organisation	Roles and Responsibilities
Councils	Councils may own CWMS assets and are responsible for the operation, maintenance, and overall asset management of CWMS/s within their area. Councils recover the costs of operating and maintaining the CWMS through annual service charges levied on property owners connected to the system. Councils acting as water retailers require a license from the Essential Services Commission of South Australia (ESCOSA) and must adhere to regulations regarding pricing, consumer protection, and reporting.
Local Government Association	The LGA manages the new CWMS construction program which primarily involves: • Maintaining the register of applications for the construction of new schemes; • Determination of the order of construction; • management of the State Government subsidy payment (approximately \$4.9 million per annum); and • Project coordination of the construction of new schemes. • Facilitating CWMS-related technical advice for councils.
State Government	The State Government is involved in CWMS from a financial and regulatory perspective: • The Office of Local Government makes the arrangements for the State's subsidy payment of \$4.9 million annually to the LGA • The Department of Health & Wellbeing sets the standards by which CWMS must operate and is the approving authority for new schemes • The Environment Protection Authority (EPA) issues operating licences for CWMS (where schemes service a population greater than 1000 or are in a water protection zone where schemes service a population of more than 100). • The Office of the Technical Regulator is responsible for South Australia's electrical, gas and plumbing safety and technical regulation. Its primary objectives are ensuring the safety of workers, consumers and property as well as compliance with legislation and applicable technical standards in the electricity, gas and water industries. • The Essential Services Commission (Commission) is an independent economic regulator established under the Essential Services Commission Act 2002.

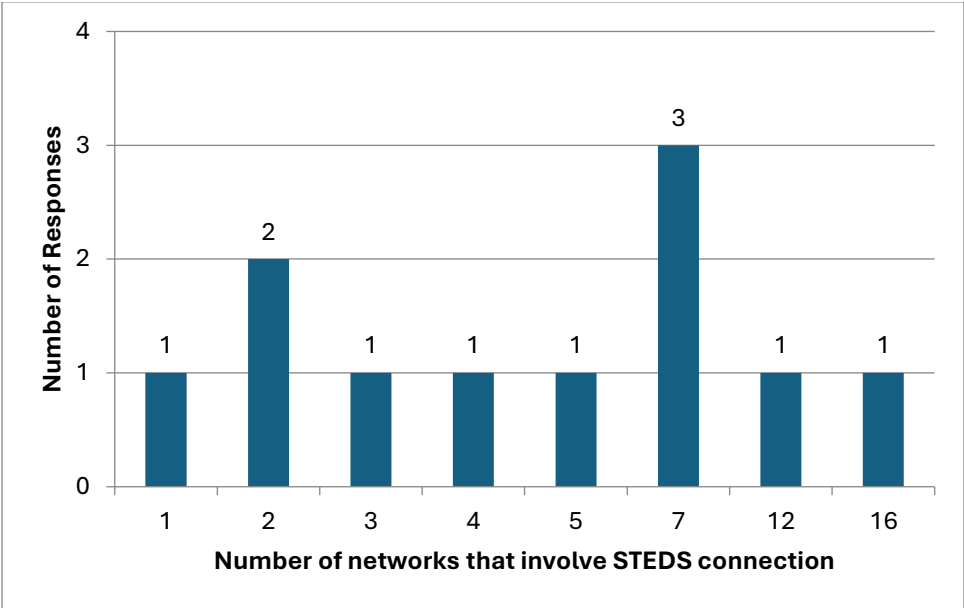
APPENDIX C – COUNCIL SURVEY RESULTS

SURVEY OUTCOME

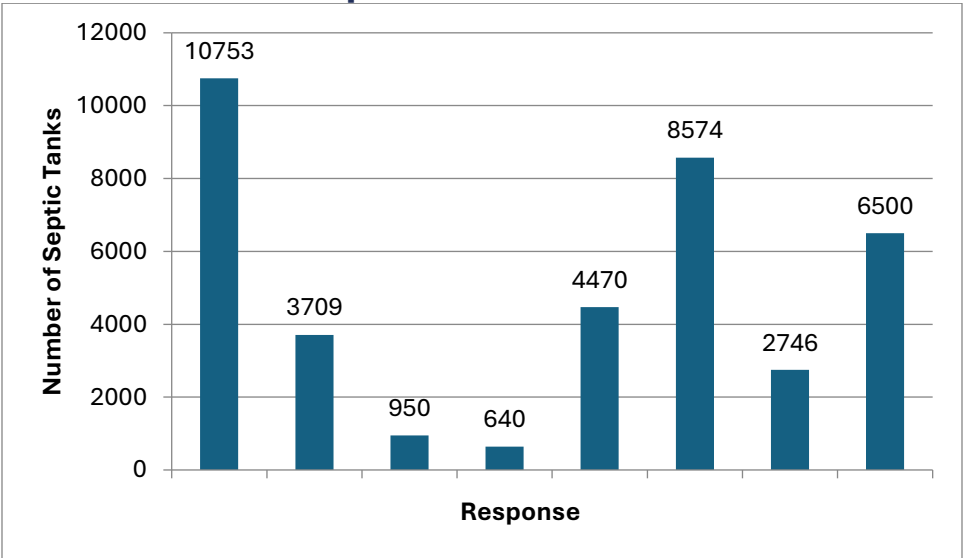
Thirteen South Australian councils with CWMS responded to the survey conducted as part of this business case, providing insights into STEDS operations, trade waste oversight, and system management. The data has been refined to exclude duplicate entries and councils without CWMS. The following graphs present the survey results across three key areas: STEDS networks, trade waste, and overall management practices.

