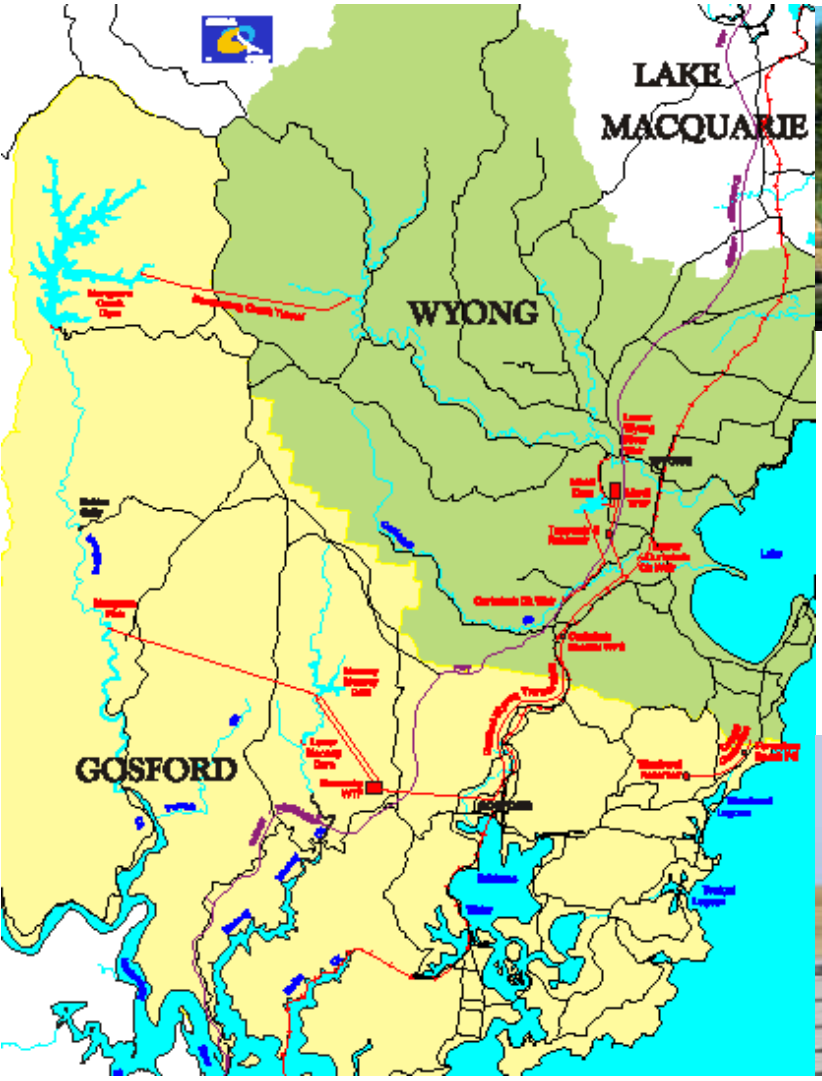
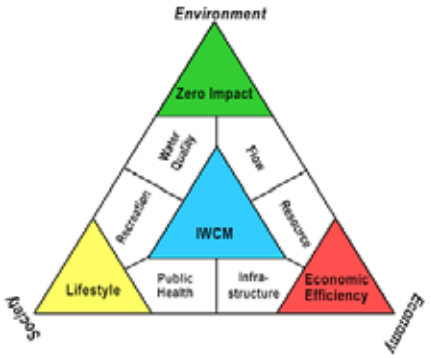




Wyong Shire Council
Integrated Water Cycle Management Study
Sub-Plan – Final Report

August 2007

This report has been prepared solely for the benefit of Wyong Shire Council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

Quality Assurance Statement			
		Prepared:	Carly Price/ Kate Smolenska
		Reviewed:	Adam Joyner
Project Manager:	Emma Pryor	**Approved:**	Emma Pryor

Revision Schedule					
Revision	**Date**	**Description**	**Prepared**	**Reviewed**	**Approved**
A	11/4/07	Draft	Carly Price/ Kate Smolenska	Adam Joyner	Emma Pryor
B	13/8/07	Final	Zoe Moffat	Emma Pryor	Emma Pryor

Table of Contents

List of Figures

List of Tables

Abbreviations

ABS	Australian Bureau of Statistics
ADWF	Average dry weather flow (wastewater)
ASR	Aquifer storage and recovery
ASS	Acid sulphate soils
BASIX	Building Sustainability Index
BOM	Bureau of Meteorology
CMA	Catchment Management Authority
CPI	Consumer Price Index
DCP	Development Control Plan
DEC (EPA)	The NSW Department of Environment and Conservation (formerly Environment Protection Authority)
DEUS	The NSW Department of Energy, Utilities and Sustainability
DNR (DIPNR)	The NSW Department of Natural Resources (formerly Dept. Infrastructure Planning & Natural Resources)
DOC (DPWS)	The NSW Department of Commerce (formerly Dept. of Public Works and Services)
DOP (DIPNR)	The NSW Department of Planning (formerly Dept. Infrastructure Planning & Natural Resources)
DSS	Decision Support System – a combined end use and least cost planning model
ERP	Estimated residential population
WSC	Wyong Shire Council
GIS	Geographical information system
HHS	Household size
IPCC	Intergovernmental Panel on Climate Change
IPR	Indirect Potable Reuse
IWCM	Integrated Water Cycle Management
LGA	Local government area
LWU	Local Water Utility
PRG	Project Reference Group – made up of water management stakeholders
PWWF	Peak wet weather flow (wastewater)
STP	Sewage treatment plant (or wastewater treatment plant)
TN	Total nitrogen
TP	Total phosphorus
TSS	Total suspended solids
UFW	Unaccounted-for-water
WELS	Water Efficiency Labelling Scheme
WMA	The *Water Management Act 2000*
WSC	Wyong Shire Council
WSUD	Water Sensitive Urban Design
WTP	Water treatment plant (or water filtration plant)

EXECUTIVE SUMMARY

Wyong Shire Council (WSC) has prepared an Integrated Water Cycle Management (IWCM) Sub-Plan to explore options for sustainably managing the provision of water supply, sewerage and stormwater services. This report documents the local IWCM scenarios developed for WSC. The recommended local scenario set out in this report will form part of an overall integrated strategy to be developed by the Gosford/Wyong Councils' Water Authority's (GWCWA) and known as *WaterPlan 2050 – An IWCM Strategy for the Central Coast*.

Integrated Water Cycle Management Process

IWCM is a new best practice approach to water utility strategic planning. It is a requirement of the NSW Department of Energy, Utilities and Sustainability's (DEUS) *Best Practice Management of Water Supply and Sewerage Guidelines* 2004 (the IWCM guidelines) and forms part of a range of initiatives by the NSW Government to improve water management across the state. A feature of the IWCM process is consideration of the opportunities to take an integrated approach to the management of urban water services, such as water reuse and conservation.

The DEUS IWCM guidelines set out a two-step process for IWCM planning:

- Concept Study: a scoping study to provide the context for urban water services and identify urban water cycle issues. For Wyong, this study was completed in November 2006.

- IWCM Strategy Plan: to develop a balanced, long-term planning strategy to address the urban water cycle issues identified. This document constitutes a step towards this requirement.

The IWCM Strategy planning process was initiated adopting the DEUS IWCM guidelines and included consideration of bulk supply and local integrated opportunities for both WSC and Gosford City Council (GCC) areas. However, as Council's bulk supply strategic planning efforts were fast-tracked in response to the current drought, the IWCM process was split into several parts:

1. IWCM Sub-Plans. These plans focus on identifying and assessing (against the triple bottom line – TBL) water efficiency and local sewage, stormwater and greywater recycling measures that could be put in place in each local government area. There are two Sub-Plans, one each for Gosford and Wyong;

2. *WaterPlan 2050* (GWCWA, 2006) which focused on identifying surface water sources and bulk (or large scale) alternative water sources; and

3. *WaterPlan 2050 – IWCM Strategy for the Central Coast*. This over-arching plan will draw together the key outcomes of the Sub-Plans and *WaterPlan 2050* into a comprehensive strategy.

All of the bulk water options in Working Draft *WaterPlan 2050* (hereafter referred to as *WaterPlan 2050*) assume that both Wyong and Gosford councils will put in place continuing programs to improve the efficiency of water use and local recycling schemes for the recycling of stormwater and treated sewage effluent. It is the role of the IWCM Sub-Plans to identify viable

alternative water sources and water efficiency measures in each of the Wyong and Gosford LGAs. The outcomes of the IWCM Sub-Plans complement the bulk water options considered in *WaterPlan 2050*.

Consultation

This Sub-Plan has been prepared in consultation with stakeholders. A Project Reference Group (PRG) representing Council, community, government agencies and other stakeholders was formed to help guide this project. The PRG was involved three workshops to assist in defining issues and scenarios.

As part of the development of *WaterPlan 2050 – IWCM Strategy for the Central Coast,* this Sub-Plan will also be placed on public display for comment.

Water Cycle Issues and Management Measures

The Wyong *Integrated Water Cycle Management Concept Study* identified water cycle related problems within the Wyong catchments. Water cycle issues requiring management were identified through a desktop document review process and consultation with stakeholders.

Measures to address the issues were identified through a review of previous studies, including the Concept Study, and by the PRG (Goals and Options Workshop) and the Project Team.

Key issues and management measures suggested by the PRG included:

- Rising Water Demands: The expected increase in the permanent residential population of WSC will increase the demand for water. The PRG suggested the implementation of water conservation measures such as the retrofitting of dual flush toilets in existing homes and source substitution measures that included a rainwater tank retrofit program.

- Security of the Water Supply System: The need for a sustainable, secure, water supply, taking into account the effects of climate change, was identified. The PRG suggested a number of new supply measures including stormwater harvesting and aquifer storage and recovery.

- Wastewater System Capacity: The expected increasing population will increase the hydraulic loads on sewage treatment plants. For existing areas, the PRG suggested an infiltration and inflow reduction program, and for new developments, consideration of dual reticulation options.

- Urban Stormwater: Stormwater poses a number of issues concerning pollution and flooding. Measures suggested by the PRG included stormwater treatment ponds/wetlands for existing areas and Smart Sewers (with low inflow and infiltration) for new developments.

Assessment of Management Measures

The PRG undertook an initial triple bottom line (TBL – economic, social and environmental) assessment of these measures to identify those measures recommended by stakeholders. For the purposes of detailed assessment, the preliminary measures identified were categorised as follows:

- Demand management: including both water conservation and source substitution measures. These measures address issues around water quantity, quality and reliability. These measures were assessed using a Decision Support System (DSS) which considered the potable water savings and associated costs of IWCM measures ($ per ML of water saved), both on an individual basis, and when combined within a scenario;

- Stormwater and catchment management activities. These measures primarily address issues around catchment and receiving environment water quality and were assessed on a cost-benefit basis; and,

- Other water cycle management activities. These measures primarily address system monitoring and management to improve knowledge of other issues and were assessed on a cost-benefit basis.

Scenario Establishment

Based on the outcomes of the detailed option assessment, five IWCM scenarios (packages of measures) were built illustrating increasing levels of integration between the urban water services. The scenarios are summarised in **Table E1**.

Table E1: Scenarios

Scenario	Description
Traditional Scenario	A traditional approach of separately managing urban water services. It includes increased potable water supply demand supplied by surface water sources, secondary treatment of sewage effluent with ocean release and conventional stormwater management approached
Scenario 1 – Current Initiatives	WSC's current and planned urban water cycle management practices. These include large scale effluent recycling, water conservation education and rebate programs and investment in rainwater and stormwater harvesting opportunities.
Scenario 2	Further expansion of the integrated approach contained in Scenario 1 to managing urban water sources as well as additional measures such as rainwater tank, recycled water, water conservation and catchment management measures.
Scenario 3	Builds on Scenario 2 and allows for increased source substitution through stormwater harvesting systems and localised industrial sewer mining.
Scenario 4	Extends the source substitution contained in Scenario 3 by using greywater and additional recycled water applications.

Scenario Characteristics

The scenarios were characterised in terms of their impact on the following:

- Potable water demands;

- Wastewater flow generation;

- Proportion of demand management achieved by water conservation and source substitution; and

- Urban pollutant loads.

Annual potable demand forecasts for each scenario are set out in **Figure E1**. It is important to note that *WaterPlan 2050* has been developed on the assumption that future annual water demands for the Gosford-Wyong water supply system will be reduced by approximately 14% due to the implementation of water saving measures. With the exception of the Traditional scenario, all of the scenarios in this Sub-Plan fulfil Wyong's contribution to this requirement.

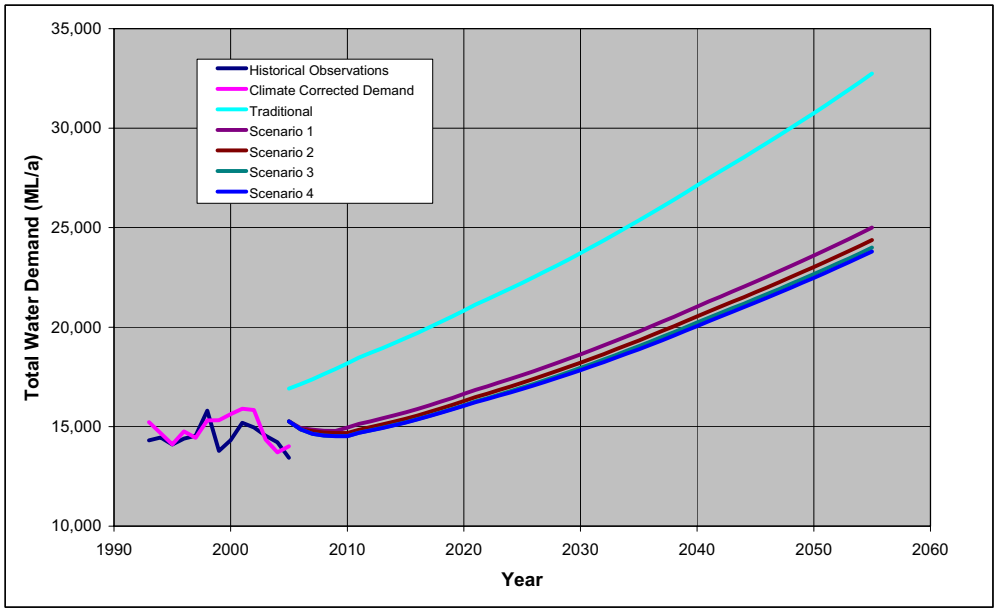


Figure E1: Forecast Annual Potable Water Demands

The demand forecasts indicate increasing potable water savings with increasing levels of integration. The highest saving between the Traditional Scenario and Scenario 1 is primarily associated with the influence of BASIX on new development, an inclined block tariff for water pricing and the STP based source substitution initiatives WSC has already implemented. Further water savings are made in Scenarios 2 to 4, primarily through source substitution approaches.

The performance of each scenario in terms of the proportion of demand management achieved by water conservation and source substitution is set out in **Figure E2**.

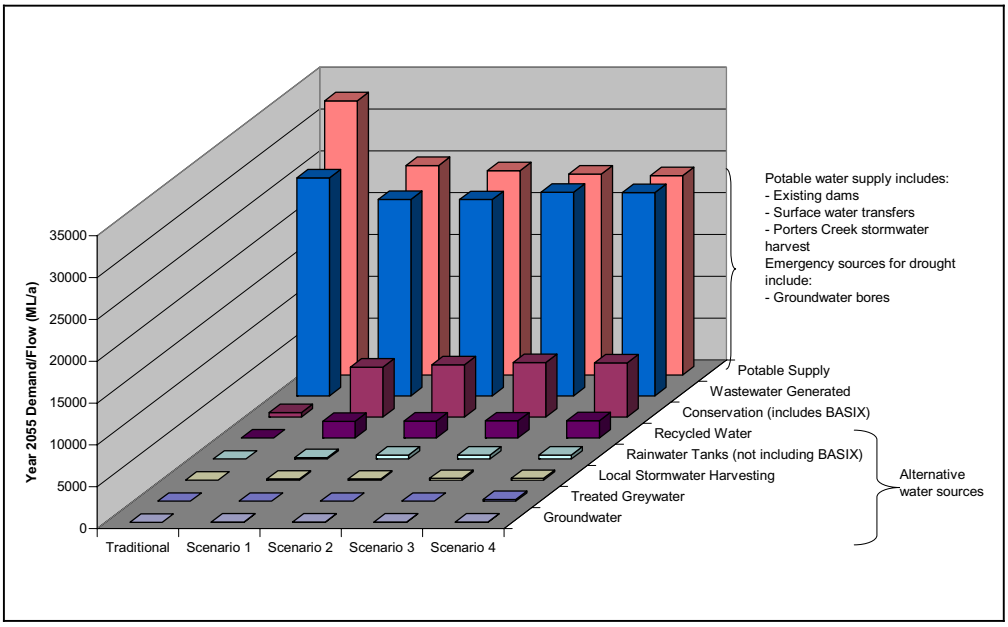


Figure E2: Forecast Urban Water Supply and Wastewater

As the level of integration increases in the scenarios, levels of source substitution and conservation increase.

Urban pollutant reductions are anticipated with increasing levels of water cycle integration primarily through a combination of improved wastewater treatment and WSUD. Year 2055 annual pollutant loads generated from the LGA's urban areas have been modelled to compare the environmental outcomes of the scenarios. The forecast 2055 urban pollutant loads (combined impact of the Water Sensitive Urban Design (WSUD) program and the upgrading of treatment at STPs) include suspended solids, nitrogen and phosphorus. Compared to the Traditional Scenario, Scenario 1 showed a small reduction in suspended solids, a 6 % reduction in nitrogen and a 16 % reduction in phosphorus, while Scenarios 2-4 showed a greater reduction in loads of 8 %, 13 % and 16 % respectively.

Scenario Comparison and Recommended Scenario

In consultation with the PRG, Scenario 1 – Current Initiatives was identified as the recommended scenario for incorporation into *WaterPlan 2050 – IWCM Strategy for the Central Coast.*

A summary of the key features involved in the implementation of the recommended scenario (Scenario 1 – Current Initiatives) is set out in **Table E2**. The capital works program and schedule of operation, maintenance and administration expenses associated with this scenario are included in **Appendix C**.

Table E2: Features of the Adopted Scenario: Scenario 1 – Current Initiatives

Measures	Strategy	Timeframe	Application[1]										Recommended Action/s
			ERL	ERM	ERH	NRL	NRM	NRH	EC	EI	NC	NI	
Water Efficiency Labelling Scheme (WELS)	A mandatory government water efficiency labelling scheme to encourage customers to purchase more efficient water using appliances. Enforced by legislation.	Commenced. Completion: On-going	✓	✓	✓	✓	✓	✓					Monitor and annually review the impact of the scheme on customer demands using water demand trend tracking software. Where expected water efficiency outcomes are not achieved, revise IWCM strategy.
Implement Currently Planned Price Increases	Price signals (the usage charge for water consumed) to customers to ensure water is valued and hence used efficiently. Enforced by regulation.	Commence: 2007. Completion: On-going.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Monitor and annually review the impact of the set price increases using water demand trend tracking software. Work with IPART to develop more appropriate pricing structures (see 'Inclining Block Tariff option considered in strategy development) where the expected price signal is not achieved.
Continue Existing Education Programs	Maintain existing education programs to encourage efficient water use.	Commenced. Completion: On-going	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Continue existing education programs such as the Central Cost Water Festival. Annually review the impact of the program using water demand trend tracking software. Consider an increased level of community education (see IWCM education program) where the expected impact is not achieved.
Continue Existing Water Loss Program	Identify and reduce the level of leakage in the water supply system. Enforced through operation.	Commenced. Completion: On-going.	✓	✓	✓				✓	✓			Implement pressure management areas across 30% of the system and monitor. Consider additional system coverage (see 'Active water loss program with increased pressure reduction' option considered in strategy development) where the expected savings are not achieved.

Measures	Strategy	Timeframe	Application[1]										Recommended Action/s
			ERL	ERM	ERH	NRL	NRM	NRH	EC	EI	NC	NI	
On-going Upgrade Water Transfer and Reservoir Capacity	Provide water supply distribution network storage to continue to meet water demands and development occurs. Enforced through operation.	Staged				✓	✓	✓			✓	✓	Staged provision of additional water distribution network and reservoirs.
On-going Sewage Treatment Plant Upgrades	Provide increased sewage treatment capacity to meet the needs of new growth. Enforced through operation.	Staged				✓	✓	✓			✓	✓	Staged provision of additional sewage treatment infrastructure.
On-going implementation of an Inflow and Infiltration Reduction Program	Reduce the volume of stormwater and groundwater entering the sewage network. Enforced through operation.	Commenced. Completion: On-going.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reduce wet weather inflow and infiltration through relining and renewal of existing sewers (40 km per year in highest priority areas as determined by flow gauging and modelling analysis). Adoption of smart sewers in new development areas.
On-going Trade Waste Management	Maintain municipal quality of incoming sewage to treatment facilities in order to maintain consistent treated product quality. Enforced through policy.	Commenced. Completion: On-going.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Ongoing review and revision of WSC existing DEUS compliant Trade Waste Policy.
Implement Existing Stormwater, Floodplain and Estuary Management Plans	Improve stormwater and coastal waters quantity and quality. Reduce flooding and Impacts. Enforced through plan.	Commenced. Completion: On-going.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Actions include installation of sediment traps in urban areas, lake restoration, improvement and erosion control works, bank rehabilitation along Wyong River, stormwater harvesting to protect Porters Creek, urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of the lakes, renewal of exiting assets, new assets to serve growth.

Measures	Strategy	Timeframe	Application[1]										Recommended Action/s
			ERL	ERM	ERH	NRL	NRM	NRH	EC	EI	NC	NI	
Existing WSC ASS Planning Controls	Reduce likelihood of acid events in estuaries and floodplain drains. Enforced through planning controls.	Commenced. Completion: On-going.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Implement existing WSC ASS Planning Controls.
Existing Rainwater Tank Rebate	Provision of an incentive for customers to install rainwater tanks which will meet some of their water demands without use of the potable water supply. Enforced through policy.	Commenced. Completion: On-going.	✓	✓	✓								On-going review of the effectiveness and appropriateness of the rainwater tank rebates offered.
Residential Retrofit of Taps and Showers	Subsidies to provide an incentive for the retrofitting of water efficient appliances into existing dwellings to reduce water demand. Enforced through policy.	Commenced. Completion: On-going.	✓	✓	✓								This action will not need to be continued beyond 2008 due to expected impact of WELS and BASIX. Remove at this time.
Existing Efficiency Program in Government Offices	Retrofitting of water efficient appliances into existing offices to reduce water demand. Enforced through operation.	Commenced. Completion: On-going.							✓		✓		On-going review of the effectiveness of the program. Potential need to renew the installed assets in 5-10 years.
Groundwater Program for Parks and Ovals	Use of groundwater on public parks and ovals to reduce demand on potable supply. Enforced through operation.	Commenced. Completion: On-going.							✓		✓		On-going review of effectiveness of existing program and the availability of additional groundwater resources.
Rainwater Tanks for General Community Use	Forty local ovals and reserves have been fitted with 10,000kL rainwater tanks to substitute demands on water supply. Enforced through operation.	Commenced. Completion: On-going.							✓		✓		On-going review of effectiveness of existing program and the availability of additional community uses where rainwater tanks may be appropriate.
Existing Rainwater Tanks in Schools	WSC and has involved installing 25 rainwater tanks in schools to substitute demands on water supply. Enforced through operation.	Commenced. Completion: On-going.							✓		✓		On-going review of effectiveness of existing program.
Existing Stormwater Harvesting for Cricket Pitches	Stormwater harvesting has been installed by WSC at Bill Sohier Park, Baker Park, Taylor Park and Harry Moore Oval to substitute potable water demand. Enforced through operation.	Commenced. Completion: On-going.							✓		✓		On-going review of effectiveness of existing program and the availability of additional sporting uses where stormwater harvesting may be appropriate.

Measures	Strategy	Timeframe	Application[1]										Recommended Action/s
			ERL	ERM	ERH	NRL	NRM	NRH	EC	EI	NC	NI	
Existing Stormwater Harvesting Initiatives	Stormwater harvesting projects to substitute potable water demand have been installed at the Masterfoods Factory, Halekulani Bowling Club, Ourimbah RSL Club, Robann's Nursery, Toukley District Bowling Club and Toukley Golf Club. Enforced through operation.	Commenced. Completion: On-going.							✓		✓		Continue to pursue extension of stormwater harvesting activities to a number of community ovals with funding from the NSW Gov Water Savings Fund and to new developments (see measure modelled as Stormwater Harvesting Stage 1 & 2 New Developments).
Non-Residential Water Management Plans	Top non-residential users required to prepare and implement water management plans to drive water efficiency and source substitution potable water savings. Enforced through policy.	Commenced. Completion: On-going.							✓	✓	✓	✓	On-going review of effectiveness of existing program through the auditing of plans.
Existing recycling effluent initiatives	Recycling from the Bateau Bay STP, Toukley STP and Vales Point Power Station to reduce demand on water supply. Bateau Bay STP: Tuggerah Lakes Golf Course, EDSACC (North and South), Bateau Bay Croquet Club, Toowoon Bay Caravan Park and Surf Club, Swadling Park, the Entrance High School, the Golden Hind Bowling Club, Golf Driving Range, Our Lady of Rosary School, Bateau Bay Bowling Club, Jubilee Oval and Shelly Beach Surf Club. Toukley STP: Magenta Shores development, Toukley Golf Club, Darren Kennedy and Harry Moore Ovals and amenities, Toukley and St Mary's Primary Schools, Norah Head Cemetry and Toukley RSL Bowling Club, Canton Beach Caravan Park and Toukley Bowling Club. Enforced through operation.	Commenced. Completion: On-going.							✓				On-going review of effectiveness of existing program in substitution of existing demand rather than creating new demand for water. Review of opportunities to expand the scheme once the effectiveness of the scheme has been established.

Measures	Strategy	Timeframe	Application[1]										Recommended Action/s
			ERL	ERM	ERH	NRL	NRM	NRH	EC	EI	NC	NI	
Effluent Reuse Tankers	Recycling water from four STPs, via tankers, for watering of landscaped areas such as traffic islands and medium strips to reduce demand on water supply. Enforced through operation.	Commenced. Completion: On-going.							✓				On-going review of effectiveness of existing program.
Effluent Reuse for Rural Fire Services	Use of effluent by rural fire service to reduce demand on water supply. Enforced through operation.	Commenced. Completion: On-going.							✓				On-going review of effectiveness of existing program.
BASIX	Government initiative requiring new homes to demonstrate achievement of water efficiency targets during the development application process. Enforced through regulation.	Commenced. Completion: On-going.	[2]			✓[2]	✓[2]	✓					Review Development Control Plans for consistency with BASIX and to capture water sensitive urban design and other non-BASIX regulated opportunities.

1. ERL: Existing Residential Low Density, ERM: Existing Residential Medium Density; ERH: Existing Residential High Density, NRL New Residential Low Density, NRM: New Residential Medium Density, NRH: New Residential High Density, EC: Existing Commercial, IE: Industrial, NC: New Commercial, NI: New Industrial

2. Alterations and additions with a value of greater than $100,000 or containing a pool in excess of 40,000 L.

Table E3 sets out the key data gaps identified in the Concept Study, their relationship to the adopted scenario and the monitoring and data collection activities recommended as a result.

Table E3: Data Gaps and Monitoring Actions

Data Gap	Key Sensitivities for Adopted Scenario	Key Monitoring Actions/ Data to Collect
Confirmation of the areas of future development, number of dwellings, density and location of all future developments.	The rate of development and population growth may differ from that assumed in the forecast. Similarly, the split of growth between greenfield and infill development may also differ from that assumed. Demand forecasts are sensitive to changes in growth rates and dwelling types.	Annually track changes in growth rates and dwelling composition. Keep up to date population and non-domestic forecasts in GIS format if possible.
A longer period of consumption data to allow trend analysis. GIS geocoded consumption and wastewater data for greater spatial analysis.	Lack of data to analyse trends meant it was not possible to look at the historical impact of price changes. Therefore price signals included in scenario may be insufficient to cause changes in customer behaviour. Customers may not reduce their use of water as forecast. Climate change: DSS modelling of the IPCC mid-range climate change scenario suggests demand forecasts may increase by 5% as a result of climate change.	Water consumption records, drawn from customer billing information, should be monitored and climate corrected quarterly following the introduction of price increases with the aim of quantifying the savings achieved. Track climate change modelling at the international and nation level and revise forecasts as new information comes to light.
Lack of records of the extent of rainwater harvesting and greywater systems within the LGA.	As a relatively new regulatory regime, the actual impact of BASIX on consumption is not well understood. Enforcement of the regulation is generally only possible during development approval processes.	Tag customers impacted by BASIX (including rainwater harvesting and grey water systems) in the customer database such that actual data on their consumption can be tracked on a quarterly basis to determine the on-going success of BASIX.
Details on the effectiveness and costs of the demand management program to date, as well as the extent and cost of planned activities. More descriptive information on water charges, such as strategies or tariffs that may be implemented in the future.	Effectiveness of the existing recycled effluent initiatives: the schemes currently in place in WSC are relatively new. The long-term potable demand substituted by these initiatives may vary from the theoretical replaced consumption assumed.	Tag customers utilising these schemes and monitor quarterly both their potable and treated effluent consumption. Reconcile against historical consumption records.

The Next Steps

The recommended local IWCM Scenario provides the framework for the sustainable management of WSC's local urban water services into the future. For successful implementation, it requires on-going support by Council, the community and relevant government agencies in terms of their regulatory processes. WSC has commenced, or is planning to introduce, the IWCM measures contained in the scenario. As part of the on-going review of this Sub-Plan, it is recommended WSC:

- Update its development control plans to be consistent with the adopted scenario;
- Continue to monitor the IWCM outcomes by collecting and analysing the key data described above; and
- Review the Sub-Plan and adopted scenario is in 3-5 years time to ensure it continues to achieve best-practice outcomes.

1 INTRODUCTION

Council has embarked upon the preparation of an Integrated Water Cycle Management (IWCM) Strategy Study to explore measures for sustainably managing the provision of water supply, sewerage and stormwater services. This report documents the local IWCM scenarios for Wyong Shire Council (WSC). The scenarios described in this report will be inputs to the development of the Gosford/Wyong Councils' Water Authority's (GWCWA) *WaterPlan 2050 – IWCM Strategy for the Central Coast*.

This report documents the local IWCM scenarios for Wyong Shire Council.

This section sets out the objectives of this planning process and background information important to the strategic planning process.

1.1 IWCM Objectives

IWCM is a best practice approach to local water utility (LWU) strategic planning. It is a requirement of the Department of Energy, Utilities and Sustainability (DEUS) *Best Practice Management of Water Supply and Sewerage Guidelines 2004* (the guidelines) and forms part of a range of initiatives by the NSW Government to improve water management for LWUs. Although considered a major utility, rather than a LWU, WSC have committed to this best-practice initiative.

IWCM is a way of integrating the three urban water services of water supply, sewerage and stormwater to ensure water is utilised optimally, now and in the future. It does this by considering potential savings across the urban water services. IWCM also looks at integrating the provision of urban water services with the management of the water supply catchment and water resources.

An IWCM planning process considers issues such as:

- Future town water and service needs;
- The availability of water including rainwater, effluent and stormwater; and
- Other water users, including the environment and future generations.

To identify water cycle management issues, the IWCM approach involves community, government regulators and water utility input. Once water cycle issues have been identified, strategies to manage them can be developed.

There are often many different ways in which to manage any given issue. To identify the most appropriate solutions for local circumstances, the IWCM approach involves a collaborative triple bottom line (TBL - economic, environmental and social) assessment of the strategies developed.

The IWCM planning approach is recognised as best-practice for the management of water supply, sewerage and stormwater services.

IWCM is important because it helps to:

1. Balance the needs of water users, including towns and the environment (a whole of water cycle approach).

2. Reduce the pressure on water resources by ensuring a wide range of water sources, including rainwater, stormwater and treated effluent, are considered.

3. Ensure that the measures for supplying urban water services into the future are put in place.

4. Integrate catchment management and urban water service provision.

5. Make sure that local communities can participate in the planning and delivery of urban water services.

The WSC IWCM Sub-Plan contains:

1. A summary of the water cycle management issues facing Wyong.

2. Five scenarios illustrating the possible ways that the local urban water services of Wyong can be provided in the future.

3. An economic, environmental and social assessment of the costs and benefits of each scenario.

4. A capital works plan for implementing the selected scenario.

5. The technical engineering assessments utilised in developing the scenarios.

The objective of this project is to develop an IWCM Sub-Plan to help the Wyong community and WSC to address their immediate urban water challenges and to decide how their urban water services will be sustainably provided in the future.

1.2 The Integrated Water Cycle Management Process

The DEUS *Integrated Water Cycle Management Guidelines 2004* (the IWCM guidelines) set out a two step process for IWCM planning:

- **Concept Study:** a scoping study to provide the context for urban water services and identify urban water cycle issues. For Wyong, this study was completed in November 2006.

- **IWCM Strategy:** to develop a balanced, long-term planning strategy to address urban water cycle needs. This document will constitute this requirement.

As discussed further in **Section 1.3**, for Wyong and Gosford, the IWCM Strategy step has been altered to result in the development of an IWCM Sub-Plan. Although only local water management measures (i.e. water supply, sewerage and stormwater management excluding bulk supply measures) are under consideration in development of the IWCM Sub-Plan, the general process of developing the plan is consistent with the IWCM Strategy process summarised in **Figure 1-1**.

The IWCM Sub-Plan considers local water management measures as WaterPlan 2050 has considered all bulk water supply options.

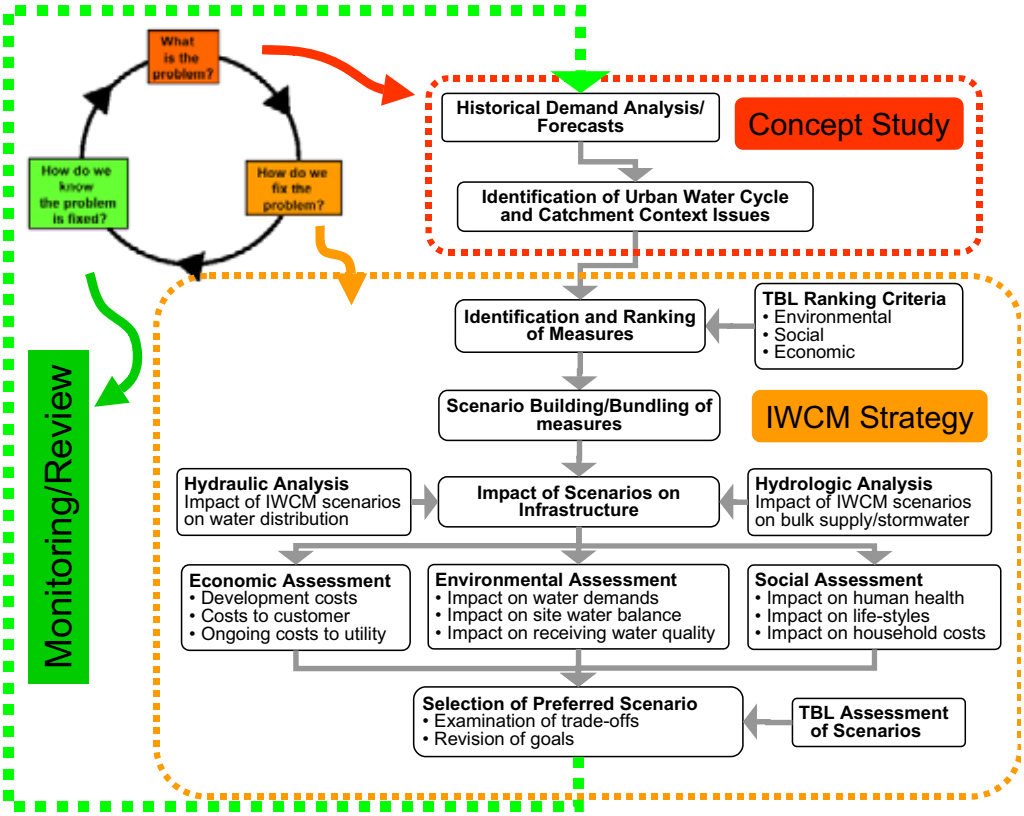


Figure 1-1: The Integrated Water Cycle Management Planning Process

It is anticipated that the implementation phases of the recommended elements of the IWCM Sub-Plan, including concept and detailed design processes, project approvals, infrastructure construction and operation, will follow the incorporation of this plan into the adopted *WaterPlan 2050 – IWCM Strategy for the Central Coast* (for further details see **Section 1.3**).

