



Assets and Infrastructure

Picture
Phebe Bicknell
installing a marker
post in Marysville

Assets

Goulburn Valley Water operates 1,732 kilometres of water mains, 1,188 kilometres of pressure and gravity sewers, 313 pumping stations, 113 tanks and reservoirs, 39 water treatment plants and 26 wastewater management facilities. Details of these facilities are stored in the asset register. The same system also manages the maintenance and operation of the Corporation's assets.

The asset register and maintenance management system are used, along with consultation with district managers and operations and maintenance staff, to identify water mains that are in need of replacement and to formulate a sewer inspection program.

Did You Know?

If you laid all the water mains and sewer mains end to end they would go from Shepparton to Cooktown in far north Queensland.

Water Main Replacements

Goulburn Valley Water identifies water mains for replacement by their failure history and consequences of failure. During 2008/2009 the Corporation replaced 2,345 metres of water main within the townships of Shepparton, Kyabram, Tallygaroopna, Longwood and Yea.

The replacement program for unlined cast iron water mains also commenced during 2008/2009 with a total of 4,143 metres of water main replaced in the townships of Seymour, Mansfield and Kilmore. This program will continue in 2009/2010.

The water mains were replaced under the first year of a three year contract with Infratec to design, supply and install water mains. These were predominantly completed using an innovative system comprising "pipe bursting" and the installation of polyethylene water mains.

Sewer Main Inspection and Rehabilitation

During 2008/2009 29,307 metres of sewer mains were cleaned and inspected by Closed Circuit Television (CCTV). Information from this work will be used to identify rehabilitation works to be undertaken in 2009/2010.

Based on previous CCTV inspections a section of 375mm diameter concrete trunk sewer main within the central business area of Shepparton was relined. This is one of the larger sewer mains in Shepparton with commercial buildings existing over sections of the main which totalled 860 metres in length. A further 140 metres of 150mm diameter sewer mains were also relined in Shepparton in conjunction with the repair of three sewer main collapses.

Asset Protection

In the aftermath of the bushfires the Corporation established a project team to assess its below ground assets for fire damage and ensure that they could be easily identified by the contractors undertaking the cleanup process. The objective of the project was to locate and assess the condition of all manholes, valves and hydrants situated in the fire ravaged areas of Marysville, Wandong and the forest surrounding Kilmore water treatment plant.

Once located, the team needed to determine the damage to the assets by the fire itself, be it through the heat and intensity of the fire or from large trees or structures falling on top of them. The second concern was to protect the assets from further damage. Obviously a cleanup of such an immense scale meant a large number of trucks and machinery were recruited to these sites for the task. Many were required to drive in areas previously not exposed frequently to traffic, particularly not vehicles of this size. As a large

proportion of the Corporation’s marker posts had been burnt, melted or had vaporised, this obscured the presence of some valves and hydrants. Also, with many manholes being located on housing blocks and among the debris it would be very easy for a manhole to be unknowingly driven over and damaged.

The project team documented the condition of each asset and identified those assets requiring replacement. They also identified the presence of each of these assets as clearly as possible through clearing, pegging, marking with paint and photographing the asset. The identification of these assets resulted in very little additional damage to them during the cleanup process.

WSAA Asset Management Program

In November 2007 the WSAA Board Asset Management Committee held a forum in Melbourne to promote and encourage water agencies from across Australia and New Zealand to participate in an industry based asset management program.

The program has a focus on pressurised pipeline and gravity sewerage systems asset management coordination.

Goulburn Valley Water committed to participate in a number of relevant programs including:

- Condition assessment guidelines;
- Risk management tools;
- Leakage reporting and management tools;
- International water main failure database;
- Management of sewer blockages; and
- Techniques and decision frameworks.

The Corporation’s participation included the completion and submission of detailed industry surveys, attendance at workshops and active membership of project steering committees.

Many benefits have already arisen from participation, including improved access to industry knowledge and practices, an opportunity to build an industry network for sharing asset management

information and the development of water industry ‘best practice’ reference material.

