Performance
Chapter 1: Working with customers
Sydney Water exists to serve its customers now and into the future. To do this, we need to gain a better understanding of customer values and needs and then have the right processes, systems and practices to respond to these needs.

We need to drive a change in culture, with greater emphasis on understanding customer needs in our planning, decision-making and service delivery.

By improving customer feedback processes and better analysing our performance, we will make it easy for customers to deal with us and minimise impacts when things go wrong.

This includes ensuring that our key processes are efficient by eliminating duplication, re-work and unnecessary activities. We will also review the products and services we offer to ensure that customers value them.

In 2010–11, we:

• introduced a new customer management system so customer interactions are transparent at all times
• established a team to manage complex customer issues and complaints
• rolled out a number of field-based initiatives to improve customer service and productivity and to reduce costs
• introduced relationship managers for larger business customers to work with in order to achieve best practice in water and wastewater management
• developed a new approach to working with customers experiencing financial hardship.

What customers think

Sydney Water regularly seeks feedback to understand what’s important to customers, how we are performing and what improvements we need to make.

Results of our annual Customer Relationship Study show we have improved our performance significantly over the past five years, in particular how we manage the water supply and wastewater systems.

In 2010–11, Sydney Water continued to meet Australian Drinking Water Guidelines. Customers rated the quality of the drinking water that comes out of their taps as 8.2/10.

In 2011, the customer rating for management of the water supply was 7.6 out of 10, up from 6.1/10 in 2007, and management of the wastewater system was 7 out of 10, up from 5.8/10 in 2007.

There was also a significant increase in the quality of our service from 6.9 in 2007 to 7.5 in 2011, with 56% of customers rating us an 8 or higher out of 10.

Our focus continues to be on managing complaints in a timely, effective way. Of the 814,000 calls our Contact Centre received in 2010–11, less than one per cent were complaints.

In November 2010, we set up a team trained to case-manage complex customer issues and complaints. This has helped improve customer service, as case managers are resolving most matters within 24 hours while frontline operators are freed up to take other customer calls.

Customers also rate the reliability of our water supply as extremely high. Residential customers rate water reliability an 8.8 out of 10, up significantly from 8.6/10 last year.
In 2010–11, the following key initiatives have helped address water continuity issues:

- renewing 78 km of reticulated water mains (pipes less than 30 cm in diameter) and 12.5 km of large pipes
- actively inspecting over 18,000 km of pipes for hidden water leaks
- replacing valves to ensure the system operates more efficiently
- lowering water pressure in certain zones, reducing water loss though leaks and breaks. In 2010–11, we installed pressure reduction facilities in 50 reservoir zones.

**First responder in the call to action**

Sydney Water is implementing a number of field-based initiatives to improve customer service and productivity and to reduce costs. One initiative saw a six-month trial of a network technician role, which saw overall productivity improve by 10%.

This involved getting the right people to the right place at the right time with the right equipment – first time, every time. Field staff now work across an area, rather than out of a depot, which improves response times. Network technicians respond to all water and wastewater faults. They assess the situation and, if possible, do the repair themselves or arrange for the right crews and equipment to do the job.

Field staff also use global positioning systems, which enable them to get to call-outs quickly, saving on travel time.
Improving customer service

With about 50,000 km of water and wastewater pipes, sometimes a failure in the system results in an internal sewer overflow or personal or property damages, or has a direct impact on major or critical customers.

Customer Liaison Officers are available 24 hours a day to support customers during an incident. This includes managing immediate issues such as insurance and liability, organising emergency accommodation needs and supplies, and arranging professional cleaners. In 2010–11, officers attended 426 incidents.

In March 2011, Sydney Water introduced a Customer Management System to provide a holistic view of customers. Staff across Sydney Water can now capture information in the one place and therefore manage customer interactions better.

We have also streamlined key processes, including automatically calculating pensioner rebates, to provide a faster service and reduce errors. Complaints are also automatically escalated if staff do not respond within a set timeframe.

Listening to customers

Sydney Water also seeks advice and feedback from customers through its Customer Council. The council has representatives from organisations including:

- Peak Environment Non-Government Organisations (PENGOs)
- Council of Social Service of NSW
- Public Interest Advocacy Centre
- local government
- Ethnic Communities Council of NSW
- Urban Development Institute of Australia
- BlueScope Steel – a large industrial customer.

Sydney Water provides recycled water from the Wollongong Wastewater Treatment Plant for its Port Kembla Steelworks.

In 2010, the council met quarterly to discuss a wide range of issues including pricing of recycled water, water efficiency programs, helping customers in financial need and urban growth reform.
In March 2011, the council met at the recently opened St Marys Water Recycling Education Centre to see the new facilities and tour the recycled water plant.

**Working with the community**

Sydney Water works closely with customers during the planning and construction of major projects. Upfront we communicate the benefits, timing and potential impacts so customers can plan around them. We stay in contact to ensure that any issues are managed, and work hard to reduce impacts.

In 2010–11, we continued to work with customers on the Priority Sewerage Program to improve wastewater services to villages in environmentally sensitive areas. The work helps protect public health and the environment by eliminating failing onsite systems, generally near drinking water catchments, rivers, beaches or national parks.

Sydney Water built new wastewater schemes at Freemans Reach, Glossodia, Wilberforce, Londonderry, Agnes Banks, Hawkesbury Heights and Yellow Rock.

Customers were asked to rate Sydney Water on their satisfaction with construction activity, restoration and the quality of our communication. On-site staff received high ratings for handling queries effectively, keeping promises and being friendly.

Customers said we were professional and respectful of them and their property. They also rated us well for handling complaints.

Over 90% of customers in each scheme were satisfied with our restoration efforts.

Table 7 – Customer satisfaction survey results

<table>
<thead>
<tr>
<th>Project location</th>
<th>% customers satisfied/very satisfied</th>
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<tbody>
<tr>
<td>Hawkesbury Heights</td>
<td>86%</td>
</tr>
<tr>
<td>Yellow Rock</td>
<td>94%</td>
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<tr>
<td>Yellow Rock extension</td>
<td>100%</td>
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**Total satisfied customers: 90%**

<table>
<thead>
<tr>
<th></th>
<th>% customers satisfied/very satisfied</th>
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<tbody>
<tr>
<td>Glossodia</td>
<td>96%</td>
</tr>
<tr>
<td>Wilberforce</td>
<td>91%</td>
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<tr>
<td>Freemans Reach</td>
<td>100%</td>
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</tbody>
</table>

**Total satisfied customers: 95%**

<table>
<thead>
<tr>
<th></th>
<th>% customers satisfied/very satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Londonderry</td>
<td>97%</td>
</tr>
<tr>
<td>Agnes Banks</td>
<td>93%</td>
</tr>
</tbody>
</table>

**Total satisfied customers: 95%**

Recent community satisfaction surveys on Sydney Water’s major construction projects show positive ratings between 86% and 100%.

*Note: This figure reflects weighted average.

We also surveyed customers affected by wet weather overflow abatement projects. Satisfaction ratings were:

- 93% satisfied overall
- 83% satisfied with communications
- 91% satisfied with project team dealings
- 90% satisfied with restoration.

In 2010–11, we continued our focus on improving restoration and communicating the successful completion of projects to customers.

**Changes to pricing**

The Independent Pricing and Regulatory Tribunal (IPART) regulates and sets the price of water services. Current prices cover the costs of water and wastewater services, water recycling schemes at Rosehill-Camellia and St Marys, and water from the desalination plant.

In 2010–11, prices increased by about five per cent plus the Consumer Price Index (CPI). This was the third year of a four-year price increase announced by IPART in June 2008.

In 2010–11, the water bill of a typical household using 200,000 litres of water a year rose by 5.8% or $58.18 a year.
Helping customers in need

For some customers, a slight rise in the price of water adds to the cost of living pressures they are already facing. To help address this, Sydney Water has funding to help low income customers and customers in financial hardship.

In 2010, we benchmarked our hardship program against various water and energy utilities to build an industry best practice model. We also worked with the Customer Council to develop new approaches for working with customers in financial difficulty.