IWCM offers the opportunity to examine urban water supply, sewerage and stormwater management in a single planning framework, in a whole of catchment context. This approach is possible through recent advances in information management and analysis and seeks to avoid the piecemeal development of water supply, sewerage and urban stormwater facilities that has occurred in the past.

IWCM offers the opportunity to examine urban water supply, sewerage and stormwater management in a single planning framework, in a whole of catchment context.

Conventional water system management, where each element of the water cycle is treated sequentially, has provided many important benefits. It has provided secure sources of clean water for drinking and use in industry and commerce, as well as treating waste streams to minimise the impacts on the environment. With increasing population growth and its accompanying urban footprint it has become increasingly apparent that conventional water system management does not facilitate consideration of the "big picture". The current system generally uses water only once or not at all in the case of stormwater running off impervious surfaces.

Consideration of all water sources and uses in a single framework creates opportunities for increasing the efficiency of water use and improving the management of the water cycle. By examining integrated measures for the management of the water cycle, the opportunity to

discover new ways of doing things are maximised as are opportunities to maximise the synergies in all parts of water cycle management.

It is also becoming apparent that current levels of natural resource use, including water and land uses, are not sustainable. The integrated approach to water management seeks to balance the competing demands on available resources within catchments to develop a strategy to ensure a sustainable water future. It will encourage a shift in system management (**Figure 1-2**).

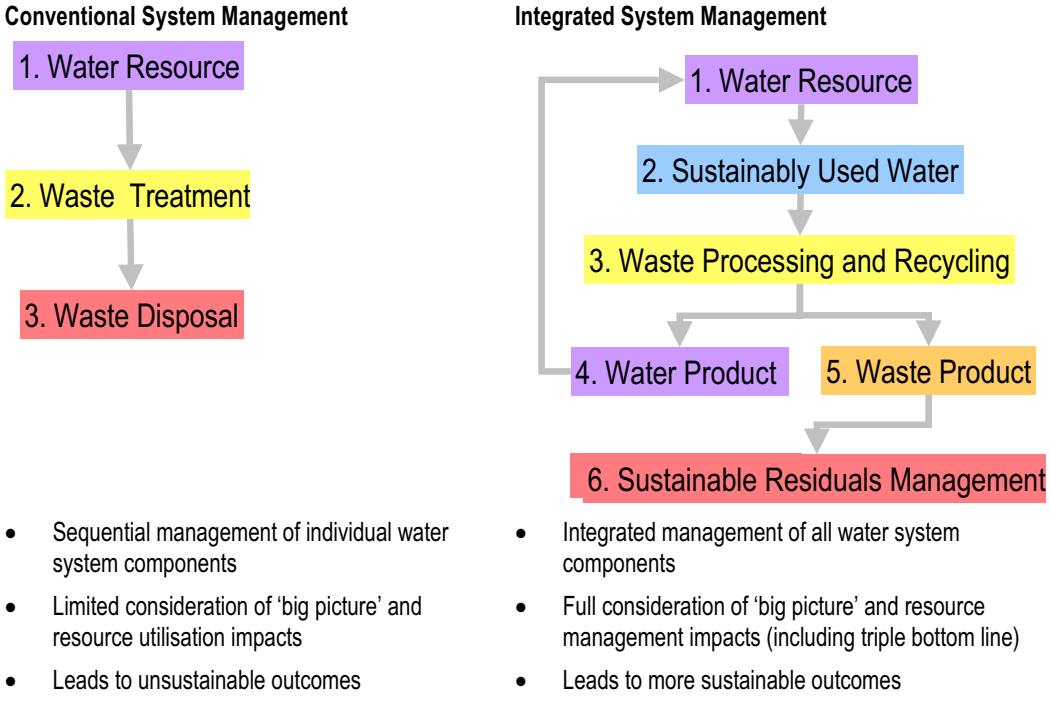


Figure 1-2: Integrated System Management (DEUS, 2003).

1.3 Background

Collectively, Wyong and Gosford local government areas (LGA) are referred to as the NSW Central Coast. These two LGAs share their water head works through the GWCWA.

The WSC IWCM planning process was initiated adopting the DEUS IWCM guidelines and included consideration of bulk supply and local integrated opportunities. However, due to Wyong and Gosford Council's bulk supply strategic planning efforts being fast-tracked with the current drought, the traditional IWCM process was split (with DEUS approval) into two parts:

1. IWCM Sub-Plans (of which there will be two, one each for Gosford and Wyong); and
2. *WaterPlan 2050*.

The IWCM Sub-Plans and WaterPlan 2050 will be agglomerated into a single strategic water planning tool to be known as WaterPlan 2050 – IWCM Strategy for the Central Coast.

Following the public display and comment of each of these documents, these two parts are to be agglomerated into a single strategic water planning tool to be known as *WaterPlan 2050 – IWCM Strategy for the Central Coast*. This over-arching plan is to be developed separately by the two councils after the completion of *WaterPlan 2050* and the two IWCM Sub-Plans.

Many aspects of sustainably managing the water supply, sewerage and stormwater systems have been considered as part of *WaterPlan 2050* and the objectives and focus of the plan

coincide with many of the IWCM planning process objectives and the IWCM Sub-Plan outcomes (for further details see **Section 1.4**).

WaterPlan 2050 focused on identifying surface water sources and bulk (or large scale) alternative water sources such as groundwater and stormwater harvesting to ensure that the growing population of the Central Coast has sufficient water to meet their needs for the next 50 years. *WaterPlan 2050* involved ongoing stakeholder participation and consultation through a specially constituted Community Liaison Group. A preliminary draft of *WaterPlan 2050* was put on public display in November 2006 to facilitate community input.

The two councils, in consultation with DEUS, defined the interface between these two studies (**Figure 1-3**). A 50 year IWCM Sub-Plan has been separately produced for both Gosford and Wyong councils. These plans focus on identifying and assessing water efficiency and local sewage, stormwater and greywater recycling measures that could be put in place in each local government area (LGA). These plans have a 50 year planning horizon (from 2005 to 2055). The IWCM Sub-Plans were also prepared with stakeholder input (for further details see **Section 1.5**).

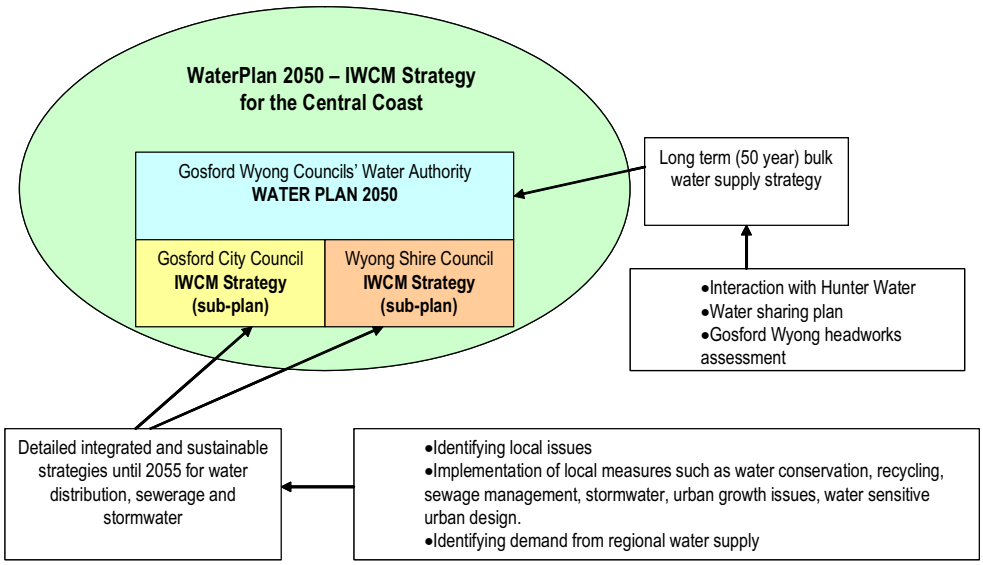


Figure 1-3: Integration of IWCM Sub-Plans into WaterPlan 2050

1.4 Connecting the WP2050 and IWCM Processes

Most of the time, run of river flows are harvested to meet the needs of the Wyong and Gosford communities. Mangrove Creek Dam is the only significant storage in the combined water supply scheme, and is drawn upon to supplement water supplies in times of lower river flows. Over the past 10 years, the supplies in this storage have been continuously drawn down.

Mangrove Creek Dam was originally designed to operate in conjunction with transfers from the upper Wyong River. The infrastructure to facilitate these transfers has not yet been constructed. As this dam provides the primary storage for drought security, there has been a need to review the measures to facilitate the recovery of the dam. The measures fall into two

broad categories: transfers from adjoining surface water sources; and development of alternative water sources.

WaterPlan 2050 has focused on identifying surface water sources and bulk (or large scale) alternative water sources. This includes using groundwater, desalination and indirect potable reuse in addition to surface water or stormwater; and alternative sources to satisfy environmental flow requirements.

The outcomes of the IWCM Sub-Plans align with the objectives of WaterPlan 2050.

All of the bulk water options in *WaterPlan 2050* assume that both Wyong and Gosford councils will put in place continuing programs to improve the efficiency of water use and local recycling schemes for the recycling of stormwater and treated wastewater (GWCWA, 2006). It is the role of the IWCM Sub-Plans to identify viable alternative water sources and water efficiency measures in each of the Wyong and Gosford LGAs. The outcomes of the IWCM Sub-Plans complement the bulk water measures considered in *WaterPlan 2050* as illustrated in **Table 1-1**.

Table 1-1: Alignment of IWCM Sub-Plan Outcomes and WaterPlan 2050 Objectives

WaterPlan 2050 Objectives	IWCM Sub-Plan Outcomes
Achieve a safe, reliable and secure water supply.	Identification of viable local alternative water sources to assist in improving the security of the supply through diversification of sources.
Ensure the supply and use of water is efficient and affordable.	Assessment of a wide variety of demand management measures to improve the efficiency of water consumption. A TBL based analysis of scenarios to understand their affordability in economic, environmental and social terms.
Protect the health of the rivers and the environment.	Identification of opportunities to reduce urban discharges by reusing treated sewage effluent and stormwater and reduce extractions of water from the environment.
Involve the community in the development and selection of proposed measures.	Inclusion of a Project Reference Group (PRG) at all key points in the IWCM Sub-Planning. The group included some members of the Community Liaison Group assisting in the preparation of the Water Plan 2050 sub-plan. Both Water Plan 2050 and the IWCM will be subject to public exhibition and comment.
Ensure that the proposed measures can be implemented.	Due consideration of policy, guidelines and legislation in identifying and assessing options to assist in the implementation of recommended measures.

1.5 Stakeholder Consultation in IWCM Planning

The development of the IWCM Sub-Plan included stakeholder consultation. To assist in the identification of water management issues and the evaluation of solutions to those issues, a PRG was formed. The PRG included stakeholders representing community groups, government agencies and Council. Full details of PRG membership and project involvement are set out in **Appendix A**. The PRG provided a forum for community and industry involvement in the development of the IWCM Sub-Plan.

During the Concept Study, the PRG was convened twice:

1. Goals and Options Workshop: The PRG reviewed and verified the issues identified through desktop analysis; identified potential measures to address the issues; and, identified TBL criteria against which to assess the measures.

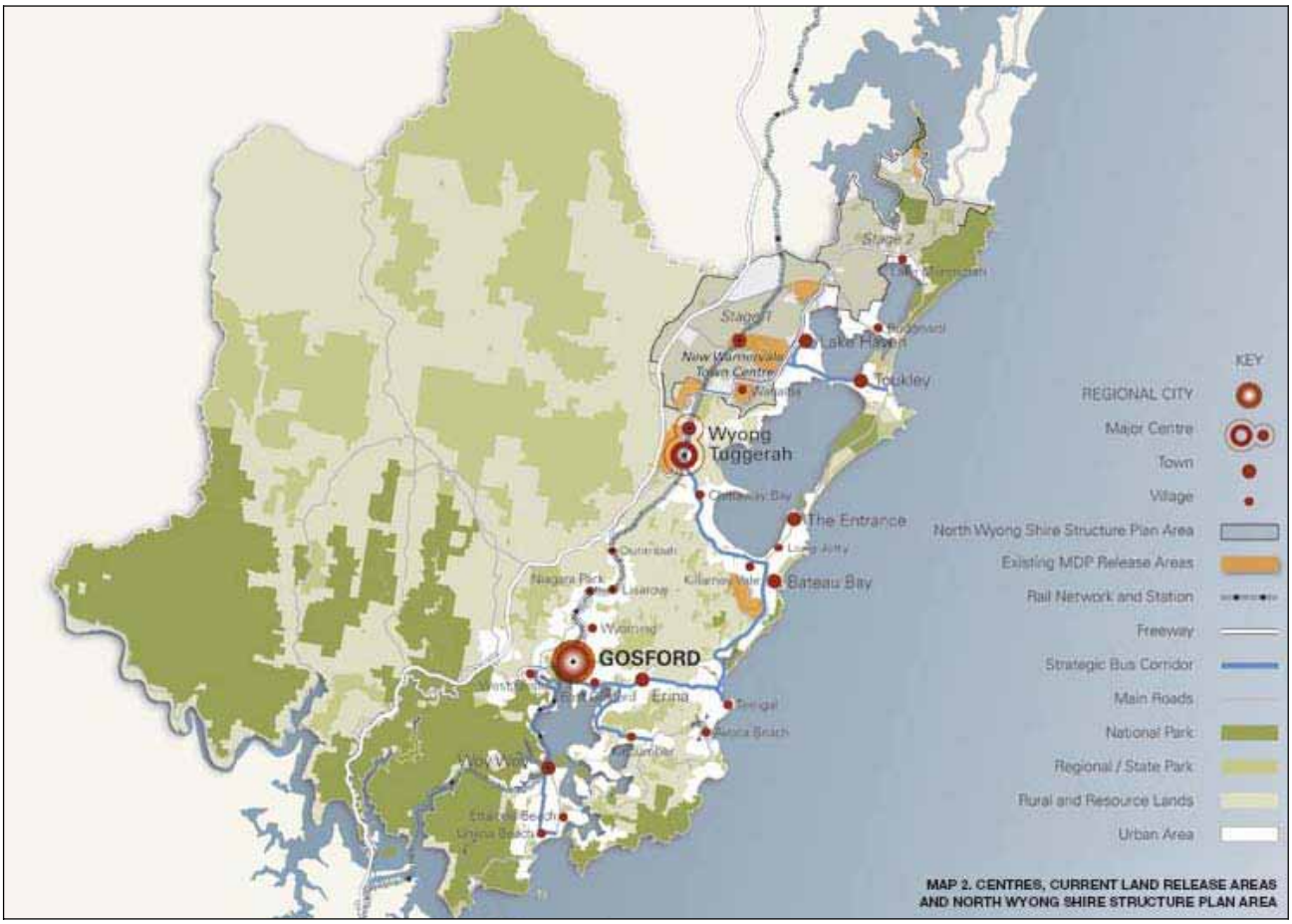
2. Measures Assessment and Scenario Building Workshop: The PRG undertook a preliminary assessment of measures using the TBL criteria; and, completed preliminary bundling of the measures into scenarios. The PRG option preferences, reflected in this preliminary bundling, were considered in the final bundling of measures into scenarios (**Section 2**).

The PRG was convened once during the Strategy phase to assess the IWCM Sub-Plan scenarios. The process and outcomes of this workshop are detailed in **Section 3**.

1.6 Study Area

The IWCM Sub-Plan study area covers the Wyong LGA. Wyong LGA is located on the Central Coast of New South Wales (**Figure 1-4**), approximately 110 kilometres north of Sydney. The LGA covers approximately 827 square kilometres and consists of coastal and hilly terrain. The shire extends from Gwandalan in the north, to Ourimbah in the south and from the Pacific Ocean to the hills beyond the Yarramalong Valley.

WSC includes major centres such as Wyong and Tuggerah which encompass residential commercial, retail and light industrial areas. There are also numerous smaller towns and villages surrounded by coastal lakes, farming and forested areas. The LGA has a population in excess of 140,000 residents and accommodates a seasonal population increase due to tourism.



Source: DoP, 2006.

Figure 1-4: Centres and Land Release Areas of the Central Coast

Together with Gosford City Council (GCC), WSC owns and operates a major water utility, the Gosford and Wyong Councils Water Authority (GWCWA). WSC also manages the LGA's stormwater services, sewerage services (independent of the joint water body), coastal lakes and a majority of the catchment areas.

1.7 Water Cycle Issues for Wyong

Water cycle issues were identified in the *Wyong IWCM Concept Study*. These issues were then defined and prioritised by stakeholders in the PRG. The issues are summarised in **Table 1-2**. The development of the IWCM Sub-Plan considered localised measures to address these issues.

Table 1-2: Water Cycle Issues for Wyong

Issue	Description
Climate change through global warming and greenhouse gas emissions	Predicted increase in temperatures and reduction in rainfall expected to result in higher water consumption and reduced reliability of existing surface water supplies. Production of greenhouse gasses through energy use in the treatment and transfer of water and sewerage contributes to global warming and climate change. Waterway ecological impacts including prospect of sea level rise.
Nutrients and water quality	Urban and rural runoff includes elevated nutrient levels with potential ecological impacts such as eutrophication, cyanobacteria outbreaks and algal blooms. Loss of community amenity in waterways. Potential impacts associated with urban expansion and infill development such as increased sediment loads, erosion, roadway pollutants. Community concerns regarding water pollution.
Environmental flows	Potential changes to low flow allocation as per Water Sharing Plans (WSP). This has been undertaken as part of *WaterPlan 2050*.
Acid sulphate soils	Ecological impacts during construction activities. Degradation of sub-surface infrastructure.
Salinity	Salinity hazard indicated to be low in Wyong LGA. Irrigation induced water table rise may create problems.
Soil Erosion	Increased nutrient and sediment loads in waterways. Sources include building sites, land clearing and decline in riparian vegetation. Unstable riverbank sites.
Suitability of soils for effluent reuse application	Some soils in the LGA area may not be suitable for receiving reclaimed water.
Urbanisation	Uncertainty in population growth numbers.
Water demands and water use – Demand management	Expected increase in the permanent residential population will increase water demands. Currently no pricing tiers exist to encourage conservation. Different attitudes within the community to water conservation.
Water demands and water use – Source substitution	Expected increase in the permanent residential population will increase water demands.
Water Supply System - future planning for long term stability	Decisions to be made on the supply measures for the development of the water supply system. This will be done as part of *WaterPlan 2050*. Current water shortages and high level restrictions indicate reliability of supply is a current concern. Reliability of consumption, production and unaccounted for water (UFW) data.
Sewerage system	Increasing population increases hydraulic loads on sewage treatment plants (STPs).

Issue	Description
Urban stormwater	Water-borne pollutants entering local creeks and waterways. Localised flooding, exacerbated by urban expansion. Numerous site specific issues including sediment loads during construction, bank erosion and water pollution. On-going management of infrastructure. Ensuring flows for environmental purposes. Pumping station sewage overflows. Pollution from septic systems. Urban litter and pollutant loadings, which are exacerbated with tourists.
Flooding	Flood issues within Wyong LGA can be segregated into two main areas: those related to new development in greenfield areas; and those existing as a result of an aged and overloaded existing stormwater system. Increased urban development is considered to be a primary pressure on existing drainage systems. Water Sensitive Urban Design (WSUD) is currently not considered as a complimentary option to traditional drainage works to reduce the impact of urbanisation on flooding.
On-site wastewater treatment systems	With increasing rural residential development, more on-site sewage systems may be implemented.

2 SCENARIO ESTABLISHMENT

This section outlines the establishment of the IWCM scenarios and their associated water cycle projections. Each IWCM scenario represents a combination of water supply, sewerage, stormwater and catchment management measures in response to the urban water cycle issues (**Table 1-2**) identified in the *Wyong IWCM Concept Study*.

This section discusses:

- Stakeholder involvement in establishing scenarios;
- The development of baseline forecasts of water demands and wastewater flows (i.e. flows from STPs) to establish the predicted demands for water if no effort is made to manage demand;
- The investigation and assessment of measures to manage each of the issues identified;
- The compilation of five different scenarios of the future of water supply, sewerage and stormwater services in WSC; and
- The impacts of each of these five scenarios in terms of water demand, wastewater generation, urban pollutant loads and capital and operating costs.

2.1 Stakeholder Involvement in Scenario Establishment

Communities are increasingly participating in the choice associated with the provision of urban water services. Community participation in the planning process is considered best-practice and aligns with community needs.

The process of developing the scenarios is summarised in **Figure 2-1**.

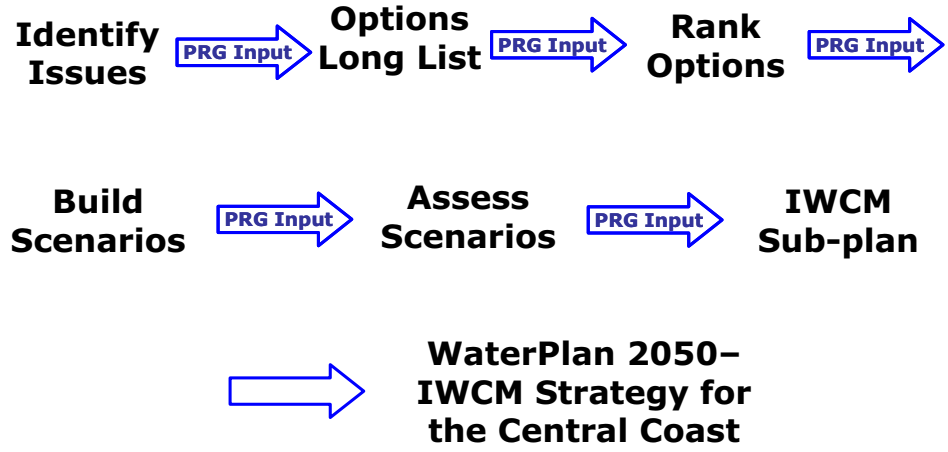


Figure 2-1: Scenario Development Process

Measures for consideration in developing scenarios were identified through previous studies, including the Concept Study, and by the PRG (Goals and Options Workshop) and the Project

Team. The measures identified by the PRG are set out in **Table 2-1**. These measures were then considered in developing the local IWCM scenarios for WSC.

Table 2-1: Measures Identified by the PRG

Issue	PRG Suggested Measures
Climate change through global warming and greenhouse gas emissions	See the issue 'Water Demand and Water Use - Source Substitution' for Measures
Nutrients and Water Quality	Sewage treatment process upgrade and return flow
	Establishment of buffer zones alongside significant streams
	Ban insinkerators in new developments
	Rehabilitation of existing water courses
	Stormwater treatment ponds/wetlands in new developments
	Stormwater quality treatment detention basins in new developments
	Improved management of contaminated and landfill sites
Environmental Flows	Implement macro water sharing plan
	Purchase of competing licences
Acid Sulphate Soils	No measures identified
Salinity	Revegetation for dryland salinity effected areas
	Improved monitoring of farming practices
Soil Erosion	Protect and rehabilitate riparian zones in water supply catchment - in conjunction with Catchment Action Plan (CAP)
	Erosion and weed controls - in conjunction with CAP
Suitability of soils for effluent reuse application	No measures identified
Urbanisation	No measures identified
Water Demands and Water Use - Demand Management	WELS for all accounts
	BASIX for new residential accounts
	High water users management plans for existing non-residential accounts
	Dual flush toilet retrofit for existing accounts
	Washing machine rebate for existing residential accounts
	Residential retrofit of showers and tap flow regulators for existing residential accounts
	Community rainwater tanks for general use in open space areas
	Efficiency controls on showerheads and tapware for new residential accounts
	Mandatory use of rainwater tanks for new development
	Adopt higher BASIX standards for new accounts
	Community IWCM education (promotions/guidelines) for new and existing accounts
	Community education/enhanced land care programs on a catchment level

Issue	PRG Suggested Measures
	Landscaping/native planting controls (reduced garden water) for new accounts
	Enhanced conservation signal in water pricing for all accounts
Water Demands and Water Use - Source Substitution	Agricultural reclaimed water reuse
	Stormwater harvesting/reuse in existing key areas and new developments at a local level
	Retrofit of on-site greywater recycling for existing accounts
	Localised industrial treatment of sewage for existing non-residential accounts
	Retrofit of recycled water system to key existing users
	Extension of retrofit of recycled water system to feasible existing areas
	Rainwater tank rebate for existing residential customers
	Rainwater tank retrofit program for existing residential accounts
	Indirect potable reuse (IPR)
	Stormwater harvesting at catchment scale
	Use effluent to off set environmental flows in water forming plans/ Return of recycled effluent to point of extraction
	On-site greywater recycling for new accounts
	Include plumbing in new development to allow for greywater
	Improved monitoring of non-town water supplies in existing systems
	Recycled water use through a "third pipe" for new developments
	Develop development control plans (DCPs) for water recycling dual plumbing for large users, commercial, industrial & open space
	Localised industrial treatment of sewage for reuse in new non-residential developments
	Sewer mining in new open space developments
Water Supply System - future planning for long term stability	Shared equipment and access funding sources for IWCM activities
	Aquifer Storage and Recovery (ASR)
	Sewer mining for existing open space accounts
	Pressure reduction program for existing areas
	Active system leak detection and repair and Red Alert for existing systems
Sewerage system	Improved trade waste management
	Infiltration and inflow reduction program for existing areas
	Decentralised treatment cluster systems for new developments
Urban Stormwater	Stormwater treatment ponds/wetlands for existing areas
	WSUD DCPs for new developments
	Retrofit of WSUD to key existing areas
	Enhanced erosion controls during and after construction
	Smart sewers (low inflow and infiltration) for new developments
	Gross pollutant traps

Issue	PRG Suggested Measures
Flooding	Litter/Organics to stormwater reduction (bins)
	Flood mitigation works in key areas
	Detention basins with low flow release
	Traditional detention basins for new developments
	On-site detention in new developments
On-site wastewater treatment systems	Improve on-site systems on a catchment wide basis

Stakeholders were also involved in defining criteria (**Table 2-2**) for assessing the relative performance of each of the scenarios with the aim of being able to determine a recommended scenario for implementation (Option Assessment and Scenario Building PRG Workshop).

Table 2-2: Gosford and Wyong IWCM Assessment Criteria

Environmental	Social	Economic
Maintains water quality and minimises negative impact on biodiversity. Prevents long-term depletion of water resources. Is an energy and resource efficient option, and minimises green house gas emissions.	Aids in securing the reliability of water supply. Reduces individual water demand (L/per person/per day). Encourages and promotes society's acceptance of alternate water sources (reuse of grey water, treated water, stormwater, use of groundwater, etc).	Minimises long-term costs of urban water cycle infrastructure. Maintains an affordable water supply ($/ML). Includes economic incentives to use alternative sources of water.

In the second workshop, the PRG also undertook a preliminary bundling of measures into scenarios. Each option was discussed and considered using the environmental, social and economic criteria determined by the PRG. This PRG ranking of measures was used by the project team to understand the preferences of stakeholders with respect to the various management measures when bundling measures into scenarios. The outcomes of the PRG assessment of measures are set out in **Appendix A**.

Drawing on the DEUS guideline framework, and inputs from the PRG, five preliminary local IWCM scenarios were built by the PRG with increasing levels of integration between the urban water services:

1. The Traditional Scenario – the case likely to result from the traditional approach of undertaking separate water supply, sewerage and stormwater investigations and system management.

2. Scenario 1 – representing current practice as being implemented by WSC.

3. Scenarios 2 to 4 – an increased level of integration between the urban water systems building on Council's currently planned activities.

2.2 Baseline Forecasting Assumptions

Water demand analysis establishes a robust understanding of how water is used and moves through the urban water cycle. It is required in order to develop IWCM measures, forecast demands and compare the measures.

Analysis of historical water usage (including the impact of climate conditions) flow and load generation was made in the *Wyong IWCM Concept Study*. Baseline forecasts were also developed in order to identify potential water management issues. This section of the report summarises the changes in the baseline assumptions that underlie all forecasts and measures development in this report. For detailed descriptions of the assumptions the reader is referred to the Concept Study report.

The analysis completed in the Concept Study was undertaken prior to the release of the *Draft Central Coast Regional Strategy* (DoP, 2006). Hence, the baseline was revised as part of this phase to reflect changes in the anticipated ratio of greenfield versus infill development identified in the regional strategy.

Population forecast figures were obtained from WSC and are consistent with those being used in the development of *WaterPlan 2050*. Since the *Wyong IWCM Concept Study,* these population forecasts have been extended from the original planning horizon of 2035 to 2055. This is consistent with the 50 year planning horizon of *WaterPlan 2050*.

Growth projections for the Wyong LGA show an estimated increase in people to be serviced with water of approximately 130,000 between the year 2005 and the year 2055.

Greenfield development in Wyong LGA (excluding the Warnervale District) will account for 22% of new dwellings across the Central Coast

The existing major urban centres of the LGA are concentrated along the coastline and the neighbouring coastal lakes. The planned major growth areas within Wyong LGA are within the Warnervale District, an area planned to become a new urban centre for the Central Coast, and urban releases in the North Wyong area which are to be undertaken in two stages (**Figure 2-2**). Redevelopment to higher densities, and infill development, are occurring throughout the existing urban area and particularly around The Entrance and Bateau Bay. Recently released state planning documents assume greenfield development in Wyong LGA (excluding the Warnervale District) will account for 22% of new dwellings across the Central Coast (DoP, 2006). The baseline forecasts have been revised to reflect this assumption.

In addition to new residential growth, urban release area 1 is planned to contain a new employment zone (Warnervale Employment Zone, shown in light blue adjacent to the new town centre) and a new industrial area (Bushells Ridge, shown in light blue hatch to the north of the new Warnervale town centre).

Source: DoP, 2006.

Figure 2-2: Planned New Development Areas of Wyong LGA

The resulting baseline forecasts are shown in **Table 2-3** and were combined with the corresponding data from Gosford to establish the system wide demands shown in **Figure 3-1**. The completion of the baseline forecasts provides a basis upon which to examine measures and complete a preliminary option assessment, as discussed in the following section.

Table 2-3: Baseline Forecast – Business as Usual without Planned IWCM Initiatives

Baseline Forecast	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055
Per Capita Water Demand (L/p/d)	330	326	325	324	325	327	328	330	333	335	338
Annual Water Demand (ML/a)	16,909	18,303	19,647	21,096	22,538	24,074	25,749	27,550	29,361	31,255	33,282
Peak Day Water Demand (ML/d)	106	119	131	145	158	173	188	205	222	240	259
STP Annual Inflow (ML/a)	14,209	15,323	16,373	17,496	18,593	19,754	21,015	22,361	23,696	25,079	26,551
STP ADWF (ML/d)	32	35	37	39	41	44	46	49	52	55	58
STP Design WWF (ML/d)	97	109	119	130	140	150	161	173	184	195	208

The above figures are based on unrestricted historical demand and predicted growth in water using accounts. The forecasts were calculated using the DSS tool (discussed further in **Section 2.3.1**).

2.3 Preliminary Option Assessment

For the purposes of assessment, the preliminary measures identified were categorised as follows:

- Demand management: including both water conservation and source substitution measures. These measures address issues around water quantity, quality and reliability;
- Stormwater and catchment management activities. These measures primarily address issues around catchment and receiving environment water quality; and
- Other water cycle management activities. These measures primarily address system monitoring and management to improve knowledge of other issues.

The following sections discuss the process of assessing the measures identified by the PRG in **Table 2-1** and a series of other measures developed by the Project Team. In each of the following sections, the specific issues identified in the concept study phase address by the

proposed measures are identified. The assessment of individual option performance informed the process of building scenarios.

It is important to note however, that the measures developed have been considered at a level of detail which enables option description and consideration for strategic planning purposes. As growth and development continue, it will remain necessary to consider other specific local measures as they arise. The selected scenario will provide overall direction in terms of WSC's integrated water cycle management, but should not be obstructive to the consideration or implementation of specific local measures on an opportunistic basis.

2.3.1 Demand Management Measures

Assessment of water cycle management measures requires consideration of the application of each individual option. For most water management measures this includes assumptions regarding:

- Extent - the area or number of customers impacted by the activity;
- Efficiency - the water savings or gains associated with the activity; and
- Cost – including initial setup and on-going costs, to both the customer and water utility.

Further, it is recognised that many of the measures are inter-related and, when combined, their benefits and costs require their interaction to be considered. For instance, the individual water savings associated with education and rebate programs targeting the same end uses of water (i.e. educating customers to have shorter showers and offering rebates to encourage the replacement of shower roses with more efficient ones) cannot be simply added together. Likewise, reclaimed water reuse approaches require consideration not only of water savings but also catchment advantages and disadvantages.

The Decision Support System (DSS) is the main tool used to assess potable water savings and associated costs of IWCM measures, both on an individual basis, and when combined within a scenario. The DSS allows development of forecast water demands and wastewater flows, considering each option's impact on end water uses (i.e. the specific uses towards which water is put such as toilets, washing machines, outdoor use etc) and hence, on the established baseline forecasts. By combining measures into scenarios, a series of forecasts of water demand and wastewater flows can be generated.

In assessing measures, the DSS tool allows for consideration of the capital and operating costs associated with each option and the savings in water and energy use (and resulting reduction in carbon generation) as a result of each option. The assessment considers the cost-benefit of each option from the perspective of the utility (in this case WSC) as well as customers and the community as a whole. This allows for the relative cost-benefit performance of each option under consideration to be determined.

There are two different categories of measures that are assessed in the cost-benefit analysis:

1. *Water conservation measures* involve behavioural changes that reduce the consumer's consumption, including education measures and water efficiency fixtures.

2. *Source substitution measures* do not reduce the customer's consumption, but the demand is met by an alternative water source outside of the potable water supply system.

Combined, these two categories of measures are referred to as demand management.

The assumptions used in the DSS to model the potable water savings as a result of implementing individual water conservation and source substitution measures are set out in **Table 2-4** and **Table 2-5** respectively. Where information was available from WSC's existing conservation efforts, it has been used to set the basis for modelling the impacts of the measure. Where information was not available, assumptions have been made on the basis of the number of customers affected and the estimated volume of water used in the targeted end use/s. The assumptions have been set at a level of effort in order to seek a reasonable likelihood of acceptance of each measure.

In the Wyong IWCM scenarios, it is assumed that rainwater may be employed for garden watering, pools, household washing (cold water) and toilet flushing. A hydrological assessment of the impact of rainwater harvesting systems on water demands was undertaken using a multi-variable regression analysis to establish demand variability and a water balance simulation. For more details on the technical background to the simulation, see **Appendix B**.

Based on this assessment, it is has been assumed that the typical installed household tank size for Wyong adopted for the rainwater measures is 5 kL. Overall, the reductions are approximately 55% of annual potable water demand, however, this varied by the dwelling type. It has been assumed that rainwater tank demand reductions are negligible under peak demand conditions because during dry periods it is unlikely the tanks would still contain rainwater.

The development of the capital and operating costs of each option detailed in **Table 2-5** are set out in **Appendix C**, and based on the infrastructure and development areas shown in **Figure B-4** to **Figure B- 9**.

