

7.0 How We Manage the Activity

7.1 The Asset Management Process

The asset management process is intended to deliver agreed levels of service in the most cost effective manner to present and future customers. Managing the water supply infrastructure is simply one of the inputs to this process.

At the highest level, the services to be delivered and standards to be achieved that contribute towards the achievement of the community outcomes in the SDC Long Term Council Community Plan are defined in Section 2.0. Gaps between required standards and services and the ability of the water supply system to deliver them are identified and processes are put in place to manage these gaps within acceptable margins. In managing gaps between target standards and the capability of the water supply system, both asset solutions (such as larger pipes) and non-asset solutions (such as demand management programmes) are considered. Decisions on programmes to be adopted are based on a range of factors such as risk assessments, legal requirements, customer approval ratings and the ability of the community to pay for system improvements (see figure below).

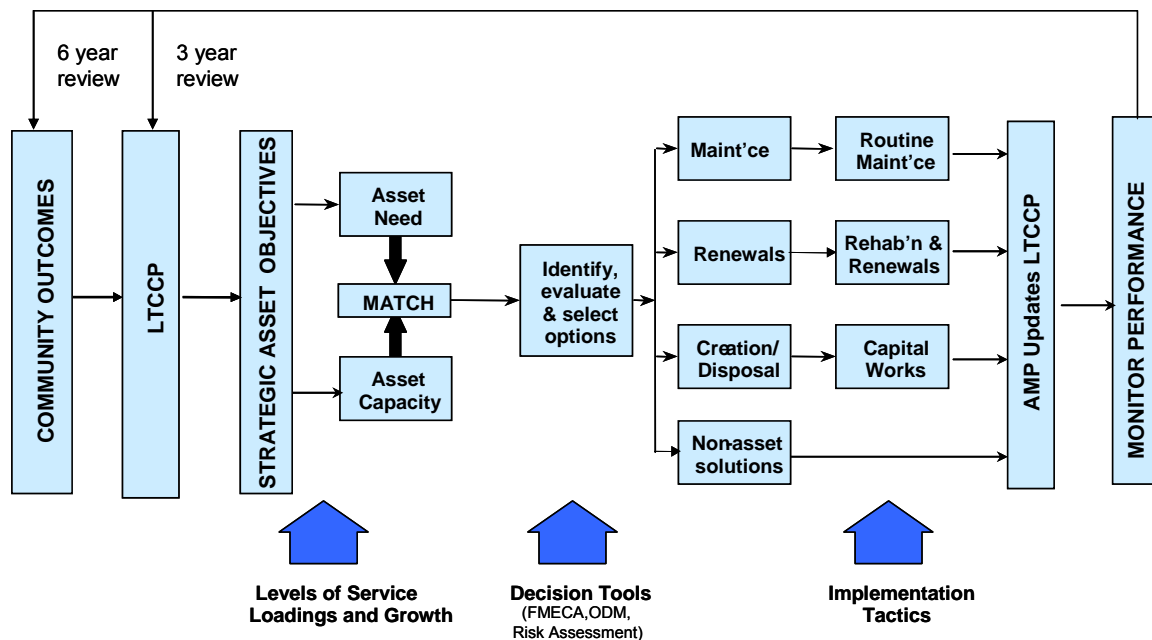


Figure 53 – Asset Management Planning Process

The key asset management practices needed to support good AM Plans can be grouped into four broad inputs and outputs as illustrated by Figure 54:

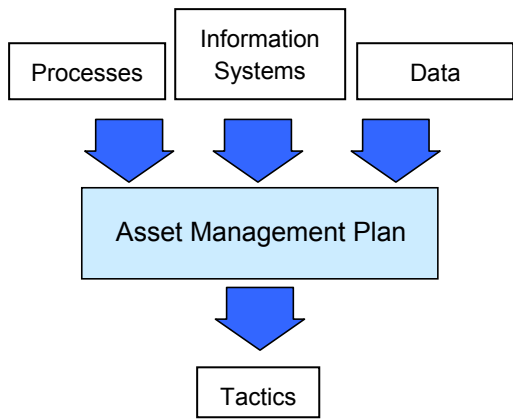


Figure 54 - Key AM Practices

- **Information systems** The information support systems which support the above processes and which store and manipulate asset data.
- **Data:** Data available for manipulation by information systems to support AM decision-making
- **Processes:** The necessary processes, analysis and evaluation techniques needed for lifecycle asset management
- **Tactics:** The necessary processes, analysis and evaluation techniques needed for lifecycle asset management