These new approaches will include:

- increasing the capacity of staff to intervene earlier to help people in financial difficulty
- employing community service specialists to provide case coordination and provide proactive assistance
- offering a PlumbAssist service from July 2011 that will improve water efficiency and address urgent plumbing problems for customers experiencing financial hardship.

Other programs in place to help customers on lower incomes include:

- the no interest loan scheme (NILS®)
- rebates and concessions for eligible customers.

Simplifying processes

During 2010–11, Sydney Water started to review its tariffs and charges to help make it easier for customers to understand them. Our focus is also on making our charging process fairer and less costly to administer, as well as standardising charging for NSW water utilities.

Looking ahead

Sydney Water understands that customers expect value for money in the delivery of its water and wastewater service.

To achieve this, we need to continue to improve our internal processes, systems and operations. We will do this by enabling customers to manage their accounts online, streamlining processes such as making new connections, and continuing improvements in our response to reported breaks and leaks.

We are also exploring more cost-effective ways of managing wastewater systems in new growth areas through flexible systems that can be expanded as needed.
Chapter 2: Climate change
Climate change is a challenge for us all. World climate scientists widely agree that human activity is causing the climate to change and become less predictable.

It is critical for water utilities to improve their understanding of both longer-term climate and short-term weather events and trends so we can quickly adapt and respond. Our customers expect us to think ahead and plan for future challenges like climate change.

Both climate change and variability pose major challenges for Sydney Water in delivering services to customers.

A changing climate may:
- reduce supplies of fresh water, increase customer demand for water, and increase the risk of severe bushfires in catchments
- reduce the quality of water runoff
- increase algal blooms in dams, with implications for taste, odour and toxicity
- increase sea levels and storm surges
- pose a flood risk to low-lying coastal assets
- change the structure and stability of soils, leading to greater risk of pipe breaks.

**Adapting to climate change**

Sydney Water is broadening its understanding of how a changing and highly variable climate impacts our business into the future. In 2010–11, we developed a three-year program that includes:

- a detailed assessment of our risk exposure and resilience to climatic hazards
- a look at inter-dependencies with related businesses to ensure that potential risks are considered.

Sydney Water will build the results of these reviews into its operational and planning processes. We will also take into account the findings of related work across the broader industry. Our work builds on our existing business capabilities so we can prepare and adapt where necessary. The aim is to minimise costs while ensuring reliable, sustainable water services into the future.

During 2010–11, we worked with the Federal Attorney General’s Department to complete exposure mapping of our assets to climate hazards such as sea-level rise, storm winds and bushfire. We also analysed our inter-dependency with energy supplies and telecommunications under conditions that reflect future climates as described in scientific literature. To learn more from past climatic event experiences, we gathered information on impact and response to past natural extreme event risks.

Sydney Water is involved in research to develop national approaches to climate change adaptation for the water industry.

We are also working on how we would operate under the Australian Government’s proposed carbon pricing regime.

**Identifying carbon mitigation approaches**

Sydney Water has developed a strategic planning tool to help reduce carbon emissions.

This Cost of Carbon Abatement Tool compares opportunities to reduce carbon emissions and cost-effective ways to reach reduction targets. We can also test future scenarios such as changes to electricity and carbon prices. This helps with assessing and prioritising carbon abatement projects.

For Sydney Water, the opportunities cover energy efficiency, demand management, waste heat capture, greenhouse gas capture/destruction and alternative low or zero-emission energy sources.

The tool shows that up to 2020, Sydney Water has the potential to cost-effectively reduce its greenhouse gas emissions by up to 40,000 tonnes or about 10% of emissions from our current operational use. This tool underpinned the development of the 10-year Energy and Greenhouse Gas Mitigation Strategy 2020.

We can also plot the cost per tonne of emissions reduced and the total emission reduction potential for each carbon reduction opportunity.
In 2010–11, Sydney Water analysed another 19 opportunities to reduce emissions. The tool showed that the potential for cost-effective reductions was twice what we had previously found. Some opportunities that are currently too expensive to implement may become affordable in the future as technologies, energy costs and carbon costs change.

Sydney Water has now licensed the tool to 15 other Australian water utilities.

**Energy and greenhouse gas mitigation**

Sydney Water will reduce greenhouse gas emissions by 60% by 2012. Currently, we are on track to reach our 2020 target of being 100% carbon neutral for energy and electricity. This will ultimately eliminate or offset over 400,000 tonnes of carbon dioxide a year – the same as taking 100,000 cars off the road.

**Sixty-million dollar investment in renewable energy**

In July 2010, Sydney Water’s work on our hydroelectric plants, combined with eight methane cogeneration units we installed at our wastewater treatment plants, secured us a NSW Government Green Globe Award.

Part of the Renewable Energy Program, the Prospect Hydroelectric Plant began operation in June 2011. The generator is the largest of 11 renewable energy projects. It can generate almost 20,000 megawatt hours of energy a year – enough electricity to power over 1,500 homes.

The hydroelectric plant converts potential energy from water flows from Warragamba Dam – which range from 5,000 to 12,000 litres a second – into electricity.

The plant will generate up to five per cent of Sydney Water’s total energy needs every year and will power Sydney’s largest water pumping station at Prospect.

Prospect Hydroelectric Plant is part of a $60 million investment in renewable energy. It is the last of the three hydroelectric plants built. We began operation of a hydroelectric plant at North Head Wastewater Treatment Plant in April 2011. This is an Australian first, generating electricity from wastewater. Sydney Water also began operation of a plant along the Woronora pipeline in May 2010.

The renewable energy projects will reduce Sydney Water’s reliance on grid electricity sources, saving about $6 million a year in avoided electricity costs and helping us reach our carbon neutral goal for energy use.

By producing hydroelectricity from wastewater to help power its wastewater treatment plants, Sydney Water has achieved a world first.
In 2010–11, we developed the new 10-year Energy and Greenhouse Gas Mitigation Strategy 2020 to:

- improve energy management
- limit the effect of electricity price rises for customers
- prepare for a low carbon future.

The strategy will build on past achievements and continue to improve the way we manage energy through innovative projects. These include improved pumping, improved lighting efficiency and better treatment control approaches that reduce energy use.

The implementation of the strategy will enable Sydney Water to maintain non-renewable energy use at pre-1998 levels despite over 20% growth in customers, greater security of water supply and greater levels of wastewater treatment.

This approach will minimise our exposure to energy price rises and the pressures of population growth as the low carbon economy evolves. The strategy aligns with Sydney Water’s Climate Change Strategy that commits us to carbon neutrality.

Living smarter

Since July 2010, a family of three has been living in a Smart Home at Newington, under a joint experiment by Ausgrid (formerly EnergyAustralia) and Sydney Water. The home has water efficient showerheads, toilets, taps, a washing machine and a dishwasher. The family writes a blog (www.smarthomefamily.com.au) about its water and energy use, and tests new technologies.

Sydney Water provided an in-home display for drinking water and recycled water. This offers real-time and historical information on water use and detects any possible leaks within the home. Based on the water saving features in the home, the family was expected to use about 418 litres a day. They are using 363 litres a day, 13% below estimate. A water efficient household of the same size in Sydney uses 443 litres a day. Most of the water is being used in the bathrooms, followed by the kitchen.

The Smart Home is part of the Smart Village in Newington and Silverwater. This project, supported by the NSW Government Climate Change Fund, will give 1,000 residents access to some of the world’s best energy and water management solutions.
Reduction of energy costs

Sydney Water is one of the largest electricity users in New South Wales, using about one per cent of the State’s electricity. Pumping stations and treatment plants use a lot of electricity to treat and move water and wastewater around and account for a high percentage of our total electricity use.

In 2010–11, Sydney Water used 30% of its total electricity in its water pumping stations, and 50% at its wastewater treatment plants (for more information see the Energy use section of the Sustainability Indicators Report.) We were able to reduce electricity costs by:

- scheduling water pumping, outside of peak period; by shifting the load at 24 water pumping stations, we are saving over $400,000 a year
- locking in energy supply contracts
- supplying diesel generated power to the electricity grid during high electricity price events to relieve peak loading
- developing an Energy Breakdown tool, which helped us identify a further 6,690 megawatt hours or about $800,000 a year in energy savings.