Table 2-4: Water Conservation Measures

Table 2-4: Water Conservation Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Demand Management	Water Efficiency Labelling Scheme (WELS) applied to existing and new development. Efficiency controls on showerheads and tapware for new development.	WELS	A mandatory water efficiency labelling scheme for toilets, washing machines, shower roses, taps, urinals and dishwashers was initiated in 2005. Australian Government Department of the Environment and Water Resources http://www.waterrating.gov.au	Assumed to impact on residential customers only. Increase the uptake of efficient washing machines by 10%, low flow showerheads by 10% and efficient tap fixtures by participation of 5% for new accounts and 1% per year for existing accounts. It has been assumed that the WELS scheme will have a negligible impact on toilets sales. This is because the current standard for toilets in Australia is the 6/3 dual flush toilet and that efficiency labelling for toilets is currently almost universal under the voluntary scheme.	Average use reduction of 10% for taps and dishwashers. Showerhead savings vary with fixture/appliance types: • High Flow 91 L/use • Medium – 70 L/use • Low Flow – 49 L/use • Water miser – 40 L/use All assumed to have an annual replacement rate of 8%. Washing machine savings vary with appliance type (annual replacement of 12%): • Inefficient top loader – 150 L/use. Efficient top loader – 130 L/use • Front loader – 100 L/use. Efficient front loader – 80 L/use	Cost to utility of $500 per year for enhancement of WELS promotional materials and $3,000 for setup of such promotional material. Additional purchase cost to customer of $10 per tap kit and $10 for dishwashers which are assumed to have a 10 year lifetime.

Table 2-4: Water Conservation Measures

Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Demand Management	Building Sustainability Index (BASIX). Efficiency controls on showerheads and tapware for new development.	BASIX Program – 40 Points	The Building Sustainability Index applies to all new residential development and alterations and additions with a value of greater than $100,000 or containing a pool in excess of 40,000 L. Wyong lies within the 40% target savings area of NSW. The savings can be gained through landscaping, fixtures and alternative water supplies (e.g. rain and greywater). NSW Department of Planning http://www.basix.nsw.gov.au	Impacts new residential customers. For this study it is assumed that adequate points will be gained through using efficient taps/sinks, efficient showerheads and rainwater tanks. Taps/sinks impact 90% of new residential accounts. Rainwater tanks impact 90% of new residential accounts. 0.3 % per annum renovations result in RWTs.	Average use reductions of 10% for taps. Showerhead savings as per WELS. Efficient showerheads market share change varies for fixture type. Savings and annual replacement the same as WELS, but the market share has increased as BASIX captures new growth. Low flow increases by 63% as a result. Efficient toilets market share change of 10% increase in 4/3 L toilets (with resultant 10% decrease in 6/3 L) in new and replacement market shares. Assumes 5 kL tank and average roof area 220 m2 for single residential. Water savings for rainwater tanks: 60% for targeted water uses in houses and units and 65% for semi-detached. 0% reduction on peak days. Renovations only connect internally 50% of the time.	Cost to utility of $5,000 for setup and $1,000 per year for administration. Tanks $3,000 and $400 for pump met by customer.

Table 2-4: Water Conservation Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Demand Management	Public education – Central Coast Water Festival.	Existing Education programs	WSC existing water conservation education initiatives and includes general education and school project grants	All existing and new customer types included. 50% of all customers will be influenced by the program.	1 to 5% reduction in all uses except outdoor use which achieves an 8% reduction for participating.	$50,000/annum
Water Demand and Water Use – Demand Management	Community IWCM education for existing and new development. Community education and enhanced land care programs.	IWCM Education Program – Stepped up	An increased level of community education. Council would provide materials, training and technical assistance to implement a comprehensive ongoing community education program focussing on IWCM promotion and guidelines.	All existing and new customer types included. 50% of all customers will be influenced by the program.	As above except 10% external saving. Stepped-up education program achieves an extra 2% reduction in outdoor use.	$1000 per annum.
Water Demand and Water Use – Demand Management	Not suggested by PRG	Currently planned price increases	Price increases in line with IPART approved figures. IPART submissions	All customers.	Assumed saving 4%.	$50,000 one-off cost to Council.
Water Demand and Water Use – Demand Management	Enhanced conservation signal in water pricing for new and existing development	Inclining Block Tariff - Residential	Council will introduce the inclining block tariff for residential users. Price in the higher block will be approximately 50% more that in the lower block. An increase in revenue will be offset by a reduction in the fixed charge. IPART submissions	All residential customers, targeted at external water use. All customers will respond to pricing signal. Program to start in 2009/10.	Price elasticity of -0.2 for outdoor and -0.05 for indoor.	$50,000 one-off cost to Council.

Table 2-4: Water Conservation Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Demand Management	Residential retrofit of showers and tap flow regulators	Residential retrofit of taps and showers	Four year program, launched in April 2004. The program provides subsidies for the retrofitting of water efficient appliances, i.e. AAA showerheads, hose trigger nozzles and tap aerators. From June 2004 – September 2006, 6723 retrofits were booked in total for both WSC and GCC. Program costs: $55,000 p.a. each.	Replacement rate of 3%pa for four years for all types of taps and sinks. Replacement rate of 8%pa for all types of shower heads.	10% savings in average and peak conditions for taps and sinks. Savings for showerheads are same as wells, but market share is increased.	$55,000/annum administration cost for taps and sinks (based on 1,000 properties in 2006/07) Customer cost of taps and sinks $39. Cost to utility is $30 per showerhead.
Water Demand and Water Use – Demand Management	Washing machine rebate	Residential washing machine rebate	Council to provide a $200 washing machine rebate to customers for water efficient washing machines, in line with current initiatives. According to WSC, the program is expected to issue 1,960 rebates per year (combined figure for WSC and GCC) and costs: $170,000.	Annual replacement rate assumed to be 12%.	Based on specific machine water demands ranging from 80 to 150L/use.	Costs vary between $600-$1,000, depending on machine type. Cost to Council of $200 per rebate issued.
Water Demand and Water Use – Demand Management	Dual flush toilet retrofit	Dual flush toilet retrofit	High water use model assumed to be replaced upon request an approved plumber will install.	Annual replacement rate assumed to be 5% per annum for three years.	Based on specific flush size, ranging from 3 to 12L/use.	Installation costs $350 of which $35 are paid by the customer.

Table 2-4: Water Conservation Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Demand Management	High water user management plans for existing customers	Non-Residential Audit – Total Program Savings	Top non-residential users are offered a free audit which includes indoor water conservation measures, leakage and development of an irrigation schedule where applicable. Indoor water savings are realised through low-flow showerheads and taps, toilet water-displacement devices, and leak repair. Currently WSC employed auditing and the preparation of Water Management Plans as a drought management measure. WSC has assessed a 5% reduction in water usage by the top 15 water users. Current program costs of $40,000 pa are shared WSC and GCC.	Indoor and outdoor use, 1 % of non-residential customers per annum. Audit program to run for three years.	10% savings in all targeted water uses except for leakage. Temporary (3y life) 50% leakage saving applied.	Cost to customer of $2,000 per audit. Annual administration cost of $20,000 for the utility.
Water Demand and Water Use – Demand Management	Not suggested by PRG	Permanent low level restrictions	Mandatory implementation of water use restrictions for external uses	Applies to 75% of new and existing accounts	10% savings under both average and peak conditions.	Set up costs of $50,000. Annual administration costs of $20,000/yr.
Water Demand and Water Use – Demand Management	Landscaping/native planting controls (reduced garden watering)	Landscape and Planting Controls	A nursery program to support the selection of water efficient plants.	Existing residential customer types included. 2% of all customers will be influenced by the program.	As above except 10% external saving. Stepped-up education program achieves an extra 2% reduction in outdoor use.	$1,000 per annum.
Water Supply System – future planning for long term stability	Not suggested by PRG	Existing water loss program	Program aimed to identify and reduce the level of leakage in the water supply system. Program began in January, 2004. Includes survey of entire reticulation network. WSC estimates 506ML/yr for the first round of works and 570ML/year for the second round of works. (as per Report by Technical Advisory Group to Board, 15 November 2006)	30% of system covered by pressure management areas. 50% reduction in pressure	29% reduction in leakage flows for areas treated.	Cost establishment per area $25,000 for district metering and $40,000 for pressure management

Table 2-4: Water Conservation Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Supply System – future planning for long term stability	Pressure reduction program Active system leak detection and repair as well as Red Alert.	Active water loss program with increased pressure reduction	Program aimed to identify and actively reduce the level of leakage in the water supply system. Increased pressure management.	40% of system covered by pressure management areas. 50% reduction in pressure	29% reduction in leakage flows for areas treated.	Cost establishment per area $25,000 for district metering and $40,000 for pressure management
Water Demand and Water Use – Demand Management	Not suggested by PRG.	Existing and Continued operation of Efficiency Program in Government Offices	WSC expended $160,000 putting this initiative in place.	Assumed Council accounts for 11 % of non-residential use as set out in WP2050.	Toilets 67%, Showers 5 and taps and sinks 5	$160,000 every 10 years.

Table 2-5: Source Substitution Measures

Table 2-5: Source Substitution Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Source Substitution	Stormwater harvesting/reuse in key areas.	Existing Stormwater Harvesting Initiatives	Existing projects include: Masterfoods Factory, Halekulani Bowling Club, Ourimbah RSL Club, Robann's Nursery, Toukley District Bowling Club and Toukley Golf Club. Savings and costs supplied by WSC in Board Report 14 November 2006.	Not applicable.	Water savings supplied by WSC: • Masterfoods Factory (internal third pipe system - part of 87 ML/a) • Halekulani Bowling Club (external only - part of 5 ML/a) • Ourimbah RSL Club (4 ML/a) • Robann's Nursery (200k L tank – 3 ML/a) • Toukley District Bowling Club (2.5 ML/a) Toukley Golf Club (8 ML/a)	Total project costs assumed to be twice subsidised value. Total costs: $2.3 million.
Water Demand and Water Use – Source Substitution	Stormwater harvesting/reuse in key areas.	Stormwater Harvesting NSW Government Funding Application	WSC has applied to NSW Gov Water Savings Fund for Halekulani Oval, Kanwal Oval, Kurraba Oval, Tunkuwallin Oval, Baker Park, Don Small Oval, Bill Sohier Oval, Wadalba Community Oval, Blue Haven Oval, Harry Moore Oval, Lake Haven Oval, Taylor Park and Watanobbi Oval. Savings and costs supplied by WSC in Board Report 14 November 2006.	Not applicable.	WSC supplied combined total savings of 65 ML/a.	Total project costs assumed to be twice subsidised value. Total costs: $1.4 million.

Table 2-5: Source Substitution Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Source Substitution	Stormwater harvesting/reuse in key areas.	Existing Stormwater Harvesting for Cricket Pitches.	Stormwater harvesting has been installed by WSC at Bill Sohier Park, Baker Park, Taylor Park and Harry Moore Oval. Savings and costs supplied by WSC in Board Report 14 November 2006.	Not applicable.	WSC supplied combined total savings of 1ML/a.	Total costs: $110,000 setup costs, annual operation cost of 4% of capital per annum.
Water Demand and Water Use – Source Substitution	Stormwater harvesting/reuse in key areas.	Stormwater Harvesting in Stage 1 New Urban Release	Centralised stormwater harvesting in the North Wyong Development Area (NWDA) Stage 1: Charmhaven, Doyalson and Bruce Crescent.	This development will contain 40% of all new Greenfield development over stage 1 timeline.	Assumed 55% savings on external uses under average conditions.	Total costs: $19.4 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 6
Water Demand and Water Use – Source Substitution	Stormwater harvesting/reuse in key areas.	Stormwater Harvesting in Stage 2 New Urban Release	Centralised stormwater harvesting in the North Wyong Development Area (NWDA) Stage 2: Doyalson East, Chain Valley Bay and Gwandalan North.	This development will contain 90% of all new Greenfield development over stage 2 timeline.	Assumed 55% savings on external uses under average conditions.	Total costs: $13.6 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 6
Water Demand and Water Use – Source Substitution	Localised industrial treatment of sewage.	Localised industrial treatment of sewage	On-site treatment and reuse of sewage at Charmhaven, North Wyong, Tuggerah and Lisarow industrial estates. Enforced through WSUD DCP for new development (see also **Table 2-7**) and Water Management Plans for existing development.	Not applicable.	Assumed 60% savings on the demands of these industrial estates.	Total costs: $3.3 million capital, annual operation cost of 4% of capital per annum. See Appendix C
Water Demand and Water Use – Source Substitution	Retrofit of recycled water system to key users.	Effluent Reuse Tankers	WSC recycles water from four STPs, via tankers, for watering of landscaped areas such as traffic islands and medium strips.	Not applicable.	WSC supplied water savings: 150 ML/a.	Total costs: $950,000 capital, annual operation cost of 4% of capital per annum.

Table 2-5: Source Substitution Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Source Substitution	Retrofit of recycled water system to key users. Sewer mining for existing open space accounts	Existing Recycling Effluent Initiatives	WSC recycles water from the Bateau Bay STP, Toukley STP and Vales Point Power Station.	Bateau Bay STP: Tuggerah Lakes Golf Course, EDSACC (North and South), Bateau Bay Croquet Club, Toowoon Bay Caravan Park and Surf Club, Swadling Park, the Entrance High School, the Golden Hind Bowling Club, Golf Driving Range, Our Lady of Rosary School, Bateau Bay Bowling Club, Jubilee Oval and Shelly Beach Surf Club. Toukley STP: Magenta Shores development, Toukley Golf Club, Darren Kennedy and Harry Moore Ovals and amenities, Toukley and St Mary's Primary Schools, Norah Head Cemetry and Toukley RSL Bowling Club, Canton Beach Caravan Park and Toukley Bowling Club.	WSC supplied water savings of: • Bateau Bay: 495 ML/a. • Toukley: 1,150 ML/a. • Vales Point: 265 ML/a.	Total costs: $4.3 million capital, annual operation cost of 4% of capital per annum. For locations see Figure B- 8
Water Demand and Water Use – Demand Management	Recycled water use through a "third pipe" for new developments	Effluent Reuse Wanervale	Provision of third pipe scheme for new district centre.	This development will contain 45% of all new Greenfield development over stage 1 timeline.	Assumed applied to toilets, washing machines and external uses. Assumes uptake of application to washing machines is 50% less than for rainwater tank measures.	Total costs: $3.3 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 6
Water Demand and Water Use – Demand Management	Recycled water use through a "third pipe" for new developments	Effluent Reuse Hamlyn Terrace	Provision of third pipe scheme for new district centre satellite suburb.	This development will contain 10% of all new Greenfield development over stage 1 timeline.		Total costs: $2.2 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 6

Table 2-5: Source Substitution Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Demand Management	Recycled water use through a "third pipe" for new developments	Effluent Reuse The Entrance and Bateau Bay	Provision of third pipe scheme for redevelopment of district centre.	This development will contain 32% of all new infill development between 2008 and 2011.		Total costs: $8.2 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 7
Water Demand and Water Use – Demand Management	Recycled water use through a "third pipe" for new developments	Effluent Reuse in Stage 1 New Urban Release	Provision of third pipe scheme for new development.	This development will contain 40% of all new Greenfield development over stage 1 timeline.		Total costs: $11.9 million capital, annual operation cost of 4% of capital per annum. See Appendix C
Water Demand and Water Use – Demand Management	Recycled water use through a "third pipe" for new developments	Effluent Reuse in Stage 2 New Urban Release	Provision of third pipe scheme for new development.	This development will contain 90% of all new Greenfield development over stage 2 timeline.		Total costs: $7.4 million capital, annual operation cost of 4% of capital per annum. See Appendix C
Water Demand and Water Use – Demand Management	Retrofit of recycled water system to key users.	Effluent Reuse for Rural Fire Services	An existing WSC initiative which includes the use of effluent by rural fire services.	Not applicable.	WSC supplied water savings of 5 ML/a.	Program set up costs and annual operating costs of $5,000 faced by WSC.
Water Demand and Water Use – Source Substitution	Rainwater tank rebate.	Existing Rainwater Tank Rebate.	WSC provides a series of different rebate rates dependent on the size of rainwater tank. For the installation of a 5 kL tank, WSC provides a rebate of $400.	0.8% of total existing accounts, annually.	Approximately 50% for toilet use, washing machines, external use and leakage. Assumed only 50% of accounts plumb internally	Cost to Utility $450 per installation and $20,000 annual administration costs, no setup costs because it is already established. Costs to customer as per BASIX – Rainwater tanks plus 20%, less $450 rebate applied as upfront capital cost with straight line depreciation over life of tank and pump.

Table 2-5: Source Substitution Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Source Substitution	Rainwater tank retrofit program.	Rainwater Tank Retrofit for renovations	This program assumes that WSC puts in place a WSUD DCP requiring the installation of rainwater tanks on residential renovations. See also **Table 2-7**.	0.3% of total existing accounts, annually.	Approximately 50% for toilet use, washing machines, external use and leakage. Assumed 50% of accounts plumb internally	$3,500 capital cost and $279 maintenance cost for customer.
Water Demand and Water Use – Demand Management	Community rainwater tanks for general use	Rainwater tanks for General Community Use	This is a current initiative of WSC. Forty local ovals and reserves have been fitted with 10,000 kL rainwater tanks.	Not applicable.	WSC provided water savings for the scheme of 4 ML/a	WSC program cost $400,000 to set up. Assumed operating cost of 4% of capital per annum.
Water Demand and Water Use – Demand Management	Community rainwater tanks for general use	Existing Rainwater Tanks in Schools	This is a current initiative of WSC and has involved installing 25 rainwater tanks in schools.	Not applicable.	WSC provided water savings for the scheme of 2 ML/a	$3,500 capital cost and $279 maintenance cost for customer.
Water Demand and Water Use – Source Substitution	On-site greywater use for new development. Include plumbing in new development to allow greywater use.	Greywater Centralised in Stage 1 New Urban Release	Centralised greywater system in the North Wyong Development Area (NWDA) Stage 1: Charmhaven, Doyalson and Bruce Crescent.	This development will contain 40% of all new Greenfield development over stage 1 timeline.	Assumed 100% savings on external uses.	Total costs: $27.2 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 6
Water Demand and Water Use – Source Substitution	On-site greywater use for new development. Include plumbing in new development to allow greywater use.	Greywater Centralised in Stage 2 New Urban Release	Centralised greywater system in the North Wyong Development Area (NWDA) Stage 2: Doyalson East, Chain Valley Bay and Gwandalan North.	This development will contain 90% of all new Greenfield development over stage 2 timeline.	Assumed 100% savings on external uses.	Total costs: $18.1 million capital, annual operation cost of 4% of capital per annum. See Appendix C and Figure B- 6

Table 2-5: Source Substitution Measures						
Concept Study Issue	PRG Suggested Measures	Measure	Description	Assumed Market Penetration	Assumed Water Savings	Assumed Costs
Water Demand and Water Use – Source Substitution	On-site greywater use for new development. Include plumbing in new development to allow greywater use.	Greywater Centralised in Bushells Ridge	Centralised greywater system in Bushells Ridge new industrial estate.	Not applicable.	Assumed internal and external savings combined would result in 20% overall saving in water demand.	Costs per ML saved were assumed to be the same as the Masterfoods stormwater harvesting project. See Figure B-9
Water Demand and Water Use – Source Substitution	Groundwater use on playing fields.	Groundwater Program for Parks and Ovals Current Initiatives	Groundwater use on playing fields.	Not applicable.	Assumed 100% savings on external uses.	WSC program cost $450,000 to set up. Assumed operating costs of 4% on capital per annum.
Water Demand and Water Use – Source Substitution	ASR and IPR. Implement macro water sharing plan. Purchase of competing licences. Agricultural reclaimed water. Stormwater harvesting at catchment scale Effluent for environmental flows.	See WP2050 bulk supply measures.				

The estimated annual average water savings and indicative annualised costs per kilolitre of water savings for each option are given in **Table 2-6** in order of water savings. The assumptions underpinning these cost estimates are set out in **Table 2-4** and **Table 2-5**.

Recognising that assumptions are required in order to estimate the performance of the demand management measures, the modelled water savings become targets based on the full implementation and market penetration assumed. In order to effectively manage the targeted savings in a demand management program, particularly in cases where customers are required to spend additional money, rigorous promotion, monitoring and re-evaluation will be required.

Table 2-6: Individual Option Savings and Costs

Measure Description	Annualised Cost ($/kL)			Average Water Savings (ML/a)
	Community	Customer	Utility	
BASIX Program - 40 Points	$3.58	$3.58	$0.00	1,824
Existing Recycled Effluent Initiatives	$0.19	$0.00	$0.19	1,689
Inclining Block Tariff - Residential	$0.00	$0.00	$0.00	1,125
Currently Set Price Increases	$0.00	$0.00	$0.00	860
Rainwater Tanks for 90% New Greenfield Development	$3.84	$3.84	$0.00	678
Rainwater Tanks for 90% New Infill Development	$4.63	$4.63	$0.00	642
IWCM Education Program - Stepped Up	$0.20	$0.00	$0.20	551
Existing Education Programs	$0.10	$0.00	$0.10	499
Permanent Low Level Restrictions	$0.07	$0.00	$0.07	338
WELS	$0.40	$0.40	$0.00	327
Centralised Greywater in Stage 1 New Urban Release	$7.17	$0.00	$7.17	318
Stormwater Harvesting in Stage 1 New Urban Release (NUR)	$5.76	$0.00	$5.76	282
Active Water Loss Program with Increased Pressure Reduction	$0.39	$0.00	$0.39	268
Existing Water Loss Program	$0.44	$0.00	$0.44	212
Dual Reticulation in Stage 1 New Urban Release	$1.80	$1.51	$0.30	191
Rainwater Tank Retrofit for Residential Renovations	$5.50	$5.50	$0.00	166
Rainwater Tanks for 90% New Non-Residential Development	$1.56	$1.56	$0.00	158
Effluent Reuse Tankers	$0.61	$0.00	$0.61	148
Residential Retrofit of Taps and Showers	$0.27	$0.13	$0.14	143
Existing Rainwater Tank Rebate	$8.09	$7.31	$0.79	141
Residential Shower Retrofit	$0.10	$0.01	$0.09	130
Dual Reticulation in Stage 2 NUR	$1.35	$1.08	$0.28	123
Centralised Greywater in Bushells Ridge	$2.59	$0.00	$2.59	111
Existing Stormwater Harvesting Initiatives	$1.09	$0.00	$1.09	110

Measure Description	Annualised Cost ($/kL)			Average Water Savings (ML/a)
	Community	Customer	Utility	
Effluent Reuse Warnervale	$2.38	$1.90	$0.47	101
Centralised Greywater in Stage 2 New Urban Release	$11.30	$0.00	$11.30	93
Stormwater Harvesting in Stage 2 New Urban Release	$12.57	$0.00	$12.57	82
Landscape and Planting Controls	$0.53	$0.00	$0.53	77
Stormwater Harvesting NSW Government Funding Application	$1.23	$0.08	$1.15	67
Groundwater Program for Parks and Ovals Current Initiatives	$0.95	$0.00	$0.95	32
Non-Residential Audit - Total Program Savings	$0.54	$0.39	$0.15	30
Effluent Reuse Hamlyn Terrace	$8.21	$0.00	$8.21	25
Smart Meters - Individual Unit Meters	$9.07	$7.01	$2.07	25
Effluent Reuse The Entrance and Bateau Bay	$23.47	$0.00	$23.47	21
Localised Industrial Treatment of Sewage	$13.10	$0.00	$13.10	18
Dual Flush Toilet Retrofit	$3.31	$0.33	$2.98	10
Effluent Reuse for Rural Fire Services	$1.02	$0.00	$1.02	5
Residential Washing Machine Rebate	$30.78	$23.18	$7.60	4
Rainwater Tanks for General Community Use	$8.45	$0.00	$8.45	4
Existing Stormwater Harvesting for Cricket Pitches	$5.70	$0.00	$5.70	1
Continued Operation of Efficiency Program in Government Offices	$16.67	$0.00	$16.67	1
Existing Rainwater Tanks in Schools	$10.32	$2.93	$7.39	1
Existing Efficiency Program in Government Offices	$55.63	$0.00	$55.63	0

Notes:

1. Stand alone savings cannot be summed together to estimate total scenario savings, as interactions between measures must be considered.

2. Customer annualised costs are exclusive of any impact on water supply or sewerage bills.

3. Community costs are a combination of customer and utility annualised costs.

4. * Actual cost ($/kL) is minimal (non-zero) and appears as zero due to rounding.

Table 2-6 indicates that the greatest long-term potable water savings are achieved through the implementation of enhanced pricing, BASIX and the existing WSC effluent reuse schemes at Bateau Bay and Toukley. The majority of the savings estimated through adopting BASIX are associated with assumed rainwater source substitution in 90% of new development.

Of the conservation approaches, enhanced water pricing achieves the highest water savings. However, limited data is available to understand the impact of historical price signals in WSC. If the price signal is not as effective as assumed, the impact of water savings would be lessened.

Retrofit and rebate programs have generally not achieved substantial water savings. This is partly because WELS and BASIX influence appliance and fixture stocks. The savings associated with education programs are difficult to estimate and in this case include the savings associated with promotional efforts, such as household greywater diversion. However, it is

generally recognised that education underpins all demand management efforts and is essential in achieving long term behavioural change.

Source substitution efforts in existing developed areas are likely to provide modest savings, however at a relatively high cost.

The relative cost-benefit performance of each of the individual measures set out in **Table 2-6** was used to inform the process of scenario building.

2.3.2 Stormwater and Catchment Management Activities

The stormwater and catchment management measures considered as part of this study, and their assumed benefits and costs are set out in **Table 2-7** and **Table 2-8**.

Table 2-7: Stormwater Management Measures

Concept Study Issue	PRG Suggested Measures	Option	Description	Benefits	Costs
Nutrients and Water Quality	Stormwater treatment ponds/wetlands in new developments. Stormwater quality treatment detention basins in new developments. Ban insinkerators in new developments. WSUD DCPs for new developments. Enhanced erosion controls during and after construction. Retrofit of WSUD to key existing areas. Improved management of contaminated and landfill sites.	IWCM & WSUD DCP.	Development and implementation of an IWCM and WSUD DCP for all new development and redevelopment across the shire. Urban catchment source flow and sediment control through techniques such as grass swales, buffer strips, cascades and infiltration techniques. DCP to contain water quantity and water quality control mechanisms. DCP to capture rehabilitation of contaminated or landfill sites.	Best practice pollutant reduction savings for WSUD assumed (VSC 1999): • 80% retention of urban suspended solids • 45% retention of urban total phosphorus and nitrogen • 5-10% reduction in annual runoff • Peak discharge maintained at pre-development levels.	Costs are highly variable depending on the range and extent of WSUD activities undertaken. Only administration costs are borne by Council.

Concept Study Issue	PRG Suggested Measures	Option	Description	Benefits	Costs
Urban Stormwater and Flooding	Stormwater treatment ponds/wetlands for existing areas. Gross pollutant traps. Litter/Organics to stormwater reduction (bins). Flood mitigation works in key areas. Detention basins with low flow release. Traditional detention basins for new developments. On-site detention in new developments.	Existing Stormwater, Floodplain and Estuary Management Plans.	Continuation of current initiatives including: • Installation of sediment traps in urban areas. • Lake restoration, improvement and erosion control works. • Bank rehabilitation along Wyong River. • Stormwater harvesting to protect Porters Creek. • Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes. • Stormwater treatment measures around the lake edges. • Stormwater treatment measures around Lake Macquarie. • Renewal of exiting assets. • New assets to serve growth.	Improved stormwater and coastal waters quantity and quality. Reduced flooding and impacts	Total costs: $7.7 million capital per annum, annual operation cost of $2.6 million.

Table 2-8: Catchment Management Measures

Concept Study Issue	PRG Suggested Measures	Option	Description	Benefits	Costs
Nutrients and Water Quality and Sewerage system	Sewage treatment process upgrade and return flow.	Sewage Treatment Plant Upgrades.	Sewage treatment plants upgraded for both capacity and treatment levels for reuse. Upgrades differ by scenario based on extent of sewage reuse.	Improved treatment processes will reduce pollutant loads to the receiving waters compared to current practice. It will also facilitate increased water recycling.	Treatment plant upgrades. Costs detailed in Appendix C.
Nutrients and Water Quality and Sewerage system	Improved trade waste management.	Trade Waste Management	Ongoing review and revision of WSC existing DEUS compliant Trade Waste Policy	Maintain municipal quality of incoming sewage to treatment facilities in order to maintain consistent treated product quality.	Included in current operating expenses.
Nutrients and Water Quality and Sewerage system	On-site wastewater treatment systems. Improve on-site systems on a catchment wide basis. Decentralised treatment cluster systems for new developments.	Sewerage Systems	Improved auditing of on-site systems and consideration of decentralised alternatives in planning for new schemes.	Reduced risk of contamination from on-site systems. Potentially reduced operating costs from decentralised systems.	Increased expenditure on auditing on-site systems assumed to involve employment of additional resource: $60,000 per annum. Cost of considering decentralised systems included in current operating expenses.

Concept Study Issue	PRG Suggested Measures	Option	Description	Benefits	Costs
Nutrients and Water Quality, Salinity and Soil Erosion	Establishment of buffer zones alongside significant streams Rehabilitation of existing water courses. Revegetation for dryland salinity effected areas. Improved monitoring of farming practices. Protect and rehabilitate riparian zones in water supply catchment - in conjunction with Catchment Action Plan (CAP). Erosion and weed controls - in conjunction with CAP.	Catchment Improvement Actions.	Catchment improvement actions consistent with CAP including: • Partnerships with local landholders in priority streams: Wyong River, Ourimbah Creek, Cockle Creek, Dora Creek, Narara Creek, Erina Creek and Kincumber Creek. • Develop and implement a Regional Vegetation Management Plan for the Central Coast including clearing regionally significant weeds identified in the Regional Weed Management Strategy for Hunter and Central Coast • Develop and implement Rivercare Plans in Wyong River, Cockle Creek, Dora Creek, Narara Creek, Kincumber Creek and Erina Creek systems in accordance with Rivercare Guidelines Ecologically Sustainable Management of Rivers and Riparian Vegetation.	Improved treatment processes will reduce pollutant loads to the receiving waters compared to current practice. For the purposes of this study (which seeks an urban water cycle management strategy) the benefits are recognised, but not quantified.	Costs assumed from CAP and are in addition to current expenditure. Total costs: $183,000 capital per annum, annual operation cost of $109,000.
Acid Sulphate Soils	Not suggested by the PRG.	Existing WSC ASS Planning Controls.	WSC existing protocols.	Reduced likelihood of acid events in estuaries and floodplain drains.	Part of development application assessment costs borne by Council.

2.3.3 Other Water Cycle Management Activities

A range of general IWCM supporting activities are also proposed. Whilst not assumed to directly impact water savings and pollutant loads, the activities enhance or facilitate the IWCM measures already identified. These activities are given in **Table 2-9**.

Table 2-9: Other Activities and Associated Costs

Concept Study Issue	PRG Suggested Measures	Option	Description	Cost Assumptions
Water Demand and Water Use – Source Substitution	ASR and IPR. Implement macro water sharing plan. Purchase of competing licences. Agricultural reclaimed water. Stormwater harvesting at catchment scale Effluent for environmental flows.	Bulk Supply	Decisions to be made on the supply options for the development of the water supply system. This will be done as part of WaterPlan 2050.	Included in WP2050 cost estimates.
Nutrients and Water Quality and Water Demand and Water Use – Demand Management	WSUD DCPs for new developments. Recycled water use through a "third pipe" for new developments	IWCM Design	WSC to undertake active role in influencing state legislation and design guidelines to facilitate IWCM practices, including development of WSUD DCPs.	Included in current operating expenses.
Climate change through global warming and greenhouse gas emissions	Not suggested by the PRG.	Energy Audits	Urban water system energy audits, improved technology and operation. Estimate of energy savings and greenhouse gas emissions based on water, sewerage and energy savings. Reduction in greenhouse gas emissions.	Included in current operating expenses. \$40/tonne CO_2 savings.
Sewerage system and Urban Stormwater	Infiltration and inflow reduction program. Smart sewers (for inflow and infiltration)Inflow and Infiltration reduction program	Infiltration and inflow reduction program	Reduced wet weather inflow and infiltration through relining and renewal of existing sewers. Adoption of smart sewers in new development areas. 40 km of the highest priority areas. Assumed to reduce preventable II by 40%.	Program already established. \$10,000/year administration costs. \$3000/m inspection costs. \$7000/m repair and renew costs. 20% costs to customers representing illegal connections and plumbing repairs

Concept Study Issue	PRG Suggested Measures	Option	Description	Cost Assumptions
Data Gaps	Not suggested by the PRG.	System Monitoring	Improved water management monitoring, data collection and assessment in order to fill the data gaps identified in the *Wyong IWCM Concept Study* including: • Monitoring and review of population forecasts; • Billing data capture & analysis (including consumption category); • Extent of installed rainwater & greywater on-site systems; • GIS geocoding of consumption records; • GIS definition of properties served with town water, groundwater, on-site treatment & sewerage facilities; identification of reservoir zone and sewerage system boundaries; groundwater extractions. • Geocoded existing and future land use and densities. Confirmation of anticipated non-domestic development, as well as its location. • GIS identification of the location and number of dry-weather overflows. • Better understanding of current and future groundwater extractions, as well as Councils entitlements for river extractions. • Details on the effectiveness and costs of the existing program to date and cost of planned activities.	Additional $100,000 per annum.
Flooding	Not suggested by the PRG.	Flood Risk Management	Flooding risk management - drainage upgrades planned as part of floodplain management program.	Included in current general fund operating expenses
Soils suitable for receiving reclaimed water.	Not suggested by the PRG.	Effluent Management	Development and implementation of DEC requirement for a Sustainable Effluent Management Plan for each effluent management scheme.	$50,000 per scheme.

Concept Study Issue	PRG Suggested Measures	Option	Description	Cost Assumptions
Not identified.	Not suggested by the PRG.	Water System Upgrades	Upgrades to water treatment plant, reservoir and transfer capacity	Costs vary according to different forecast demands.

The impact of each of the measures listed in **Table 2-7** to **Table 2-9** were estimated as part of the scenario assessment process (**Section 3**).

The outcomes of the individual option assessment were used to establish scenarios, as discussed in the following section.

2.4 Scenarios Established for Wyong LGA

The measures identified to address Wyong's water cycle issues, were bundled into scenarios according to inputs from the PRG and the results of the preliminary option assessment.

When deciding on which measures to include in scenarios, one of the key considerations is the identification of better approaches. For example, in the case of the measures of setting up rainwater or greywater use, both measures require storage of water and modifications to plumbing. Greywater however, requires significant treatment before it can be used. Treatment involves more energy use and will be more maintenance intensive than the use of rainwater. Thus, it is more appropriate to consider rainwater use in the development of the scenarios. This does not mean that individual customers cannot pursue greywater recycling measures, but rainwater harvesting measures are considered more appropriate for inclusion in scenarios.

2.4.1 Scenario Description

Five IWCM scenarios have been prepared through bundling together complimentary water cycle management measures. The scenarios represent increasing levels of integration between the urban water services. They were developed to address the Wyong's water management issues considering Wyong's IWCM goals, the interaction of the identified water management measures and the PRG's preferences and are summarised in **Table 2-10**.