7.2 Information Systems and Data

7.2.1 Introduction

SDC operate a number of different interlinking systems as illustrated in the following diagram:

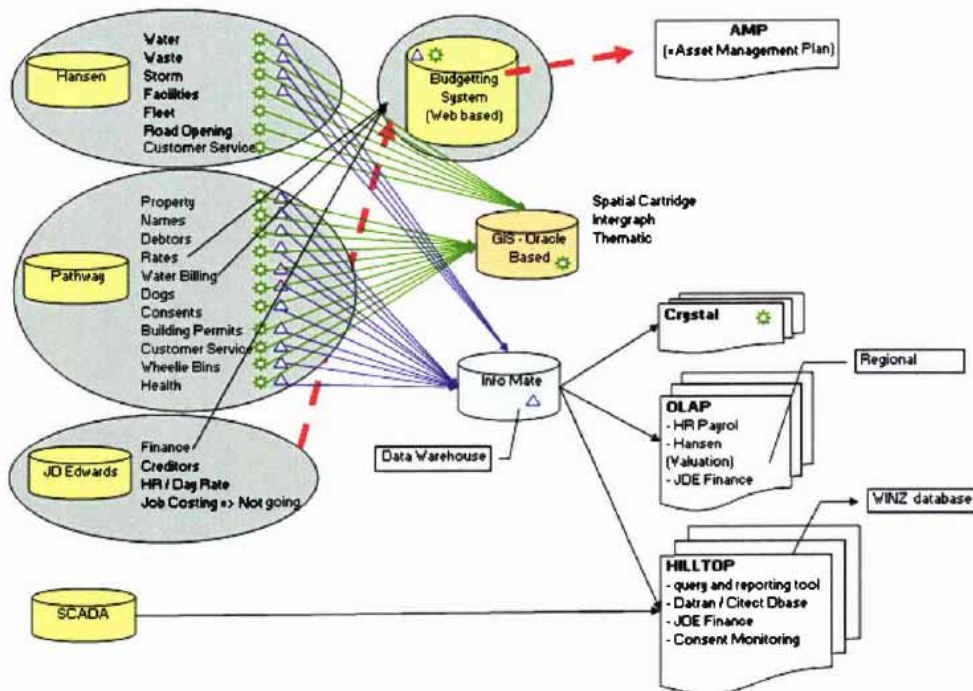


Figure 55 - SDC Information Systems

Source: Waugh Consultants

7.2.2 Accounting/Financial Systems

The following applications are utilised by the finance team:

- **GEAC Pathways**

Pathways is a corporate-wide system used across all areas of SDC. Key modules include:

- Rates collection
- Property administration
- Debtors
- Names and address register
- Customer Service (Stormwater)
- Resource Management
- Building Control
- Licensing

- **JD Edwards Accounting Package**

JDE is the corporate financial system used for all financial functions at SDC, key modules include:

- Financial Services and Creditors
- Payroll
- Human Resources

- **Front End Budgeting Application**

Custom made web-based application.

- **MS Access**

Access database used to assign rates categories and apportion local and district rates.

- **MS Excel**

Excel spreadsheet used in rates smoothing process

7.2.3 Asset Management Systems

The following applications are utilised by WWS to monitor the performance of asset systems and achievement of service standards, manage risks, and support asset management decision-making:

- **Hansen IMS, NAG, and Crystal Reporting**

Information is stored against each asset in a Hansen IMS database including:

- Work Orders (WO) and maintenance records (asset failure and developing an expenditure history)
- Customer Service (water supply and wastewater) (SR)
- Condition reports (recorded by operation and maintenance contractor, pipe samples taken for analysis)
- System performance monitoring (water outages, etc.)
- Facility/equipment parameters
- Estimated design life
- Valuation information
- Any operator comments

The O&M contractor have live access to Hansen. Their performance is monitored in real-time by NAG and monthly using Crystal reports to interrogate SR and WO response and resolution times.