Current energy efficiency projects save over 15,000 megawatt hours a year, reducing greenhouse gas emissions by 15,000 tonnes a year – equivalent to taking 3,750 cars off the road.

Looking ahead

Sydney Water’s Climate Change Adaptation Program will focus on how climate change may affect our:

- infrastructure – including $36 billion of physical assets, structures, equipment and facilities
- operations – covering business processes, protocols and staff involved in the delivery of water and wastewater, information technology, customer-related billing and communications services
- maintenance – including inspecting, maintaining and repairing Sydney Water’s infrastructure to ensure operational performance and reliability
- customers – including both existing and future residential, commercial and industrial users of Sydney Water services.

Sydney Water is working with numerous stakeholders to ensure it is well informed and aligned with the latest science and policy directions, and takes a collective approach to addressing risks.

We are working with leaders in climate change adaptation, risk management and infrastructure services. The broad range of stakeholders includes all levels of government, national and international research facilities, other utilities, the insurance industry, our suppliers (electricity, telecommunications, bulk water) and the community.
Chapter 3: Growth
The development of new land and urban consolidation are major components in the continued growth of the Sydney region.

To meet this growth, Sydney Water is working with the development industry, the Department of Planning and Infrastructure and other stakeholders to ensure that we deliver water and wastewater services for customers in a timely and cost-effective way.

Sydney Water will spend over $1 billion to service growth over the next five years. Over 90% of this will service priority new housing sites in the North West and South West Growth Centres, the Illawarra and Western Sydney. This investment will service about 30,000 lots in these areas.

While the majority of our network can service development, we will also need to upgrade a number of water and wastewater systems.

The NSW Government is committed to addressing the State’s housing supply issues and making it easier for people and young families to buy their own homes. This includes increasing Landcom’s land releases over the next four years. We are working with Landcom to service home sites in greater Sydney.

In this expanding market, a strong relationship with the urban development industry is essential. This is evident in the number of commercial agreements we have with developers that allow them to accelerate the servicing of their land.

For example, Landcom is building a wastewater main to accelerate services to about 500 lots in the south-east of Edmondson Park by late 2012. To further enhance growth in the precinct, by mid-2012, Sydney Water will provide services to 3,000 lots in north-east Edmondson Park. Altogether, about 3,500 lots will be serviced in Edmondson Park by late 2012.

A growing city

By 2036, the NSW Government expects Sydney’s population to reach six million people – an increase of 1.5 million. Up to 30% of this growth will occur in new areas. At present, 85% of homes are being built in existing areas.

The number of homes being built has fallen from a peak of 32,000 homes a year in 1999–2000 to about 15,000 homes a year. The Department of Planning and Infrastructure expects the number of completed homes to increase in the short to medium term.

Sydney’s North West and South West Growth Centres have been defined as areas which will accommodate 181,000 new dwellings and land for employment for about half a million new residents over the next 25 to 30 years.

The North West Growth Centre will be supported by a major centre at Rouse Hill and contain about 70,000 new dwellings. It is made up of 16 precincts that will be progressively released over the next 30 years.

The South West Growth Centre, made up of 18 precincts, will focus on the major centre of Leppington. It will be serviced by the South West Rail Link and have capacity for about 110,000 new dwellings.

Map 5 and Map 6 show the distribution of development activity within Sydney Water’s area of operations. Inner Sydney, North West Sydney (especially the Blacktown area) and the south-west had a comparatively large number of development applications determined from 2009–10.

The highest number of new connections to Sydney Water’s infrastructure was in inner Sydney, the Inner West (particularly Canada Bay and Auburn), and the north-west due to increasing development in the North West Growth Centre.

Photo left: Pictured is Urban Growth Manager Sharon Davies. To meet the needs of Sydney’s growing population, Sydney Water is working to ensure that we deliver water and wastewater services for customers in a timely and cost-effective way.
Map 5: Development applications determined

Map 5 shows the number of development applications (excluding alterations and additions) determined in 2009–10 by local government area. This information was from the Department of Planning and Infrastructure’s Local Development Performance Monitoring 2009–10 Report.
Map 6: Dwelling change

Map 6 shows the number of historic connections to Sydney Water’s network from July 2005 to July 2010 by local government area. These data are from Sydney Water’s Property and Consumption Database.
Services delivery to growth centres

In the South West Growth Centre:

• we completed wastewater services in 2010–11; 4,000 lots are now available in Oran Park and Turner Road and further water and wastewater works to service these precincts are planned over the next five years
• by 2012 we will service the Spring Farm and Elderslie release areas (7,800 lots)
• we are planning the initial servicing of the second release precincts – Austral and North Leppington – in the next few years.

In the North West Growth Centre:

• we delivered works to service 7,000 lots in North Kellyville, Alex Avenue, Riverstone and in Area 20 (just east of Riverstone and west of the Rouse Hill Regional Centre) in 2010–11
• we will service 6,000 more lots over the next few years.

In February 2011, Sydney Water announced that it was reviewing its recycled water strategy in Sydney’s growth centres. Detailed planning showed that the cost of providing recycled water to the first release precincts was about $14,000 a lot, yet Sydney Water could only recover $6,000 from developer charges. This would have resulted in a loss of over $330 million to be borne by our other customers across Sydney.

Recycled water will continue to be delivered to suburbs that are already part of a recycled water scheme (Edmondson Park in the North West Growth Centre, and North Kellyville) and where recycled water charges have been collected from developers (some parts of Oran Park, Turner Road and Colebee).

Sydney Water will work with developers to examine affordable alternative water saving options.

This will not impact the many other operational recycled water schemes with industry and commercial customers, such as golf courses.

Looking ahead

With the growth of Sydney in both the south and north-west, Sydney Water needs to ensure that it delivers timely and cost-effective infrastructure, using more localised solutions. We are reviewing the use of smaller, state-of-the-art wastewater treatment plants that take up less land and can be built into smaller, more versatile units.

This will reduce the need to build larger scale wastewater plants and networks that not only have higher costs, but also can take years before they work at required capacity. We can also update these smaller plants as new technology becomes available rather than locking in a technical solution for decades.

Sydney Water is investigating building these wastewater plants economically. These will range from plants servicing a few hundred lots in one development area to those servicing many thousands. We can also integrate them into the urban landscape as aesthetically pleasing buildings and a source of recycled water for gardens and parks or local agricultural or commercial use.
Chapter 4: Maintaining supply and demand
Greater Sydney's water supply is secure until at least 2025. With everyone continuing to be water wise, plus dams, recycling, desalination and drought readiness strategies, we can withstand future droughts and supply our growing population while continuing to improve river health.

The NSW Government’s 2010 Metropolitan Water Plan builds on the significant achievements of past plans by continuing to concentrate efforts on four major areas – dams, recycling, desalination and water efficiency – to secure greater Sydney’s water supply now and in the future. The plan continues the commitment to recycle 70 billion litres of water each year by 2015 and to save 145 billion litres of water each year through water efficiency measures.

A major review of the 2006 Metropolitan Water Plan showed that it had been successful in ensuring that Sydney’s water was secure during a period of severe drought while minimising economic and environmental costs.

Sydney’s drinking water demand has been reduced through effective water efficiency measures and recycling schemes, and supply has been boosted through the introduction of desalination. The diversification of our water supply system has further ensured that sufficient water is available over time to meet population growth, protect river health and respond to future droughts.

Under the plan, Sydney Water is responsible for a wide range of initiatives, including recycling, desalination, demand management and leak reduction. In 2010–11, we saved about 121,000 million litres of drinking water through water efficiency programs, reducing leaks and water recycling.

Recycling to provide 12% of Sydney’s water needs

Water recycling is a key component in securing the water supply for our customers. It will provide up to 12% of Sydney’s water needs by 2015. Over the past year, Sydney Water:

- commissioned the St Marys Water Recycling Plant; by the end of 2011 it will produce up to 18 billion litres of highly treated recycled water
- commenced commissioning of the Rosehill Recycled Water Scheme to supply up to 4.5 billion litres of recycled water a year
- signed five sewer mining agreements that allow third parties to source wastewater from our wastewater network to produce recycled water
- worked with local government to further develop local recycling.