Table 2-10: Adopted IWCM Scenarios

Measure	Traditional	Sc 1	Sc 2	Sc 3	Sc 4
Water Conservation (includes BASIX)					
WELS	✓	✓	✓	✓	✓
BASIX Program – 40 Points		✓	✓	✓	✓
Currently Set Price Increases		✓			
Inclining Block Tariff - Residential			✓	✓	✓
Existing Education Programs		✓			
IWCM Education Program – Stepped Up			✓	✓	✓
Permanent Low Level Restrictions					✓
Existing Water Loss Program		✓			

Measure	Traditional	Sc 1	Sc 2	Sc 3	Sc 4
Active Water Loss Program with Increased Pressure Reduction			✓	✓	✓
Landscape and Planting Controls				✓	✓
Non-Residential Audit		✓	✓	✓	✓
Smart Meters – Individual Unit Metres					✓
Existing Efficiency Program in Government Offices		✓			
Continued Operation of Efficiency Program in Government Offices			✓	✓	✓
Dual Flush Toilet Retrofit			✓	✓	✓
Residential Retrofit of Taps and Showers		✓	✓	✓	✓
Residential Washing Machine Rebate		✓	✓	✓	✓
Local Stormwater Harvesting					
Existing Stormwater Harvesting Initiatives		✓	✓	✓	✓
Existing Stormwater Harvesting for Cricket Pitches		✓	✓	✓	✓
Stormwater Harvesting in Stage 1 New Urban Release	Investigated but not included				
Stormwater Harvesting in Stage 2 New Urban Release	Investigated but not included				
Stormwater Harvesting NSW Government Funding Application				✓	✓
Rainwater Tanks (not including BASIX)					
Existing Rainwater Tank Rebate		✓	✓	✓	✓
Rainwater Tanks for 90% New Greenfield Development	Investigated but not included				
Rainwater Tanks for 90% New Infill Development	Investigated but not included				
Rainwater Tanks for Residential Renovations	Investigated but not included				
Rainwater Tanks for 90% New Non-Residential Development			✓	✓	✓
Rainwater Tanks for General Community Use		✓	✓	✓	✓
Existing Rainwater Tanks in Schools		✓	✓	✓	✓
Treated Greywater					
Greywater Centralised in Stage 1 New Urban Release	Investigated but not included				
Greywater Centralised in Stage 2 New Urban Release	Investigated but not included				
Greywater Centralised in Bushells Ridge					✓
Recycled Water					
Existing Recycled Effluent Initiatives		✓	✓	✓	✓
Localised Industrial Treatment of Sewage				✓	✓
Effluent Reuse Tankers		✓	✓	✓	✓
Effluent Reuse Warnervale			✓	✓	✓
Effluent Reuse Hamlyn Terrace			✓	✓	✓
Effluent Reuse The Entrance and Bateau Bay					✓
Effluent Reuse for Rural Fire Services		✓	✓	✓	✓
Effluent Reuse in Stage 1 New Urban Release	Investigated but not included				

Measure	Traditional	Sc 1	Sc 2	Sc 3	Sc 4
Effluent Reuse in Stage 2 New Urban Release	Investigated but not included				
Groundwater					
Groundwater Program for Parks and Ovals Current Initiatives		✓	✓	✓	✓
Water Supply Services					
Bulk Supply Measures from WP2050	✓	✓	✓	✓	✓
Upgrade of Water Treatment Plants	✓	✓	✓	✓	✓
Upgrade of Transfer and Reservoir Capacity	✓	✓	✓	✓	✓
Sewage Services					
Inflow and infiltration Reduction Program		✓	✓	✓	✓
Sewage Treatment Plant Upgrades		✓	✓	✓	✓
Trade Waste Management		✓	✓	✓	✓
Sewerage Systems			✓	✓	✓
Stormwater Management					
IWCM & WSUD DCP			✓	✓	✓
Existing Stormwater, Floodplain and Estuary Management Plans		✓	✓	✓	✓
Catchment Management					
Catchment Improvement Actions			✓	✓	✓
Existing WSC ASS Planning Controls		✓	✓	✓	✓
Other Activities					
IWCM Design			✓	✓	✓
Energy Audits			✓	✓	✓
System Monitoring			✓	✓	✓
Flood Risk Management			✓	✓	✓
Effluent Management			✓	✓	✓

The Traditional Scenario is the future forecast of the case likely to result from the traditional approach of undertaking separate water supply and sewerage investigation strategies. It includes increased potable water supply demand supplied by surface water sources, the details of which are covered in *WaterPlan 2050*. Wastewater management consists of secondary level treatment with ocean release. Stormwater management includes system detention basins and gross pollutant traps. Conservation approaches are limited to WELS, which is included in all scenarios.

Scenario 1 represents the current urban water cycle management practice and Council's currently planned urban water management activities. This scenario is the case where a lower level of integration of urban water services is introduced. In the case of Wyong, this lower level of integration is higher than in an typically observed in other LGA's across the state, due to the drought driving the introduction of integrated measures. Current practices and planned initiatives include sewer rehabilitation to reduce inflow and infiltration, on-site wastewater system management and best practice trade waste management is included. Stormwater initiatives include litter/organics reduction and soil erosion controls. Conservation measures

include recycled water programs, stormwater harvesting programs, retrofit/rebate programs, education, high water user management plans, a rainwater tank rebate program and installation of tanks in schools and for general community use.

Scenario 2 represents further expansion of the integrated approach to managing urban water sources and includes the current initiatives included in Scenario 1, as well as additional measures for reducing the potable water supply. These measures include additional rainwater tank, recycled water, water conservation and catchment management measures. Stormwater initiatives include a WSUD DCP for new development. Increased levels of catchment management activities are anticipated in line with catchment action plans.

Scenario 3 includes all the measures adopted in Scenario 2 and allows for increased source substitution through stormwater harvesting systems and localised industrial sewer mining. Conservation measures also include introduction of planting controls for reduced external demands.

Scenario 4 represents the case where the highest level of integration is introduced. In this scenario the source substitution measures are extended from the measures adopted in Scenario 3.

The Traditional Scenario and Scenario 4 provide the foreseeable boundaries to the envelope in terms of water resource management possibilities. The benefit of assessing the Traditional Scenario is it provides a "base-case" from which the impacts of the integrated scenarios are measured. If the Traditional Scenario is not included in the assessment, the changes in water demands, wastewater flows and urban pollutant loads due to the implementation of an integrated approach cannot be calculated.

Each of the scenarios result in different outcomes in terms of water demand, wastewater flows and urban pollutant load impacts. These are discussed further in the following sections.

2.5 Scenario Characteristics

The scenarios can be characterised in terms of their impact on the following:

- Potable water demands;
- Wastewater flow generation;
- Proportion of demand management achieved by water conservation and source substitution; and
- Urban pollutant loads.

Each of these characteristics of each of the scenarios is discussed further in the following sections.

2.5.1 Potable Water Demands

Potable water demands and wastewater flow projections for each scenario have been prepared using the DSS model based on the assumptions outlined in **Sections 2.2** and **0**. The projections cover the planning horizon to 2055.

Per capita potable water demands provide an indication of potable water savings for each scenario and set out in **Figure 2-3**.

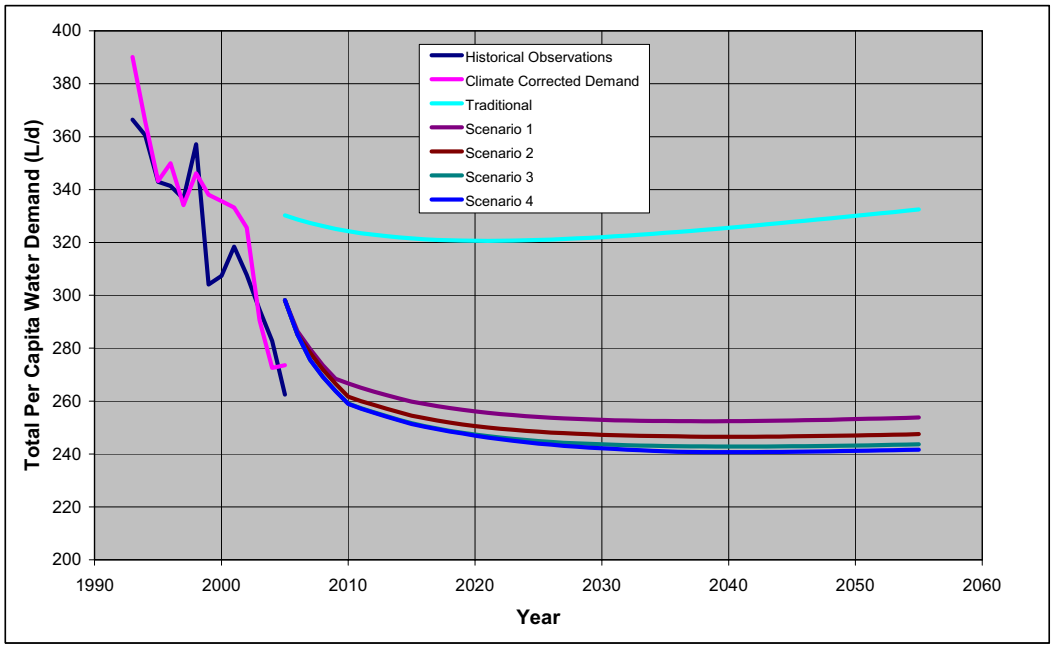


Figure 2-3: Forecast Per Capita Water Demands

All five forecasts start in 2005, with a higher per capita demand than the observed and climate corrected per capita demand for the same year. This is because there were mandatory restrictions in place in 2005, as a drought response measure, not as a long term demand management approach.

The integrated scenarios (Scenario 1-4) have lower per capita demands because of the increased use of demand management measures such as water efficient appliances, education and also use of rainwater tanks under BASIX.

Forecast potable annual and peak day demands are provided in **Figure 2-4** and **Figure 2-5,** respectively. **Figure 2-4** includes a forecast derived from the per capita consumption witnessed in WSC under level 4 water restrictions (September 2006 to February 2007). This forecast has been included to demonstrate the likely extent of discretionary demand.

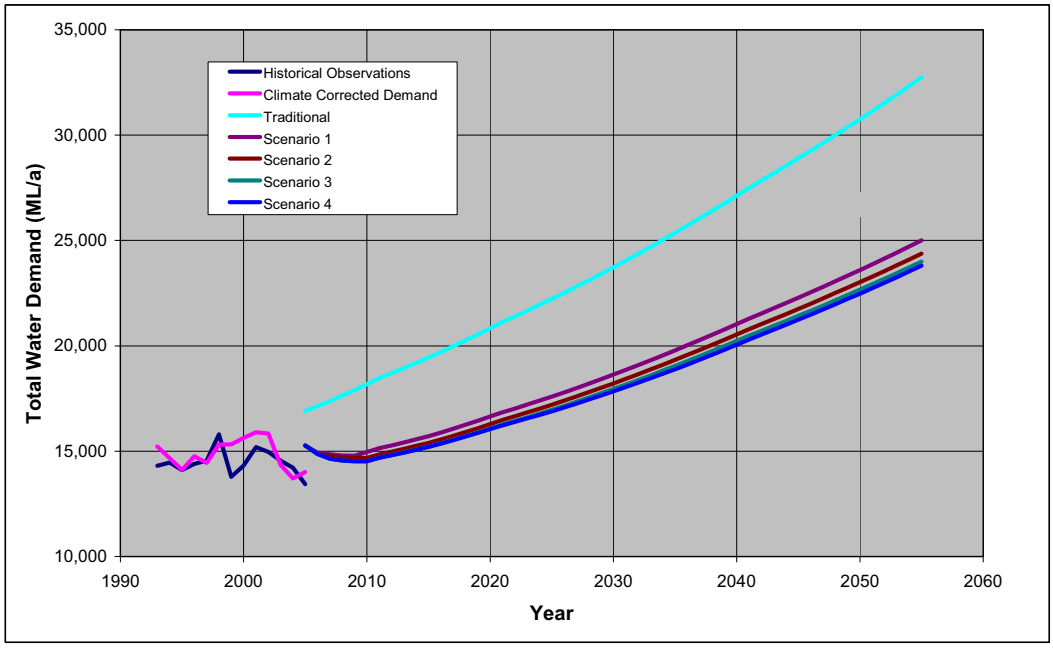


Figure 2-4: Forecast Annual Potable Water Demands

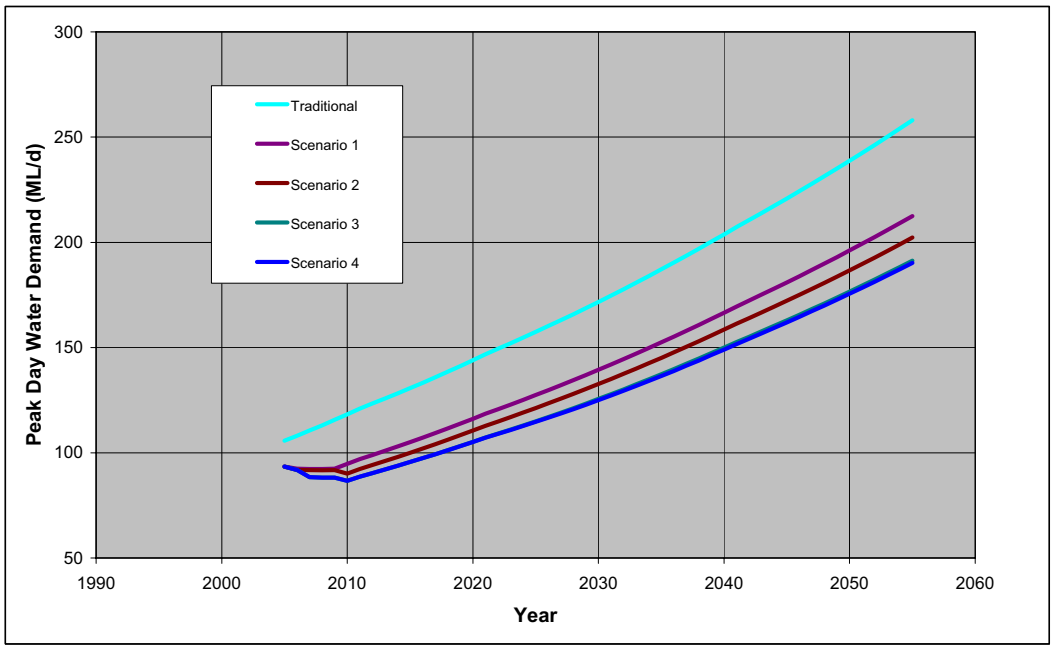


Figure 2-5: Forecast Peak Day Potable Demands

The demand forecasts indicate increasing potable water savings with increasing levels of integration. The highest saving between the Traditional Scenario and Scenario 1 is primarily associated with the influence of BASIX on new development, the impact of the currently set water usage price path and the STP based source substitution initiatives WSC has already implemented. Further water savings are made in Scenarios 2 to 4, primarily through source substitution approaches.

2.5.2 Wastewater Flows

The forecast total annual wastewater flow is plotted in **Figure 2-6**.

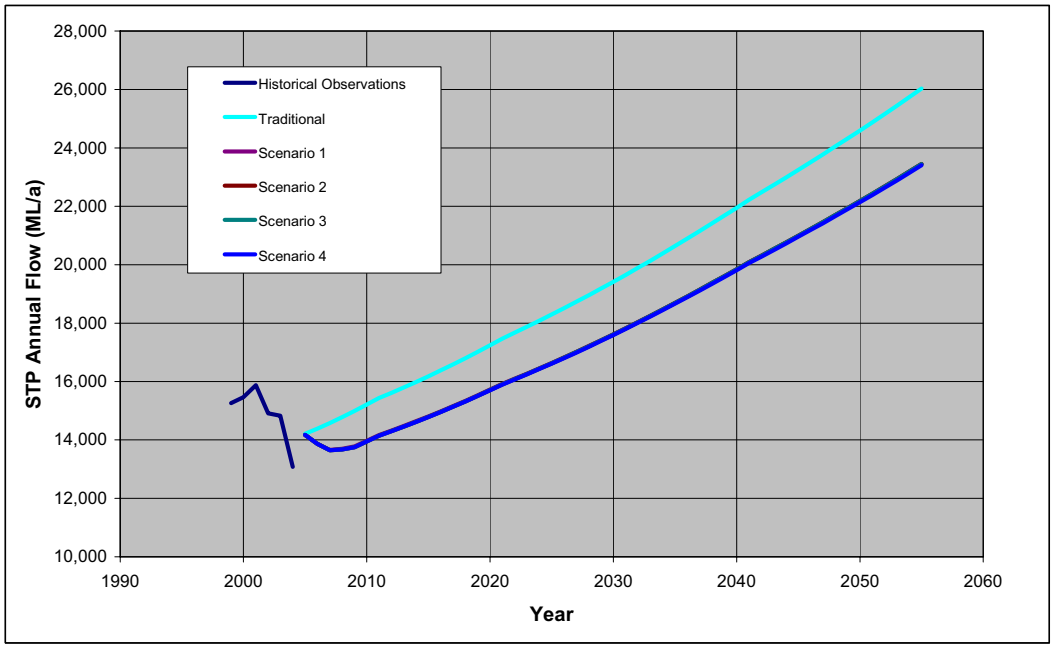


Figure 2-6: Forecast Annual Wastewater Flows

Internal water use efficiency gains provide for reductions in wastewater flows **Table 2-11**.

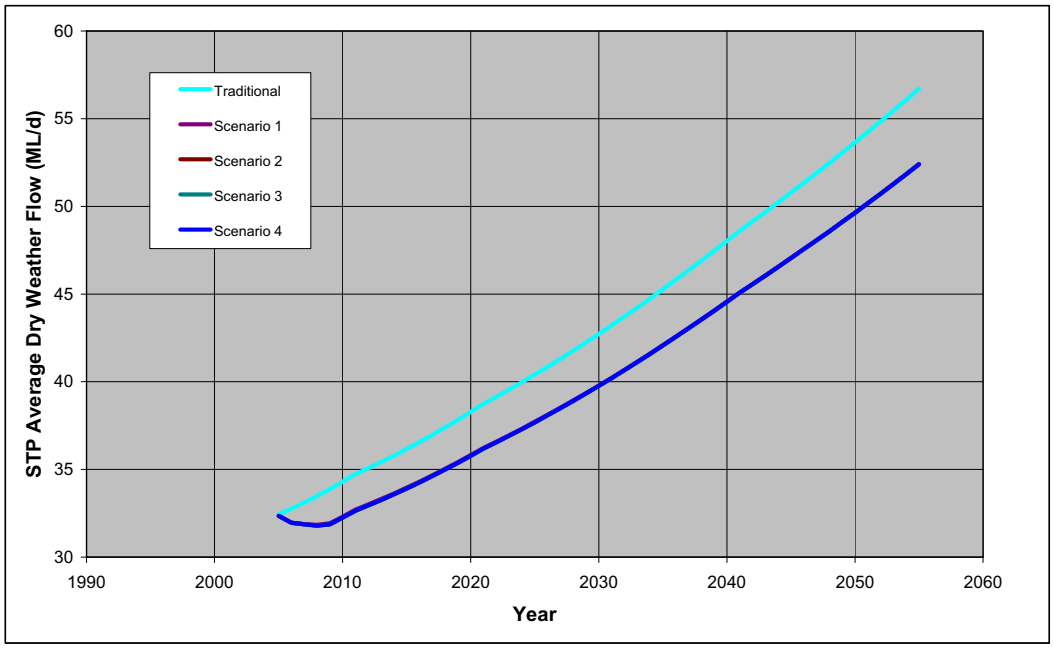


Table 2-11: Forecast Average Dry Weather Wastewater Flow

2.5.3 Conservation and Source Substitution

The ultimate performance of demand management in 2055 is shown in **Figure 2-7**. The figure is a water balance breakdown of the Year 2055 water demands by scenario and demand management approach, along with generated wastewater.

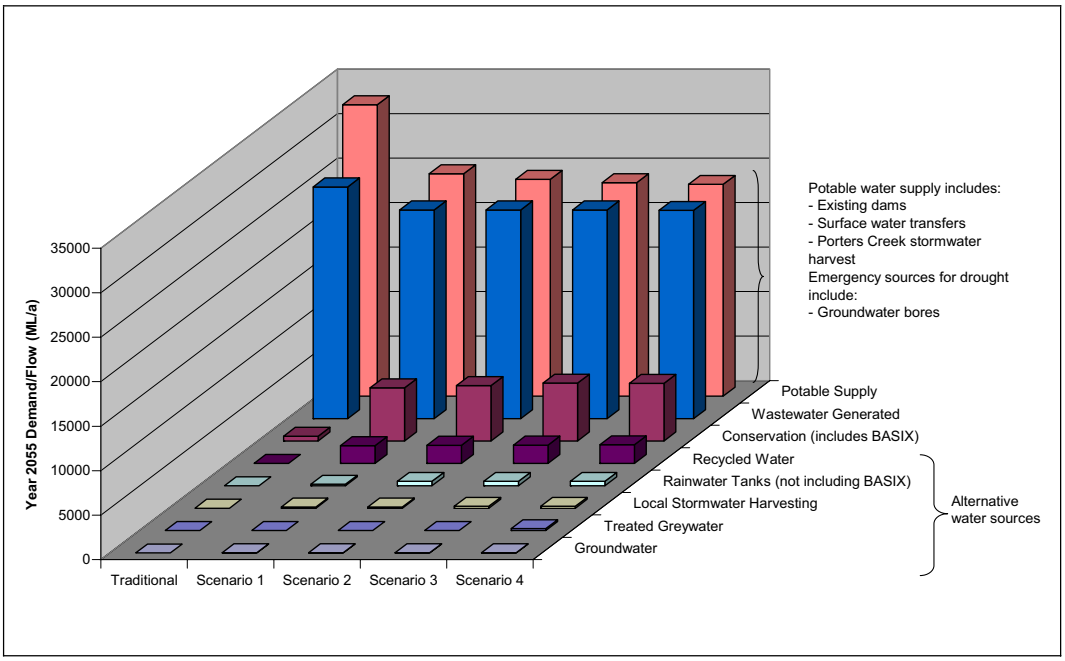


Figure 2-7: Forecast Urban Water Supply and Wastewater

The Year 2055 potable water savings compared against the Traditional Scenario are plotted in **Figure 2-8**. This displays the forecast impact of the demand management by 2055.

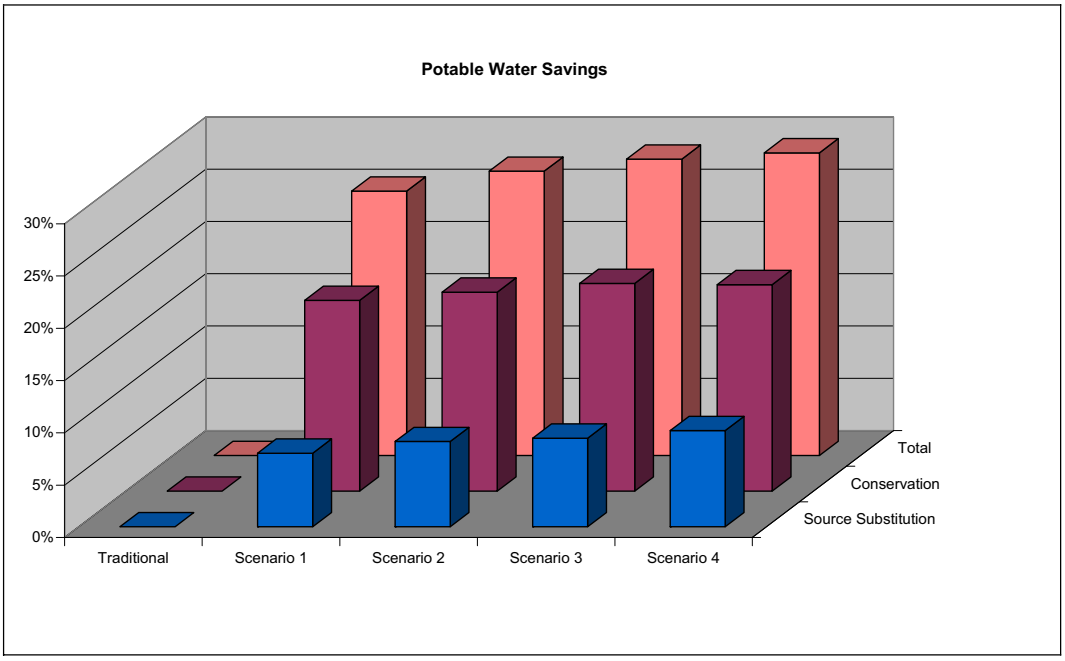


Figure 2-8: Potable Water Savings

As the level of integration increases in the scenarios, levels of source substitution and conservation increase (**Figure 2-8**). There is a large increase in savings between the Traditional Scenario and Scenario 1 – Current Initiatives, because the current initiatives put in place by Council are extensive. The increases in savings in the more highly integrated scenarios are not as significant as this first increase, because the majority of the viable measures are already adopted in the current initiatives.

2.5.4 Urban Pollutant Loads

Urban pollutant load reductions are anticipated with increasing levels of water cycle integration primarily through a combination of improved wastewater treatment and WSUD. Catchment management activities will also impact on the pollutant loads entering waterways. Year 2055 annual pollutant loads generated from the following LGA sources have been modelled to compare the environmental outcomes of the scenarios:

1. Urban area stormwater runoff;

2. Catchment; and

3. STP loads.

A MUSIC (Model for Urban Stormwater Improvement Conceptualisation) model was used to estimate the total suspended solids (TSS), total nitrogen (TN) and total phosphorous (TP) annual loads generated from the urban land zones. For the scenarios which incorporate WSUD in for new development, a reduction in pollutant loads in line with best-practice pollutant reduction savings (VSC 1999) is assumed:

- Total suspended solids reduction of 80% of typical urban loads
- Total nitrogen of 45% of typical urban loads
- Total phosphorous of 45% of typical urban loads.

Further details of the MUSIC modelling approach are provided in **Appendix D**.

Similarly, the impact of buffers as represented by MUSIC, were used to understand the impact of the catchment improvement actions included in Scenarios 2 to 4. Based on a 1 hectare catchment with 50% of its upstream area buffered and a buffer area of 5% of the upstream catchment area, the Wyong MUSIC model estimates buffers will achieve:

- Total suspended solids reduction of 33% of typical urban loads
- Total nitrogen of 21% of typical urban loads
- Total phosphorous of 13% of typical urban loads.

These results for a single hectare were then pro-rated based on the level of investment in catchment improvement actions in each scenario.

The treated wastewater loads released to the environment are based on anticipated annual long term performance (TSS – 20mg/L; TN 15mg/L; and, TP 10mg/L), typical for secondary

treatment plants. Improved treatment performance is anticipated with water mining and recycling projects and is reflected in total discharged loads through flow reductions to the STPs. Typical tertiary treatment performance suitable for non-potable reuse at plants (TSS – 0mg/L; TN 5mg/L; and, TP 0.5mg/L) was assumed and varied by scenario dependent on the volume of tertiary treated wastewater to be used in source substitution initiatives. **Table 2-12** summaries the estimated total STP loads as a result of these assumptions.

Table 2-12: Assumed Y2055 Annual Average Treatment Plant Performance

Parameter	Traditional	Scenario 1	Scenario 2	Scenario 3	Scenario 4
TSS (t/a)	521	393	300	300	300
TN (t/a)	390	314	267	267	267
TP (t/a)	260	198	154	154	154

The following figures plot forecast Year 2055 urban pollutant loads (combined impact of the WSUD program and the upgrading of treatment at STPs) for each scenario.

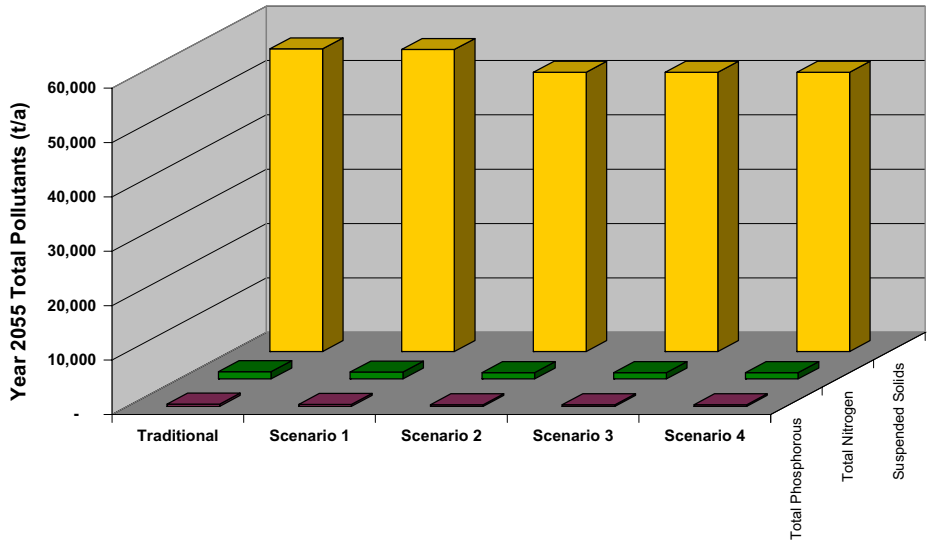


Figure 2-9: Forecast Suspended Solids, Total Nitrogen and Total Phosphorus

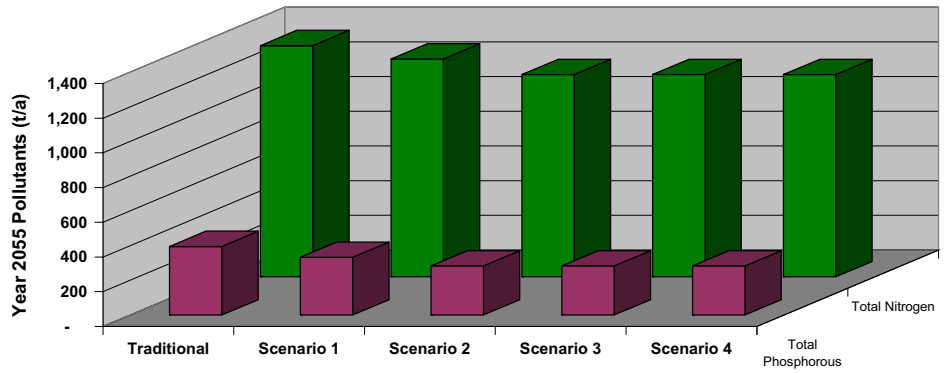


Figure 2-10: Forecast Total Nitrogen and Total Phosphorus

It should be noted that the current nutrient balances have been estimated at the LGA area level. That is, they represent typical levels of nutrient generation on a gross scale. No allowance has been made for processes impacting the fate of the pollutants such as sedimentation, assimilation, denitrification and phosphorous adsorption.

It is recognised and generally accepted that urbanisation has had a negative impact on receiving waterways within Wyong LGA, and that further development is likely to continue to contribute negatively to the environment, unless specific action is taken. Based on the urban pollutant forecasts, it is anticipated that with increasing levels of integration, there will be a reduction in pollutant loads. WSUD, rainwater tanks and stormwater harvesting are also expected to have a minor influence on total urban runoff and evapotranspiration. However, these forecasts do not allow for localised benefits, which may be significant on a case by case basis.

3 SCENARIO COMPARISON

This section outlines comparison of the IWCM Sub-Plan scenarios with identification of a local IWCM scenario for consideration in the completion of *WaterPlan 2050 – IWCM Strategy for the Central Coast.*

3.1 Approach to Scenario Comparison and Selection

The following approach to scenario comparison and selection was adopted:

1. The characteristics of each of the local IWCM Scenarios (see **Section 2.5**) were used to compare the relative performance of each scenario in terms of the TBL;

2. The interactions and limitations of each local IWCM Scenario with *WaterPlan 2050* considerations were recognised;

3. Feedback from the PRG in terms of a recommended local IWCM Scenario was documented to provide stakeholder information to be taken forward in the on-going *WaterPlan 2050 – IWCM Strategy for the Central Coast* planning process;

4. The final local IWCM Scenario to be included in *WaterPlan 2050 – IWCM Strategy for the Central Coast* will be confirmed in the process of completing the overall strategy; and

5. The adopted strategy will be subject to on-going monitoring and evaluation.

3.2 Stakeholder Comparison of Scenarios

A third and final PRG workshop was held (5 March 2007). This meeting was attended only by PRG members representing WSC.

Participants were provided with a briefing paper (see **Appendix A**) and a presentation detailing the contents of each of the scenarios in order to assist participants in the process of comparing scenarios. The briefing information and presentation also outlined the changes in the project process.

Given the similarity in forecast impacts, the group recommended the inclusion of Scenario 1 – Current Initiatives in the development of *WaterPlan 2050 – IWCM Strategy for the Central Coast* and highlighted the need for on-going monitoring, assessment and review of the initiatives included in that scenario.

It is noted that a multi-criteria analysis has been adopted in *WaterPlan 2050.* It is recommended, that in formulation the final over-arching plan, consideration be given to the TBL outcomes of the overall water cycle proposed and the recommendations of the PRG in terms of the local IWCM Scenarios.

3.3 Integrating Local and Bulk Water Scenarios

WaterPlan 2050 has been developed on the assumption that future water demands for the Gosford-Wyong water supply system will be reduced by approximately 14% (by 2051) due to the implementation of water saving measures (refer Section 6.5, *WaterPlan 2050*). For a scenario to be recommended for consideration in the finalisation of *WaterPlan 2050*, it should demonstrate a saving from current baseline projections of at least 14%.

The future water demands for Wyong were combined with the future water demands for Gosford developed under the Gosford IWCM Sub-Plan, to establish system wide demands. The Gosford future water demands were developed using methods and assumptions similar to those used for Wyong and outlined in **Section 2**. The system wide future water demands and the comparison against the *WaterPlan 2050* assumptions are shown in **Figure 3-1**.

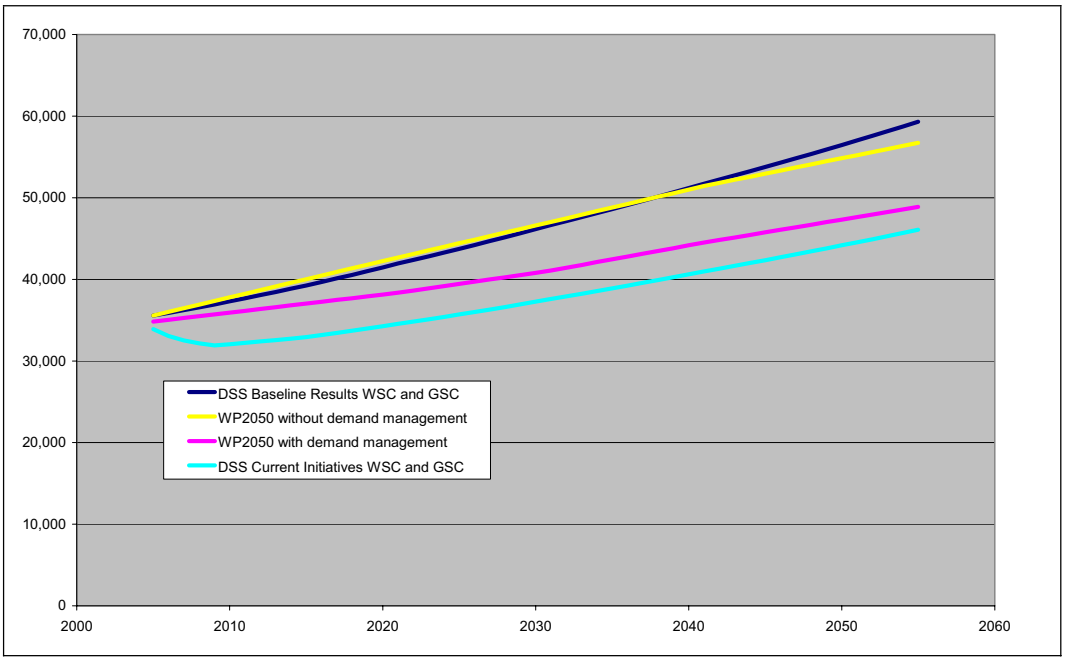


Figure 3-1: Forecast System-Wide Water Demands

It is important to note, that although there appears to be a difference between the 'WP2050 forecast with demand management' and the 'DSS Current Initiatives WSC and GSC', for the purposes of bulk water supply planning, the differences are acceptable recognising that the *WaterPlan 2050* forecasts provide conservatism in the determination of demands. It should be noted that WP2050 figures are based on dry weather years whilst the DSS figures are based on climate corrected historical data, which also accounts for some of the difference.

All the integrated scenarios (that is, scenarios 1 to 4) provide sufficient demand management outcomes to meet the assumptions set out in *WaterPlan 2050* in terms of the bulk water supply. Hence, any of the integrated scenarios would be appropriate to be considered with the *WaterPlan 2050* bulk water supply scenarios.