STEDS Network

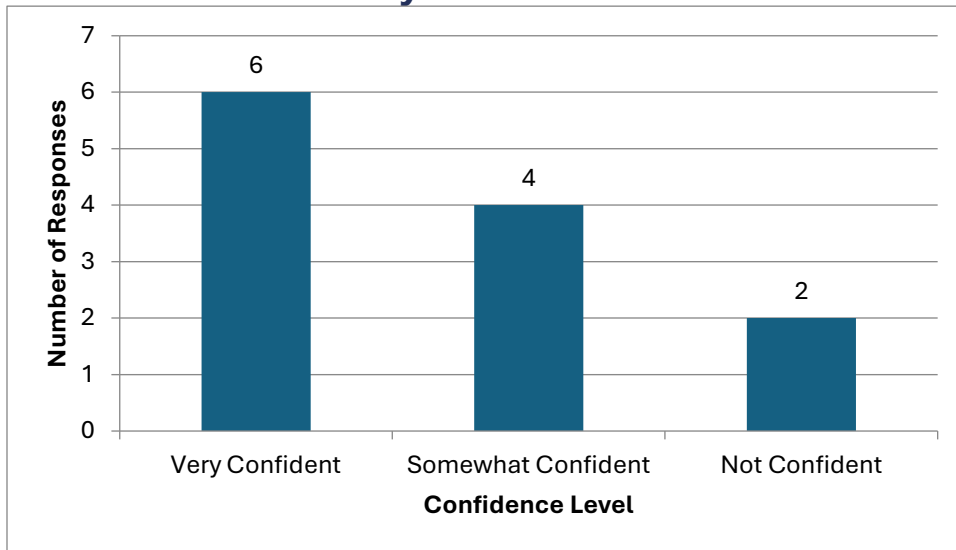
Networks That Involve STEDS Connections



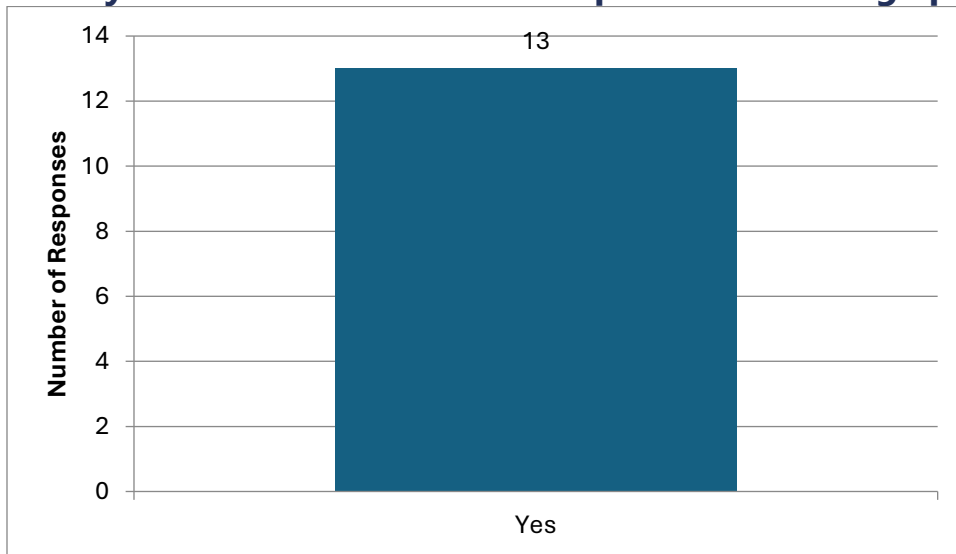
Total Number of Septic Tanks Connected to STEDS



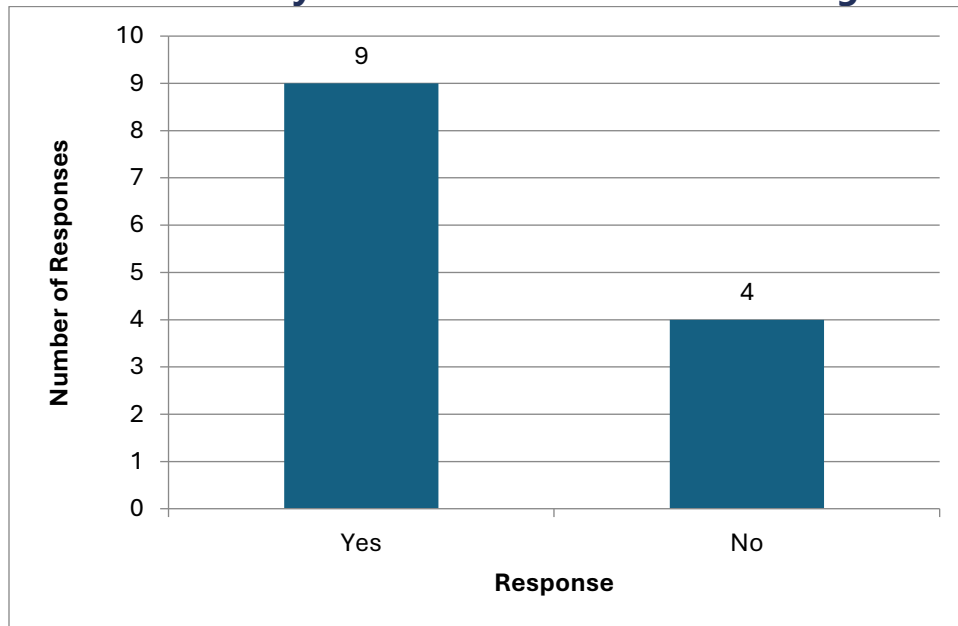
Confidence of Accuracy in this Number



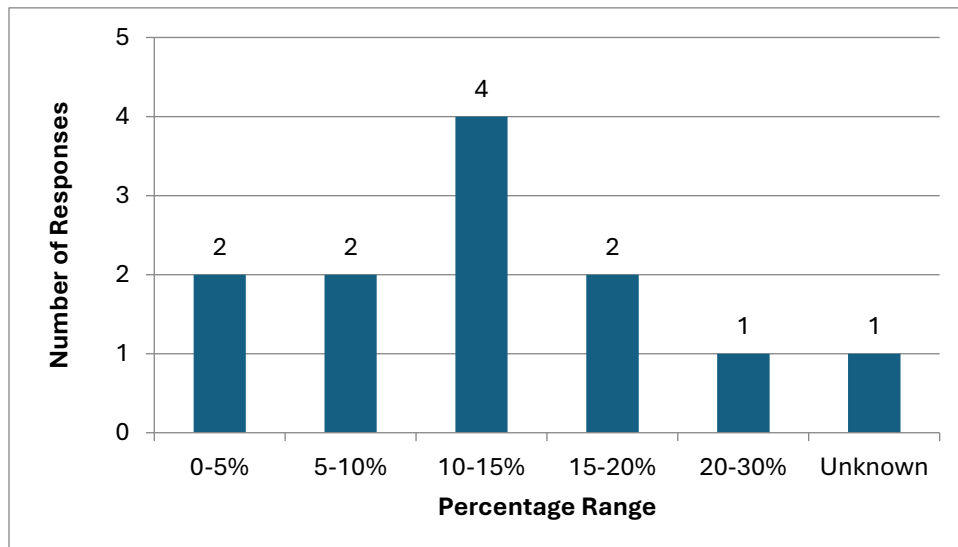
Does your Council run a STEDS septic tank desludge program?



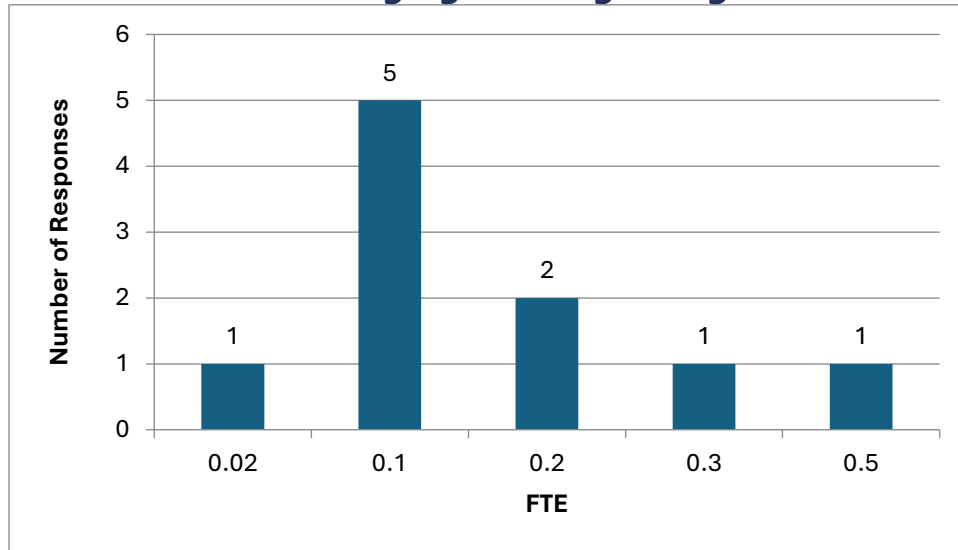
Does Council rely on some customers to desludge themselves?