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The St Marys Water Recycling Plant has increased the amount of water recycled by about 18 billion litres a year.

Photo previous page: The St Marys Water Recycling Plant contributes to the health of the Hawkesbury-Nepean River by delivering high quality recycled water through replacement flows.
Delivering more water for Sydney

Sydney’s largest water recycling project, the $209 million St Marys Water Recycling Plant, was commissioned in October 2010. The plant delivers highly treated recycled water to help maintain the environmental health of the Hawkesbury-Nepean River. This reduces the amount of nutrients in the river and means that more water is available in Warragamba Dam for drinking.

The plant will recycle about 18 billion litres a year, playing a significant part in ensuring that the Sydney region reaches its target of 70 billion litres a year by 2015.

In February 2011, we opened a state-of-the-art education centre at the plant for universities, TAFE colleges and high schools, professional trade groups and community groups. Visitors observe the recycling operation as well as tour the plant. They learn how water is recycled and how the latest technology and techniques in sustainable environmental management are delivering benefits for customers.
Desalination can supply 15% of Sydney’s water needs

In July 2010 Sydney Water formally handed over operation of the desalination plant to Veolia Water Australia. Sydney’s desalination plant provides a water supply that doesn’t rely on rain. The plant can produce 90 billion litres of water a year, enough to supply up to 15% of greater Sydney’s current water needs.

It has been in full production since June 2010, after coming online in January that year.

The plant is expected to run at full capacity until mid-June 2012 and will be monitored for water quality, performance and impacts on the supply system. If the total dam storage level reaches 80% in this period, it is likely that lower production will be accommodated. After June 2012, the plant will operate at full production capacity when the total dam storage level is below 70% and will continue to do so until the total dam storage level reaches 80%.
Achieving water efficiencies

Water efficiency initiatives will save up to 145 billion litres a year by 2015. That’s about 24% of Sydney’s water needs.

During 2010–11, Sydney Water, in partnership with households, saved over 17,500 million litres of water by:

- replacing almost 6,600 single-flush toilets
- paying over 5,800 rebates for dual flush toilets
- installing water efficient devices in over 5,300 homes
- paying almost 2,300 rainwater tank rebates.

Many people have also independently installed water efficient devices. As a result, more efficient goods are now available to customers – generating permanent water savings.

Sydney Water is introducing a new plumbing service named PlumbAssist for customers in hardship. The Waterfix service, which is focused on water efficiency only, will be available at market rates for all other customers.

This year businesses saved over 25,200 million litres of water. Sydney Water contributed to these savings by:

- working one-on-one with 419 large water using customers
- fitting water efficient amenities in over 200 businesses
- providing businesses with over 4,700 low flow, high pressure spray nozzles
- providing online monitoring for the top 162 water users
- partnering with 17 councils to help local small to medium businesses achieve sustainable water savings
- developing best practice guidelines for efficient water use in aquatic leisure centres.

This year, we completed a research program to identify the most effective water efficiency measures for high-rise buildings. Sydney Water is using the results to help strata corporations make wise investment decisions to save water, energy and money.

In 2010–11, Sydney Water helped 121 high water using schools use water efficiently, saving about 218 million litres of water. We will continue to focus on schools.

In 2011–12, funding will be made available to more councils to employ sustainability officers. These officers will assist medium to small businesses in their areas to implement cost-effective water efficiency advice.

Sydney Water will continue to collect and analyse water use data and review efficiency programs. We will gain information on past program successes to help target future programs more effectively.

On target for reducing demand

Through a joint effort with customers, Sydney Water met its Operating Licence target to reduce total demand for water to 329 litres each person daily by 30 June 2011. This target includes all water used in homes and businesses. At the end of this period, the total demand was 304 litres each person daily.

Figure 7: Leaks and breaks reducing over time
Managing leaks and breaks

Sydney Water manages about 21,000 km of water mains each year. Our significant investment in infrastructure maintenance, renewal and leak detection has reduced the number of leaks and breaks by about 40% over the past 10 years. The rate of main breaks is below the average of other Australian cities.

Sydney Water manages leaks and breaks through an integrated program including:

- proactively finding concealed leaks
- maintaining fast response times to reported leaks and breaks
- reducing pressure in high-pressure areas
- renewing water mains
- installing flowmeters to identify leaks.

In 2010–11, the leak management program saved almost 31,000 million litres of water.

To find leaks and help prevent breaks, Sydney Water inspected over 18,000 km of pipes in 2010–11, the distance from Sydney to Los Angeles and halfway back again.

In 2010–11, we saved about six billion litres of water by reducing pressure in our pipes in high-pressure areas. This reduced leaks on customer properties and the number of main breaks. By the end of the program in 2012, we estimate we will save almost 10 billion litres a year.

Each year, Sydney Water renews mains that have reached the end of their service life. In 2010–11, over 90 km of water mains were renewed. As a result, over the past five years the number of main breaks has reduced from 35 per 100 km of main to 27.5 per 100 km. This saves water and repair costs and lessens the impact on customers.

Flowmeters help identify leaks earlier. In April 2010, Sydney Water’s Board approved Stage 3 of the Bulk Water Flowmeter Program. This will see a further 12 flowmeters installed and 89 renewed across the entire network by June 2014.

Improving water management in aquatic centres

Council owned aquatic centres in Sydney use about 1,000 million litres of water each year. Three quarters of this is discharged to sewers from water treatment systems and from on-site kitchen, shower and toilet facilities.

Thirty-six per cent of water is used in filling pools and backwashing filters, and 22% of water is lost on average through leaks.

Sydney Water launched its Best Practice Guidelines For Water Management in Aquatic Leisure Centres in May 2011. The guidelines provide practical steps for councils, pool managers and operators to better manage water, wastewater and energy at their aquatic leisure centres. It considers the whole water cycle and enables pool managers and operators to set realistic improvement targets.

President of the Aquatic and Recreation Institute NSW, Nicole Murphy Pacholek, endorsed the new guidelines and predicted that they will make a real difference to their members.
Best practice benchmarking for business

Large business customers use water in a number of different ways and, depending on the type of industry, water can play a key role in their operations. As businesses increase production, their water use increases. Because of this it is difficult to gauge whether a business is water efficient based simply on the amount of water it uses.

In 2010–11, we allocated Business Customer Representatives to each major customer to help them use the right amount of water. One of the best ways of doing this is comparing water use with the amount of product they manufacture. We then look at how this compares with other companies in the same industry and develop a best-practice benchmark that tells us how many litres of water is used to make each unit of product.

Putting biosolids to good use

Sydney Water reuses 100% of nutrient-rich biosolids recovered from wastewater treatment processes. Each year, we produce about 170,000 wet tonnes of biosolids, which are 100% beneficially used in agriculture, composting and land rehabilitation. Sydney Water fully complies with NSW guidelines for safely using and disposing of biosolids.

In 2011, Sydney Water reviewed its Biosolids Strategy and is now examining options for our Malabar plant to improve biosolids.

We will also harness green energy potential at our wastewater treatment plants by improving sludge digestion efficiency and producing more biogas.

Improving our sewers

Sydney Water works with the community to ensure that we not only provide water, but also meet wastewater needs. Under our $560 million SewerFix Program, we are making significant system improvements in 13 catchments. The program started in 2007 and is ongoing.

During 2010–11, Sydney Water finished work on three major projects to increase the capacity of the wastewater system on the Northern Beaches. We installed new wastewater pipes in North Curl Curl and Freshwater. These pipes will hold more wastewater and reduce the frequency of wet weather wastewater overflows to local waterways.

We also bought a site in the Brookvale Industrial Area to build an 18-megalitre storage tank to hold excess diluted wastewater during wet weather. This tank will store wastewater during heavy rain, stopping it from overflowing to local waterways. We expect to finish building the tank by June 2013.
During the planning phase of the storage tank, Sydney Water consulted with the local council and community to ensure that the final result would be aesthetically pleasing and non-intrusive within its surroundings. This consultation will continue during the construction phase.