3.4 Recommended Scenario

The PRG recommend Scenario 1 – Current Initiatives for consideration in the finalisation of *WaterPlan 2050 – IWCM Strategy for the Central Coast*. This decision was based on the need to implement and review the effectiveness of the current initiatives, given the significance of their forecast impact. It was recognised that the measures contained in further scenarios represented measures to be pursued should the effectiveness of the current initiatives in implementation prove to be less than that forecast.

A summary of key features of the recommended scenario is set out in **Table 3-1**.

Table 3-1: Summary of Key Features of Scenario 1

Shire Wide Actions	Enforcement	Commence	Complete
WELS	Legislation	Commenced	On-going
Currently Set Price Increases	Regulation	2007	On-going
Existing Education Programs	Education	Commenced	On-going
Existing Water Loss Program	Operation	Commenced	On-going
Upgrade of Water Transfer and Reservoir Capacity	Operation	Staged	
Sewage Treatment Plant Upgrades	Operation	Staged	
Inflow and Infiltration Reduction Program	Operation	Commenced	On-going
Trade Waste Management	Policy	Commenced	On-going
Existing Stormwater, Floodplain and Estuary Management Plans	Plan	Commenced	On-going
Existing WSC ASS Planning Controls	Planning controls	Commenced	On-going
Actions in Existing Areas	**Enforcement**	**Commence**	**Complete**
Residential			
Existing Rainwater Tank Rebate	Policy	Commenced	On-going
Residential Retrofit of Taps and Showers	Policy	Commenced	On-going
Non-Residential			
Existing Efficiency Program in Government Offices	Operation	Commenced	On-going
Groundwater Program for Parks and Ovals	Operation	Commenced	On-going
Rainwater Tanks for General Community Use	Operation	Commenced	Complete
Existing Rainwater Tanks in Schools	Operation	Commenced	Complete
Existing Stormwater Harvesting for Cricket Pitches	Operation	Commenced	Complete
Existing Stormwater Harvesting Initiatives	Operation	Commenced	Complete
Non-residential Management plans	Policy	Commenced	On-going
Non-residential Reuse Schemes in Bateau Bay, Toukley and Vales Power Point Station	Operation	Commenced	On-going
Existing Recycled Effluent Initiatives	Operation	Commenced	On-going
Effluent Reuse Tankers	Operation	Commenced	On-going
Effluent Reuse for Rural Fire Services	Operation	Commenced	On-going

Scenario 1:

Shire Wide Efficiency Actions Contribute 36% of Water Savings

Efficiency Actions in Existing Residential Areas Contribute 2% of Water Savings

Source Substitution Actions in Existing Residential Areas Contribute 2% of Water Savings

Existing Non-Residential Source Substitution Actions Contribute 15% of Water Savings

Source Substitution and Efficiency Actions in New Residential Areas Contribute 44% of Water Savings

Source Substitution and Efficiency Actions in New Non Residential Areas Contribute 1% of Water Savings

Actions in New Areas	Enforcement	Commence	Complete
Residential			
BASIX (rainwater tank utilisation)	Regulation	Commenced	On-going
Non-Residential			
Non-residential Management plans	Policy	Commenced	On-going
Opportunistic use of Recycled Effluent	Operation	Opportunistic	

The results of Scenario 1 – Current Initiatives are shown in **Figure 3-2** and **Figure 3-3** by customer category. The largest source substitutions are rainwater tanks for new residential customers under BASIX, and recycled water for non-residential customers.

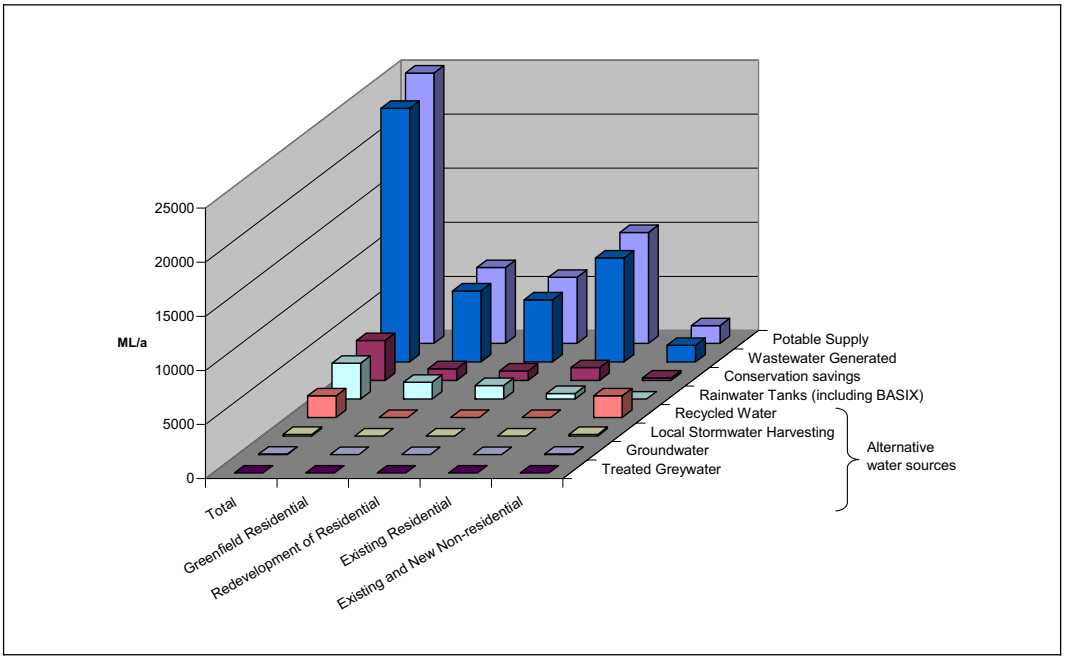


Figure 3-2: Scenario 1 – Current Initiatives Customer Category Breakdown of Demands

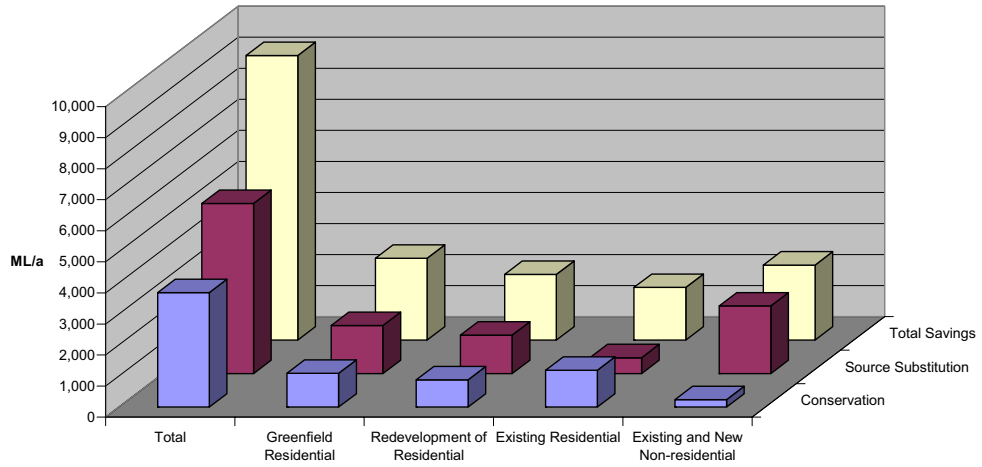


Figure 3-3: Scenario 1 – Current Initiatives Water Savings Breakdown

The new residential customers in the greenfield and redevelopment categories obtain most of their water savings from source substitution through tanks installed under BASIX. The existing residential category obtains more savings from conservation as installation of source substitution is difficult in existing conditions.

The majority of savings are from the residential sector because the residential consumption is much higher than the non-residential consumption across the Shire. The non-residential savings are primarily due to source substitution.

The forecast water demand and wastewater flow as a result of Scenario 1 are set out in **Table 3-2**.

Table 3-2: Scenario 1 – Current Initiatives Forecast

Baseline Forecast	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055
Per Capita Water Demand (L/p/d)	298.2	266.7	259.8	256.1	254.0	252.9	252.5	252.4	252.7	253.2	253.8
Annual Water Demand (ML/a)	15,269	14,955	15,715	16,645	17,593	18,634	19,786	21,032	22,286	23,598	25,002
Peak Day Water Demand (ML/d)	93.4	94.7	105.1	116.2	127.4	139.4	152.5	166.5	180.9	196.1	212.5

Baseline Forecast	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055
STP Annual Inflow (ML/a)	14174.4	13971.5	14809.1	15724.7	16638.4	17618.4	18694.3	19847.9	20994.9	22185.2	23451.3
STP ADWF (ML/d)	32.3	32.3	34.0	35.8	37.7	39.8	42.1	44.6	47.1	49.6	52.4
STP Design WWF (ML/d)	97.2	92.3	100.7	109.3	117.5	126.0	135.0	144.5	153.9	163.5	173.6

The following section discusses the sensitivities of the recommended scenario to the modelling assumptions made and details the need for on-going monitoring and review of the recommended strategy.

4 IWCM SUB-PLAN RECOMMENDED SCENARIO

This section outlines the implementation, monitoring and review of the recommended local IWCM scenario.

4.1 Implementation

The recommended local IWCM scenario will be implemented through incorporation in the over-arching *WaterPlan 2050 – IWCM Strategy for the Central Coast* and the subsequent development of concept and detailed designs, project approvals, construction and operation. The implementation of the recommended scenario should be based on the capital works program and schedule of operation, maintenance and administration expenses for this scenario are provided in **Appendix C**.

Implementation of the over-arching strategy, including the recommended scenario resulting from this Sub-Plan, will require on-going support from WSC, the community and relevant government agencies.

Some of the activities contained within the recommended scenario will require intermediate steps to facilitate their implementation, including the following:

- Development of water supply design standards that recognise the conservation and source substitution impacts;
- Development of a wastewater treatment strategy to further consider opportunities for recycling and process requirements to allow unrestricted non-potable reuse and in line with future environmental needs. This will include process requirements in light of current standards; and
- Further development of a non-potable reuse policy to recognise and opportunistically implement commercial and industrial reuse.

Although not included in the recommended scenario, further details for the consideration of the development of an IWCM and WSUD DCP have been included in **Appendix E** as this tool may assist WSC in integrated water cycle management.

4.2 Monitoring and Review

The Concept Study identified the issues and this Sub-Plan has identified a series of measures and subsequent scenarios for addressing the issues. However, ongoing monitoring and review is required in order to ensure that the issues are resolved and that new issues are identified and addressed over time.

Monitoring the performance of the urban water systems will facilitate adaptive and flexible decision making in the future. Through the assessment of a wide range of measures, and the development of a series of scenarios, this Sub-Plan provides a reference for an adaptable

approach to future issues such as technological, policy and regulatory changes. Also, should any of the measures included in the recommended scenario perform less well than anticipated, alternatives have been documented in this report.

The recommended scenario is sensitive to a number of key assumptions as a result of the data gaps identified in the Concept Study. The monitoring of these assumptions will form the basis for understanding how and when the recommended scenario should be revised. These key assumptions and their recommended monitoring protocols are set out in **Table 4-1**. It should be noted that DEUS recommends the review of the IWCM Sub-Plan at least every 3-5 years.

Table 4-1: Key Data Gaps, Sensitivities and Monitoring Actions

Data Gap	Key Sensitivities for Adopted Scenario	Key Monitoring Actions/ Data to Collect
Confirmation of the areas of future development, number of dwellings, density and location of all future developments.	The rate of development and population growth may differ from that assumed in the forecast. Similarly, the split of growth between greenfield and infill development may also differ from that assumed. Demand forecasts are sensitive to changes in growth rates and dwelling types.	Annually track changes in growth rates and dwelling composition. Keep up to date population and non-domestic forecasts in GIS format if possible.
A longer period of consumption data to allow trend analysis. GIS geocoded consumption and wastewater data for greater spatial analysis.	Lack of data to analyse trends meant it was not possible to look at the historical impact of price changes. Therefore price signals included in scenario may be insufficient to cause changes in customer behaviour. Customers may not reduce their use of water as forecast. Climate change: DSS modelling of the IPCC mid-range climate change scenario suggests demand forecasts may increase by 5% as a result of climate change.	Water consumption records, drawn from customer billing information, should be monitored and climate corrected quarterly following the introduction of price increases with the aim of quantifying the savings achieved. Track climate change modelling at the international and nation level and revise forecasts as new information comes to light.
Lack of records of the extent of rainwater harvesting and greywater systems within the LGA.	As a relatively new regulatory regime, the actual impact of BASIX on consumption is not well understood. Enforcement of the regulation is generally only possible during development approval processes.	Tag customers impacted by BASIX (including rainwater harvesting and grey water systems) in the customer database such that actual data on their consumption can be tracked on a quarterly basis to determine the on-going success of BASIX.
Details on the effectiveness and costs of the demand management program to date, as well as the extent and cost of planned activities. More descriptive information on water charges, such as strategies or tariffs that may be implemented in the future.	Effectiveness of the existing recycled effluent initiatives: the schemes currently in place in WSC are relatively new. The long-term potable demand substituted by these initiatives may vary from the theoretical replaced consumption assumed.	Tag customers utilising these schemes and monitor quarterly both their potable and treated effluent consumption. Reconcile against historical consumption records.

These monitoring initiatives should be incorporated into an overall strategy for monitoring and reviewing *WaterPlan 2050 – IWCM Strategy for the Central Coast.*

The recommended local IWCM Scenario provides the framework for the sustainable management of WSC's local urban water services into the future. For successful implementation, it requires on-going support by Council, the community and relevant government agencies in terms of their regulatory processes. As part of the on-going review of this Sub-Plan, it is recommended WSC:

- Update its development control plans to be consistent with the adopted scenario;
- Continue to monitor the IWCM outcomes by collecting and analysing the key data described above; and
- Review the Sub-Plan and adopted scenario is in 3-5 years time to ensure it continues to achieve best-practice outcomes.

5 REFERENCES

American Water Works Association Research Foundation (AWWA) 2000. Commercial and Institutional End Uses of Water: Subject Area: Water Resources.

American Water Works Association Research Foundation (AWWA) 2000. Residential End Uses of Water: Subject Area: Water Resources.

Central Coast Regional Profile & Social Atlas 2004

Department of Environment and Conservation, 2005. Beachwatch Partnership Pilot Program State of the Beaches 2004–05. DEC (NSW), Sydney.

Forrest, K., Howard, A., 2004. Central Coast: Regional Profile and Social Atlas: Gosford City and Wyong Shire council's Joint report.

G.H.D, 1996. Effluent Reuse Study: Final Report.

Gosford – Wyong Councils' Water Supply System (GWCWA) 2004. Mardi High Lift Pumping Station: Options Assessment and Hydraulic Analysis.

Gosford – Wyong Councils' Water Supply System (GWCWA) 2004. Mardi High Lift Clear Water Pumping Station and Clear water Tank Concept Report.

Gosford – Wyong Councils' Water Supply System (GWCWA) 2005. Pamphlet: Gosford – Wyong Councils' Water Supply System.

Gosford City Council ., Sydney Water Corporation 2003. Brooklyn, Dangar Island, Mooney Mooney and Cheero Point: Preferred Strategy for improved sewerage Services.

Gosford City Council and Wyong Shire Council 2006. Water Supply Headworks Capital Cost for Development Servicing Plans.

Independent Pricing and Regulatory Tribunal of New South Wales (IPART) 2006. Recycled water Process for SYNEY Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council: Issues Paper (Discussion Paper 83).

Langdon, A: New South Wales Department of Energy, Utilities and sustainability (DEUS) 2006. Recycled Water. Regulatory context, approvals and future direction.

Meyrick and Associates, 2003. Outline and Outcome of the Peer Review Process: Prepared for Gosford – Wyong Councils' Water authority – Joint water supply scheme investigation of Options for Further Development.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 1 – Final: Review of Adopted Scheme and Surface Water Systems.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 2 – Final: Water Reuse Initiatives.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 3 – Final Report: Potential for Desalination.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper4 - Final Report: Use of Groundwater.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 5 – Final Report: Water Savings Initiatives.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 6 – Final Report: Overall Options Report.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 7 – Final: Mardi High Lift Pump Station.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 8 – Final: Forest Hydrology.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 9 – Final Report: Hunter Connection.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 10 – Final: Drought Management.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 11 – Final: Two Tier Environmental Flows.

New South Wales Department of Commerce, 2003. Development of further options for the Gosford Wyong Joint Water Supply Scheme. Working Paper 12 – Final Report: Water Saving Rebates.

New South Wales Department of Health, 2000. Greywater Reuse in Sewered Single Domestic Premises.

New South Wales Department of Infrastructure, Planning and Natural Resources (DIPNR) 2004. Meeting the Challenges – Securing Sydney's Water Future: The Metropolitan Water Plan 2004 – a New South Wales Initiative.

New South Wales Department of Infrastructure, Planning and Natural Resources (DIPNR) 2004. Best Practice Management of Water Supply and Sewerage: Guidelines.

New South Wales Department of Planning (DoP) 2006. *Draft Central Coast Regional Strategy*.

NSW Natural Resource Atlas,2005, www.nratlas.nsw.gov.au

Pedder, S. 2002., Gosford-Wyong Councils' Water Authority (GWCWA). Volumetric Conversion of Town Water Supply Licences for Non-Priority Water Sources: Letter to Mr. C Essery, 26 November 2002.

Roberts, D.E. and Dickinson, T.G, 2005, Tuggerah Lakes Estuary Management Study. Prepared for Wyong Shire Council and Department of Infrastructure, Planning and Natural Resources.

Victorian Stormwater Committee (VSC), 1999, Urban Stormwater: Best Practice Environmental Guidelines.

Wyong Shire Council, 2005. Wyong Shire Council Consultancy Brief for Integrated Water Cycle Management Study and Strategy Development. Scope of Works.

Wyong Shire Council, 1995, Guidelines for Domestic Wastewater Disposal in Non-Sewered Areas, Development Control Plan No. 65

Wyong Shire Council, 1999, Urban Stormwater Quality Management Plan

Wyong Shire Council, 2004, Integrated Water Cycle Management Issues

Wyong Shire Council, 2004, State of the Environment Report 2003/2004

Wyong Shire Council, 2006, Management Plan 2005 / 2006

Wyong Shire Council Development Control Plan (DCP) 30 - Wetlands

Wyong Shire Council, Development Control Plan (DCP) 75 – Commercial Development

Wyong Shire Council, Development Control Plan (DCP) 100 – Quality Housing

Wyong Shire Council , Strategic Business Plan for Management of Council's Water and Sewerage Services, for Period July 2004 to June 2007

APPENDIX A - PROJECT REFERENCE GROUP

To assist in developing the IWCM Sub-Plan a PRG was constituted during the Concept Study phase (see **Table A- 1**). The group was initially compiled of representatives from both the Gosford and Wyong LGAs. During the WSC Sub-Plan phase however, the group was reduced to include only those stakeholders who represented Wyong LGA interests.

Table A- 1: Project Reference Group Members

Name	Representing	Attendance		
		Workshop 1	Workshop 2	Workshop 3
Joy Brown	Community Representative	Yes	Yes	No
Marianne Housham	Community Representative	Yes	Yes	Yes
Ray Rauscher	Wycare Incorporated	Yes	Yes	Yes
Margaret Pontifex	Bushcare / Landcare / Rural Community	Yes	Yes	
George Freeman	Department of Energy Utilities and Sustainability	Yes	Yes	Yes
Leah Wheatley	Department of Energy Utilities and Sustainability	Yes	Yes	
Ana Courpus	Department of Energy Utilities and Sustainability			Yes
John Bourke	Department of Energy Utilities and Sustainability	Yes	Yes	Yes
Leoni Baldwin	NSW Premiers Department	Yes	Yes	Yes
David Hoey	Department of Natural Resources	Yes	Yes	Yes
David Green	Hunter Central Management Authority		Yes	Yes
Neville Pavan	Hawkesbury Nepean Central Management Authority	Yes	Yes	
David Cathers	Wyong Shire Council	Yes	Yes	Yes
Ken Grantham	Wyong Shire Council	Yes	Yes	Yes
Greg White	Wyong Shire Council	Yes	Yes	Yes
Lisa McDermott	Wyong Shire Council			Yes
Ahmad Mostafa	Wyong Shire Council	Yes	Yes	Yes
Garry Casement	Gosford Wyong Council Water Authority	Yes	Yes	Yes
Chris Holstein	Wyong Councillor		Yes	
Russell Beatty	MWH Australia	Yes		
Adam Joyner	MWH Australia		Yes	
Emma Pryor	MWH Australia			Yes
Kate Smolenska	MWH Australia	Yes	Yes	

Name	Representing	Attendance		
		Workshop 1	Workshop 2	Workshop 3
Paul Byrne	MWH Australia	Yes	Yes	
Carly Price	MWH Australia			Yes
Susan Love	MWH Australia	Yes	Yes	Yes

Prior to each workshop, invitees were issued briefing papers setting out the objectives of the workshop and relevant project information to assist invitees prepare for the workshop. Similarly, following each workshop, meeting notes were compiled and issued to participants. Copies of these workshop briefing papers and the resulting meeting notes are included in the following pages.

Gosford and Wyong Integrated Water Cycle Management Study
IWCM Option Multi-criteria Ranking

MWH

IWCM Option	Overall Rank			
	Equal Weight	Environmental	Social	Economic
Urban Development				
Efficiency controls on showerheads and tapware	7	14	8	4
Landscaping/native planting controls	36	38	43	35
Mandatory use of rainwater tanks for new development	13	11	12	15
Adopt higher BASIX standards	36	38	38	39
Water Sensitive Urban Design DCPs	1	1	3	1
Enhanced erosion controls during and after construction	57	57	59	57
Community IWCM education (promotion/guidelines)	3	4	4	2
Recycled water use through a "third pipe" system	7	8	6	10
On-site greywater recycling	42	55	37	37
Stormwater harvesting	25	25	25	26
Sewer mining	51	51	45	53
Decentralised treatment cluster systems	69	69	69	70
Smart sewers (low inflow and infiltration)	57	58	59	55
Stormwater treatment ponds/wetlands	31	28	31	33
Traditional detention basins	59	59	57	60
Water quality treatment detention basins	43	43	41	50
Gross pollutant traps	55	53	54	55
On-site detention	67	67	68	65
Rural properties to have treated tank drinking water	53	56	51	45
Include plumbing in new dev't to allow use of greywater	43	49	41	43
Develop DCPs for water recycling dual plumbing for large users, commercial, industrial and open space	5	5	6	8
Localised industrial treatment of sewerage for reuse	17	17	16	22
Stormwater reuse	20	20	17	24
Ban sink incinerators	22	23	24	14
Existing Development				
Residential retrofit of showers and tap flow regulators	16	19	14	13
Dual flush toilet retrofit	23	21	18	26
Washing machine rebate	18	24	13	23
High water user audits	2	2	1	3
Community IWCM education (promotion/guidelines)	10	13	11	7
Enhanced conservation signal in water pricing	28	29	29	25
Shared equipment and access funding sources for IWCM activities	29	35	28	19
Rainwater tank retrofit program	6	7	5	12
Rainwater tank rebate	4	3	2	5
Retrofit of recycled water system to key users	11	12	9	11
Retrofit of recycled water system to all areas	45	47	36	52
Sewer mining	39	46	35	39
Retrofit of on-site greywater recycling	60	62	58	59
Retrofit of Water Sensitive Urban Design to key areas	38	37	40	46
Stormwater harvesting in key areas	21	27	19	21
Community rainwater tanks for general use	24	21	22	28
Stormwater treatment ponds/wetlands	35	30	39	38
Localised industrial treatment of sewerage for reuse	19	18	21	20
Stormwater reuse	33	33	27	34
Detention basins with low flow release	63	64	64	63
Gross pollutant traps	56	54	56	57
Litter/organics to stormwater reduction (bins, street clean, bags)	30	25	31	31
Rehabilitation of existing watercourses	27	16	30	32
Flood mitigation works in key areas	68	68	67	68
Treatment process upgrade and return flow	47	51	45	39
Agricultural reclaimed water reuse	33	31	34	29
Improved monitoring of water cycle facilities (incl. on-site and groundwater)	32	32	33	30
Improved trade waste management	48	42	50	46
Active system leak detection and repair	12	15	15	6
Infiltration and inflow reduction program	39	41	47	35
Pressure reduction program	26	34	26	16
Catchment Areas				
Protect and rehabilitate riparian zones	15	6	23	18
Establishment of buffer zones alongside significant streams	14	9	20	17
Improved monitoring of farming practices	45	36	48	48
Erosion and weed controls	54	47	55	54
Revegetation for dryland salinity	49	45	49	49
Improve on-site systems	52	49	52	51
Improved management of contaminated and landfill sites	41	40	44	42
Community education/enhanced land care programs	9	10	10	9
Increase storage capacity within catchment	73	72	73	73
Return of recycled effluent to point of extraction	66	66	65	67
Remove disused weirs	65	61	66	66
Purchase competing licences	61	59	63	61
Implement macro water sharing plan	50	44	53	44
Indirect Potable Water Reuse	62	63	62	62
Aquifer Storage and Recovery (ASR)	70	70	70	71
Stormwater harvesting at catchment scale	63	65	61	64
Supply-side Management				
Increased off-stream storage	71	71	71	69
Increased river extraction	72	73	72	72
Groundwater extraction	74	74	74	74
Desalination plant	75	75	75	75

TOP 10

BOTTOM 10

Wyong Shire Council

Wyong IWCM Strategy
Project Reference Group
Workshop 3: IWCM Scenario Assessment
Briefing Paper

5 March 2007

DEPARTMENT OF ENERGY, UTILITIES AND SUSTAINABILITY
NEW SOUTH WALES GOVERNMENT

MWH

1. Introduction

Council has embarked upon the preparation of an Integrated Water Cycle Management (IWCM) Sub-Plan to explore options for sustainably managing the provision of local water supply, sewerage and stormwater services. This paper is a briefing note to the IWCM Project Reference Group (PRG) for the final of three workshops to assist in the preparation of the strategy. The previous workshops covered:

- IWCM Goals and Options (PRG Workshop 1).
- IWCM Scenario Building (PRG Workshop 2).

The objectives of this workshop are to:

1. Define the PRG's assessment of each integrated scenario.
2. Discuss the next steps in developing an integrated strategic plan.

2. Background

The development of the IWCM Sub-Plan was initiated adopting the Department of Energy, Utilities and Sustainability (DEUS) IWCM guidelines and included consideration of bulk supply and local integrated opportunities. However, due to Council's bulk supply strategic planning efforts being fast-tracked with the current drought, the IWCM process has now been split into two parts:

1. IWCM sub-plans (of which there will be two, one each for Gosford and Wyong); and
2. *WaterPlan 2050*.

These two parts will be agglomerated into a single strategic water planning tool to be known as *WaterPlan 2050 – IWCM Strategy for the Central Coast*. This is to be developed separately after the completion of *WaterPlan 2050* and the two IWCM Sub-Plans.

WaterPlan 2050 has focused on identifying surface water sources and bulk (or large scale) alternative water sources such as groundwater and stormwater harvesting to ensure that the growing population of the Central Coast has sufficient water to meet their needs for the next 50 years. Many aspects of sustainably managing the water supply, sewerage and stormwater system have been considered as part of *WaterPlan 2050* and the objectives and focus of the plan coincide with many of the IWCM study objectives.

The two councils, in consultation with DEUS, have defined the interface between these two studies (**Figure 1**). A 50 year IWCM Strategy (be known as IWCM Sub-Plans) will be separately produced for both Gosford and Wyong councils. These plans will focus on identifying and assessing (against the triple bottom line) water efficiency and local sewage, stormwater and greywater recycling options that could be put in place in each local government area. The IWCM Sub-Plans will identify the preferred options for development of local urban water services (water supply, wastewater and stormwater) in each local government area.

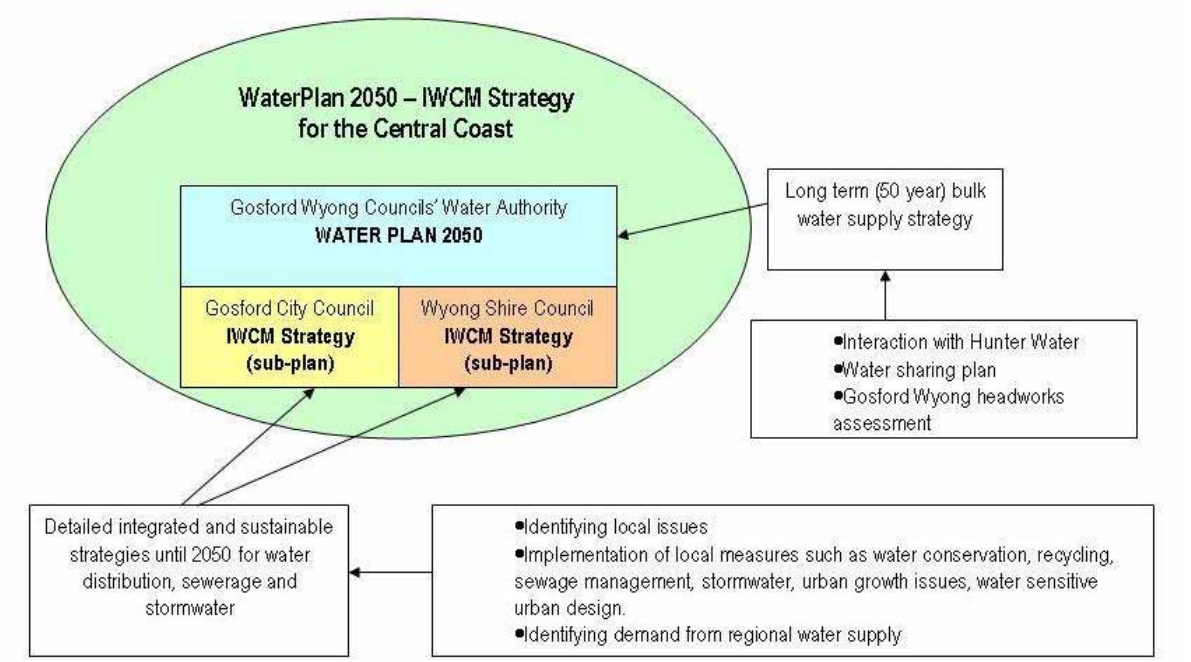


Figure 1: Interaction between WaterPlan 2050 and IWCM Studies

As part of this process, your involvement (as a representative of the local community or an agency with an interest in Wyong's water cycle management) is sought to assist in the development and valuation of the integrated local urban water service options through participation in the PRG. The original PRG has been split into two groups; one for Wyong and one for Gosford. This was done to ensure each PRG could identify preferred options suitable for local implementation. The PRG's role includes providing Council with input and feedback on the options being considered and the relative environmental, social and financial aspects of the options.

When complete, the IWCM Sub-Plan will contain the following:

1. A summary of the water cycle management problems facing Wyong Shire Council.
2. Five scenarios illustrating the possible ways that the local urban water services can be provided in the future.
3. An economic, environmental and social assessment of the costs and benefits of each of these five scenarios.
4. A capital works plan for implementing each of the possible scenarios.
5. The technical engineering reports utilised in developing the five scenarios.

The process for developing the IWCM Sub-Plan includes:

1. Consideration of the Concept Study findings and baseline forecasts (completed in November 2006).

2. Development of options and assessment criteria for decision making (completed in February 2007).

3. Detailed options assessment and development of IWCM scenarios (completed in February 2007).

4. Identification of the preferred scenario (to be completed at PRG Workshop 3, March 2007).

For more information on the IWCM process and initiatives refer to http://www.deus.nsw.gov.au/Water/. For more information of WaterPlan 2050 refer to http://www.wyong.nsw.gov.au/services/water_plan_2050_.htm

3. Scenario Development

In previous PRG workshops, water cycle management issues, options to address the issues, and criteria for assessment of options were identified. Urban water cycle management options have now been assessed and five different pictures of the future of Wyong's local urban water services (known as scenarios) have been developed. The five scenarios were developed through reviewing the issues identified throughout the IWCM process (PRG Workshop 1) and considering identified potential solutions (PRG Workshop 1). The long list of options was tested by the PRG using a ranking tool based on environmental, social and economic criteria. Based on the PRG's consideration, suitable options were identified for an initial bundling into scenarios (PRG Workshop 2).

The integrated scenarios incorporate combinations of various demand management measures and an increasing movement towards the integration of water supply, sewerage treatment and stormwater management through cumulative inclusion of rainwater, stormwater, greywater and recycled water use. The scenarios are described below.

The *Traditional Scenario* represents a traditional approach of separately managing urban water services. The water, wastewater and stormwater systems are all treated separately, with augmentations of infrastructure only occurring when growth requires it.

Scenario 1 represents the current urban water cycle management practice extended into the future. This covers all the current initiatives adopted by Wyong Shire Council including use of recycled water, stormwater harvesting, rainwater tanks and conservation measures to reduce potable water demands. This is an integrated approach to managing urban water services.

Scenario 2 represents further expansion of the integrated approach to managing urban water sources and includes the current initiatives included in Scenario 1, as well as additional measures for reducing the potable water supply. These measures include additional rainwater tank, recycled water, water conservation and catchment management options.

Scenario 3 contains the same measures as Scenario 2 with additional measures including water conservation, stormwater harvesting and recycled water options.

Scenario 4 contains the same measures as Scenario 3 with additional measures including water conservation and greywater options.

The measures included in each scenario are set out in **Table 1**.

Table 1: Scenario Elements.

Measure	Traditional	Sc 1	Sc 2	Sc 3	Sc 4
Water Conservation (includes BASIX)					
WELS	✓	✓	✓	✓	✓
BASIX Program – 40 Points		✓	✓	✓	✓
Currently Set Price Increases		✓			
Inclining Block Tariff - Residential			✓	✓	✓
Existing Education Programs	✓	✓			
IWCM Education Program – Stepped Up			✓	✓	✓
Permanent Low Level Restrictions					✓
Existing Water Loss Program		✓			
Active Water Loss Program with Increased Pressure Reduction			✓	✓	✓
Landscape and Planting Controls				✓	✓
Non-Residential Audit		✓	✓	✓	✓
Smart Meters – Individual Unit Metres					✓
Existing Efficiency Program in Government Offices		✓			
Continued Operation of Efficiency Program in Government Offices			✓	✓	✓
Dual Flush Toilet Retrofit			✓	✓	✓
Residential Retrofit of Taps and Showers		✓	✓	✓	✓
Residential Washing Machine Rebate		✓	✓	✓	✓
Local Stormwater Harvesting					
Existing Stormwater Harvesting Initiatives		✓	✓	✓	✓
Existing Stormwater Harvesting for Cricket Pitches		✓	✓	✓	✓
Stormwater Harvesting in Stage 1 New Urban Release	Investigated but not included. See Table 2				
Stormwater Harvesting in Stage 2 New Urban Release	Investigated but not included. See Table 2				
Stormwater Harvesting NSW Government Funding Application				✓	✓
Rainwater Tanks (not including BASIX)					
Existing Rainwater Tank Rebate		✓	✓	✓	✓
Rainwater Tanks for 90% New Greenfield Development	Investigated but not included. See Table 2				
Rainwater Tanks for 90% New Infill Development	Investigated but not included. See Table 2				
Rainwater Tanks for Residential Renovations	Investigated but not included. See Table 2				
Rainwater Tanks for 90% New Non-Residential Development			✓	✓	✓
Rainwater Tanks for General Community Use		✓	✓	✓	✓
Existing Rainwater Tanks in Schools		✓	✓	✓	✓
Treated Greywater					
Greywater Centralised in Stage 1 New Urban Release	Investigated but not included. See Table 2				
Greywater Centralised in Stage 2 New Urban Release	Investigated but not included. See Table 2				
Greywater Centralised in Bushells Ridge					✓
Recycled Water					
Existing Recycled Effluent Initiatives		✓	✓	✓	✓

Measure	Traditional	Sc 1	Sc 2	Sc 3	Sc 4
Localised Industrial Treatment of Sewage				✓	✓
Effluent Reuse Tankers		✓	✓	✓	✓
Effluent Reuse Warnervale		✓	✓	✓	✓
Effluent Reuse Hamlyn Terrace			✓	✓	✓
Effluent Reuse The Entrance and Bateau Bay					✓
Effluent Reuse for Rural Fire Services		✓	✓	✓	✓
Water Supply Services					
Bulk Supply Options from WP2050	✓	✓	✓	✓	✓
Upgrade of Water Treatment Plants	✓	✓	✓	✓	✓
Upgrade of Transfer and Reservoir Capacity	✓	✓	✓	✓	✓
Sewage Services					
Inflow and infiltration Reduction Program		✓	✓	✓	✓
Smart Sewers for New Areas					✓
Sewage Treatment Plant Upgrades	✓	✓	✓	✓	✓
Trade Waste Management		✓	✓	✓	✓
Sewerage Systems			✓	✓	✓
Stormwater Management					
IWCM & WSUD DCP			✓	✓	✓
Existing Stormwater, Floodplain and Estuary Management Plans		✓	✓	✓	✓
Catchment Management					
Catchment Improvement Actions			✓	✓	✓
Existing WSC ASS Planning Controls		✓	✓	✓	✓
Other Activities					
IWCM Design			✓	✓	✓
Energy Audits			✓	✓	✓
System Monitoring			✓	✓	✓
Flood Risk Management			✓	✓	✓
Effluent Management			✓	✓	✓

4. Scenario Benefits and Costs

Each scenario has the following general benefits and costs, which can be used to assess their relative performance, and hence, identify a preferred scenario:

- Water savings;
- Pollution loads; and
- Costs to install and costs to operate.