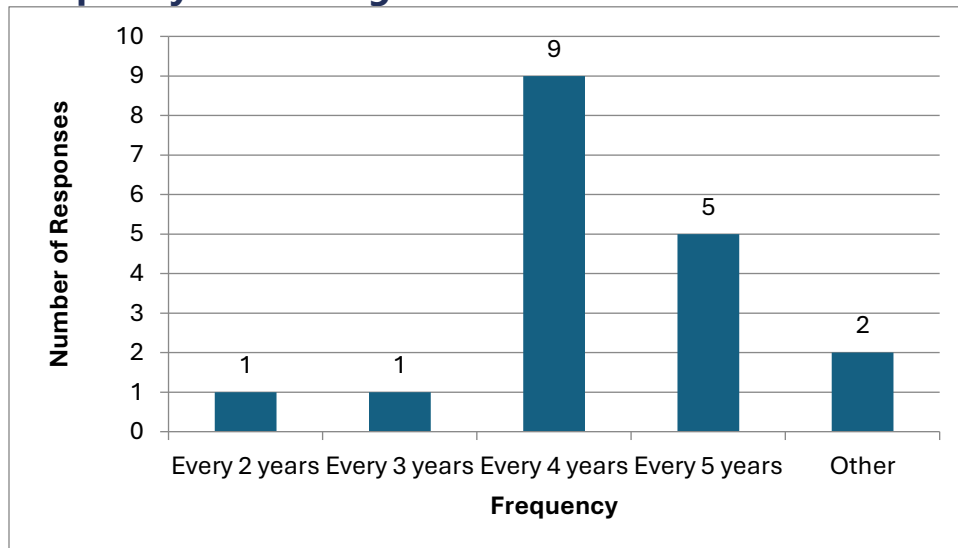
Percentage of CWMS Budget Spent on Desludge Program



FTE Invested in Managing Desludge Program

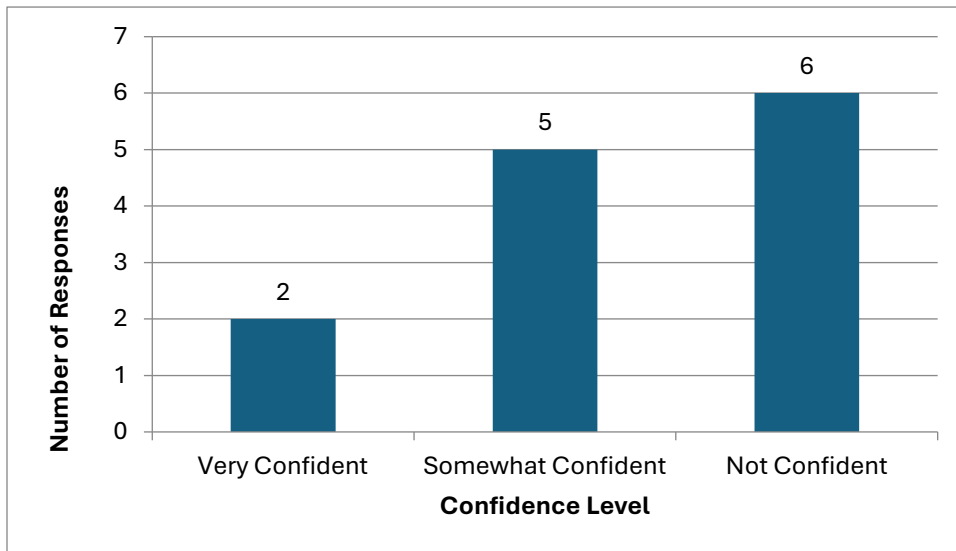


Frequency of Desludge Aimed For

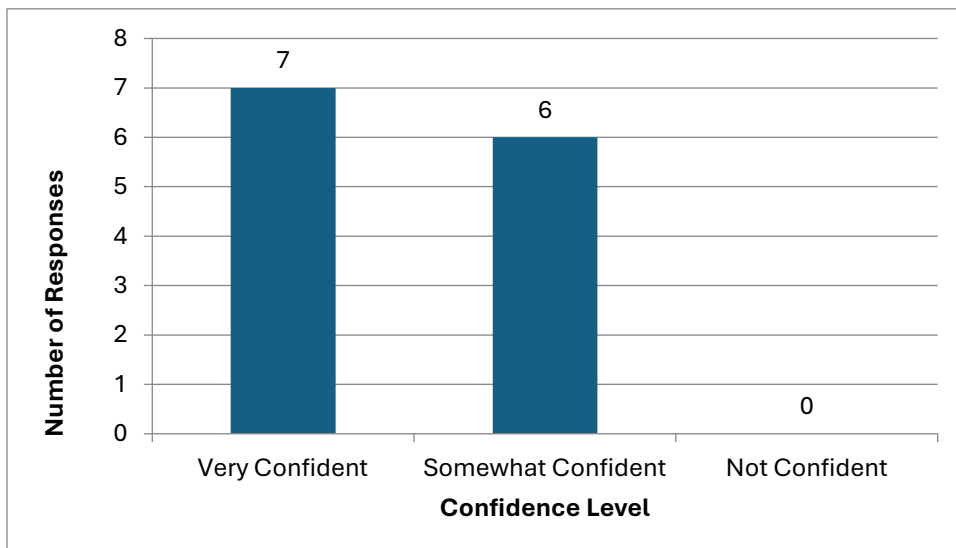


Trade Waste

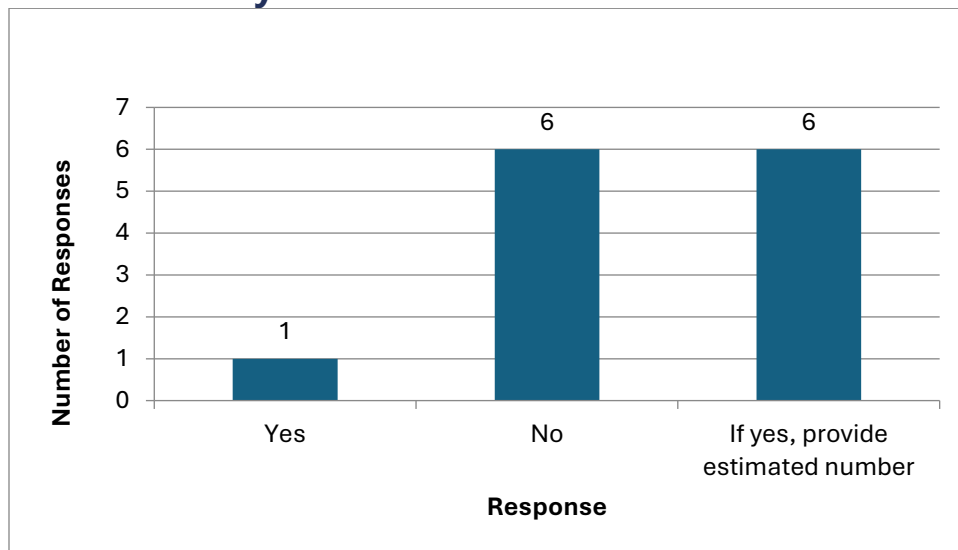
Confidence in Handling Trade Waste Pretreatment Discharged to CWMS Networks