Corrosion, subsidence and human activities can cause damage to sewers. The build-up of silt and debris and tree roots can result in sewer blockages while the disposal of oil, grease and other solids to sewers adds to the problem. This year, we inspected 211 km of large high-risk sewers. About 43 km of pipes were physically accessed, with the rest thoroughly checked by closed circuit television.

We also rehabilitated 14 km of large sewers and associated structures, such as deep maintenance holes and aqueducts, at a cost of $58 million.

All projects will improve the wastewater system to protect public health and the environment.

During 2010–11, Sydney Water also focused on lower-risk reticulation sewers including:

- inspecting and cleaning 480 km of mains and pipes at a cost of $5.48 million
- lining 61 km of pipes at a cost of $25.5 million
- completing 1,171 dig and repair jobs at a cost of $8.6 million
- cleaning 132 km of mains and pipes at a cost of $950,000.

Reducing odours

During 2010–11, Sydney Water responded to 161 customer complaints about odour from wastewater treatment or network processing.

To minimise odours and customer inconvenience, in March 2011 Sydney Water awarded an $80 million, five-year contract across its higher-risk wastewater treatment plants to a consortium of Abigroup Water and CH2MILL.

As part of this work, a Review of Environmental Factors for a $22 million project to further reduce odours from Cronulla Wastewater Treatment Plant went on display. The project will further reduce the risk of odours and the impact on nearby customers. Construction is expected to start in late 2011 and be completed by the end of 2012.

Recently, the Sydney Water Board approved the Malabar Odour Control Facility Upgrade project at an estimated cost of $29 million. This will significantly reduce the impact of odours coming from the main underground plant on the surrounding community.

Looking ahead

Sydney Water faces many challenges ahead. These include growing customer expectations around stormwater capture, recycling, and value for money. Other challenges include climate variability, population growth and growing competition, in particular from private operators in suburbs on Sydney’s outskirts.

To be prepared, Sydney Water needs to be operationally flexible, innovative, change ready and cost-effective. We need to look at more flexible solutions to providing water services. These solutions must be energy efficient, and have a positive effect on the environment. Yet we must also ensure that this does not translate into prices that customers are not willing to pay.

One option is looking at smaller, less costly solutions for wastewater for the South West Growth Centre. This would help to increase the speed at which we can provide infrastructure for new developments rather than building larger wastewater treatment plants that may not be fully utilised for many years. This would also avoid locking in funds that could be used elsewhere.
Chapter 5: Being an efficient organisation
For Sydney Water to continue to provide current levels of service to a growing customer base, it must protect public health and the environment and be financially sustainable, particularly by controlling operating costs.

Sydney Water has substantially reduced its operating costs in recent years and has more than met the operating efficiencies set by IPART in its 2008 determination.

The underlying service cost per property has fallen since 2008, and will continue to fall in future.

Sydney Water plans to further reduce costs over the next five years. These efficiencies will help to offset increases in non-controllable costs. Savings will mainly come from better managing operations and maintenance, planning reforms and lower demand management activity.

**Achieving operating efficiencies**

In 2010–11, our operating expenditure was $1.1 billion. Over the past four years, we have saved nearly $150 million through improved efficiencies, including about $10 million of new efficiencies in 2010–11.

These savings have come from:

- better assessing risk and sourcing of insurances
- reducing costs of transport through smaller fleet size, optimal lease lengths and using smaller cars
- pursuing energy efficiency and generating renewable energy; for example, in 2010–11, a hydroelectric generator was commissioned at Prospect
- using technology to reduce costs and to improve business processes and organisational efficiency and services such as an automated self-service Interactive Voice Response system for customers who want to quickly and easily make alternative pay arrangements
- improving procurement processes.

**Building our business intelligence**

One of our continuous improvement projects is using past data to find assets that are under performing or behaving abnormally. This has so far resulted in savings of about $500,000 a year.

A computerised reporting tool, used to search data from our information systems, analyses and detects inefficiencies that would otherwise go unnoticed, or identifies equipment issues before they lead to major breakdowns. Being able to identify issues early means we can take timely action. This results in:

- fewer incidents due to potential asset failure
- cost savings in terms of energy and maintenance
- improved overall asset and system performance
- fewer water leaks and environmental harm.

This data analysis also enabled us to make informed investment decisions. A capital investment saving of about $3 million was achieved by analysing power outage data and reducing our spending on back-up power supplies.

**Photo left:** Our North Head cogeneration plant is part of our network working to produce up to 20% of Sydney Water’s total electricity requirements from renewable energy.
Key operational improvements, such as changes in work practices to increase productivity, will lead to further efficiencies including:

- using a new initiative where network technicians respond to calls, quickly assessing and repairing water and wastewater faults
- using global positioning systems to direct nearest crews to jobs quickly, minimising travel time
- implementing area-based planning and delivery, and changing hours of work and rostering to improve productivity
- streamlining how we deliver infrastructure.

**Studying price elasticity**

Sydney Water has developed a number of new models in 2010–11 to better understand customers' water use.

Working with Dr Vasilis Sarafidis from the University of Sydney, we have estimated the impact of the increases in water use prices on the demand for water by Sydney’s residents. This involved analysing five years of metered water use for about 95,000 homes and 3,300 blocks of units to determine the impact price increases had on water use. This is one of the largest panel studies ever done in the world and sets a new benchmark in estimating the responsiveness of residential homes to water use prices.

The study found that if the water use price was increased by 10% from current prices, it could be expected to reduce residential water use immediately by less than one per cent, and about 1.8% after about 18 months. The study provided valuable input into current reviews of the role of water pricing in balancing the demand for water. The Productivity Commission, in its recent *Draft Report on Australia’s Urban Water Sector*, concluded that the benefits of mandating ‘scarcity’ pricing are likely to be small relative to other policy changes given demand is largely unresponsive to price in the short run. (Scarcity pricing is a charge that reflects the value of water in alternative uses during periods of water shortages.)

Sydney Water further analysed how customers reduced their water use during drought restrictions that were in place before June 2009. The study showed that despite restrictions targeting outdoor water use, residential homes voluntarily made significant indoor water savings. It also showed that households saved more water indoors as the level of drought restrictions increased.

In addition, Sydney Water developed new residential and non-residential forecasting models. These models will enable greater transparency about how water forecasting is done and provide a more accurate estimate of water demands in the future.

**Looking ahead**

We have developed a five-year IT investment plan and a strategic planning process to ensure that future systems replacements and known new business requirements are identified early and factored into the program of work. In addition, a robust prioritisation process ensures that IT investments are focused on addressing risk and delivering business benefit.

Over the next five years, Sydney Water will be actively driving large productivity improvements and cost reductions in operating and maintaining our pipes and facilities.

We aim to improve the reliability and availability of equipment to maximise its use. Preventative and predictive maintenance programs can save up to 25% of maintenance costs for critical equipment.

Sydney Water will also continue to refine its procurement processes to save on costs and deliver transparency and efficiency.
Chapter 6: Innovation in infrastructure
Sydney Water constantly looks for ways to do things better to meet customer needs and provide value for money. This year, we have improved our recycling and wastewater systems with new processes that achieve better efficiencies. We have also developed new approaches for managing odour and corrosion in sewers. In addition, we continue to be involved in international research and development collaborations to further extend our learnings.

In 2010–11, we also received awards for project and environmental management, smart infrastructure and outstanding achievements in the water industry.

**Improving recycling processes**

Sydney Water is the first Australian water utility to recover and reuse grit and screenings, by-products from its wastewater treatment process and recycled water plants. These can be used as compost to rehabilitate landfill sites and Roads and Traffic Authority sites, and can also be used as a turf underlay.

In the past year, we worked with Thiess Services to:

- increase the quantity of grit and screenings that was sent for composting; this saved $45 for every tonne sent to beneficial reuse compared with the previous practice of sending the grit and screening directly to landfill
- trial Sita’s Advanced Waste Treatment technology (a composting process), for recovery and reuse of grit and screenings; this technology has proven to be effective and is now running at a commercial scale
- beneficially use over 90% of grit and screenings, significantly reducing our environmental footprint.

In July 2010, staff at the Rouse Hill Water Recycling Plant improved the plant’s air supply system, saving about $200,000 a year. The team identified three major processes that accounted for 80% of the plant’s total energy output.