Each of these is discussed in the following sections.

4.1 Water Savings

Preliminary findings of the technical assessment of water savings are summarised in **Table 2** (figures are subject to change). Savings on the annual amount of water extracted from the river for town supply are anticipated through combinations of conservation activities, such as education, pricing and water efficient fixtures, as well as source substitution, such as rainwater, greywater and recycled effluent.

The estimated annual average water savings and indicative annualised costs per kilolitre (kL) of water savings for each measure are tabled below. These outcomes were used to assist in selecting which options were included in each scenario.

Table 2: Assessment of Water Savings for Each Scenario Element.

Measure Description	Community Annualised Cost ($/kL)	Customer Annualised Cost ($/kL)	Utility Annualised Cost ($/kL)	Average Water Savings (ML/a)
Inflow and Infiltration Reduction Program	NA	$0.00	NA	NA
Smart Sewers for New Areas	NA	$0.00	NA	NA
Scenario 4	$1.77	$1.37	$0.40	6,196
Scenario 3	$1.64	$1.37	$0.27	6,093
Scenario 2	$1.66	$1.43	$0.23	5,838
Scenario 1 - Current Initiatives	$1.67	$1.47	$0.20	5,481
BASIX Program - 40 Points	$3.58	$3.58	$0.00	1,824
Existing Recycled Effluent Initiatives	$0.15	$0.00	$0.15	1,689
Inclining Block Tariff - Residential	$0.00	$0.00	$0.00	1,125
Currently Set Price Increases	$0.00	$0.00	$0.00	860
Rainwater Tanks for 90% New Greenfield Development	$3.84	$3.84	$0.00	678
Rainwater Tanks for 90% New Infill Development	$4.63	$4.63	$0.00	642
IWCM Education Program - Stepped Up	$0.20	$0.00	$0.20	551
Existing Education Programs	$0.10	$0.00	$0.10	499
Permanent Low Level Restrictions	$0.07	$0.00	$0.07	338
WELS	$0.40	$0.40	$0.00	327
Traditional	$0.40	$0.40	$0.00	327
Active Water Loss Program with Increased Pressure Reduction	$0.39	$0.00	$0.39	268
Greywater Diversion in Stage 1 New Urban Release	$6.88	$0.00	$6.88	228
Existing Water Loss Program	$0.44	$0.00	$0.44	212
Rainwater Tank Retrofit for Residential Renovations	$5.50	$5.50	$0.00	166
Rainwater Tanks for 90% New Non-Residential Development	$1.56	$1.56	$0.00	158
Greywater Diversion in Stage 2 New Urban Release	$6.88	$0.00	$6.88	149
Effluent Reuse Tankers	$0.39	$0.00	$0.39	148
Residential Retrofit of Taps and Showers	$0.27	$0.13	$0.14	143

Measure Description	Community Annualised Cost ($/kL)	Customer Annualised Cost ($/kL)	Utility Annualised Cost ($/kL)	Average Water Savings (ML/a)
Existing Rainwater Tank Rebate	$8.09	$7.31	$0.79	141
Residential Shower Retrofit	$0.10	$0.01	$0.09	130
Stormwater Harvesting in Stage 1 New Urban Release	$8.94	$0.00	$8.94	125
Greywater Diversion in Bushells Ridge	$2.36	$0.00	$2.36	111
Existing Stormwater Harvesting Initiatives	$1.09	$0.00	$1.09	110
Effluent Reuse Warnervale	$2.38	$1.90	$0.47	101
Stormwater Harvesting in Stage 2 New Urban Release	$9.44	$0.00	$9.44	82
Landscape and Planting Controls	$0.53	$0.00	$0.53	77
Stormwater Harvesting NSW Government Funding Application	$1.18	$0.08	$1.10	67
Non-Residential Audit - Total Program Savings	$0.54	$0.39	$0.15	30
Effluent Reuse Hamlyn Terrace	$5.32	$0.00	$5.32	25
Smart Meters - Individual Unit Meters	$9.07	$7.01	$2.07	25
Effluent Reuse The Entrance and Bateau Bay	$23.47	$0.00	$23.47	21
Localised Industrial Treatment of Sewage	$10.35	$0.00	$10.35	18
Dual Flush Toilet Retrofit	$3.31	$0.33	$2.98	10
Effluent Reuse for Rural Fire Services	$1.02	$0.00	$1.02	5
Residential Washing Machine Rebate	$30.78	$23.18	$7.60	4
Rainwater Tanks for General Community Use	$8.45	$0.00	$8.45	4
Existing Stormwater Harvesting for Cricket Pitches	$5.32	$0.00	$5.32	1
Continued Operation of Efficiency Program in Government Offices	$16.67	$0.00	$16.67	1
Existing Rainwater Tanks in Schools	$10.32	$2.93	$7.39	1
Existing Efficiency Program in Government Offices	$55.63	$0.00	$55.63	0

Notes:

1. Stand alone savings cannot be summed together to estimate total scenario savings, as interactions between measures must be considered.

2. Annualised costs are presented and customer annualised costs are exclusive of any rates impact.

Figure 2 is a breakdown of the Year 2055 total water demands by scenario and by the source of water meeting the demand. Wastewater generated is also shown.

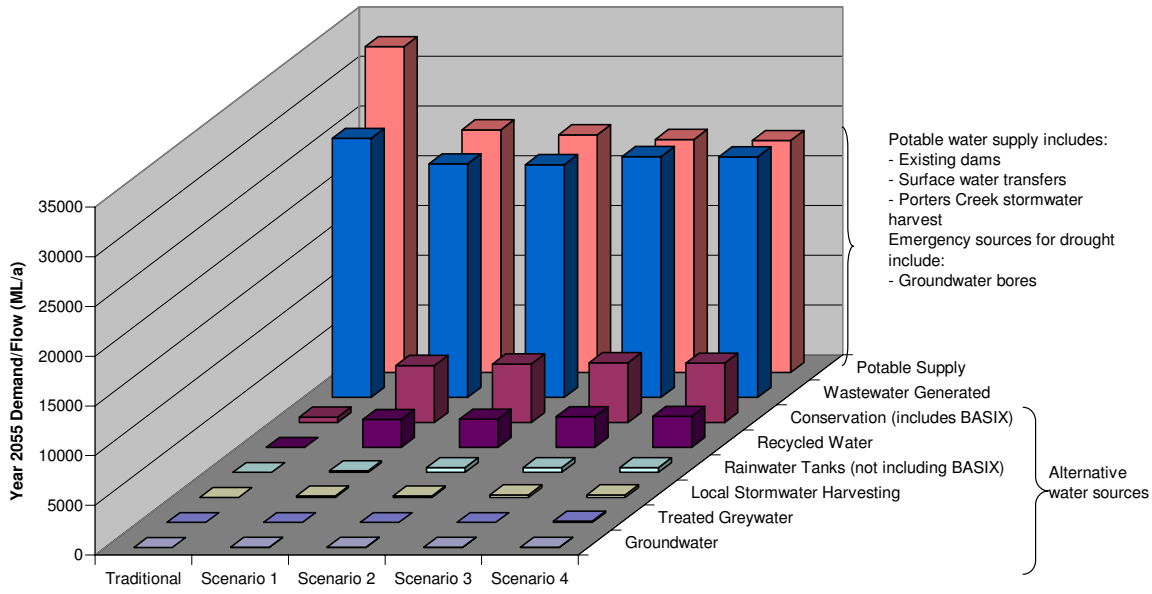


Figure 2: Wyong Council Water Demands and Water Source by Scenario.

The annual potable water savings for each scenario are plotted in **Figure 3.**

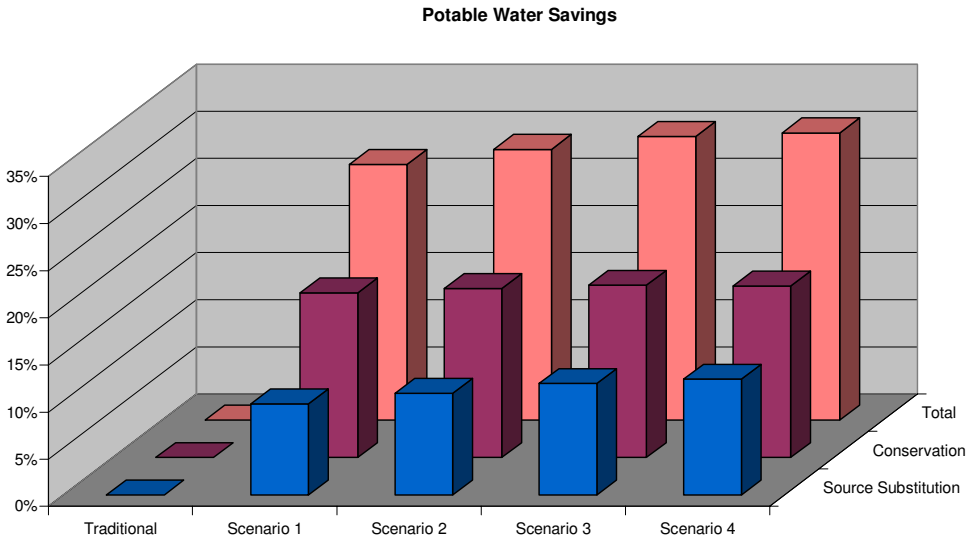


Figure 3: Wyong Council Potable Water Savings by Scenario.

4.2 Pollutant Loads

Each scenario contains different water quality management measures such stormwater and sewage treatment and catchment management activities. Annual pollutant loads emanating from the urban area have been estimated for urban runoff (based on land usage) and reclaimed water loads (**Figure 4** and **Figure 5**). Urban pollutant reductions are anticipated through a combination of improved wastewater treatment and water sensitive urban design. The loads shown are preliminary (and subject to change) and should only be used to illustrate a relative assessment of the scenarios, not as absolute.

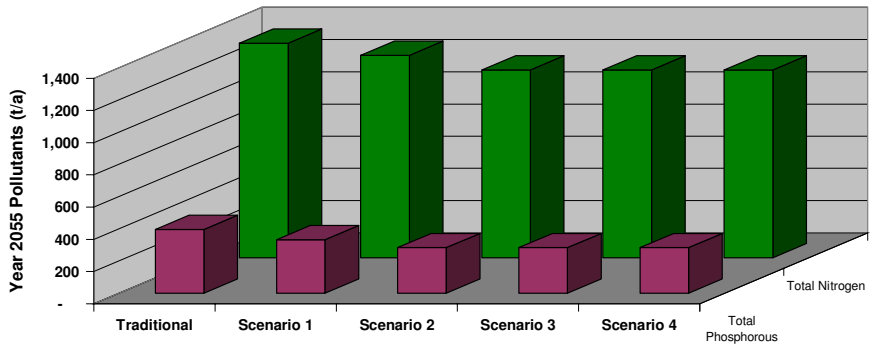


Figure 4: Annual Pollutant Loads (TN, TP) from the Urban Area by Scenario.

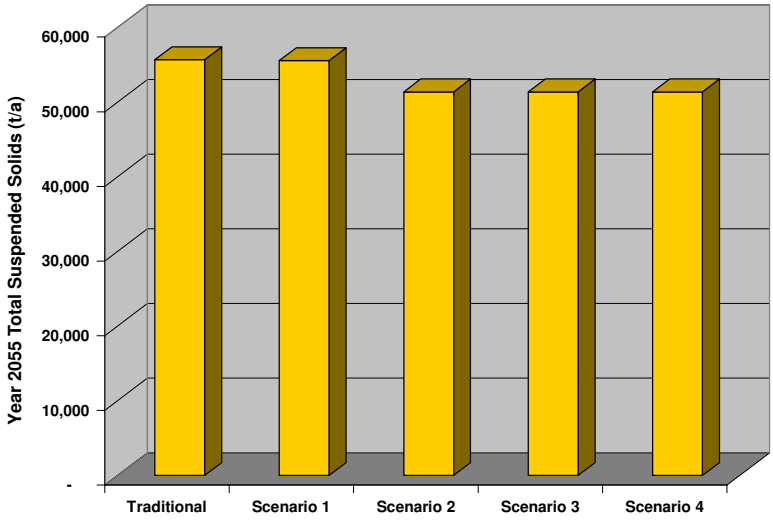


Figure 5: Annual Pollutant Load (TSS) from the Urban Area by Scenario.

4.3 Scenario Expenditure

Each scenario has associated costs to install and cost to operate into the future. The Traditional Scenario is Council's lowest cost[1] approach, with increasing costs associated with increasing integration. The preliminary assessment (figures are subject to change) of the increase in the cost of implementing each of the scenarios using the Traditional Scenario as a baseline is in the following proportions:

1. Scenario 1 – 2%.
2. Scenario 2 – 3%.
3. Scenario 3 – 4%.
4. Scenario 4 – 3%.

The evaluation of costs presented here is for the on-going installation and operation of the scenarios compiled. Historical expenditure is not included, which means much of the capital expenditure associated with installing many of the current initiatives included in the scenarios is not included in the assessment presented here as it is essentially a sunk cost. The on-going operating costs and any additional future capital expenditure are included.

These scenarios do not include the bulk water supply components assessed under WaterPlan 2050. It is important to note that full evaluation of capital and operating costs of the water supply cannot be completed until WaterPlan 2050 is finalised. It may be expected that the provision of significant new bulk supply infrastructure will be associated with significant costs and subsequent increases in the costs of services.

The relative costs shown here are from the utility perspective only. Costs faced by the community and customers for individual options are set out in **Table 2**. Much of the need for new infrastructure and management measures is as a result of growth. Generally, user pays principles are applied to such servicing requirements. As such, measures like BASIX are flexible in how the water conservation targets are met in order to allow new development to seek out the most cost effective ways of meeting these requirements.

5. Scenario Assessment

Assessment of the IWCM scenarios will be based largely on the criteria developed in PRG Workshop 2. Although not identical, there was considerable overlap between the criteria developed by the PRG and the criteria adopted by in assessing the *WaterPlan 2050* scenarios. The PRG criteria attempt to balance the social, economic and environmental considerations and are set out in **Table 3**.

[1] NPV based on subsidised cost estimates at 7% discount rate over 50 years.

Table 3: Scenario Assessment Criteria.

Environmental	Social	Economic
Maintains water quality and minimises negative impact on biodiversity. Prevents long-term depletion of water resources. Is an energy and resource efficient option, and minimises green house gas emissions.	Aids in securing the reliability of water supply. Reduces individual water demand (L/per person/per day). Encourages and promotes society's acceptance of alternate water sources (reuse of grey water, treated water, stormwater, use of groundwater, etc).	Minimises long-term costs of urban water cycle infrastructure. Maintains an affordable water supply ($/ML). Includes economic incentives to use alternative sources of water.

A multi-criteria analysis decision tool will be presented in the workshop to assist the PRG in selection of the preferred scenario. As a group the PRG, will discuss and score each scenario. Some scores can be directly quantified based on the project team's estimates of scenario benefits and costs, others are less tangible and will require group consensus.

The assessment tool will provide a relative ranking of the scenarios based on the scoring and as a result will provide an indication of the 'preferred' scenario. The decision tool can also be used to test the sensitivity of individual criteria. There will also be an opportunity to discuss the results, including any other issues raised by PRG members. This will provide additional guidance for the recommendation of a preferred IWCM strategy for Wyong Shire Council to be included in *WaterPlan 2050 – IWCM Strategy for the Central Coast*.

6. Where to from here?

Following this workshop any required adjustments to the preferred scenario will be made and the IWCM sub-Plan will be finalised. The outcomes of the IWCM sub-plan will be incorporated by WSC into *WaterPlan 2050 – IWCM Strategy for the Central Coast*. This final plan, when drafted, will be placed on public display and comments will be received and considered by WSC in finalising *WaterPlan 2050 – IWCM Strategy for the Central Coast*.

7. Workshop Program

The program for Workshop 3 is provided in the attached agenda. Please arrive for tea and coffee served at 2:45pm, and the workshop will start at 3:00pm. We look forward to meeting you and working with you during the development of Wyong's IWCM Strategy. If you have any questions prior to the workshop, please contact Ahmad Mostafa at Wyong Shire Council on (02) 4350 5734.

Sydney, NSW 1590
Tel: 61-2-9493 9700
Fax: 61-2-9493 9799

Meeting Notes

Meeting Name	**Wyong IWCM PRG 3**		
Meeting Venue	**Wyong Shire Council Offices**		
Date Of Meeting	**5 March 2007**	Time Of Meeting	**3 pm**
Facilitator	**Susan Love**	Recorder	**Carly Price**

Project Details

Client Name	Wyong Shire Council
Project Name	IWCM Study
Project Number	A1008200

Attendees	**Organisation**	**Initials**
Maryann Housham	Community representative	MH
Leoni Baldwin	NSW Premier's Department	LB
David Hoey	DNR	DH
David Green	Central Rivers CMA	DG
Gary Casement	WSC	GC
Ahmad Mostafa	WSC	AM
Ken Grantham	WSC	KG
David Cathers	WSC	DC
Greg White	WSC	GW
Terry Cooper	WSC	TC
Lisa McDermott	WSC	LM
Peter Sheath	GCC	PS
George Freeman	DEUS	GF
Ana Corpuz	DEUS	AC
John Bourke	DEUS	JB
Emma Pryor	MWH	EP
Carly Price	MWH	CP
Susan Love	Susan Love Que Sera Consulting	SL

Item	Discussion	Action Required	Person	Date
2.0 IWCM Process Changes	WaterPlan 2050 and the Gosford and Wyong Subplans • The new structure of WaterPlan 2050 and the IWCM Subplans was explained by GC and EP. The bulk water supply that is traditionally included in an IWCM is now covered by WaterPlan 2050, hence the IWCM is not a full strategy, it is only a subplan. • DH is disappointed it is broken up into 3 plans because DNR wants a single holistic strategic plan from a catchment perspective for the Central Coast. WSC and MWH envisage the completed WaterPlan 2050 will address this issue as it will incorporate all 3 plans. Revised IWCM Objectives • EP discussed the revised objectives			
3.0 Workshop Objectives	Define PRG's assessment and next steps • The objectives are to identify a preferred scenario or scenario elements that will be considered in finalising WaterPlan 2050 which will be the final strategic plan.			
4.0 IWCM Scenario TBL Outcomes	IWCM Scenario descriptions and outcomes • EP explained build up of scenarios. The outcome is that WSC has already undertaken many measures that are integrated, so Scenario 1- Current Initiatives is a significant improvement on the Traditional Scenario. It means that there are very few cost effective measures left to build onto Scenario 1, hence Scenario 2, 3 and 4 only result in relatively small reductions in potable water demand. • AC stated that slides be should have been issued prior to the meeting • DC said there are currently groundwater initiatives in the Bateau Bay	WSC to brief MWH, MWH to include in	GC, EP	

Sydney, NSW 1590
Tel: 61-2-9493 9700
Fax: 61-2-9493 9799

Item	Discussion	Action Required	Person	Date
	area for ovals that should be included in Scenario 1 that are not included. • PS advised GCC introduced a new WSUD DCP regarding rainwater tanks through stormwater management last Thursday. It gives residents the option of installing larger tanks instead of on-site detention. • DG advised that WSC are already undertaking catchment management measures that are not included in Scenario 1. • AC advised DEUS were concerned with the starting point of the building of the scenarios. It was decided the presentation should be finished and then the discussion about the starting point could be discussed.	Scenarios. WSC to confirm these sources replace potable demands MWH to consider similar provisions in planned IWCM/WSUD DCP WSC to brief MWH on catchment management, MWH to include in Scenarios	GW, EP	
6.0 IWCM Scenario Comparison	Compare benefits and limitations of Scenarios • Following AC's comments, GF advised that DEUS is satisfied with the set up of the scenarios and agrees that Scenario 1 is representative of current initiatives. He advised there may be some fine tuning needed but that would not impact on the outcomes of this workshop, and could be done in consultation with MWH and WSC after the workshop. DEUS will provide an email outlining requested clarifications required by Tuesday 13 March. • DH is concerned that the scenarios are not diverse enough in their solutions because Scenario 2-4 are built on Scenario 1 and are so similar. GC and EP explained that because they are only local scenarios and do not include the bulk supply, these are the only local options that are available. • GF asked how the preferred scenario fits into WaterPlan 2050, as normal triple bottom line analysis cannot be done on the scenarios. GC stated that Scenario 1-4 all represent a sufficient drop in demand so the bulk water supply plans in WaterPlan 2050 will be able to supply any of these four scenarios. • GF said the PRG does not need to look past Scenario 1 Current Initiatives if it fits WaterPlan 2050 requirements. Rather WSC should be focusing on monitoring the effectiveness of the current initiatives and reviewing the status in 5 years. The PRG agreed with this, provided potential integrated options were still adopted in opportunistic situations. • KG and DC requested that different solutions are assessed for the different types of development – Greenfield and redevelopment in existing areas. The assessment results should also be tabulated in a geographical manner as well as the shire-wide format. EP advised the work has been done for each separate area, it just needs to be represented this way in the report. • AM stated the draft Subplan would be issued to the PRG members for comment prior to public release of the document. There would be a 7-10 day period for PRG comment and then all comments considered in finalising the draft report. • DH inquired whether the economic analysis included payback periods. EP advised that a different net present value based economic tool was used involving customer and utility annualised cost. • KG advised DEUS that the existing trade waste pricing scheme is a disincentive to reuse their effluent, and so works against the IWCM process. GF is going to report this within DEUS. • DG requested that within the report there is explanation as to why Scenario 2, 3 and 4 are all so close in results. MWH will do this. • The PRG agreed there is no point in ranking the shire wide scenarios according to the TBL tool as there is insufficient data	DEUS to advise of requested clarifications MWH to add in geographically organised options and options for each development type (residential, commercial and industrial) MWH to explain why results for Sc 2-4 are so close	GF EP EP	

APPENDIX B - SOURCE SUBSTITUTION

Demand management approaches include replacement of traditional potable water supply with alternative water sources, known as source substitution. This appendix provides a summary of the key aspects of source substitution. Four source substitution measures have been considered:

1. Rainwater harvesting – the collection, storage and distribution of rainfall from roof structures for water supply.

2. Reclaimed water – reuse of treated wastewater for non-potable water supply.

3. Greywater reuse – reuse of the greywater component of wastewater (non-toilet and kitchen wastewater) for non-potable water supply.

4. Water sensitive urban design (including stormwater harvesting) – the use of WSUD techniques and stormwater harvesting for water supply.

The application of source substitution is dependent on the quality of water available. Source substitution reuse applications are summarised in the *Australian Runoff Quality Guidelines* (EA, 2006). National reuse guidelines (NWQMS, 2005 & ARMCANZ, 2000) and greywater reuse guidelines (DOH, 2000 & DEUS, 2006) define the treatment requirements for different applications. NSW Health does not prohibit the use of rainwater for any purpose provided the tank is adequately maintained (EA, 2003). However the department does not recommend rainwater tanks for drinking purposes where a reticulated potable water supply is available (DOH, 2002). A summary of these requirements is set out in **Table B- 1.**

Table B- 1: Source Substitution Application and Treatment (ARMCANZ 2000)

Source	Application						Treatment
	Agricultural Non Food	Non Contact Irrigation[1]	General Outdoor	Toilet Flushing	Washing	Sensitive Water	
Rainwater	✓	✓	✓	✓	✓		Roof collection, first flush system
Reclaimed Water	✓						Secondary with detention
	✓	✓					Secondary with disinfection
	✓	✓	✓	✓	✓		Tertiary with disinfection and residual
						✓	Tertiary with disinfection
Greywater	✓	✓					Divert to garden without storage
	✓	✓	✓				Store, secondary treatment
	✓	✓	✓	✓	✓		Store, secondary treatment and disinfection
WSUD (including Stormwater Harvesting	✓	✓	✓	✓			Variable, WSUD approaches

1. Assumes no direct contact of water with food.

It is generally accepted that it is relatively easy to apply new urban water system servicing approaches to new developments. It is generally more difficult to retrofit household and commercial plumbing to allow for source substitution than it is to fit-out new premises. In fact, re-plumbing can be a constraint that limits internal source substitution uses. Houses with elevated flooring systems, such as Queenslander style houses, and weatherboard construction present far fewer problems for re-plumbing than slab and double brick homes.

B.1 Rainwater Harvesting Systems

Rainwater harvesting systems collect roof water via a first flush device, which is then stored in rainwater tanks. The rainwater system has separate plumbing and is assumed to be supplemented with town supply either via an air break top-up or a commercially available actuated valve with pressure sensor for control of rainwater and mains supply (**Figure B- 1**). Overflow can be directed to gardens.

Rainwater supply is generally assumed to be used for non-potable purposes where town water is available. It is becoming increasing acceptable to also connect rainwater tanks to the hot water system. In the Wyong IWCM scenarios, it is assumed that rainwater may be employed for outdoor usage, household washing machines and toilet flushing.

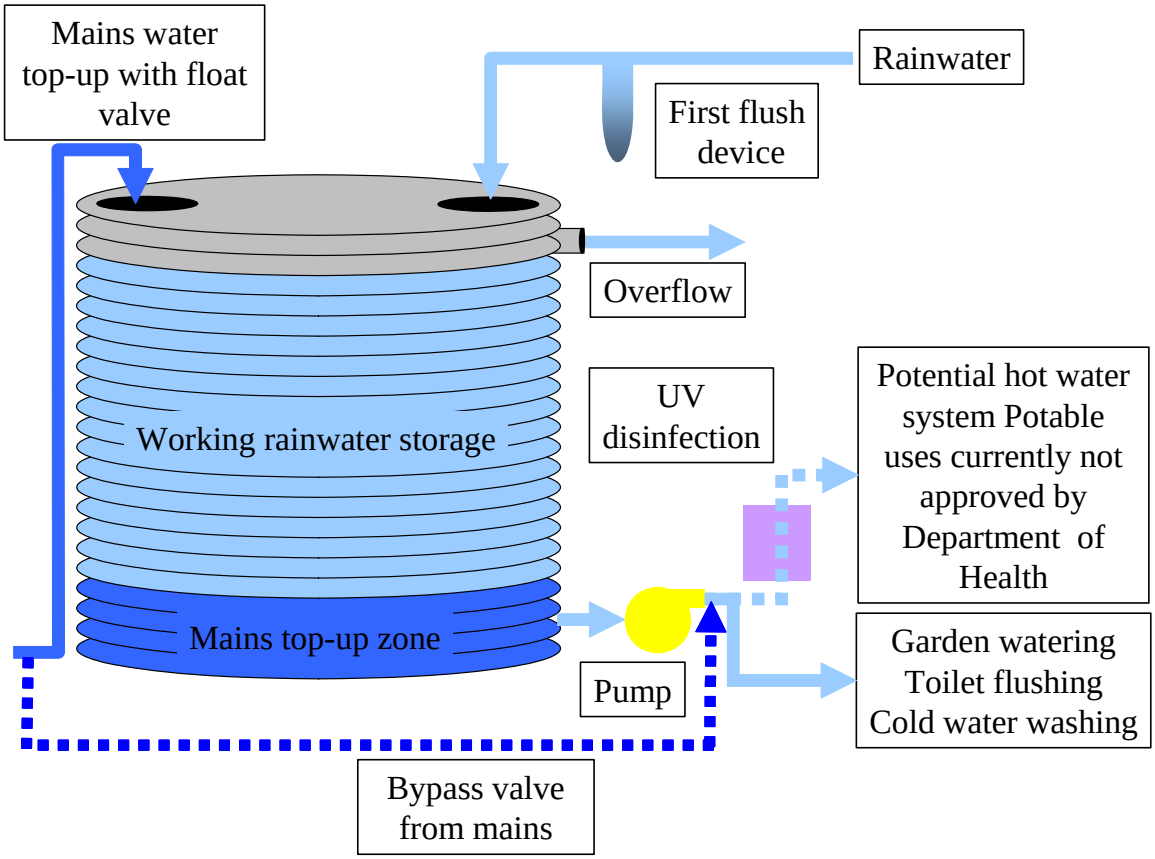


Figure B- 1: Schematic of Rainwater Tank Operation.

B.2 Rainwater Tank Modelling

Rainwater systems can assist to reduce town supply average demands and may assist in controlling stormwater runoff. The systems' reliability is dependent on rainfall, roof catch area,

storage volume and materials selection. On-going pump energy needs and non-centralised management require consideration.

A hydrological assessment of the impact of rainwater harvesting systems on water demands was undertaken using a multi-variable regression analysis to establish demand variability (Section 3.4, *Wyong IWCM Concept Study*) and a water balance simulation. The simulation estimates the impact of the rainwater tanks of different effective sizes on daily potable water demands. It does this by adopting the average demand forecast for the targeted end use/s (from the DSS end use model), assuming a constant internal demand, estimating the daily external demand variation based on Wyong's water supply multi-variable regression climate variable coefficients, and then completing a daily water balance using SILO daily rainfall data (1970-2006) based at Wyong. The rainfall was decreased by 10% to allow for potential impacts of climate change, adding a factor of safety to the yields assumed. Models were established for detached and semi-detached dwellings. A summary of key assumptions is set out in **Table B- 2**.

Table B- 2: Key Rainwater Model Assumptions

Parameter	Assumed Value
Effective roof area	Detached - 220m^2 Semi - 150m^2
Initial Losses	2 mm
First flush loss	100 litres

The result of the hydrological assessment gives the percentage savings of the total residential potable demand for the different dwelling types and tank sizes, as set out in **Figure B- 2** and **Figure B- 3**.

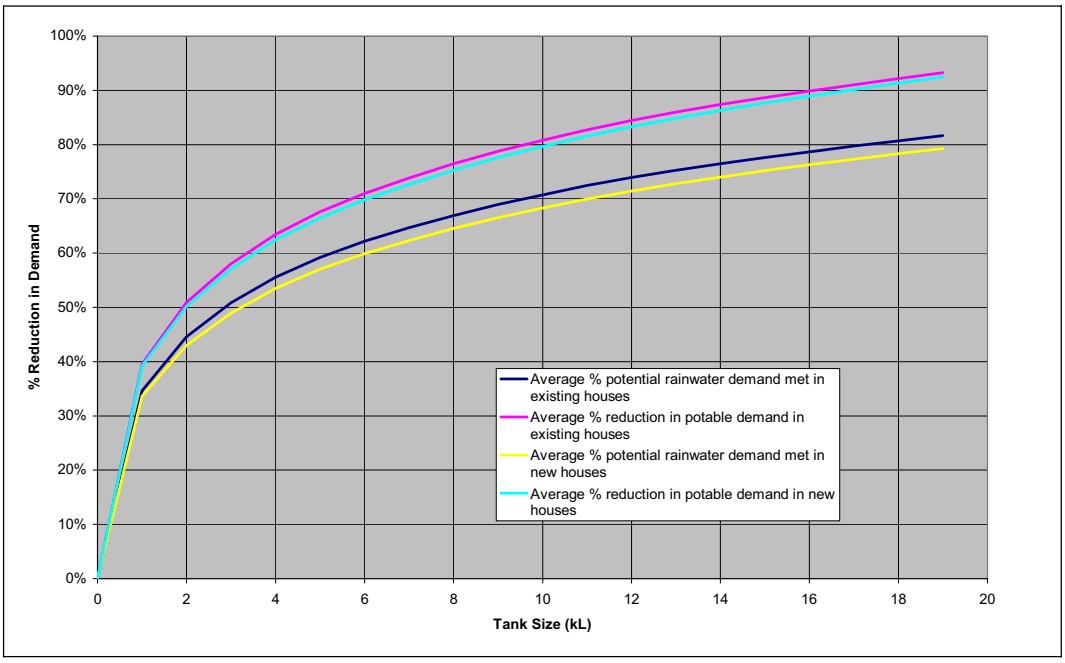


Figure B- 2: Rainwater Tank Efficiency – Detached Dwellings

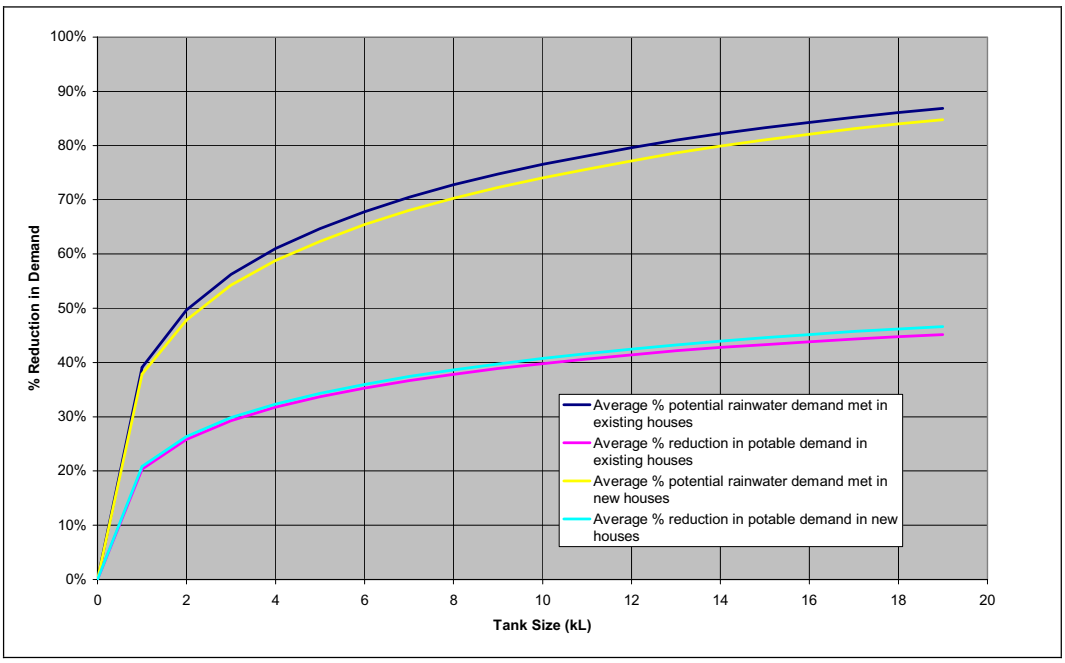


Figure B- 3: Rainwater Tank Efficiency – Semi-detached Dwellings

It is has been assumed that the typical household installation tank size to be adopted for the rainwater options is 5kL. The average savings assumed were adjusted in line with similar modelling in the Gosford study area and hence, are slightly lower than the rainwater model would indicate. This is a conservative assumption. It has also been assumed that rainwater tank demand reductions are negligible under peak demand conditions.

Infill multi-family dwellings (units) are assumed to achieve the same percentage end-use savings as achieved in detached dwellings through appropriately designed rainwater collection and storage systems.

B.3 Reclaimed Water

Reclaimed water is highly treated sewage used for non-potable applications. It may significantly reduce both average and peak town water demands. End use applications considered in this study include:

- Outdoor water usage
- Washing machine usage
- Toilet flushing
- Non-residential specific applications.