Other information stored in scheme working folders or SDC's electronic document management system (TRIM Context) includes:

- Flow monitoring and network modelling
- Demand forecasts.

Existing asset information has been transferred from hard copy records and supplemented with specific capture projects over the last few years. The asset register is now believed to be 90% complete. An internal audit for accuracy has not yet been carried out.

- Condition reports (critical assets are routinely inspected visually and using pipe samples)
- Maintenance records (asset failure and expenditure history)
- Water quality monitoring at various sites (undertaken by Environment Southland)
- Request for service records
- Demand forecasts.

- **WebMap (GIS)**

Council operates Intergraph's Geomedia. The GIS is currently linked to Pathways and Hansen.

- **SCADA**

Every water and wastewater facility is equipped with telemetry. Station RTU's transmit data either on a change in state or on a 60 minute polling rate to the base-station at the SDC Invercargill. There are two SCADA systems in operation running on two dedicated computers:

- Datran system: QTech software (Datran RTU) was installed in the 1990. In 2004 SDC were becoming frustrated with the poor service and lack of prompt supply of Datran parts and made enquiries into an alternative SCADA system.
- Kingfisher system: Citect software (Kingfisher RTU) was installed as part of the Stewart Island Wastewater Upgrade and is now being installed in all new stations.

All radio traffic from the mainland is received to the SDC base-station via the Mid-Dome repeater site leased from Jackson & Wills Ltd. Traffic from Stewart Island is received via the Peterson's Hill repeater site.

The computers manage the information and page any station alarms via the cellular network. Alarms are set to local operators first and escalate if they are not acknowledged. Afterhours alarms are monitored by the Council's Answer Service.

- **Other Applications**

- Hilltop – used for stores and analysing SCADA data
- Water Information System New Zealand (WINZ) – the national database for storing data for public health services and the Ministry of Health purposes.

7.3 Information Flow Requirements and Processes

The following diagram illustrates the key information inputs and outputs of the AM Plan.

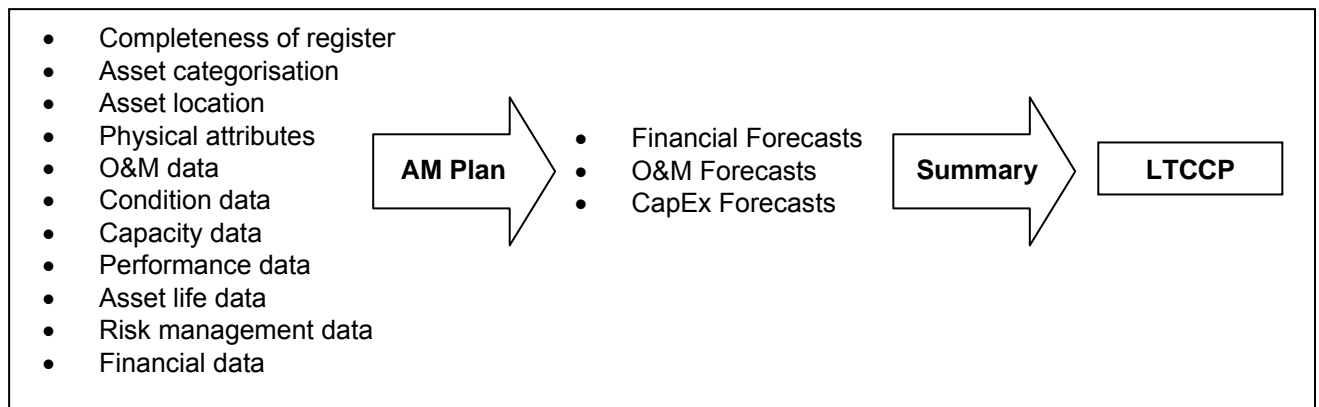


Figure 56 – Key Information Flow

The water supply service is delivered as efficiently as possible by achieving a balance between the following key processes.