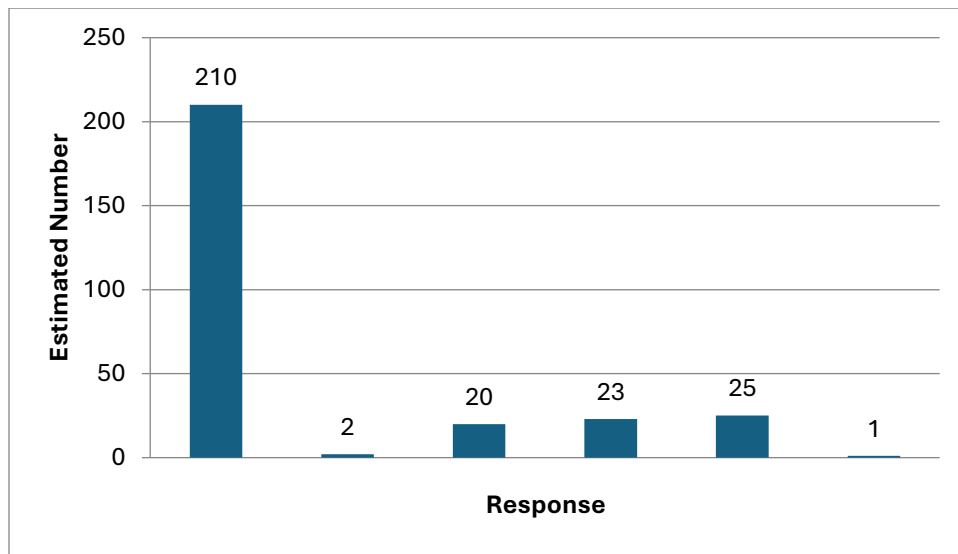
Confidence in Effective Management of Desludge Program - With minimal risk of missing or incomplete information



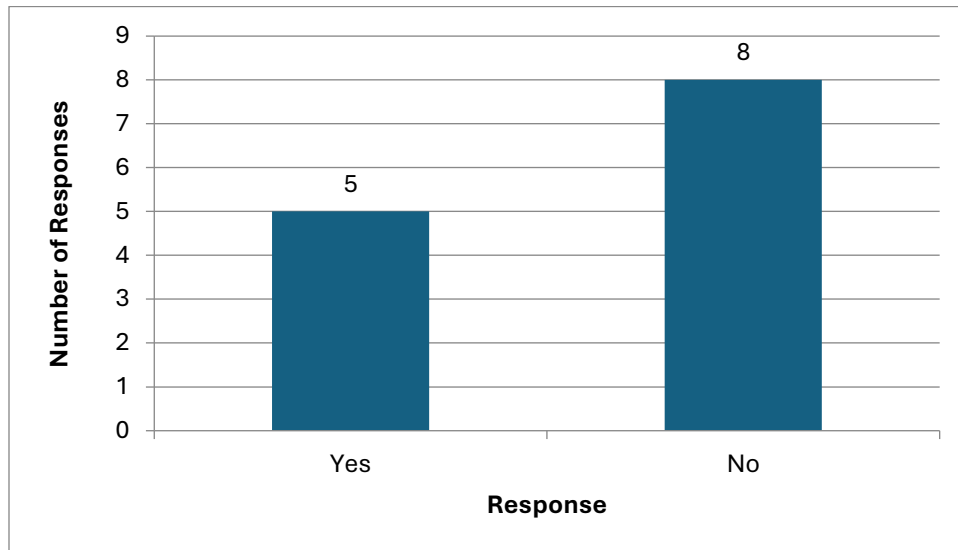
Do You Know How Many Trade Waste Pretreatment Devices are Connected to your Network?



If Yes: Estimated Number of Pretreatment Devices

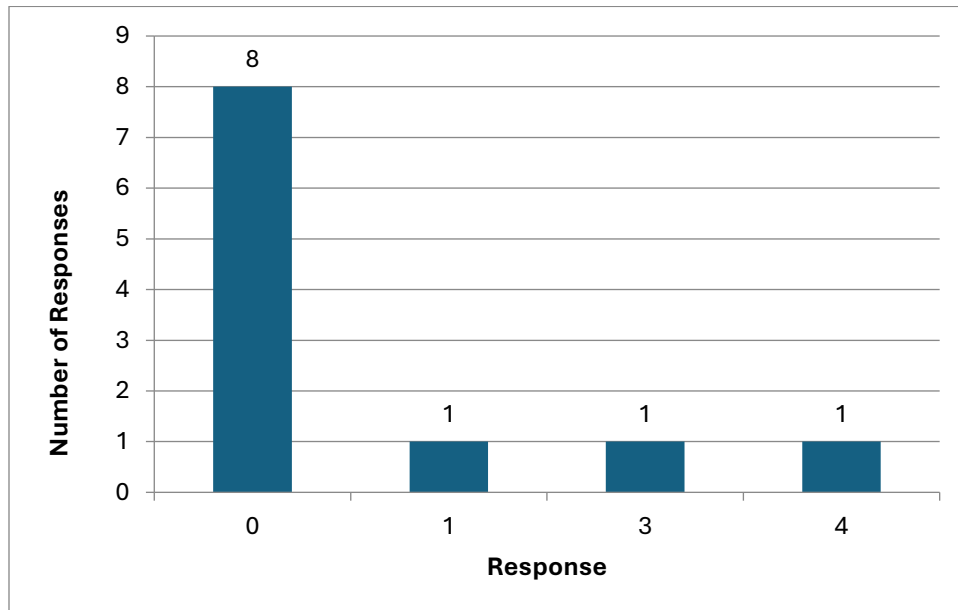


Do You Monitor the Management of Trade Waste Pretreatment Devices?