There can be a social reluctance to accept reclaimed water for washing clothes and this particular end-use may require further assessment for inclusion in forecasts.

A separate reticulation system is required for the reclaimed water. This is most easily applied in new development areas, where the household plumbing can also be setup in advance and use of reclaimed water can be promoted as part of the new area. Water mining (sometimes known as sewer mining) approaches, where sewage is treated directly from the sewerage system, and improved treatment at existing STPs approaches have been considered.

The main disadvantages of reclaimed water use include:

- High capital and on-going costs
- Relatively high installation costs to the householder
- Potential for public health issues through associated pathogens, including potential for cross- connections and contamination of drinking water supply
- Providing adequate storage to ensure seasonal demand requirements can be catered for.

Urban releases to be developed in the near future have been identified by Council as opportunities for reclaimed water reuse Establishment of reclaimed water reuse in these urban releases and all future urban releases was assessed in this study.

All the infrastructure (both water, as the source being substituted, and sewer, as the provision of an alternative source) and urban areas considered in source substitution are shown in **Figure B- 4** to **Figure B- 9.**

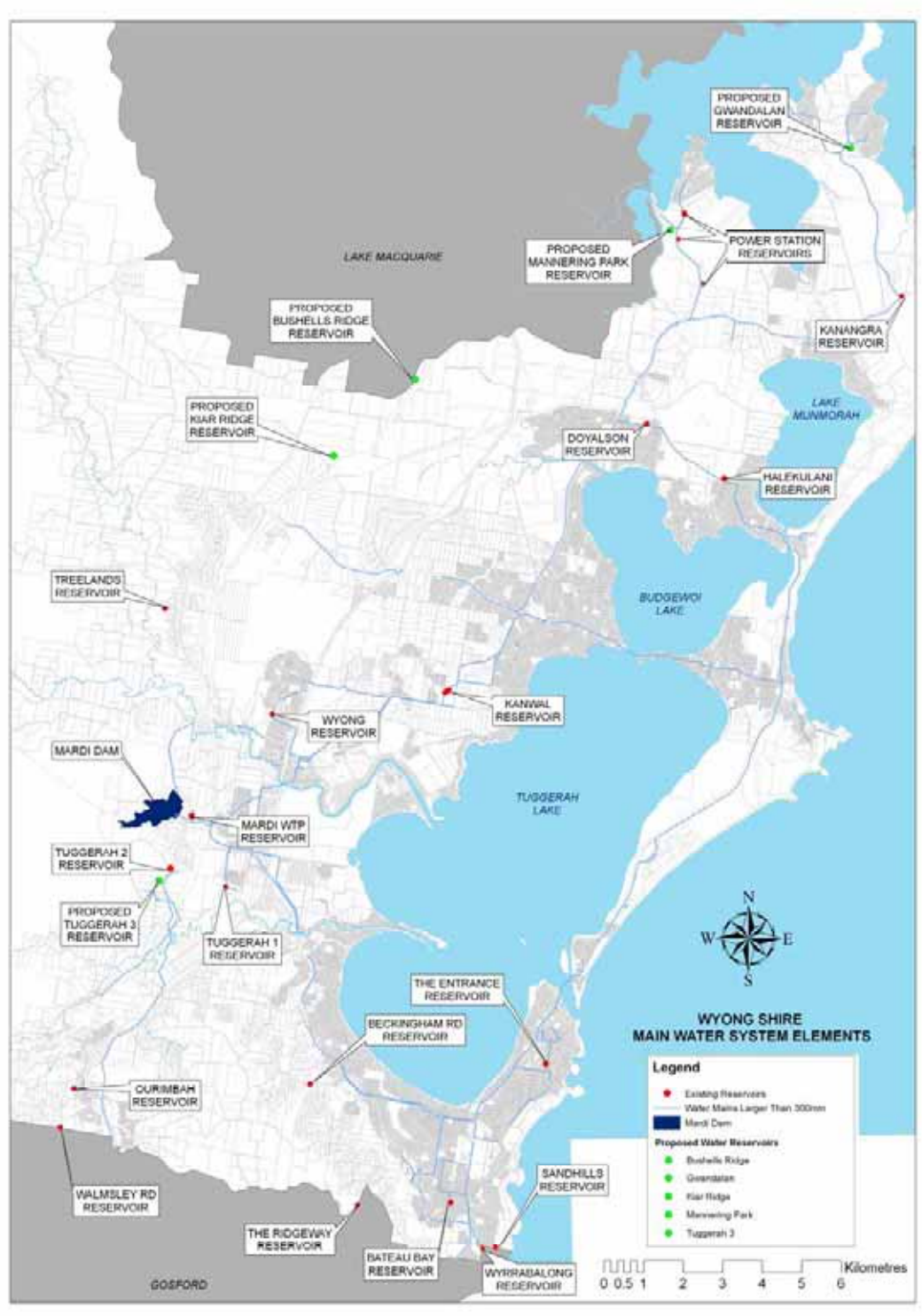


Figure B- 4: Wyong Shire Main Water System

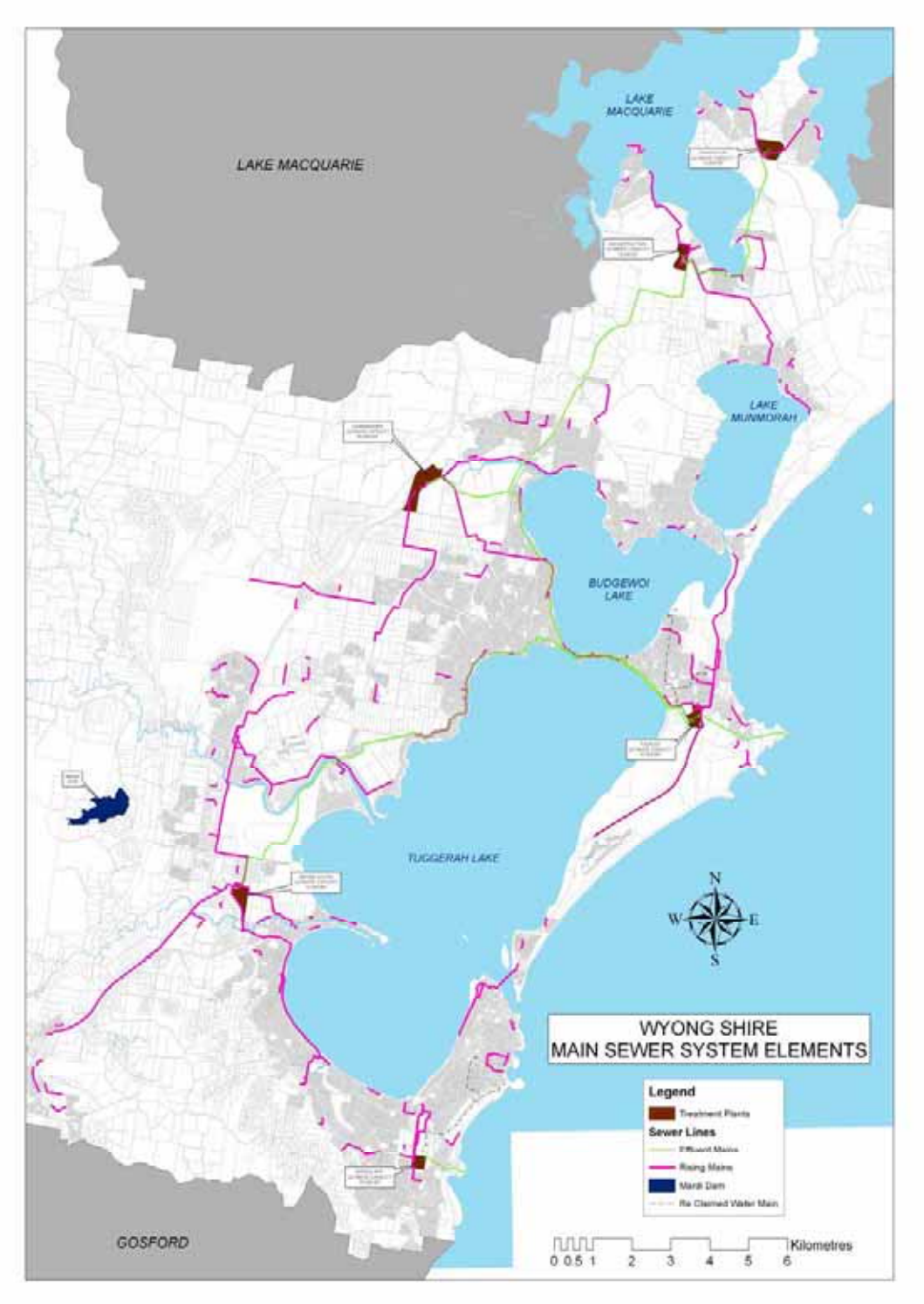


Figure B- 5: Wyong Shire Sewer System

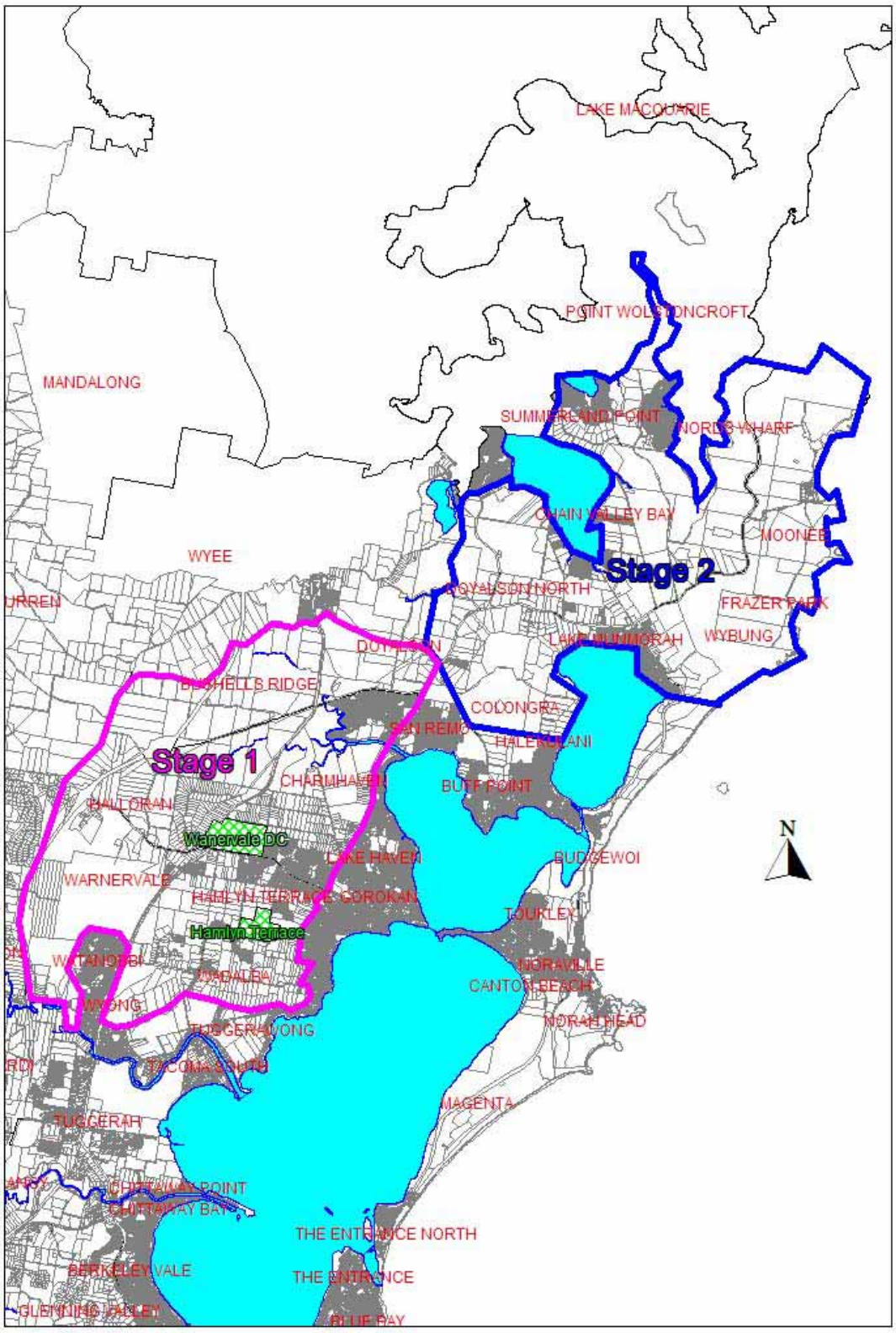


Figure B- 6: Residential Greenfield Development Areas

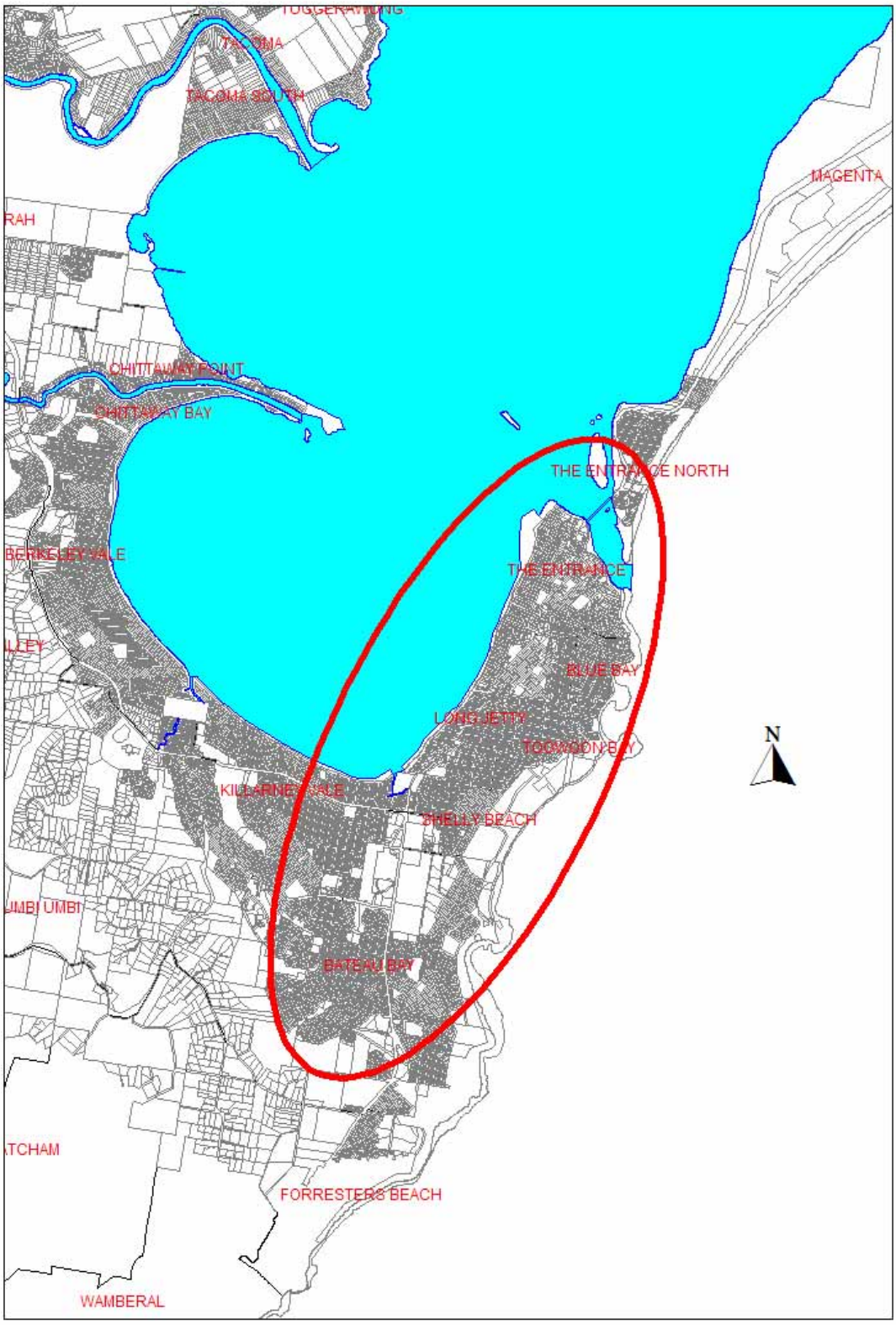


Figure B- 7: Residential Redevelopment Areas

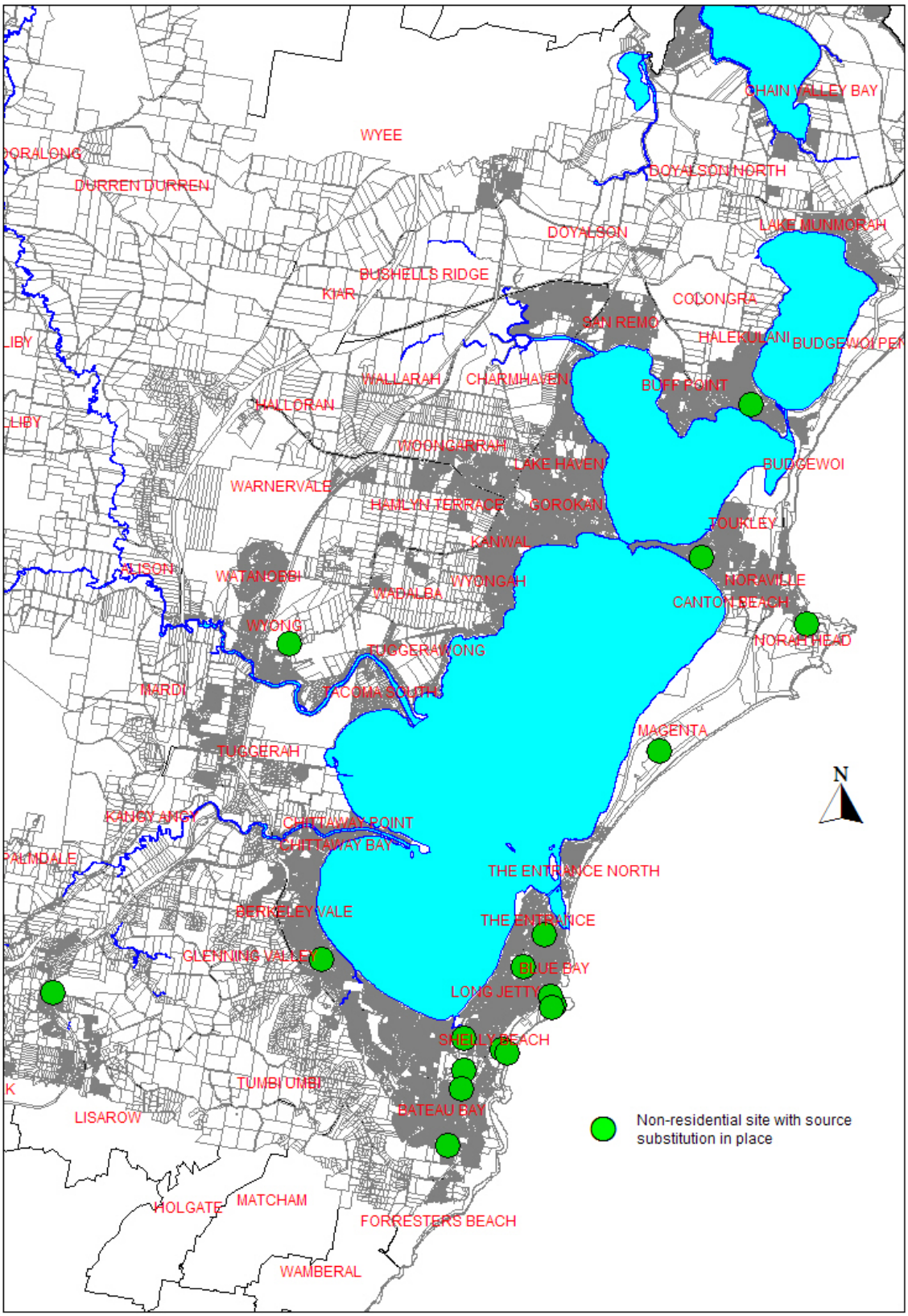


Figure B- 8: Non-residential Existing Source Substitution sites

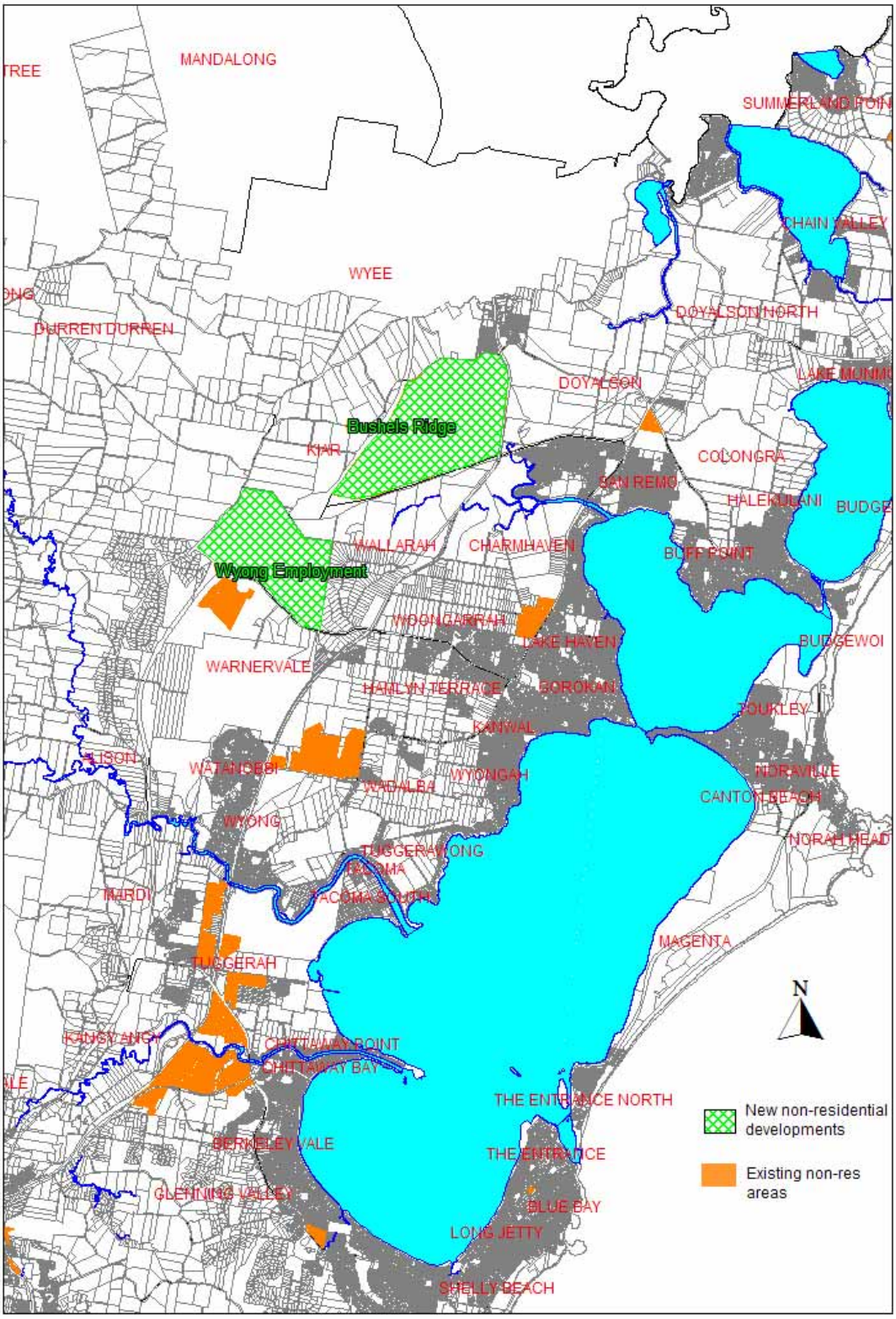


Figure B- 9: Non-residential Development Areas

Table B- 3: Details of Residential Study Sites

Area	Towns	Participating Residential Accounts in 2055
Warnervale	Warnervale	3,145
Hamlyn Terrace	Hamlyn Terrace	780
Entrance Infill	The Entrance and Bateau Bay	780
Stage 1 Urban Release Area	As set in *Central Coast Draft Regional Strategy*	7,570
Stage 2 Urban Release Area		15,350

B.4 Greywater Reuse

Greywater includes wastewater from bathtubs, showers, wash basins, washing machines and laundry tubs. Greywater can be used as a non-potable source substitute. Its applications are restricted by the level of treatment provided. Typical household greywater systems include collection, storage and distribution facilities, including pumps and pipes to irrigation areas, as well as treatment facilities. Excess greywater is diverted to the sewer. Household diversion (without storage) of greywater to gardens is now permitted without Council approval.

Greywater source substitution can significantly reduce potable water usage, both average and peak demands and is a reliable source of water. It also results in reduced sewage generation. The main disadvantages of greywater use include:

- Dependence on householder management and maintenance
- Relatively high installation and on-going costs to the householder
- Potential for public health issues through associated pathogens
- Maximum irrigation application rates (to avoid over accumulation of salts and nutrients) dependent on soil capacity, crops and flushing schedules.

For this study, greywater applications through promotion mechanisms only are recognised, however, rainwater and reclaimed water source substitution are assumed to have a greater market penetration and impact on forecasts than greywater.

For new development areas, centralised greywater systems (including storage and treatment facilities) were considered for new urban release areas. Although this increases the number of end-uses which may be substituted, the results of the demand modelling illustrate that the water savings are small in comparison to the capital and operating expenditure to be incurred.

B.5 Water Sensitive Urban Design and Stormwater Harvesting

WSUD stormwater (**Figure B- 10**) related practices include:

- Site layout incorporating open space networks, housing layout and streetscape design

- Increased permeable areas through layout and pavement selection
- Flow control and sediment based treatment practices such as grass swales, buffer strips, cascades and infiltration techniques.

The techniques attempt to replicate pre-development hydrology and improve urban landscape, reduce pollutant export, retard storm flows and reduce irrigation requirements. Whilst WSUD is not a source substitution method per se, it does seek to use to make the most of stormwater for irrigation requirements both at the allotment and subdivision levels, and in this sense maybe used to replace potable water needs.

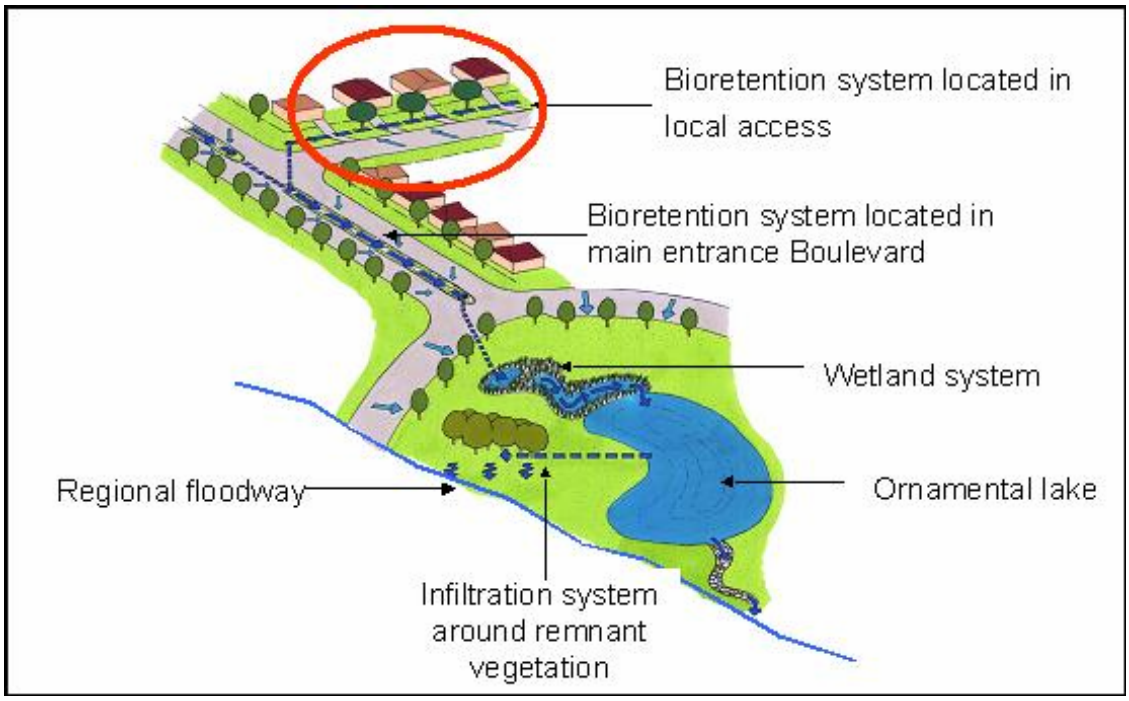


Figure B- 10: Typical New Development WSUD Features

The benefits of WSUD include:

- Can reduce potable water supply demands through replacement of irrigation water.
- Improves stormwater quality by reducing peak flow rates and associated scour.
- Improves stormwater quality by detaining pollutants and biological uptake.
- Encourages aquifer recharge.
- Aquifer recharge returns stream flows to a more natural flow pattern.
- Improves local environment biologically and aesthetically.

Limitations include:

- Best suited new release areas and open spaces, however aspects can be retrofitted in existing development.

- Site characteristics may limit application.
- Maintenance requirements can be higher at the local level, but lower on the catchment level.

Centralised stormwater harvesting opportunities for new development were considered as part of this study. The runoff quality benefits associated with WSUD have also been considered.

APPENDIX C – COST ESTIMATES

Development of infrastructure needs is required to assess the costs and benefits of each scenario.

C.1 General Approach

It is intended that adequate detail is provided to allow comparison of the scenarios, and as such, only major infrastructure items are considered through simplified general engineering practice approaches.[1]

The use and development of existing facilities has been made in each scenario, where possible. WSC's current water and wastewater refurbishment (or renewals plans) as well as the IPART data on planned drainage (stormwater) expenditure has been utilised for identification of major works requirements. Where necessary, WSC's planned capital and operating expenditure was extrapolated to 2055.

All costs are order of cost estimates only, intended to allow comparison of the scenarios. Where possible, costs are sourced from WSC's current capital expenditure budgets. In cases where the sizing of the infrastructure is altered to meet the changed demands costs are modified on a pro-rata basis or sourced from the *NSW Reference Rates Manual*, (MEU, 2003). Generally, the manual's reference rates have been adopted which includes allowances for survey, investigation and design costs of approximately 32 percent.

C.2 Water Supply Cost Estimates

General water supply capital costing and sizing assumptions include:

1. Cost escalation allowance between 2002/03 and 2005/06 of 14%, based on the DEUS *Reference Rates Attachment 1* revision issued in October 2006.

2. Recent construction industry cost increases of 36% (in line with industry allowance).

3. Pipe material selection: DICL pressure mains and uPVC sewer mains.

4. For all reticulation, rising and trunk main costs, it is assumed that excavation is in OTR and pipelines are laid at minimum depth.

5. Third pipe system costs compensate for the reduction in size of the potable water supply mains due to the reduced potable water demand by using a reduced cost for the third pipe mains. It is assumed the sizing of the reticulation for the potable water supply will not be impacted by the reduced potable water demand.

[1] It is not the intention of this assessment to prepare detailed capital works programs, such as would be prepared in servicing strategies. All infrastructure identified remains subject to confirmation through standard design approaches.

6. Head losses in pressure mains assumed to be 5m/km.

7. No additional allowance has been made for firefighting requirements in the sizing of the potable and recycled systems.

8. Water treatment facilities were augmented for capacity requirements, but remained as conventional water treatment plants.

9. Reservoirs were assumed to be replaced at regular intervals related to the demand forecasts by installing 30ML steel reservoirs.

10. Pump stations were sized on a pro-rata basis assuming that the existing kWh provided in the WSC asset register are accurate for servicing the existing population.

11. All costs are utility costs unless otherwise stated.

Water supply operating cost assumptions:

1. WSC financial statements for 2005/06 were used to establish existing operating costs for the entire water supply. These costs were forecast based on a population growth pro-rata (i.e. operating costs per assessment are approximately maintained).

2. Based on the savings in water consumption, variable elements of the operating expenses (such as energy consumption and chemical usage) were adjusted across the scenarios.

3. Additional operating costs as a result of the demand management, system operation stormwater and catchment programs for each scenario were added.

C.3 Sewerage Cost Estimates

General sewerage capital costing and sizing assumptions include:

1. Cost escalation allowance between 2002/03 and 2005/06 of 14%, based on the DEUS *Reference Rates Attachment 1* revision issued in October 2006.

2. Recent construction industry cost increases of 36% (in line with industry allowance).

3. The reticulation and mains were sized for the new urban release areas, assuming they are primarily residential and will be treated at the closest existing STP.

4. Pipe material selection: DICL pressure mains and uPVC sewer mains.

5. STPs augmentations for growth were costed as secondary treatment augmentations for the Traditional Scenario and a process upgrade to tertiary treatment in addition to augmentation for the other scenarios.

6. Pump stations were sized on a pro-rata basis assuming that the data provided in the WSC asset register are accurate for servicing the existing population assuming 100 L/s pumps at 50 m head.

7. All costs are utility costs unless otherwise stated.

Sewerage operating cost assumptions:

1. WSC financial statements for 2005/06 were used to establish existing operating costs for the entire water supply. These costs were forecast based on a population growth pro-rata (i.e. operating costs per assessment are approximately maintained).

2. Additional operating costs as a result of the system operation and trade waste management programs for each scenario were added.

C.4 Stormwater Cost Estimates

General catchment and stormwater operating cost assumptions include:

1. Costs of existing programs were taken from WSC management plan.

2. Costs of future programs were determined by apportioning equally expenditure identified in the CAP across all parties identified in that plan as contributing to the realisation of the plan.

3. All costs are utility costs unless otherwise stated.

C.5 Capital Works Programs and Operation, Maintenance and Administration Schedules

Based on the capital and operating costs developed using the assumptions above, and the sequencing dictated by loads on the water supply and sewerage systems, a capital works program and matching operation, maintenance and administration schedule was developed for each of the water supply, sewerage and stormwater and catchment management aspects of each scenario. These programs are set out on the following pages.

These expenditure programs and schedules reflect utility expenditure only and do not include items such as the bulk water supply capital expenditure (and subsequent impacts on operating costs) and other miscellaneous capital works and operating expenses that do not immediately relate to any of the scenarios formulated. These programs and schedules are formulated such as to assist in the relative comparison of the scenarios, and should not be relied upon for other purposes. All dollars are $2005/06. A summary of costs is set out in the following table.