As an example, Goulburn Valley Water participates in the steering group for the management of sewer blockages where the CSIRO has facilitated various workshops and prepared five reports on various aspects of managing sewer blockages. The reports are an excellent resource for improving the management of gravity sewer systems and will be applied to the Corporation’s systems via its Asset Management Improvement Plan.

Goulburn Valley Water has gained other information and practices from participation to date which has been adopted in the management of the Corporation’s gravity sewerage system. This includes adopting best practice procedures for clearing sewer blockages.

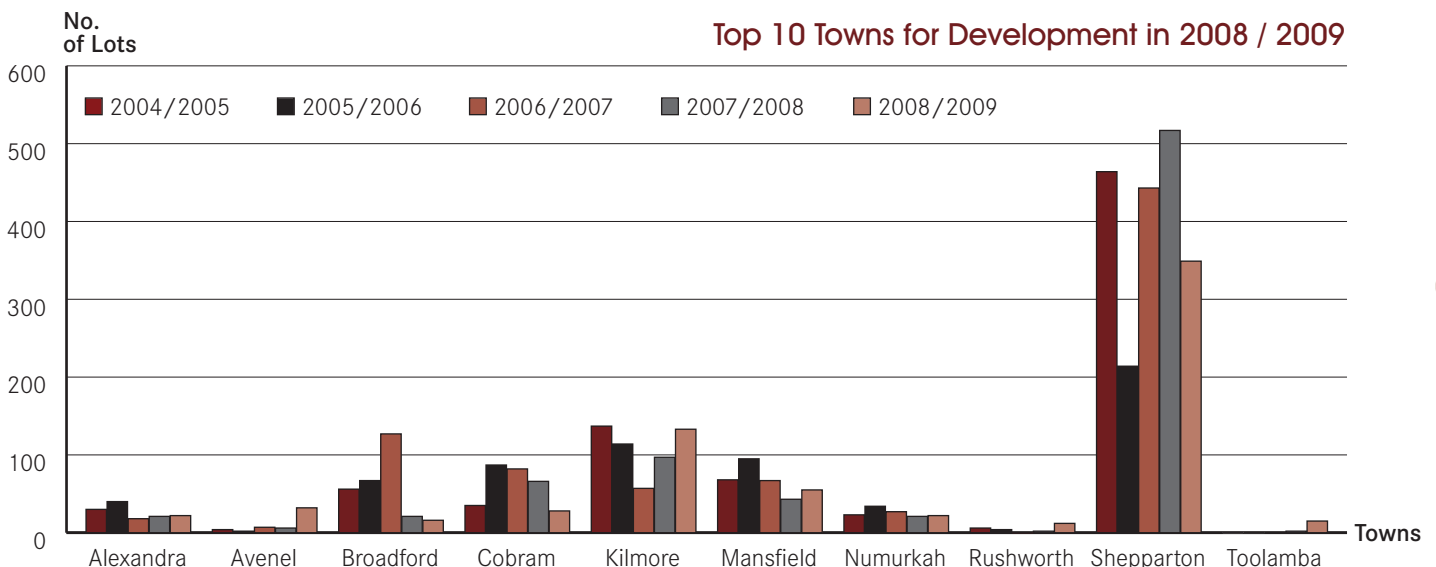
Development

In accordance with Goulburn Valley Water’s statutory obligations and policies, new development in the region is provided with reticulated water and sewerage services at the time of development wherever it is possible to do so.

During 2008/2009 a total of 776 new lots were created across the Corporation’s region. The chart indicates the distribution of these lots across the 10 major growth areas and compares this year’s results with those for the previous four. As shown in the chart the dominant growth area continues to be Shepparton which accounts for 45% of all new lots or 349 lots followed by Kilmore with 133 lots.

Did You Know?

Since 2004/2005 5,523 new lots have been created across Goulburn Valley Water’s region.



Planning for the future

Goulburn Valley Water has an ongoing program for reviewing water and sewer network master plans to ensure that capacity is provided for future growth to meet the Corporation's established customer service level criteria.

Picture (Top)

Bruno Spiller at the new highlift pump station in Numurkah.