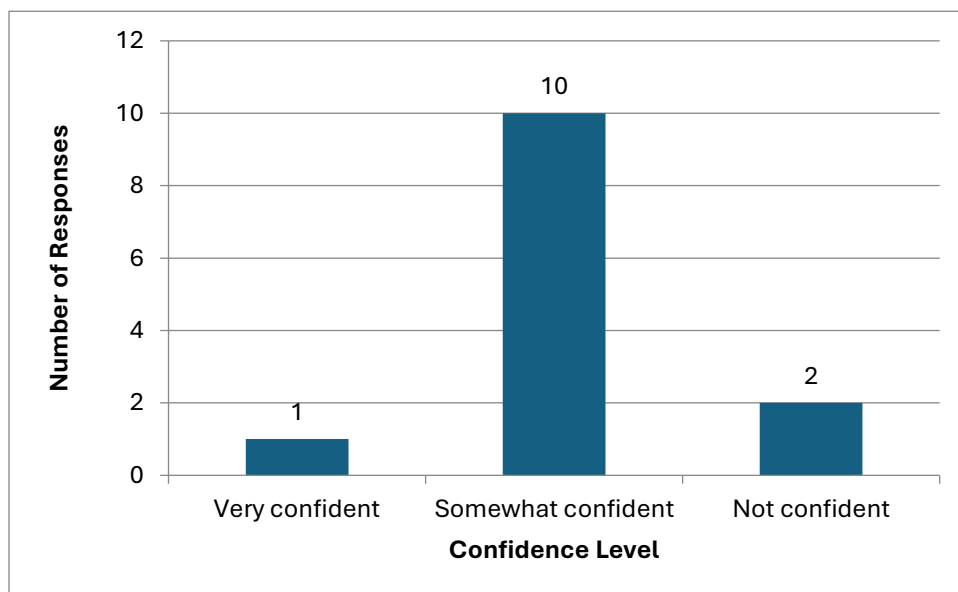


Overall management

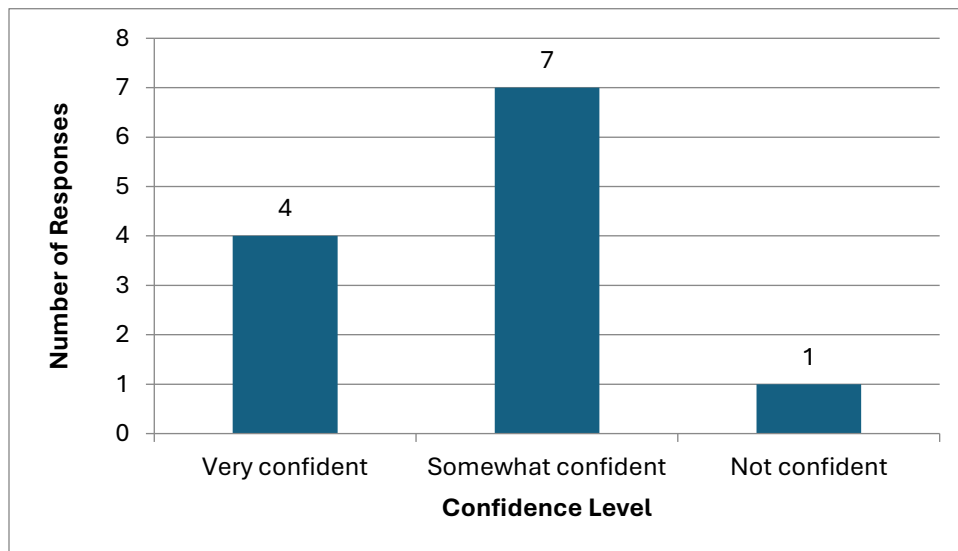
CWMS Networks Connected to SA Water for Treatment and Disposal



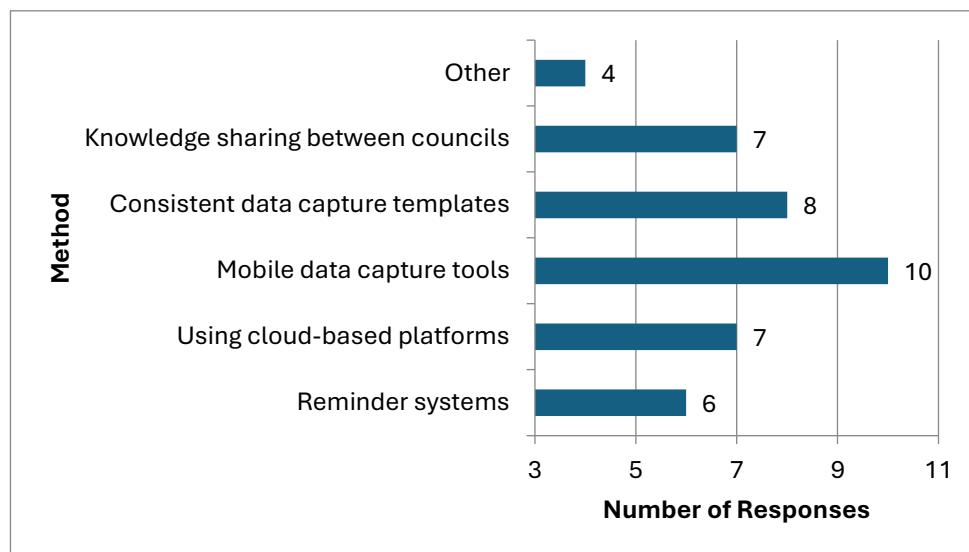
How confident are you that issues of non-compliance with pre-treatment devices—such as damaged tanks leaking sludge or fats and oils, or stormwater entering the system—are being detected?



How confident are you that your organisation is responding appropriately when non-compliant pre-treatment devices are detected?



How Could Administration & Record-Keeping Be Made Easier?



APPENDIX D – ALEXANDRINA PROCESS – ACQUISITION AND IMPLEMENTATION OF IT SOLUTION

FIRST STAGES: ACQUISITION AND IMPLEMENTATION OF IT SOLUTION FOR MANAGEMENT OF PRE-TREATMENT DEVICES CONNECTED TO CWMS

STAGE 1 – ACQUISITION OF IT SOLUTION

Consult relevant sections of the council

Information Solutions Strategic Steering Committee

Determine organisational capacity and preparedness to support adoption of a relevant IT platform; confirm that adoption of the IT platform does not contradict any relevant local policies relating to information management; enable support from the organisation for delivery of the project

Governance

Holistic probity considerations including protection of information using carefully constructed contract with vendor

Procurement

Budget is available; process for vendor selection is compliant with relevant legislation and other policy

IT

Consider how and extent to which the council will integrate the new IT platform with existing relevant information management platforms

STAGE 2 – DATA MIGRATION & DATA INTEGRATION

Collaborate with IT experts

Priority 1 – create starting data set in WasteID

Practical implementation of WasteID can start on completion of this priority

- Migrate all data from Synergy module (current as of Oct '24)
- Cause data updates since Oct '24:
 - Data held in spreadsheets atm
 - monthly return reports from FSP (Excel spreadsheets)
 - septic tank upgrades (i.e. tank volume changes and re-set next desludge date)
 - Migrate data from Tech1:
 - new sites connected to STEDS
 - property assessment ID changes (e.g. subdivision)
 - change in owner/agent details
 - introduce phone and email contact details for the first time



Priority 2 – must have – functional ongoing data integration

This development can start after practical implementation of WasteID is underway

- Minimum update frequency: once per month (though real-time updates will be ideal)
- Ongoing updates
 - septic tank upgrades (i.e. tank volume changes and re-set next desludge date) – potential to export data from CiA Wastewater Works Application module although changes to the module maybe required to accommodate this
 - new sites connected to STEDS – export from CiA Wastewater Works Application module (see caveat above)
 - property assessment ID changes (e.g. subdivision) – export from CiA Property/Rates module
 - change in owner/agent contact details – export from CiA Property/Rates module
- We can work with one-way integration – data from Tech1 to WasteID
- Until we have API, we can continue to work with vendor to provide for manual updates using batch data export and batch data uploads – though this is not ideal



Priority 3 – nice to have – full two-way integration of WasteID and Tech1 by APIs

This is a long-term development option

Provide for data export from WasteID to a developed Wastewater Application module in CiA

APPENDIX E – INDICATIVE SOLUTION UNIT COSTINGS

Indicative Pricing

Note: these costs are indicative only and may be subject to negotiation/change.