The team also saved $59,000 a year on chemicals used during the treatment process. This was done by reducing the amount of chemicals used in one of the process streams and at the same time monitoring the quality of the water’s nutrient levels and clarity. As a result, chemical use was reduced by 38%.

**New techniques for sewer inspection**

In July 2010, Sydney Water began using ‘laser profiling,’ a new technique to inspect concrete sewers for corrosion. Currently, staff use closed circuit TV or physically inspect the sewers. We are trialling laser profiling, as it is safer, more accurate and less labour intensive.

Laser profiling works by projecting a laser on the inner surface of a pipe. It measures any change from the pipe’s original dimensions. We can then use this information to determine when we need to restore the pipe.

Sydney Water continues to develop new techniques to assess the condition of our large sewers. Recently, our contractors mounted a closed circuit TV onto a flotation device to inspect a two-kilometre length of sewer. This new technique means we can reduce the amount of physical inspections, reducing costs, as well as inspect sewers we couldn’t previously access.

We also trialled the use of sonar, which uses sound waves to provide information about the amount of silt and debris below the flow underwater. This is done at the same time as the laser profiling using a flotation device.

**Award recognises record of achievement**

In November 2010, Sydney Water’s Priority Sewerage Program won an Alliancing Association of Australasia’s Excellence Award. The award recognises the work of the alliance over the past eight years in completing 10 schemes, worth over $500 million. The alliance comprised Sydney Water, MWH Australia, John Holland Group, UGI and Manidis Roberts.

Tom Parry, Chairman of Sydney Water Board congratulates the Rouse Hill team. The team achieved savings on electricity costs and chemicals through innovative practices.

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**Photo left:** Pictured is Manager Monitoring Services John Werda at Sydney’s West Ryde Laboratory.
Sydney Water provided wastewater services to village communities on the edges of Sydney, the Illawarra and the Blue Mountains. Under the schemes, 16 villages were identified with high environmental sensitivity. To date over 5,400 properties have been connected to the wastewater system.

**Making the most of our assets**

In September 2010, staff at our North Head Wastewater Treatment Plant introduced a new process (using existing assets and relatively little investment) which could improve sludge stability. ‘Stable’ sludge has fewer odours and less pathogens, and produces more biogas, which can be used to generate electricity to help run the plant. Between biogas and hydrogeneration, the plant currently generates 40% of its operating energy on-site.

**Best practice laboratory work**

Sydney Water is at the forefront of finding contaminants and pollutants in water, as we use a range of best practice techniques to ensure the health and safety of our water for customers. In 2010–11, we carried out close to 1.7 million tests to ensure that our drinking water meets stringent regulatory standards.

To further this assurance, the laboratory takes the extra step of having an independent authority – the National Association of Testing Authorities – provide quality assurance and accreditation of the analytical methods used at our West Ryde Laboratory. The Laboratory is recognised by specialists in water analysis as one of the leading analytical services in the country. Accreditation means that customers can be confident in the knowledge that our results are reliable, accurate and sensitive enough to detect trace contaminants in water.

**Awards for smart infrastructure**

Three Sydney Water projects were nominated as finalists in the smart infrastructure category at the 2011 National Infrastructure awards in March 2011. These projects were the Liverpool to Ashfield Pipeline, the North Georges River Submain and the Glenfield Liverpool Effluent Diversion Scheme.

By completing these projects, worth $231 million in total, Sydney Water has renewed and expanded the wastewater system to cater for growth in south-west Sydney and provided for greater industrial use of recycled water. The Liverpool to Ashfield Pipeline, completed in 2008, forms the backbone of the new recycled water grid.

The North Georges River Submain involved renewing 10.2 km of a 26.7 km, 60-year-old pipe. This pipe carries 10% of Sydney’s wastewater from the south-western suburbs to the Malabar Wastewater Treatment Plant. By diverting flows into the Liverpool to Ashfield Pipeline, we completed the submain much faster. The project was also $12 million under budget and made massive improvements in working conditions and safety, including being able to avoid night work, which benefited staff and residents.

In December 2010, the $65 million North Georges River Submain Rehabilitation project picked up the International 2010 Trenchless Project award in Singapore in recognition of the cutting edge water technology used.

We surveyed customers affected by the North Georges River project. Customer feedback about the project was excellent, with customers rating overall satisfaction with:

- Sydney Water’s management of the project – 7.4 out of 10
- handling of enquiries – 8.5 out of 10
- handling of complaints – 7.3 out of 10.

Customers rated overall performance of people working on-site 8 out of 10.

The Glenfield Liverpool Effluent Diversion Scheme incorporates pipelines and control storage structures that now enable Sydney Water to transfer secondary treated wastewater from wastewater treatment plants into the Liverpool to Ashfield Pipeline for recycling. This project could not be commissioned until the rehabilitation of the North Georges River Submain was completed in August 2010.
Other initiatives developed this year include a new detection and assessment technique for *Cryptosporidium*. The lab checks daily for *Cryptosporidium* and *Giardia* in the water supply. However, microscopic viewing cannot assess if these organisms have potential to cause illness. To judge this, the lab now uses a test where *Cryptosporidium* is exposed to human cell cultures to see if infection develops.

Sydney Water is using this method in testing the ability of water treatment systems such as filtration and disinfection to remove *Cryptosporidium*. This is important in guaranteeing the safety of recycled water. Sydney Water also provides this service to other water utilities and environmental testing companies.

### Research and development collaborations

In 2010–11, Sydney Water invested $5.48 million on 62 research and development projects. Of this, over $790,000 was used in partnering with nine key national and international research alliances. An additional $315,000 was committed through arrangements with the Build Own Operate water filtration plant partners for research activities primarily focused on drinking water quality.

External partnerships and collaborations enable us to broaden our research investment and help us monitor and respond to emerging scientific challenges and technical trends at an international level. Sydney Water’s research program aims to promote safe, high quality drinking water, improved environmental performance, and better understanding of issues related to the water supply and demand balance.

### Compiling Australia’s first national database of water information

In October 2010, Sydney Water teamed up with the Bureau of Meteorology (BoM) and 260 water authorities around Australia to compile the first national database of water information.

As Australia’s biggest water utility, Sydney Water has provided huge amounts of data to BoM, covering rainfall, water use and water quality for Sydney, the Illawarra and the Blue Mountains (over 12,600 sq km of operations). The data will help build a central and definitive source of information that will be hugely valuable for long-term water planning.

Having a nation-wide view of rainfall patterns, how much water is in reservoirs and where it is being used, will help water authorities make more informed decisions on future water policies and infrastructure. It will also improve BoM’s ability to forecast droughts and floods and issue public warnings. The information will be available online early next year from its website. It will also publish Australia’s first annual National Water Account in April next year.

Close to 1.7 million quality assurance tests for drinking water are carried out each year at our West Ryde Laboratory.
Chapter 7: A safe workforce
Sydney Water cares about the health and wellbeing of its staff and contractors and wants to create a safe workplace where people go home injury-free. Leadership, continually reinforcing safe behaviour, thorough risk assessments, and reporting hazards and near misses are key ways we are working to deliver a safe work environment.

In 2010–11, while injuries overall were down we did have an increase in lost-time injuries for both staff and contractors. Sydney Water made some improvements and introduced a number of safety innovations this year. However, we still have work to do to improve our safety record.

Our safety performance

Sydney Water’s focus is on zero injuries for staff, contractors and visitors. Our safety performance has improved over the long term as shown by the reduction in the lost-time injury frequency rate (LTIFR) since 1996 (Figure 9). The LTIFR is the number of lost-time injuries for each million hours worked. An injury is a lost-time injury if the person was away from work for one day/shift or more.

Figure 9 shows that there has been a reduction in the frequency of lost-time injuries (LTIs) from 1995 to 2011.

**Notes**
Results reflect the most recent data at time of reporting. Historical data are updated to include any LTI notifications received after previous reporting periods closed.
In 2010–11, there were 275 injuries involving Sydney Water staff, 32 less than the previous year. The total number of lost-time injuries for staff was 31, an increase from 29 in 2009–10. The LTIFR for staff increased from 4.86 to 5.9.