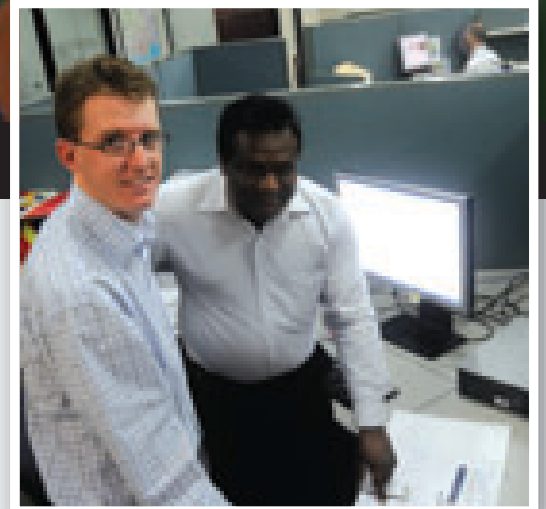
Picture (Right Inset)

Senior Engineer Daniel Hughes and **Mahinda Jaysooiya** reviewing a network masterplan

The main service level drivers for water network master plans is to ensure that all customers receive a minimum water pressure and flow rate that meets the Corporation's service level targets approved by the Essential Services Commission. In the case of sewer networks, the main service level driver is to ensure that all sewer flows can be fully contained within the sewer system under storm conditions specified by the Environment Protection Authority.

During 2008/2009 updated water network master plans have been developed for Alexandra, Buxton, Marysville, Nathalia, Rushworth and Yea.

The Alexandra master plan is an example of the outcomes that are achieved through the completion of water network master plans. The plan provides for annual residential growth rates between 1.0% - 1.5% amounting to approximately 320 additional residential water connections over the next 20 years. Capital investment totalling \$1.45 million has been programmed between 2013 and 2019. Similarly, a master plan completed for the Numurkah System has



identified infrastructure investment needs totalling approximately \$12 million over the coming five years. The works include a new raw water storage and water treatment plant and distribution network augmentation.

The capital works identified through master plan development will ensure that capacity is provided for growth and that service levels continue to be maintained for customers.

During 2008/2009 sewer network master plans have been developed for Broadford, Kilmore and Seymour.

The sewer network master plans identify capital works at Broadford and Seymour to meet storm conditions and to provide capacity for growth for the next 20 years. The assessment for future growth includes residential growth rates of up to 4.2% per annum at Kilmore.



A Life Cycle Approach

One of the actions outlined in the EPA Corporate Licence is for Goulburn Valley Water to identify and manage key environmental impacts resulting from resource use and waste production activities across the whole life cycle of business operations.

Picture
*Senior Engineer Daniel Hughes
and Sustainability Coordinator
Karin Harding*

Many of the current environmental risk assessment tools consider only short-term environmental impacts such as sediment run-off from construction sites or sewer spills and odours from sewer pump stations. A tool called Life Cycle Assessment is increasingly being used by water businesses to evaluate the environmental impact of activities over a long time frame, such as 20 years.

Staff of Goulburn Valley Water's Planning and Project Development team attended Life Cycle Assessment training during 2008/2009 with participants from other water businesses and EPA Victoria. Part of the training involved development of a Life Cycle Assessment model to assess the environmental impacts of a 'real' project – in this case, various options for future water supply to one of the Corporation's water supply systems.

The life cycle assessment model was created by specifying activities and entering data such as the amount of concrete used during construction or electricity consumption by pumps. The model was then used to generate a graph showing the relative environmental impact of different options for parameters such as global warming potential, water use and solid waste generation.

The results of the life cycle assessment model can then be incorporated into a sustainability assessment as environmental factors. In combination with consideration of economic and social factors, the sustainability assessment then allows the 'most sustainable' project option to be selected for inclusion in the capital works program.

The use of Life Cycle Assessment is another way in which Goulburn Valley Water is actively factoring sustainability considerations – economic, environmental and social - into decision making processes to ensure optimal outcomes for the Corporation and the community.