Pricing sourced November 2025

General

Description	Cost	Unit Description	Comments
Solution Subscription	\$2,400.00 ¹	Per annum, per segregated data jurisdiction	Tier 1 subscription. Applies across all functionalities
Application Programming Interface (API) for basic information transfer between WastelD	\$2,500.00	One-time, per segregated data jurisdiction	If the API needs to change, the fee will apply again
API for basic information transfer between WastelD	\$1,800.00	Per annum Per API Account	
Implementation Support	\$2,500.00	First year only	Charged once regardless of device application scope

Septic Desludge

Description	Cost	Unit Description	Comments
Solution ID Subscription		Per annum	A subscription is required to use Desludge compliance function. Assumed covered in general
Data & Support Fee	\$1.50	Per year per septic	No QR2id Sticker for Septic
Septic Consignment Data Matching	\$2,000.00	Per annum, per segregated data jurisdiction	this supports an upload of an invoices spreadsheet to match against pump-out data to generate an anomalies report

Trade Waste

Description	Cost	Unit Description	Comments
Solution Subscription		Per annum	A subscription is required to use Trade Waste compliance function. Assumed covered in general
Data and Support	\$3.75	Per month per tag device	Tier 1 ⁷
QR2id Tags for trade waste	\$6.00	One time cost, unless Tag is lost / damaged	
Tanker Stickers	\$30.00	Per vehicle	Driver scans vehicle sticker to 'join' at start of shift
Waste Facility Plates	\$45.00	Per waste receival facility	Driver scans plate to offload waste

Aerated Wastewater Treatment Schemes (AWTSs)

Description	Cost	Unit Description	Comments
Solution Subscription		Per annum	A subscription is required to use AWTS compliance function. Assumed covered in general
QR2id Stickers	\$6.50	One time cost	Discounts available for economies of scale

⁷ Tier 2 Core Subscription is \$3,950 per month, but then only \$0.90 per pre-treatment device per month. Tier 2 becomes more cost-effective around 1,350 Devices

APPENDIX F – COSTS APPLIED TO A CASE STUDY COUNCIL

Description	Unit Description and Comments	Comments	Cost	Quantity	Total Cost - Yr 1	Total Cost - Yr 2
Solution Subscription and Support						
SUBTOTAL	Tier 1 Subscription - Per annum, across all functionalities		\$2,400.00	1	\$2,400.00	\$2,400.00
	Implementation support applied in first year only		\$2,500.00	1	\$2,500.00	\$0.00
Aerated Wastewater Treatment Systems						
	QR2id Stickers for systems.	Cost in 2nd year assumes 10% replacement lost or damaged stickers	\$6.50	2500	\$16,250.00	\$1,625.00
SUBTOTAL					\$18,750.00	\$1,625.00
Septic Tanks						
Septic Consignment Data Matching	Fixed - Per annum, per segregated data jurisdiction. Supports upload of an invoices spreadsheet to match against pump-out data to generate an anomalies report.	Subject to Council scope	\$2,000.00	1	\$2,000.00	\$2,000.00
Application programming Interface (API) for basic information transfer between WasteID	Fixed - First year only. If the API requires amendment the fee would apply again.	Subject to Council scope	\$2,500.00	1	\$2,500.00	\$1,250.00
Septic - Data & Support Fee	Variable - Per year per septic. No QR2id sticker for septic.		\$1.50	6500	\$9,750.00	\$9,750.00
SUBTOTAL					\$14,250.00	\$13,000.00
Trade Waste Arrestors						
Data and Support	Per annum per tag device		\$45.00	200	\$9,000.00	\$9,000.00
QR2id Tags for trade waste	One time cost, unless Tag is lost / damaged	Cost in 2nd year assumes 25% replacement of damaged tags	\$6.00	200	\$1,200.00	\$300.00
Tanker Stickers	Per vehicle (note: assumed that this cost would be incurred by the waste hauler)		\$30.00		\$0.00	\$0.00
Waste Facility Plates	Per waste receival facility		\$45.00	1	\$45.00	\$0.00
SUBTOTAL					\$10,245.00	\$9,300.00
Project Manager Resource - Council Implementation Administration and IT Support						
	Human resource allocation to implementation process (assumes 1 day per week in year 1 and half a day per week ongoing)		\$120,000.00	1	\$24,000.00	\$12,000.00
SUBTOTAL						
TOTAL - ALL SYSTEMS					\$72,145.00	\$38,325.00

APPENDIX G – COSTS APPLIED STATEWIDE – ALL SYSTEMS

Description	Unit Description and Comments	Cost	Quantity	Total Cost - Yr 1	Total Cost - Yr 2	Total Cost - Yr 3
Solution Subscription	Tier 1 Subscription - Per annum, across all functionalities, per segregated data jurisdiction (50 Councils)	\$2,400.00	50	\$120,000.00	\$120,000.00	\$120,000.00
	Implementation support applied in first year only. Possible economies of scale with statewide approach.	\$2,500.00	50	\$125,000.00	\$0.00	\$0.00
Aerated Wastewater Treatment Systems						
	QR2id Stickers for systems. Based on 40000 systems across SA. Costs assume 10% replacement in subsequent years pose year 1.	\$6.50	40000	\$260,000.00	\$26,000.00	\$26,000.00
Septic Tanks						
Septic Consignment Data Matching	Fixed - Per annum, per segregated data jurisdiction. Supports upload of an invoices spreadsheet to match against pump-out data to generate an anomalies report.	\$2,000.00	50	\$100,000.00	\$100,000.00	\$100,000.00
Application programming Interface (API) for basic information transfer between WasteID	Fixed - First year only. If the API requires amendment the fee would apply again (a 50% fee is assumed for amendmenst post year 1). This fee is optional depending on individual council requirements.	\$2,500.00	50	\$125,000.00	\$62,500.00	\$62,500.00
Septic - Data & Support Fee	Variable - Per year per septic. No QR2id sticker for septic.	\$1.50	90000	\$135,000.00	\$135,000.00	\$135,000.00
Trade Waste Arrestors						
Data and Support	Per annum per tag device	\$45.00	1000	\$45,000.00	\$45,000.00	\$45,000.00
QR2id Tags for trade waste	One time cost, unless Tag is lost / damaged. Costs in subsequent years assumes 25% replacement of damaged tags.	\$6.00	1000	\$6,000.00	\$1,500.00	\$1,500.00
Tanker Stickers	Per vehicle (note: assumed that this cost would be incurred by the waste hauler)	\$30.00		\$0.00	\$0.00	\$0.00
Waste Facility Plates	Per waste receival facility	\$45.00	172	\$7,740.00	\$0.00	\$0.00
				\$923,740.00	\$490,000.00	\$490,000.00