7.3.1 Maintenance and System Operation

Operation and maintenance is currently contracted out. The Contractor carries out all routine maintenance, non-urgent work, and emergency work to ensure the systems meet the required LoS. SDC operate a “live-link” with the Contractor allowing full access to the Hansen IMS database. All Service Requests and Work Orders are loaded against individual assets. Response and resolution times are monitored against performance standards set in the Contract Documents.

7.3.2 Renewals

The ongoing replacement or rehabilitation of the water supply network and equipment is carried out as they reach the end of their useful lives. The remaining life and valuation data is stored in the Hansen IMS database and is used for budgeting purposes. At present the Hansen IMS database does not adjust the remaining life to reflect condition and performance so decisions for renewal are made by SDC staff following consultation with the local operators.

The operations and maintenance contractor has the right to be approved by council to complete renewals up to a value of \$10,000. If the renewal is deemed by council staff to be beyond the scope of normal operational/maintenance activities then quotes from other contracting parties are requested as well.

Any works expected to have a values of over \$50,000 must be competitively tendered, unless specifically approved in writing by the Chief Executive. This is detailed in Council’s Purchasing of Goods and Services Policy.

7.3.3 Professional Services

During large scale projects and capital projects that require specialist knowledge, consultants or technical specialists are engaged to provide input into the project or to assist with design planning and compiling of tender documents. Typically SDC provide the resource for the engineer and engineers representative so that SDC still remain closely associated with the project during design and construction.

SDC have a professional services contract with MWH and Roly Hayes Water Engineer. Maunsell have also been contracted to provide extra resource during the updating of the Activity Management plans for this plan and the 2006-16 LTCCP.

7.3.4 Asset Development

The construction of new assets or increases in capacity of existing assets are carried out in order to close the gap between target service standards and the existing standard being delivered. The gaps may increase or decrease independent of capital works due to growth in townships, changes in demand on the system, changes in LoS, or changes in the capability of the system. Asset development programmed in this Activity Plan is based on the SDC's current understanding of the requirements to meet the target LoS and predicted future demand.

7.3.5 Making Decisions

Recommendations are made by SDC staff to the respective water supply committee, community board, or community development area. High value projects are considered by the Activities Performance Audit Committee (committee of council) with significant projects going to full Council.

All recommendations made to elected members outline the problem; options for solution; received quotes/tendered amounts against the budgeted amount; and any impacts on the cultural, economic, environmental, and social well being.

7.3.6 Project Prioritisation

All projects identified as potential solutions to reduce risk exposure were discussed in a workshop at the council offices in October 2009. The workshop was attended by key members of the WWS team, members of the corporate planning team, members of finance team and two trusted consulting engineers.

Risk exposure gave the first indication of priority however this was balanced against any opportunity to secure government subsidy or any community issues not assessed through the risk assessment process.

The 10-year project profile (as a whole) was then aligned with available human resources.

7.3.7 Planning and management

The range of management activities required to ensure the water supply outcomes required in the Southland District will be achieved efficiently and sustainably into the future include:

- Strategic planning for services in the District
- Developing policy and standards for consideration by the SDC
- Managing the customer interface
- Demand forecasting and management
- Data collection and management
- Service performance monitoring and reporting
- Financial management
- Contract management
- Construction programme management
- Risk management
- Process development and improvement
- Quality assurance
- Performance measurement and reporting
- Preparing and implementing public education programmes.

7.3.8 Non-Asset Solutions

There are substantial costs associated with construction works as well as with the associated and ongoing operation and maintenance of infrastructural assets. Minimising costs involves considering alternatives to the creation of additional infrastructure where practical, such as reducing losses and encouraging efficiency of use.

7.4 Organisational Tactics

The key strategies adopted by SDC to ensure the desired water supply service outputs are achieved are described below.

7.4.1 Stakeholder Consultation

SDC will continuously review service standards by monitoring customer feedback and applying appropriate consultative methods.