Manual handling, slips, trips and falls caused the majority of incidents. Most of the injuries were in the Maintenance Division, where there is predominantly high-risk work. To reduce the risk of injury in these areas, we are modifying tasks and work methods to eliminate or control the likelihood of injury.

For the same period, the total number of contractor lost-time injuries was 17, an increase from 15 over the previous year. The LTIFR for contractors increased from 1.92 to 3.28. The injuries occurred with contractors working on high-risk activities for a number of divisions including Maintenance, Operations and Asset Solutions. We are continuing to work closely with contractors to improve safety through joint workplace inspections, audits and forums.

Figure 10: Staff LTIFR and LTIs – July 2010 to June 2011

Figure 11 shows the frequency of LTIs for contractors over the past financial year. The bars indicate the number of LTIs for each month and the line shows the frequency rate.

Notes:
1. Results reflect the most recent data at time of reporting. Historical data is updated to include any LTI notifications received after previous reporting periods closed.
2. Results are based on the number of contractor hours reported to Sydney Water.

An area where Sydney Water has improved its safety record is in the reduced number of ‘at fault’ vehicle accidents and infringements during the year.
Figure 12: Accidents by quarter

Figure 12 shows the number of ‘at fault’ vehicle accidents for 2010–11. This was 204, down from 215 for the previous year.

Figure 13: Infringements by quarter

Figure 13 shows the number of driving infringements for 2010–11. This was 40, down from 80 the previous year.

Continuing to improve safety

In August 2010, Sydney Water made the following key changes to improve workplace safety:

- We do safety performance assessment of key line managers as part of their annual review. This provides all managers with a consistent and clear message on the importance of safety performance.
- We review lost-time injuries and significant medical treatment injuries/near misses. After each investigation, the Managing Director reviews lost-time injuries with the Manager of Health and Safety, the General Manager and the manager of the injured staff member. Significant medical treatment injuries and almost all near misses are also reviewed by the relevant General Manager and the manager of the staff member with a health and safety representative.

Sydney Water is also improving its approach to managing workplace health and safety by:

- expanding the safety audit program to identify improvement opportunities for safety
- developing or upgrading procedures for key safety risks. During 2010–11, we updated procedures for managing sites, fatigue, workplace violence, asbestos and fall prevention. We also developed a new procedure for mobile plant and equipment.

Sydney Water’s Giving Through Safety Program is designed to raise staff awareness of safety at the same time as raising money for charities. In 2010, the program won an award, recognising the valuable connection it creates between charitable donations and workplace safety. By staying safe, our staff have also helped many charities.

In June 2011, our St Marys mechanical/electrical crew completed their work without a single lost-time injury. This was despite a number of workplace hazards including electrical hazards, manual handling risks, and working at heights and in confined spaces. There were also environmental hazards present including vermin, stinging insects and other poisonous creatures, steep and uneven terrain, and adverse weather conditions.
The crew made safety in the workplace a priority by:

• carrying out risk assessments before undertaking hazardous tasks
• always wearing personal protective equipment
• remaining vigilant to hazards in the workplace for themselves and their mates.

Team members received a Safety Record Award certificate from their manager for their focus on a safe working environment.

**Staff innovate on safety**

This year staff created a number of changes to improve safe work conditions.

Our Operations and Maintenance divisions have the highest number of incidents due to the high-risk work carried out. Often, injuries occur as a result of manually lifting heavy equipment.

In a serious incident, requiring medical treatment, one staff member was struck in the forehead by a flying chisel as his workmate tried to open an air valve chamber lid. In response, a team designed a prototype tool that restrains chisels when used. The new design means staff can now stay safe at work when opening chamber lids.

Our operational fleet includes tipper trucks designed to carry soil, spill and other materials between sites. As part of our Driver Safety Program, staff identified a potential risk in the tipper trucks being overloaded with materials.

To stop this from happening, the Fleet Management team implemented weigh scales. These are simple sensors and electronic devices fitted to the axles of trucks. A display mounted in the cabin alerts the driver to the increasing weight of the truck. This has ensured that staff are alerted to the increasing load in their trucks to the maximum, and improved safety.

Other safety innovations developed by staff during the year included:

• a new red LED light system for improving safety in labs; the light is used where dark conditions are needed to do organism counts; previously, staff used handheld torches, which were less practical
• lightweight manhole covers – currently under development, they are much lighter than traditional manhole covers, reducing manual handling risks
• the Electric Block, which allows maintenance crews to safely, quickly and easily isolate work areas from electricity, saving time, space on trucks, money and most importantly, lives.

**Lessons learnt**

Throughout 2010–11, Sydney Water reviewed serious safety incidents. All lost-time injuries, medical treatment injuries and near misses are investigated. These reviews ensure that the causes of the incident are comprehensively addressed and any implications across the whole organisation found.

We have learnt a number of lessons from safety incidents. These include adopting precautionary measures for staff working in areas where there is a prevalence of ticks. In September 2010, a tick bit a staff member working in bushland. The bite resulted in an infection that required medical treatment. Ticks can cause mild allergic reactions or occasionally severe allergic reactions.

Staff now always conduct risk assessments before starting activities and redo those assessments when circumstances change. In areas where there are known to be ticks, staff are now advised to check for their presence before starting a job in the field, to wear protective clothing and do a full-body check (including scalp) at the end of each day.

In February 2011, an incident at the Wollongong Water Recycling Plant lead to a lost-time injury. A mobile crane was lifting a long shaft mixer from a digester roof when the shaft detached and fell. A maintenance staff member was cut on the lower leg, requiring stitches. He returned to normal duties after a one-day absence.
While staff completed a risk assessment before the task was performed, they did not identify any mechanical problems with the mixer. An investigation of this incident found that a bearing was extensively damaged and worn and no longer restrained the shaft. Consequently, the shaft was only held in place by a drive coupling. In the process of lifting the mixer assembly, the shaft pulled free from the coupling connecting it to the motor drive shaft.

To avoid further incidents like this, Sydney Water has made several improvements including:
- using an improved design to prevent the uncoupling of the shaft in future
- undertaking preventative maintenance to ensure the integrity of the coupling
- revising the work method statement to reinforce the need to properly secure all parts being lifted.

A key business goal is to develop a safe, capable and committed workforce so ultimately we can deliver an efficient service for customers.

**Case study: Breakthrough innovation wins safety award**

A unique tool that allows non-electricians to reliably test if a water main holds a dangerous voltage won the inaugural Water Industry Safety Excellence Award at the 2010 annual Australian Water Association (AWA) Awards.

PlumGuard was created following a critical safety incident in 2005. Sydney Water implemented a range of control measures to address the potential problem of live electricity or electrical current running through water pipes. This is an industry-wide issue, not only affecting water infrastructure crews, but also posing a potential safety issue for the local community.

Networks Alliance subsequently developed the tool. The alliance is a partnership of Sydney Water, Bovis Lend Lease, CLM Excavations and Veolia Water Network Services.

PlumGuard works by measuring the electrical potential difference between two points in a circuit, checking the level of electrical current present in a pipe. If a meter registers more than five volts, PlumGuard sets off a warning alarm.

When PlumGuard is used, there should be no circumstance where anyone could be exposed to unsafe voltage on a water main. With Networks Alliance working on over 300 water mains each year, the benefits of this innovation are enormous.

PlumGuard was awarded the inaugural Water Industry Safety Excellence Award at the 2010 Australian Water Association (AWA) Awards.
Chapter 8: A capable workforce
A focus on staff engagement

Improving staff engagement is key to providing excellent customer service.

An indicator of workforce engagement is staff-initiated turnover. In 2010–11, Sydney Water employed about 3,000 staff, with turnover initiated by staff at 3.3%, a decrease from 3.5% in 2009–10. Part of this is due to fostering productive relationships between staff and management and reinforcing each person’s role in achieving Sydney Water’s business objectives. In addition, new staff receive a comprehensive overview of Sydney Water, including a tour of key facilities.

Sydney Water measures staff engagement scores in the yearly Your Say survey, which collects feedback on what staff think about working at Sydney Water. It tracks organisational performance and guides future programs in areas such as:

• staff engagement
• leadership effectiveness
• our key behaviours (honesty, teamwork, achievement driven, personal responsibility).