APPENDIX H – COSTS AND SAVINGS - SEPTIC TANK COMPLIANCE

Table 1 – Small Council Cost and Saving Estimates

Description	Unit Description	Comments	Cost	Quantities	Total Cost - Yr 1	Total Cost - Yr 2
Solution Subscription	Fixed - Per annum, per segregated data jurisdiction	Tier 1 subscription. Applies across all functionalities	\$2,400.00	1	\$2,400.00	\$2,400.00
Septic Consignment Data Matching	Fixed - Per annum, per segregated data jurisdiction	this supports an upload of an invoices spreadsheet to match against pump-out data to generate an anomalies report	\$2,000.00	1	\$2,000.00	\$2,000.00
API for basic information transfer	Fixed - First year only	If the API needs to change, the fee will apply again	\$2,500.00	1	\$2,500.00	\$0.00
Septic - Implementation Support	Fixed - First year only		\$2,500.00	1	\$2,500.00	\$0.00
Septic - Data & Support Fee	Variable - Per year per septic	No QR2id Sticker for Septic	\$1.50	950	\$1,425.00	\$1,425.00
Council implementation resources					\$10,000.00	
					\$20,825.00	\$7,250.00
Small - 950 Septics						
Council Costs	Yr 1 Impact	Yr 2 Impact	5 Year Cumulative Saving			
Platform Implementation Cost	\$20,825.00	\$7,250.00				
Estimated Cost Savings						
Reduced resourcing based on .1 FTE	\$12,000.00	\$12,000.00				
Estimated avoided blockage cost	\$1,254.00	\$1,254.00				
Overall Cost Impact	\$7,571.00	-\$6,004.00	-\$16,445.00			

Table 2 – Medium Council Cost and Saving Estimates

Description	Unit Description	Comments	Cost	Quantities	Total Cost - Yr 1	Total Cost - Yr 2
Solution Subscription	Fixed - Per annum, per segregated data jurisdiction	Tier 1 subscription. Applies across all functionalities	\$2,400.00	1	\$2,400.00	\$2,400.00
Septic Consignment Data Matching	Fixed - Per annum, per segregated data jurisdiction	this supports an upload of an invoices spreadsheet to match against pump-out data to generate an anomalies report	\$2,000.00	1	\$2,000.00	\$2,000.00
API for basic information transfer	Fixed - First year only	If the API needs to change, the fee will apply again	\$2,500.00	1	\$2,500.00	
Septic - Implementation Support	Fixed - First year only		\$2,500.00	1	\$2,500.00	
Septic - Data & Support Fee	Variable - Per year per septic	No QR2id Sticker for Septic	\$1.50	6500	\$9,750.00	\$9,750.00
Council implementation resources					\$10,000.00	
					\$29,150.00	\$14,150.00
Medium - 6500 Septics						
Council Costs	Yr 1 Impact	Yr 2 Impact	5 Year Cumulative Saving			
Platform Implementation Cost	\$29,150.00	\$14,150.00				
Estimated Cost Savings						
Reduced resourcing based on .2 FTE	\$24,000.00	\$24,000.00				
Estimated avoided blockage cost	\$8,580.00	\$8,580.00				
Overall Cost Impact	-\$3,430.00	-\$18,430.00	-\$77,150.00			

Table 3 – Large Council Cost and Saving Estimates

Description	Unit Description	Comments	Cost	Quantities	Total Cost - Yr 1	Total Cost - Yr 2
Solution Subscription	Fixed - Per annum, per segregated data jurisdiction	Tier 1 subscription. Applies across all functionalities	\$2,400.00	1	\$2,400.00	\$2,400.00
Septic Consignment Data Matching?	Fixed - Per annum, per segregated data jurisdiction	this supports an upload of an invoices spreadsheet to match against pump-out data to generate an anomalies report	\$2,000.00	1	\$2,000.00	\$2,000.00
API for basic information transfer	Fixed - First year only	If the API needs to change, the fee will apply again	\$2,500.00	1	\$2,500.00	
Septic - Implementation Support	Fixed - First year only		\$2,500.00	1	\$2,500.00	
Septic - Data & Support Fee	Variable - Per year per septic	No QR2id Sticker for Septic	\$1.50	10500	\$15,750.00	\$15,750.00
Council implementation resources					\$10,000.00	
					\$35,150.00	\$20,150.00
Large - 10,500 Septics						
Council Costs	Yr 1 Impact	Yr 2 Impact	5 Year Cumulative Saving			
Platform Implementation Cost	\$35,150.00	\$20,150.00				
Estimated Cost Savings						
Reduced resourcing based on .2 FTE	\$36,000.00	\$36,000.00				
Estimated avoided blockage cost	\$14,194.00	\$14,194.00				
Overall Cost Impact	-\$15,044.00	-\$30,044.00	-\$135,220.00			

APPENDIX I – PLATFORM SPECIFICATION ELEMENTS

Specification Considerations: Digital Platform for Coordinated Management of Wastewater Pretreatment Devices by South Australian Councils

Note: This document provides considerations for a tender specification. We recommend that the full specification be developed collaboratively with user representatives and software professionals to ensure that all user needs are accurately captured and translated into software requirements.

1. Introduction

As part of their responsibility for wastewater management where there is no SA Water infrastructure, councils are concerned with ensuring adequate function of wastewater pretreatment devices, which include septic tanks and tradewaste arrestors connected to reticulated wastewater networks as well as aerated wastewater treatment systems (AWTS) for onsite effluent disposal.

This specification outlines the functional, technical, and operational requirements for a digital platform to support the coordinated and consistent oversight of wastewater pretreatment devices (septic tanks, trade waste arrestors, and AWTS) by the *ca* 50 affected South Australian local government authorities.

The platform will address fragmented record-keeping, inconsistent oversight, and limited resources for compliance monitoring by providing a centralised, cloud-based solution. It will support councils in improving operational efficiency, regulatory compliance, and public and environmental health outcomes.