7.4.2 Criticality and Risk Management

SDC has a risk management process in place to manage the likelihood of non-achievement of critical business objectives within defined and acceptable limits. Risk management is designed to ensure that:

- All significant risks associated with the water supply activity are identified, understood and managed.
- The highest risks that should be addressed within a 10 year planning horizon are identified.
- Risk reduction treatments which best meet business needs are applied.
- Responsibilities for managing risks are allocated and reporting regimes specified.

The risk management process is described in Section 4.0.

A risk-based approach has been adopted to assist in the prioritisation of capital projects. Projects are prioritised by considering the ratio of cost/benefit that will be achieved by reducing the level of risk to the community. Risk assessments for the water supply activity are displayed in Appendix E.

Options considered to reduce risk involve reducing the likelihood or the consequences of the risk or a combination of both. These options may include:

- Acceptance of risk - Do nothing - accept the risk.
- Management strategies - implement enhanced strategies for demand management, contingency planning, quality processes, staff training, monitoring systems, data analysis and reporting or reduce the Technical Level of Service.
- Operational strategies - actions to reduce peak demand or stresses on the asset or service, operator training, documentation of operational procedures.
- Maintenance strategies - modify the maintenance regime to improve reliability or extend asset life.
- Asset renewal strategies - rehabilitate or replace assets to maintain service levels.
- Development strategies - investment to create a new asset or augment an existing asset.
- Asset disposal / rationalisation - divestment of assets surplus to needs.

7.4.3 Demand Management

SDC will monitor growth and demand for services in the District by evaluating:

- Growth projections (Statistics NZ population and economic growth projections, SDC planning policies and demographic data).
- Monitor commercial and industrial demands in the District.

- Monitor water consumption patterns.
- Customer service standard reviews.
- Monitor and investigate advances in technology, and introduce them as appropriate.
- Measure flows through the water supply system (currently derived from pump run hour data).

Supply-side and demand-side management options will be considered to defer capital investment and enhance the sustainability of services, including;

- Water restrictions - water restrictions are used occasionally to restrict garden irrigation.
- Water conservation and public education to limit the increase in usage per head of population.
- Water metering and pricing – SDC will review the policy on the installation of meters as a water conservation measure. Currently water meters are installed on high usage commercial and industrial properties.
- Water leakage control, detection and pressure management - leak detection programmes are implanted where it is apparent that water losses are unacceptably high (as measured by night-time flow monitoring).
- Restricted supplies – are used in rural or rural-residential areas where the cost-per-user of installing a reticulated supply is high.