In the 2011 survey, staff scored their managers’ performance against the key behaviours at 78, where 80 is our benchmark of excellence. This was a rise of three points from the previous year. Engagement scores for staff were at 70, a consistent result from the previous year and up from 63 in 2008. Increases in the scores were a result of improved teamwork and focus on business objectives.

Staff satisfaction scores consistently high each year. In 2011, staff rated Sydney Water as a great place to work at 5.3 out of 7, a similar rating to the previous two years.

Leadership driving staff engagement

Leadership is a key driver of staff engagement. It also contributes to productive staff and helps fulfil strategic goals. In 2010–11, we began a focus on developing leadership capability with the roll-out of a Leadership Framework.

The framework helps managers to deliver consistent leadership. It provides a holistic approach by reinforcing a strong manager-staff working relationship based on trust and fairness. It defines how people are managed.

Competency development

Competency programs continue to be rolled out across Sydney Water. These will provide career paths for staff and meet organisational capability needs into the future.

During 2010–11, the focus was on all customer service staff further developing their professional qualifications, skills and experience. All 36 Business Customer Representatives are currently completing their Certificate IVs in Water Industry Operations. We have worked with Government Skills Australia to ensure that the new competencies developed in-house provide staff with a national qualification.

Achieving excellence

In October 2010, Sydney Water continued to be recognised for its human resources leadership by winning four HR Leader Compass Awards:

• Best HR Strategic Plan
• Best Employer Branding Strategy
• Best Talent Management Strategy
• Employer of Choice (over 1,000 staff).

We also received a Highly Commended for Innovation in Recruitment and Retention. The annual awards recognise excellence in HR practice across Australia.

Human Resources General Manager Peter Mills accepts the Dream Employer Survey 2010 award with (L) Steven Ewin (Insync) and (R) James Wright (Red Balloon). Sydney Water was ranked eighth on the top 20 list of dream employers.

Photo left: Sydney Water aims to foster a capable and committed workforce to help deliver efficient service for our customers.
A great place to work

In October 2010, Sydney Water was recognised in the inaugural Dream Employers Survey. We were voted as one of the top 10 organisations to work for in Australia and New Zealand. The survey asked almost 3,000 people to nominate their dream employer. Sydney Water was eighth on the top 20 list – ahead of Coca-Cola and Microsoft.

Sharing know-how

The AWA Young Water Professionals Program is about passing on knowledge from senior leaders to staff coming up through the ranks. It gives staff the opportunity to meet with experts from different backgrounds and experiences across the industry.

Sydney Water members of the Young Water Professionals Committee host networking and career development events, such as mentoring breakfasts and seminar series.

Developing future talent

Sydney Water’s Graduate Program aims to transfer knowledge from one generation to the next by identifying and developing talent for the future. By June 2011, there were 51 graduates.

Access to the program is open to anyone who has completed a degree and has less than two years professional work experience.

Training for the future

Sydney Water has designed a range of initiatives to develop staff skills now and into the future. One important initiative is our Trainee Program.

At the 2010 NSW Group Training Awards, Water Operations trainee, Rachel Cowin, won the Trainee of the Year award. The award recognises outstanding trainees from across a wide range of industries.

Rachel was the first woman to enrol in a traineeship in Operations and Maintenance, a traditionally male dominated area. At the time of nomination, Rachel was employed by Melbourne East Group Training (MEGT) organisation, and Sydney Water was her host employer. Rachel won the award against seven other finalists.

Sydney Water was also a finalist in the Large Host Employer of the Year. This award recognises employers who host apprentices and trainees throughout New South Wales. It acknowledges Sydney Water’s commitment to the training and development of entry-level staff.
Chapter 9: Delivering major projects
Sydney Water’s capital works program renews and upgrades existing assets, delivers government programs and supports urban growth.

In 2010–11, Sydney Water delivered a $636 million capital works program, nine per cent under budget. Some of the projects we completed include (a full list of major capital works programs completed in 2010–11 can be found in Appendix 1):

- the St Marys Water Recycling Plant, which supplies high quality recycled water to the Hawkesbury-Nepean River
- construction of wastewater systems at Freemans Reach, Glossodia and Wilberforce; Agnes Banks and Londonderry; and Hawkesbury Heights and Yellow Rock; these schemes provide customers in these areas with wastewater connections
- drinking, recycled and wastewater infrastructure to service about 6,000 lots in the North West Growth Centre
- sewer and water main renewals to minimise the impact of sewer failures on the community and the environment, and interruptions to the water supply
- a new Customer Management System that will enable us to respond more effectively and efficiently to customer interactions
- a diversion scheme at Glenfield and Liverpool Water recycling plants, which allows us to transfer treated wastewater from the plants into the Liverpool to Ashfield Pipeline for recycling by industrial customers.

Public private partnerships

Working in partnership with the private sector is critical to our business and the timely delivery of our major capital works projects for the benefit of customers. Our partnerships involve using best practice and sharing knowledge, risks and returns.

Over recent years, Sydney Water has progressively sourced more services externally. This allows us to use private sector expertise, be more efficient and flexible, and streamline operations.

Sydney Water has been a pioneer in public-private partnership arrangements, which first started in the mid-1990s. The private sector has the opportunity to build, finance, own and operate large water treatment plants. Sydney Water pays for the water filtration service through a tariff structure based on availability and output.

A good example of a successful working partnership is the $100 million Rosehill Recycled Water Scheme. The scheme is one of the first to be delivered by the private sector under the NSW Water Industry Competition Act 2006. It is a privately financed partnership between Sydney Water and AquaNet Sydney (AquaNet), in partnership with Veolia Water Australia (Veolia).

Veolia staff inspect reverse osmosis permeate valves at the Fairfield Recycled Water Plant.

Photo left: Photo shows work on the Liverpool to Ashfield pipeline. The project was one of three finalists at the 2011 National Infrastructure awards in March 2011.
Recycled water from this project was delivered to foundation customers in 2011. It will initially supply over four billion litres of high quality recycled water a year to six high-volume industrial and irrigation customers in the Rosehill and Smithfield areas. There is also the potential to supply a further three billion litres of recycled water a year to more customers in surrounding areas.

AquaNet and Veolia financed, designed and built the scheme that includes a water recycling plant at Fairfield and a 20 km distribution network. They will operate and maintain the scheme and supply recycled water to Sydney Water under a 20-year agreement. Sydney Water will sell the recycled water to the six foundation customers.

AquaNet is trying to expand the scheme beyond the six foundation customers at its own risk and at no cost to Sydney Water. Six additional customers have been secured to date. The scheme shows that, where appropriate, privately financed partnerships can be an effective means of delivering a recycled water service to customers. The expertise, innovation and investment potential of the private sector has been captured to deliver this recycled water scheme.

In another partnership with Sydney Water, French water treatment company Degrémont owns and operates the state-of-the-art water filtration plant at Prospect. The plant provides drinking water to 85% of Sydney’s population – 3.5 million people. The plant operates 24 hours a day, uses innovative water filtration techniques to purify the water, and can currently filter up to three billion litres of water a day. Sydney Water pays for the water filtration services provided by the plant as part of its operating expenses.

Looking ahead
Over the next five years, Sydney Water will continue to deliver major projects in line with increasing demand for infrastructure and services as Sydney’s population grows.

From 2011 to 2016, Sydney Water will deliver a capital program of about $3.8 billion. Sydney Water’s capital works budget for 2011–12 is $707 million. Planned work includes (2011–12 forecast):

- renewal and rehabilitation of assets ($367 million) to meet regulated system performance standards and customer service levels
- development of new water, wastewater, recycled water and stormwater infrastructure ($177 million) to meet the needs of urban growth in both infill (existing) and greenfield (new) areas including the North West and South West Growth Centres
- government programs ($65 million), mainly for Priority Sewerage Programs to meet Operating Licence requirements
- new regulatory standards ($61 million) such as sewer system performance under environmental protection licences
- business efficiency ($38 million) such as information technology or cost-effective energy efficiency projects that lead to reduced operating expenditure.