2. Strategic Objectives

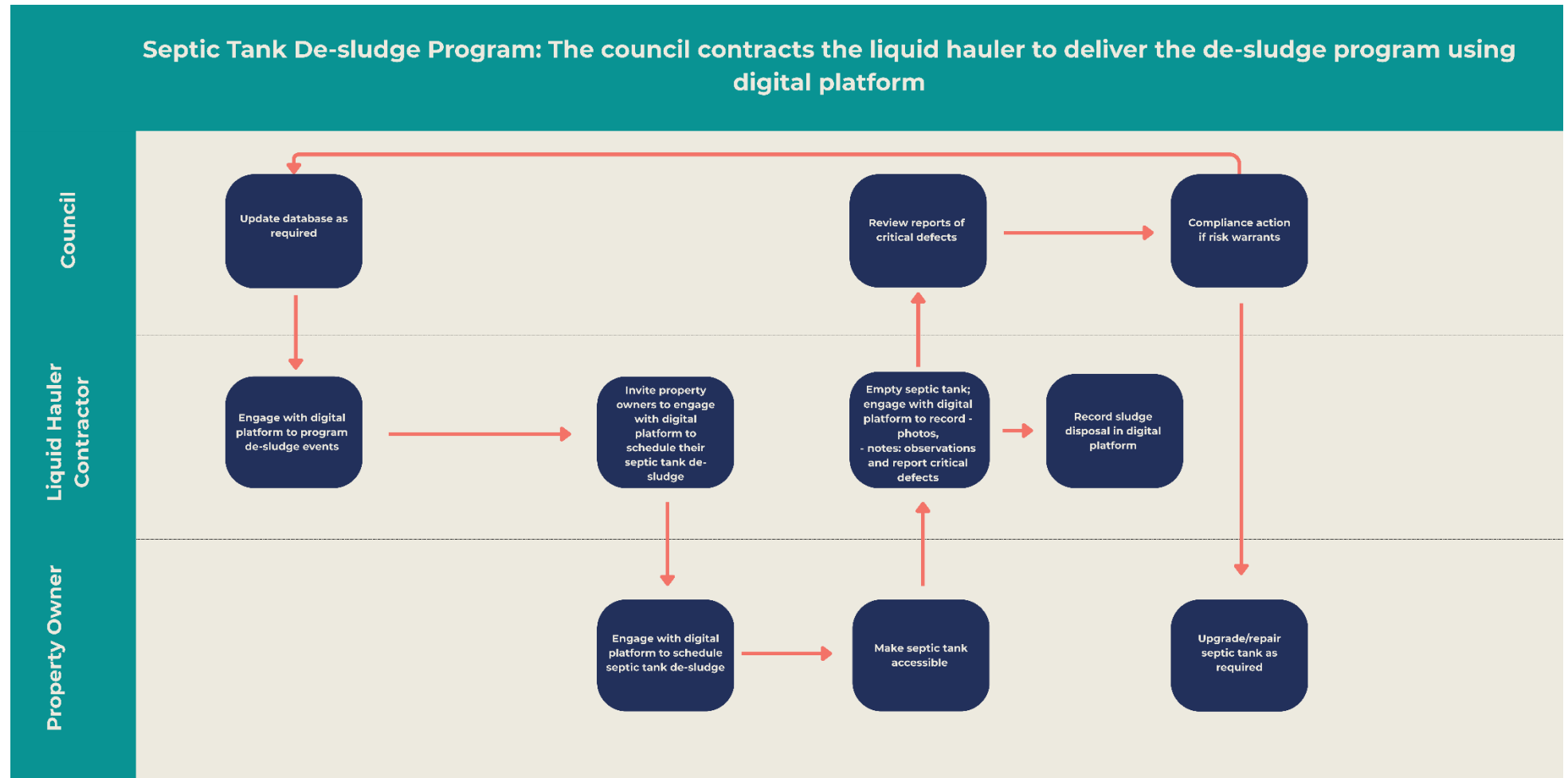
We anticipate that the platform will enable the following outcomes:

- **Compliance Oversight:** Enable councils to monitor and enforce maintenance of AWTS or pretreatment devices connected to CWMS networks.
- **Operational Efficiency:** Reduce administrative burden through automation and mobile data capture.
- **Sector Collaboration:** Facilitate resource sharing including processes, templates, human power.
- **Scalability:** Accommodate varying council sizes, digital maturity, and wastewater risk profiles.
- **Modular Operation:** Support staged rollout across AWTS, Septic, and Trade Waste functionality.

3. Functional Requirements

The next section provides an example of functional requirements that would need to be refined collaboratively with user representatives and software professionals to ensure that all user needs are accurately captured and translated into software requirements. Figure 1 shows a flowchart for a septic tank de-sludging program implemented through a digital platform. This flowchart is an example and should be refined during the specification refinement stage, along with the development of flowcharts related to tradewaste and AWTS.

Figure 1: Example of septic tank de-sludge program flowchart using a digital program



3.1 Device Registry and Management

- Maintain a centralised register of AWTS and CWMS-connected pretreatment devices.
- Each device record must include:
 - GPS location
 - Property details
 - Device type and specifications
 - Installation and service history
 - Inspection notes and compliance status
- Option: GIS integration for spatial mapping and visualisation of asset distribution.

3.2 Service Scheduling and Notifications

- Ability to customise service interval for each device (i.e. some septic tanks will need to be desludged with frequency other than once every 4 years).
- Automated reminders to property owners and contractors.
- Contractor scheduling interface with confirmation and rescheduling options.
- Escalation alerts for overdue services or missed appointments; device faults

3.3 Mobile Field Reporting

- Mobile app for contractors and council officers to:
 - Log service events with timestamp and GPS verification
 - Upload photos and defect notes
 - Operate in offline mode with auto-sync
- Standardised forms (templates provided by client) for inspections and compliance checks.

3.4 GIS and Document Management (Optional)

- Interactive maps showing asset locations, service status, and inspection history.
- Layered views for different device types.

3.5 Stakeholder Access Levels

The platform will implement a tiered access control model to ensure appropriate data visibility and operational functionality:

Stakeholder Group	Access Level
Council	Full access to asset registers, service records, compliance dashboards, and reporting tools. Role-based permissions for data entry, review, and compliance actions.
Operator (liquid hauler/service agent)	Mobile access to service scheduling, data capture forms. Upload service reports, photos, and defect notes. Ability to communicate with customer by email or SMS but no direct access to names, telephone numbers, email addresses of customers (unless engaged directly by the customer).
Property Owners	View service history, upcoming maintenance schedules, and booking tools for own device(s). Receive notifications and alerts. Respond to service reports and council communications.
Lead Agency (LGA)	Administrative access for platform governance, user management, and system configuration.

Figure 1 provides an illustration of the stakeholder and their level of access.

3.6 Reporting and Analytics

The platform should be capable of generating dashboards for any filterable data field—examples include compliance rates, asset condition summaries, incident tracking, and waste volumes. In addition, it should support custom report generation and export in standard file formats. The specific dashboard configurations and reporting requirements will be further defined during the specification refinement stage.

4. Technical Requirements

4.1 Platform Architecture

- Ability for functions (septic tank, tradewaste, AWTs) to operate independently
- Example requirement: Consider a RESTful API to enable one-way and two-way integration with a diverse range of council information management systems (e.g., TechOne, Synergy, Authority).

4.2 Compatibility and Integration

- Mobile compatibility (iOS and Android).
- Option: Integration with council asset management and finance systems.
- Support integration with systems used by external contractors.

4.3 User Access, Permissions, Data Governance and Security

The following principles will be developed and refined during the specification refinement stage, in collaboration with representatives of end users and government software specialist representatives (e.g., Lead Agency specialist representatives). Some examples of requirements are provided below:

- Access and Permissions
 - Platform custodian shall not have visibility of council data.

- Councils will have access only to their own data (i.e., no visibility of data owned by other councils) and documentation supplied by the custodian.
- Councils retain ownership of their data.
- Secure login options will be implemented, including Single Sign-On (SSO) or two-factor authentication (2FA).
- **Hosting and Security**
 - The platform will be hosted on secure servers.
 - Compliance with Australian Privacy Principles (APPs) and SA Government Cybersecurity Guidelines will be ensured.
 - Data encryption will be applied both in transit and at rest.
 - Audit logs of user activity and data changes will be maintained.

These measures will form part of the governance and security framework to protect sensitive information and maintain trust across all participating councils.

4.4 User Support and System Maintenance and Development

- Helpdesk and technical support with defined Service Level Agreement (SLA).
- Regular software updates and feature enhancements in response to evolving needs.
- Training resources for council staff and contractors.
- Onboarding support and user guidance.

5. Value Add

Applicants to detail their added value. Outline provisions of ongoing industry insights and best practice recommendations to support continuous improvement throughout the contract term. Detail opportunities for innovation and efficiency gains that will be actively pursued and shared with participating councils.



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