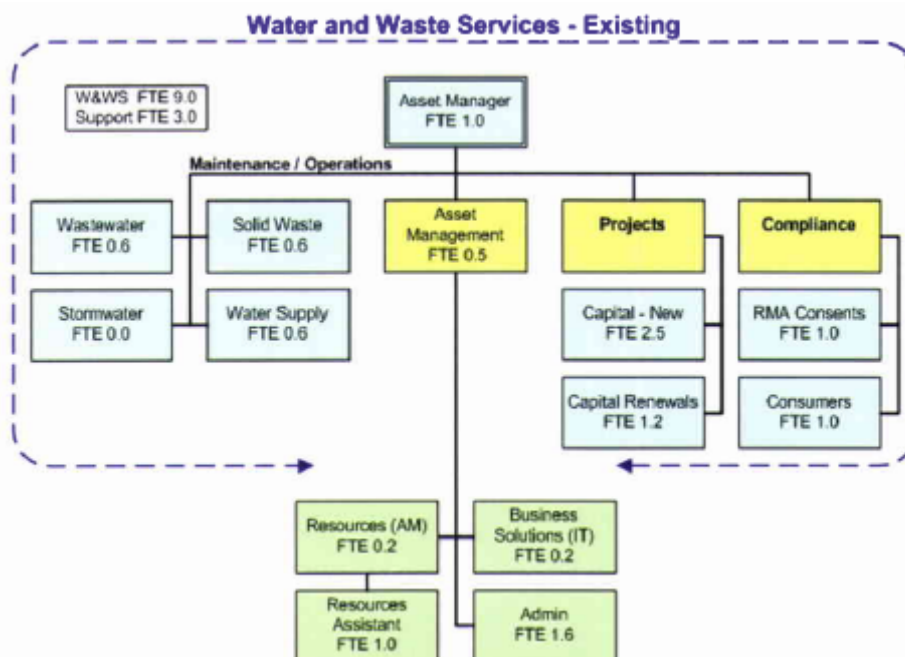
7.4.4 Service Delivery

SDC implement performance based contracts to achieve defined service standards for the operation and maintenance of the water supply system, and undertake monthly audit procedures for monitoring contractor performance and controlling the quality of data (work activity, financial, attribute and spatial data) and physical works.

7.5 Organisational Structure

The existing functional structure for the WWS is shown in the figure below.

Figure 57—Existing Functional Structure

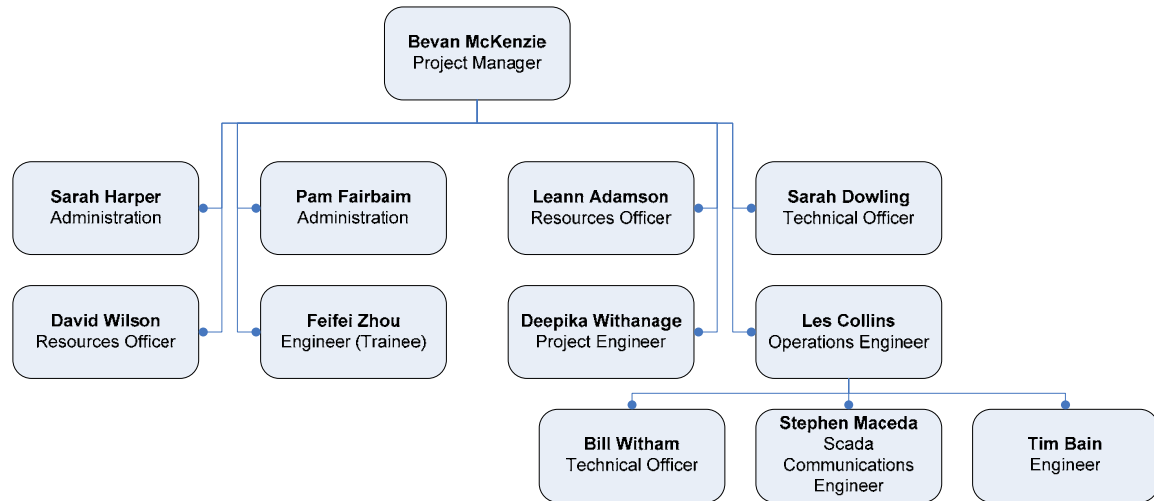


Source: Waugh Report 2007

Issues identified in the Waugh Report (see Section 7.6) were the lack of resources allocated to stormwater, asset management (AM), and maintenance.

At the time of writing the WWS organisational structure was as follows:

Figure 58—Existing WWS Organisational Structure



Source: SDC Intranet

7.6 Review of AM Practices 2007

In 2007 a review of current AM practices was carried out by Waugh Consultants⁴⁰. The purpose of the review was to gain a clear understanding of current AM processes and supporting business systems. The review also investigated resourcing issues as a possible reason for a loss of AM focus in SDC as an organisation. The review concluded that SDC had made significant advancements in AM processes and systems and would meet the expectations of the Office of the Auditor General (OAG).

7.7 OAG Self-Assessment

In 2006 the Auditor-General began issuing opinions on LTCCP as required by sections 84(4) and 94 of the LGA 2002. Part of the audit methodology in 2009 includes the requirements for Councils' to complete a Self-Assessment on AM Planning.

The Self-Assessment can be located in TRIM (NT/08/7/9776).

This purpose of this assessment was to demonstrate the quality of AM Plan information, and to demonstrate the accuracy and reliability of information flow from the AM Plan into the LTCCP.

⁴⁰ Utilities Asset Management Update 2007: Review of Current Practices and Resources – Waugh Consultants 2007