Scenario	Capital Cost (50 years, $'000, $2005/06)	Operating Cost (average per annum over 50 years, $'000, $2005/06)	NPV @ 7%$'000
Traditional	1,177,426	45,477	844,405
Scenario 1	1,061,592	43,878	790,596
Scenario 2	1,245,974	44,796	875,952
Scenario 3	1,236,868	44,415	874,623
Scenario 4	1,247,893	44,954	887,290

Wyong Shire Council

Water Supply **Capital Works Program** **Traditional Scenario**

2005 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Total Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.			100		0																														
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 280 ML/d to meet growth.			100		45,600																	4,560	4,560	36,480											
		Infrastructure																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.			100		0																														
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Additional 135 ML. Assume 30 ML steel reservoirs for growth.			100		21,000											4,200									4,200										
MWH, WSC IWCM Sub-Plan 2007		Water pumping stations	Additional pump capacity for growth of 3,000 kW.			100		6,250	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
		Standards																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.		100			0																														
		Refurbishment																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.			100		0																														
WSC Refurbishment Expend Spreadsheet 2006		Water Reticulation Mains	No detail available.				100	68,494	197	197	197	268	268	268	268	396	396	396	428	428	428	428	557	557	557	653	653	653	653	868	868	868	964	964	964	964	1,607	1,607
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available.				100	52,114	404	542	542	542	597	597	597	597	1,011	1,011	1,011	1,103	1,103	1,103	1,103	1,930	1,930	1,930	2,205	2,205	2,205	2,205	1,377	1,377	1,377	1,927	1,927	1,927	1,927	1,376
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available.				100	14,255	18	18	18	18	18	18	72	72	72	72	72	72	72	108	108	108	108	108	108	108	144	144	144	144	144	144	144	180	180	180
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available.				100	25,917	514	514	825	825	475	475	277	277	326	326	349	349	514	514	988	988	587	587	372	372	514	514	825	825	475	475	277	277	326	326
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available.				100	11,773	1	1	1	1	1	1	1	31	31	31	31	31	31	31	74	74	74	74	74	74	74	120	120	120	120	120	120	120	148	148
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available.				100	4,070	16	22	22	22	24	24	24	24	30	30	30	32	32	32	41	77	77	77	79	79	79	85	146	146	146	155	155	155	161	54
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available.				100	4,508	54	59	59	49	49	70	70	67	67	69	69	91	91	139	139	274	274	141	141	54	54	59	59	49	49	70	70	67	67	69
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available.				100	2,424	3	3	3	3	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	22	22	22	22	22	22	22	22	22	22	46
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available.				100	929	43	18	18	18	20	15	15	15	22	18	18	19	33	34	34	34	20	21	21	21	12	17	17	17	17	13	13	14	12	10
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available.				100	5,760	200	200	200	100	260	400	400	100	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available.				100	4,911	80	80	50	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available.				100	5,330	150	100	100	100	150	250	150	150	150	150	170	200	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	0	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available.				100	6,200	100	100	100	100	300	300	300	300	200	200	300	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available.				100	1,300	0	0	0	0	0	0	0	0	200	400	300	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available.				100	1,070	100	100	0	0	100	0	170	200	180	90	90	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available.				100	420	0	0	0	0	0	120	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available.				100	663	0	0	0	0	150	90	73	150	150	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available.				100	200	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available.				100	490	10	80	0	0	0	0	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available.				100	242	2	2	2	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Chamhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100		18,405		635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		2,619																														

			TOTAL					**304,944**	**2,018**	**2,796**	**2,897**	**2,910**	**3,280**	**3,498**	**3,735**	**3,707**	**3,702**	**3,716**	**7,942**	**3,838**	**3,477**	**3,562**	**4,196**	**5,195**	**4,800**	**9,225**	**9,387**	**41,234**	**9,122**	**5,199**	**4,743**	**4,733**	**4,480**	**5,056**	**4,858**	**4,791**	**5,614**	**4,982**
			% Works LoS					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% Growth Works					93,874	125	760	760	760	760	760	760	760	760	760	4,960	760	760	760	760	760	760	5,320	5,320	37,240	4,960	760	760	760	760	760	760	760	760	760
			% Renewal Works					211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222
			% Subsidy					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Major Headworks					45,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,560	4,560	36,480	0	0	0	0	0	0	0	0	0	0
			Infrastructure					49,274	125	760	760	760	760	760	760	760	760	760	4,960	760	760	760	760	760	760	760	760	760	4,960	760	760	760	760	760	760	760	760	760
			Standards					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Refurbishment					211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222

Wyong Shire Council

Water Supply **Capital Works Program** **Traditional Scenario**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates. All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Major Headworks																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.			100																					
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160Ml/d to 260 Ml/d to meet growth.			100																					
		Infrastructure																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.			100																					
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Additional 135 ML. Assume 30 ML steel reservoirs for growth.			100		4,200										4,200									4,200
MWH, WSC IWCM Sub-Plan 2007		Water pumping stations	Additional pump capacity for growth of 3,000 kW.			100		125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
		Standards																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.		100																						
		Refurbishment																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available.			100																					
WSC Refurbishment Expend Spreadsheet 2006		Water Reticulation Mains	No detail available.				100	1,667	1,767	1,767	1,767	1,767	3,052	3,052	3,052	3,535	3,535	3,535	3,535	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available.				100	1,375	1,375	826	826	826	826	826	826	826	459	459	459	459	294	294	294	294	294	294	294	294
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available.				100	180	180	180	180	360	360	360	360	360	360	360	900	900	900	900	900	900	900	900	900
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available.				100	349	349	514	514	968	968	587	587	370	370	503	503	783	783	420	420	420	420	420	420	420
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available.				100	148	148	148	148	148	148	148	148	148	148	148	148	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available.				100	54	54	69	69	69	105	105	105	105	78	78	78	136	127	127	127	127	127	127	127	127
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available.				100	69	91	91	139	139	274	274	141	141	53	53	98	58	42	42	42	42	42	42	42	42
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available.				100	49	49	49	49	49	49	49	49	49	145	145	145	145	145	145	145	145	145	145	145	145
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available.				100	10	11	12	13	13	11	13	14	14	13	14	20	20	20	22	22	22	22	22	22	22
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available.				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available.				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available.				100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available.				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available.				100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
TOTAL	**8,701**	**4,687**	**4,318**	**4,366**	**5,000**	**6,353**	**6,074**	**5,943**	**6,207**	**5,822**	**10,157**	**6,507**	**6,427**	**6,237**	**5,876**	**5,876**	**5,876**	**5,876**	**5,876**	**10,076**
% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Growth Works	4,455	256	256	256	256	256	256	256	256	256	4,455	256	256	256	256	256	256	256	256	4,456
% Renewal Works	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Headworks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infrastructure	4,455	256	256	256	256	256	256	256	256	256	4,456	256	256	256	256	256	256	256	256	4,456
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refurbishment	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620

Wyong Shire Council

Water Supply **Operations, Maintenance and Administration Schedule** **Traditional Scenario**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																														
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				0																														
		Distribution																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																														
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Covered in the pro-rata increase in opex below.	100				0																														
MWH, WSC IWCM Sub-Plan 2007		Water pumping stations	Covered in the pro-rata increase in opex below.	100				0																														
		Reticulation																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																														
		Demand Management																																				
MWH Assumption		Education	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH Assumption		WELS	WELS promotion materials.			100		28	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		Existing Management Expenses																																				
WSC, Special Schedules 2005/06			Engineering & Supervision			100		504,572	7,044	7,173	7,305	7,439	7,575	7,714	7,826	7,939	8,054	8,170	8,289	8,408	8,530	8,654	8,779	8,906	9,017	9,129	9,242	9,357	9,473	9,591	9,710	9,830	9,952	10,076	10,201	10,327	10,455	10,584
		Existing Operations Expenses																																				
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				6,671	93	95	97	98	100	102	103	105	106	108	110	111	113	114	116	118	119	121	122	124	125	127	128	130	132	133	135	137	138	140
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			3,118	44	44	45	46	47	48	48	49	50	50	51	52	53	53	54	55	56	56	57	58	59	59	60	61	61	62	63	64	65	65
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				135,152	1,887	1,921	1,957	1,992	2,029	2,066	2,096	2,126	2,157	2,188	2,220	2,252	2,285	2,318	2,351	2,386	2,415	2,445	2,476	2,506	2,537	2,569	2,601	2,633	2,666	2,699	2,732	2,766	2,800	2,835
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			187,066	2,612	2,659	2,708	2,758	2,809	2,860	2,901	2,943	2,986	3,029	3,073	3,117	3,163	3,208	3,255	3,302	3,343	3,384	3,426	3,469	3,512	3,556	3,600	3,645	3,690	3,736	3,782	3,829	3,876	3,924
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				9,861	138	140	143	145	148	151	153	155	157	160	162	164	167	169	172	174	176	178	181	183	185	187	190	192	195	197	199	202	204	207
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			5,635	79	80	82	83	85	86	88	89	90	92	93	94	96	97	98	100	101	102	104	105	106	107	109	110	112	113	114	116	117	119
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				30,960	432	440	448	456	465	473	480	487	494	501	509	516	523	531	539	546	553	560	567	574	581	588	596	603	611	618	626	634	641	649
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	38,138	532	542	552	562	573	583	591	600	609	618	626	636	645	654	664	673	682	690	699	707	716	725	734	743	752	762	771	781	790	800
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			27,407	383	390	397	404	411	419	425	431	437	444	450	457	463	470	477	484	490	496	502	508	515	521	527	534	541	547	554	561	568	575
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				47,274	660	672	684	697	710	723	733	744	755	765	777	788	799	811	823	834	845	855	866	877	888	899	910	921	932	944	956	968	980	992
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	1,160	16	16	17	17	17	18	18	18	19	19	19	19	20	20	20	20	21	21	21	22	22	22	22	23	23	23	23	24	24	24
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			27,262	381	388	395	402	409	417	423	429	435	441	448	454	461	468	474	481	487	493	499	506	512	518	525	531	538	544	551	558	565	572
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				6,453	90	92	93	95	97	99	100	102	103	104	106	108	109	111	112	114	115	117	118	120	121	123	124	126	127	129	130	132	134	135
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			73	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				70,911	990	1,008	1,027	1,045	1,065	1,084	1,100	1,116	1,132	1,148	1,165	1,182	1,199	1,216	1,234	1,252	1,267	1,283	1,299	1,315	1,331	1,348	1,365	1,382	1,399	1,416	1,434	1,451	1,469	1,487
		New Programs																																				
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		765		45			45			45			45			45			45			45			45			45			45	
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		750	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		383	23			23			23			23			23			23			23			23			23				23		
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		0																														
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		6,250	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		6,750	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		1,020		60			60			60			60			60			60			60			60			60			60	

								TOTAL	**1,117,680**	**15,682**	**16,043**	**16,225**	**16,540**	**16,921**	**17,119**	**17,385**	**17,715**	**17,861**	**18,138**	**18,479**	**18,635**	**18,924**	**19,276**	**19,444**	**19,744**	**20,068**	**20,208**	**20,478**	**20,811**	**20,960**	**21,239**	**21,582**	**21,740**	**22,029**	**22,382**	**22,549**	**22,847**	**23,208**	**23,386**
								Operations	307,282	4,290	4,368	4,449	4,530	4,613	4,698	4,766	4,835	4,905	4,976	5,048	5,121	5,195	5,270	5,346	5,424	5,491	5,559	5,628	5,698	5,769	5,841	5,913	5,987	6,061	6,136	6,212	6,289	6,367	6,446
								Maintenance	250,582	3,498	3,562	3,628	3,694	3,762	3,831	3,886	3,943	4,000	4,058	4,116	4,176	4,236	4,298	4,360	4,423	4,478	4,533	4,590	4,647	4,704	4,763	4,822	4,882	4,943	5,004	5,066	5,129	5,192	5,256
								Administration	520,517	7,345	7,554	7,580	7,737	7,955	7,989	8,124	8,319	8,329	8,468	8,669	8,684	8,828	9,034	9,054	9,204	9,397	9,404	9,540	9,737	9,748	9,889	10,090	10,106	10,250	10,457	10,476	10,625	10,835	10,859
								Chemical/Energy	39,298	549	559	569	579	590	601	609	618	627	636	646	655	664	674	684	694	702	711	720	729	738	747	756	766	775	785	794	804	814	824

Wyong Shire Council

Water Supply **Operations, Maintenance and Administration Schedule** **Traditional Scenario**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Major Headworks																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				**0**																				
		Distribution																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Covered in the pro-rata increase in opex below.	100				**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water pumping stations	Covered in the pro-rata increase in opex below.	100				**0**																				
		Reticulation																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																				
		Demand Management																										
MWH Assumption		Education	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH Assumption		WELS	WELS promotion materials.			100		**28**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		Existing Management Expenses																										
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**504,572**	10,715	10,847	10,982	11,117	11,255	11,394	11,521	11,649	11,779	11,911	12,043	12,178	12,313	12,450	12,589	12,729	12,871	13,015	13,160	13,306
		Existing Operations Expenses																										
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				**6,671**	142	143	145	147	149	151	152	154	156	157	159	161	163	165	166	168	170	172	174	176
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			**3,118**	66	67	68	69	70	70	71	72	73	74	74	75	76	77	78	79	80	80	81	82
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**135,152**	2,870	2,906	2,941	2,978	3,015	3,052	3,086	3,120	3,155	3,190	3,226	3,262	3,298	3,335	3,372	3,410	3,448	3,486	3,525	3,564
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**187,066**	3,972	4,022	4,071	4,122	4,173	4,224	4,271	4,319	4,367	4,416	4,465	4,515	4,565	4,616	4,667	4,719	4,772	4,825	4,879	4,933
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				**9,861**	209	212	215	217	220	223	225	228	230	233	235	238	241	243	246	249	252	254	257	260
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			**5,655**	120	122	123	125	126	128	129	131	132	133	135	136	138	140	141	143	144	146	148	149
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**30,960**	657	666	674	682	691	699	707	715	723	731	739	747	756	764	772	781	790	799	807	816
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**38,138**	810	820	830	840	851	861	871	881	890	900	910	920	931	941	952	962	973	984	995	1,006
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**27,407**	582	589	596	604	611	619	626	633	640	647	654	661	669	676	684	691	699	707	715	723
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**47,274**	1,004	1,016	1,029	1,042	1,054	1,068	1,079	1,091	1,104	1,116	1,128	1,141	1,154	1,167	1,180	1,193	1,206	1,219	1,233	1,247
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**1,160**	25	25	25	26	26	26	26	27	27	27	28	28	28	29	29	29	30	30	30	31
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**27,262**	579	586	593	601	608	616	622	629	636	644	651	658	665	673	680	688	695	703	711	719
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**6,453**	137	139	140	142	144	146	147	149	151	152	154	156	157	159	161	163	165	166	168	170
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**73**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				**70,911**	1,506	1,524	1,543	1,562	1,582	1,601	1,619	1,637	1,655	1,674	1,693	1,711	1,730	1,750	1,769	1,789	1,809	1,829	1,849	1,870
		New Programs																										
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**		45			45			45			45			45			45			45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23			23			23			23			23			23			23	
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		**0**																				
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**		60			60			60			60			60			60			60

							TOTAL	**1,117,680**	**23,694**	**24,066**	**24,254**	**24,573**	**24,956**	**25,155**	**25,454**	**25,817**	**25,996**	**26,305**	**26,677**	**26,865**	**27,184**	**27,566**	**27,764**	**28,093**	**28,485**	**28,693**	**29,032**	**29,435**
							Operations	307,282	6,525	6,606	6,688	6,770	6,854	6,939	7,016	7,094	7,174	7,253	7,334	7,416	7,499	7,582	7,667	7,752	7,839	7,926	8,014	8,104
							Maintenance	250,582	5,321	5,387	5,454	5,521	5,589	5,659	5,722	5,785	5,850	5,915	5,981	6,048	6,115	6,183	6,252	6,322	6,392	6,463	6,535	6,608
							Administration	520,517	11,013	11,228	11,257	11,415	11,635	11,670	11,819	12,030	12,055	12,209	12,424	12,453	12,611	12,831	12,865	13,027	13,252	13,290	13,458	13,687
							Chemical/Energy	39,298	835	845	855	866	877	887	897	907	917	928	938	948	959	970	981	991	1,002	1,014	1,025	1,036

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 1 - Current Initiatives**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			0 100		**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 215 ML/d to meet growth.			100		**28,500**																														
		Infrastructure																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100		**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Additional 90 ML. Assume 30 ML steel reservoirs for growth.			100		**17,500**											3,500										3,500									
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Additional pump capacity for growth of 1,800 kW.			100		**3,350**	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
		Standards																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100		**0**																														
		Refurbishment																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100	**0**																														
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Water Reticulation Mains	No detail available				100	**68,494**	197	197	197	268	268	268	268	396	396	396	428	428	428	428	557	557	557	653	653	653	653	868	868	868	964	964	964	964	1607	1607
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	**52,114**	404	542	542	542	597	597	597	597	1011	1011	1011	1103	1103	1103	1103	1930	1930	1930	2205	2205	2205	2205	1377	1377	1377	1927	1927	1927	1927	1375
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	**14,255**	18	18	18	18	18	18	72	72	72	72	72	72	72	108	108	108	108	108	108	108	108	144	144	144	144	144	144	144	180	180	180
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	**25,917**	514	514	825	825	475	475	277	277	326	326	349	349	514	514	968	968	587	587	372	372	514	514	825	825	475	475	277	277	326	326
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	**11,773**	1	1	1	1	1	1	1	31	31	31	31	31	31	31	74	74	74	74	74	74	74	120	120	120	120	120	120	120	148	148
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	**4,070**	16	22	22	22	24	24	24	24	30	30	30	32	32	32	41	77	77	77	79	79	79	85	146	146	146	155	155	155	161	94
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	**4,508**	54	59	59	49	49	70	70	67	67	69	69	91	91	139	139	274	274	141	141	54	54	59	59	49	49	70	70	67	67	69
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	**2,424**	3	3	3	3	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	22	22	22	22	22	22	22	22	22	22	49
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	**929**	43	18	18	18	20	15	15	15	22	18	18	19	33	34	34	34	20	21	21	21	12	17	17	17	17	13	13	14	12	10
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	**5,760**	200	200	200	100	260	400	400	100	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	**4,911**	80	80	50	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	**5,330**	150	100	100	100	150	250	150	150	150	150	170	200	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	**6,200**	100	100	100	100	300	300	300	300	200	200	300	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	**1,300**	0	0	0	0	0	0	0	0	200	400	300	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	**1,070**	100	100	0	0	100	0	170	200	180	90	90	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	**420**	0	0	0	0	0	120	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	**663**	0	0	0	0	150	90	73	150	150	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available				100	**200**	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	**490**	10	80	0	0	0	0	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	**242**	2	2	2	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA				100	**18,405**		635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA				100	**2,619**																														

			TOTAL					**281,444**	**1,960**	**2,738**	**2,839**	**2,852**	**3,222**	**3,440**	**3,677**	**3,649**	**3,644**	**3,658**	**7,184**	**3,780**	**3,419**	**3,504**	**4,138**	**5,137**	**4,742**	**4,607**	**4,769**	**4,696**	**8,364**	**5,141**	**4,685**	**4,675**	**4,422**	**4,998**	**4,800**	**4,733**	**5,556**	**4,924**
			% Works LoS					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% Growth Works					70374	67	702	702	702	702	702	702	702	702	702	4,202	702	702	702	702	702	702	702	702	702	4,202	702	702	702	702	702	702	702	702	702
			% Renewal Works					211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,907	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222
			% Subsidy					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Major Headworks					28500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Infrastructure					41874	67	702	702	702	702	702	702	702	702	702	4,202	702	702	702	702	702	702	702	702	702	4,202	702	702	702	702	702	702	702	702	702
			Standards					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Refurbishment					211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,907	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 1 - Current Initiatives**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Major Headworks																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		0	100																					
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 215ML/d to meet growth.			100		2850	2850	22800																	
		Infrastructure																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Additional 90 ML. Assume 30 ML steel reservoirs for growth.			100		3,500										3,500									3,500
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Additional pump capacity for growth of 1,800 kW.			100		67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
		Standards																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
		Refurbishment																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100																				
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Water Reticulation Mains	No detail available				100	1607	1767	1767	1767	1767	3052	3052	3052	3535	3535	3535	3535	3535	2250	2250	2250	2250	2250	2250	2250
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	1375	1375	826	826	826	826	826	826	826	459	459	459	459	294	294	294	294	294	294	294
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	180	180	180	180	360	360	360	360	360	360	360	900	900	900	900	900	900	900	900	900
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	349	349	514	514	968	968	587	587	370	370	503	503	783	783	420	420	420	420	420	420
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	148	148	148	148	148	148	148	148	148	148	148	148	1015	1015	1015	1015	1015	1015	1015	1015
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	54	54	69	69	69	105	105	105	105	78	78	78	136	127	127	127	127	127	127	127
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	69	91	91	139	139	274	274	141	141	53	53	58	58	42	42	42	42	42	42	42
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	49	49	49	49	49	49	49	49	49	145	145	145	145	145	145	145	145	145	145	145
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	10	11	12	13	13	11	13	14	14	13	14	20	20	20	22	22	22	22	22	22
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131

							TOTAL	**10,793**	**7,479**	**27,060**	**4,308**	**4,942**	**6,295**	**6,016**	**5,885**	**6,149**	**5,764**	**9,399**	**6,449**	**6,369**	**6,179**	**5,818**	**5,818**	**5,818**	**5,818**	**5,818**	**9,318**
							% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							% Growth Works	6,548	3,048	22,998	198	198	198	198	198	198	198	3,698	198	198	198	198	198	198	198	198	3,698
							% Renewal Works	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620
							% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Major Headworks	2,850	2,850	22,800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Infrastructure	3,698	198	198	198	198	198	198	198	198	198	3,698	198	198	198	198	198	198	198	198	3,698
							Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Refurbishment	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620

Wyong Shire Council

Water Supply

Operations, Maintenance and Administration Schedule

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Scenario 1 - Current Initiatives

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				**0**																														
		Distribution																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water reservoirs	Covered in the pro-rata increase in opex below.	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				**0**																														
WSC TAG to Board, 15 November 2006, revised Feb 2007		Tanker reuse	Landscape and construction watering	100				**2,725**	7	7	482	482	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC TAG to Board, 15 November 2006, revised Feb 2007		Rural Fire reuse	Use of recycled effluent for training purposes	100				**250**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																														
		Demand Management																																				
MWH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		**28**	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		BASIX				100		**49**	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MWH, WSC IWCM Sub-Plan 2007		Currently set price increases.	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		**80**	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			**2,252**	0	0	1,126	1,126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			**296**	0	0	56	56	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		Existing Management Expenses																																				
WSC, Special Schedules 2005/06		Engineering & Supervision				100		**504,572**	7,044	7,173	7,305	7,439	7,575	7,714	7,826	7,939	8,054	8,170	8,289	8,408	8,530	8,654	8,779	8,905	9,017	9,129	9,242	9,357	9,473	9,591	9,710	9,830	9,952	10,076	10,201	10,327	10,455	10,584
		Existing Operating Expenses																																				
WSC, Special Schedules 2005/06		Dams & Weirs - Operation Expenses		100				**6,671**	93	95	97	98	100	102	103	105	106	108	110	111	113	114	116	118	119	121	122	124	125	127	128	130	132	133	135	137	138	140
WSC, Special Schedules 2005/06		Dams & Weirs - Maintenance Expenses			100			**3,118**	44	44	45	46	47	48	48	49	50	50	51	52	53	53	54	55	56	56	57	58	59	59	60	61	61	62	63	64	65	65
WSC, Special Schedules 2005/06		Mains - Operation Expenses		100				**135,152**	1,887	1,921	1,957	1,992	2,029	2,066	2,096	2,126	2,157	2,188	2,220	2,252	2,285	2,318	2,351	2,386	2,415	2,445	2,476	2,506	2,537	2,569	2,601	2,633	2,666	2,699	2,732	2,766	2,800	2,835
WSC, Special Schedules 2005/06		Mains - Maintenance Expenses			100			**187,066**	2,612	2,659	2,708	2,758	2,808	2,860	2,901	2,943	2,986	3,029	3,073	3,117	3,163	3,208	3,255	3,302	3,343	3,384	3,426	3,469	3,512	3,556	3,600	3,645	3,690	3,736	3,782	3,829	3,876	3,924
WSC, Special Schedules 2005/06		Reservoirs - Operation Expenses		100				**9,861**	138	140	143	145	148	151	153	155	157	160	162	164	167	169	172	174	176	178	181	183	185	187	190	192	195	197	199	202	204	207
WSC, Special Schedules 2005/06		Reservoirs - Maintenance Expenses			100			**5,655**	79	80	82	83	85	86	88	89	90	92	93	94	96	97	98	100	101	102	104	105	106	107	109	110	112	113	114	116	117	119
WSC, Special Schedules 2005/06		Pump Stations - Operation Expenses		100				**30,960**	432	440	448	456	465	473	480	487	494	501	509	516	523	531	539	546	553	560	567	574	581	588	596	603	611	618	626	634	641	649
WSC, Special Schedules 2005/06		Pump Stations - Energy Costs					100	**30,129**	421	428	436	444	452	461	467	474	481	488	495	502	509	517	524	532	538	545	552	559	566	573	580	587	594	602	609	617	624	632
WSC, Special Schedules 2005/06		Pump Stations - Maintenance Expenses			100			**27,407**	383	390	397	404	411	419	425	431	437	444	450	457	463	470	477	484	490	496	502	508	515	521	527	534	541	547	554	561	568	575
WSC, Special Schedules 2005/06		Treatment - Operation Expenses		100				**47,274**	660	672	684	697	710	723	733	744	755	765	777	788	799	811	823	834	845	855	866	877	888	899	910	921	932	944	956	968	980	992
WSC, Special Schedules 2005/06		Treatment - Chemical Costs					100	**916**	13	13	13	14	14	14	14	14	15	15	15	15	15	16	16	16	16	17	17	17	17	17	18	18	18	18	19	19	19	19
WSC, Special Schedules 2005/06		Treatment - Maintenance Expenses			100			**27,262**	381	388	395	402	409	417	423	429	435	441	448	454	461	468	474	481	487	493	499	506	512	518	525	531	538	544	551	558	565	572
WSC, Special Schedules 2005/06		Other - Operation Expenses		100				**6,453**	90	92	93	95	97	99	100	102	103	104	106	108	109	111	112	114	115	117	118	120	121	123	124	126	127	129	130	132	134	135
WSC, Special Schedules 2005/06		Other - Maintenance Expenses			100			**73**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
WSC, Special Schedules 2005/06		Other - Purchase of Water		100				**70,911**	990	1,008	1,027	1,045	1,065	1,084	1,100	1,116	1,132	1,148	1,165	1,182	1,199	1,216	1,234	1,252	1,267	1,283	1,299	1,315	1,331	1,348	1,365	1,382	1,399	1,416	1,434	1,451	1,469	1,487
		New Programs																																				
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		**-136,790**	-70	-72	-146	-223	-303	-386	-470	-556	-644	-735	-829	-925	-1,024	-1,125	-1,229	-1,336	-1,443	-1,552	-1,664	-1,778	-1,895	-2,014	-2,136	-2,261	-2,389	-2,519	-2,652	-2,788	-2,927	-3,069
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**		45			45			45			45			45			45			45			45			45			45		
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23				23			23			23			23			23			23			23			23			23		
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		**0**																														
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		**0**																														
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		**1,233**			73		73			73			73			73			73			73			73			73			73		
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**			60					60						60					60					60					60		
MWH, WSC IWCM Sub-Plan 2007		Water loss prevention program	Program to reduce leakage by 75% in areas treated		100			**3,485**	51	52	53	54	55	55	56	57	57	58	59	60	60	61	62	63	63	64	65	65	66	67	67	68	69	70	70	71	72	73

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
TOTAL	**994,631**	**15,812**	**16,244**	**17,935**	**18,171**	**16,901**	**16,943**	**17,124**	**17,439**	**17,423**	**17,607**	**17,926**	**17,913**	**18,101**	**18,423**	**18,414**	**18,606**	**18,894**	**18,851**	**19,008**	**19,298**	**19,257**	**19,415**	**19,707**	**19,667**	**19,827**	**20,120**	**20,081**	**20,241**	**20,535**	**20,496**
Operations	316,257	4,393	4,580	4,938	5,017	4,606	4,741	4,809	4,879	4,948	5,018	5,091	5,164	5,238	5,313	5,389	5,467	5,544	5,622	5,701	5,781	5,863	5,946	6,030	6,116	6,203	6,179	6,265	6,352	6,440	6,529
Maintenance	256,614	3,550	3,615	3,862	4,920	3,830	3,890	3,946	4,003	4,061	4,120	4,179	4,239	4,301	4,363	4,426	4,489	4,545	4,601	4,658	4,716	4,774	4,834	4,893	4,954	5,015	5,078	5,140	5,204	5,268	5,333
Administration	396,714	7,527	7,808	7,688	7,767	7,938	7,837	7,887	8,070	7,918	7,965	8,146	7,993	8,038	8,215	8,059	8,102	8,260	8,086	8,110	8,263	8,087	8,108	8,260	8,078	8,095	8,244	8,058	8,070	8,214	8,024
Chemical/Energy	31,046	433	441	449	458	466	475	481	488	496	503	510	517	525	532	540	548	555	562	569	576	583	590	597	605	612	620	628	635	643	651

Wyong Shire Council

Water Supply

Operations, Maintenance and Administration Schedule
2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Scenario 1 - Current Initiatives

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Major Headworks																										
Water Plan 2050		Refer to Water Plan 2050	No detail available	100				**0**																				
MWH, WSC WCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				**0**																				
		Distribution																										
Water Plan 2050		Refer to Water Plan 2050	No detail available	100				**0**																				
MWH, WSC WCM Sub-Plan 2007		Water reservoirs	Covered in the pro-rata increase in opex below.	100				**0**																				
MWH, WSC WCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				**0**																				
WSC TAG to Board, 15 November 2006, revised Feb 2007		Tanker reuse	Landscape and construction watering	100				**2,725**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC TAG to Board, 15 November 2006, revised Feb 2007		Rural Fire reuse	Use of recycled effluent for training purposes	100				**250**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																										
Water Plan 2050		Refer to Water Plan 2050	No detail available	100				**0**																				
		Demand Management																										
MWH, WSC WCM Sub-Plan 2007		WELS	WELS promotion materials.			100		**28**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC WCM Sub-Plan 2007		BASIX				100		**49**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MWH, WSC WCM Sub-Plan 2007		Currently set price increases.	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		**80**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washline Machine Rebate	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			**2,252**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			**296**	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		Existing Management Expenses																										
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**504,572**	10,715	10,847	10,982	11,117	11,255	11,394	11,521	11,649	11,779	11,911	12,043	12,178	12,313	12,450	12,589	12,729	12,871	13,015	13,160	13,306
		Existing Operating Expenses																										
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				**6,671**	142	143	145	147	149	151	152	154	156	157	159	161	163	165	166	168	170	172	174	176
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			**3,118**	66	67	68	69	70	70	71	72	73	74	74	75	76	77	78	79	80	80	81	82
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**135,152**	2,870	2,905	2,941	2,978	3,015	3,052	3,086	3,120	3,155	3,190	3,226	3,262	3,298	3,335	3,372	3,410	3,448	3,486	3,525	3,564
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**187,066**	3,972	4,022	4,071	4,122	4,173	4,224	4,271	4,319	4,367	4,416	4,465	4,515	4,565	4,616	4,667	4,719	4,772	4,825	4,879	4,933
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				**9,861**	209	212	215	217	220	223	225	228	230	233	235	238	241	243	246	249	252	254	257	260
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			**5,855**	120	122	123	125	126	128	129	131	132	133	135	136	138	140	141	143	144	146	148	149
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**30,969**	657	666	674	682	691	699	707	715	723	731	739	747	756	764	772	781	790	799	807	816
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**30,129**	640	648	656	664	672	680	688	696	703	711	719	727	735	743	752	760	769	777	786	795
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**27,407**	582	589	596	604	611	619	626	633	640	647	654	661	669	676	684	691	699	707	715	723
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**47,274**	1,004	1,016	1,029	1,042	1,054	1,068	1,079	1,091	1,104	1,116	1,128	1,141	1,154	1,167	1,180	1,193	1,206	1,219	1,233	1,247
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**916**	19	20	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**27,262**	579	586	593	601	608	616	622	629	636	644	651	658	665	673	680	688	695	703	711	719
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**6,463**	137	139	140	142	144	146	147	149	151	152	154	156	157	159	161	163	165	166	168	170
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**73**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				**70,911**	1,506	1,524	1,543	1,562	1,582	1,601	1,619	1,637	1,655	1,674	1,693	1,711	1,730	1,750	1,769	1,789	1,809	1,829	1,849	1,870
		New Programs																										
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		**-136,790**	-3,214	-3,363	-3,514	-3,669	-3,827	-3,988	-4,148	-4,310	-4,476	-4,645	-4,817	-4,993	-5,172	-5,354	-5,539	-5,728	-5,921	-6,117	-6,317	-6,520
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**		45			45			45			45			45			45			45	
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23			23			23			23			23			23			23	
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		**0**																				
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		**0**																				
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		**1,233**		73			73			73			73			73			73			73	
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**			60			60			60			60				60			60	
MWH, WSC WCM Sub-Plan 2007		Water loss prevention program	Program to reduce leakage by 75% in areas treated		100			**3,465**	73	74	75	76	77	78	78	79	80	81	81	82	83	84	85	86	86	87	88	89

							TOTAL	**994,631**	**20,658**	**20,953**	**20,916**	**21,079**	**21,375**	**21,338**	**21,477**	**21,748**	**21,687**	**21,828**	**22,097**	**22,036**	**22,175**	**22,446**	**22,384**	**22,522**	**22,793**	**22,731**	**22,869**	**23,139**
							Operations	310,270	6,368	6,546	6,731	6,915	6,897	6,862	7,009	7,137	7,217	7,295	7,377	7,459	7,542	7,629	7,716	7,795	7,892	7,969	8,057	8,147
							Maintenance	256,618	5,399	5,465	5,533	5,601	5,670	5,740	5,804	5,868	5,934	6,000	6,066	6,134	6,202	6,271	6,341	6,411	6,483	6,555	6,628	6,701
							Administration	396,714	8,032	8,171	7,976	7,960	8,115	7,915	7,905	8,026	7,812	7,797	7,912	7,884	7,673	7,783	7,559	7,533	7,637	7,407	7,375	7,473
							Chemical/Energy	31,049	659	667	676	684	693	701	709	717	725	733	741	749	758	766	775	783	792	801	810	819

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 2**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			0 100		**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 205 ML/d to meet growth.			100		**23,700**																														
		Infrastructure																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100		**0**																														
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Additional 80 ML. Assume 30 ML steel reservoirs for growth			100		**12,390**																					6,195										
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Additional pump capacity for growth of 1,400 kW.			100		**2,700**	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
		Standards																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100		**0**																														
		Refurbishment																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100	**0**																														
WSC Refurbishment Expend Spreadsheet 2006		Water Reticulation Mains	No detail available				100	**68,494**	197	197	197	268	268	268	268	396	396	396	428	428	428	428	557	557	557	653	653	653	653	868	868	868	964	964	964	964	1,607	1,607
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	**52,114**	404	542	542	542	597	597	597	597	1,011	1,011	1,011	1,103	1,103	1,103	1,103	1,930	1,930	1,930	2,205	2,205	2,205	2,205	1,377	1,377	1,377	1,927	1,927	1,927	1,927	1,375
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	**14,255**	18	18	18	18	18	18	72	72	72	72	72	72	72	108	108	108	108	108	108	108	144	144	144	144	144	144	144	144	180	180
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	**23,917**	514	514	825	825	475	475	277	277	326	326	349	349	514	514	968	968	587	587	372	372	514	514	825	825	475	475	277	277	326	326
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	**11,773**	1	1	1	1	1	1	1	31	31	31	31	31	31	31	74	74	74	74	74	74	74	120	120	120	120	120	120	120	148	148
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	**4,070**	16	22	22	22	24	24	24	24	30	30	30	32	32	32	41	77	77	77	79	79	79	85	146	146	146	155	155	155	161	54
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	**4,508**	54	59	59	49	49	70	70	67	67	69	69	91	91	139	139	274	274	141	141	54	54	59	59	49	49	70	70	67	67	69
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	**2,424**	3	3	3	3	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	22	22	22	22	22	22	22	22	22	22	49
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	**929**	43	18	18	18	20	15	15	15	22	18	18	19	33	34	34	34	20	21	21	21	12	17	17	17	17	13	13	14	12	10
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	**5,760**	200	200	200	100	260	400	400	100	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	**4,911**	80	80	50	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	**5,330**	150	100	100	100	150	250	150	160	150	150	170	200	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	**6,200**	100	100	100	100	300	300	300	300	200	200	300	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	**1,300**	0	0	0	0	0	0	0	0	200	400	300	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	**1,070**	100	100	0	0	100	0	170	200	180	90	90	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	**420**	0	0	0	0	0	120	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	**663**	0	0	0	0	150	90	73	150	150	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Contrd Systems	No detail available				100	**200**	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	**490**	10	80	0	0	0	0	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	**242**	2	2	2	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Warnervale**	Warnervale DC reuse	Included in Stage 1 Urban release area costings			100		**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Hamlyn Terrace**	Hamlyn Terrace reuse	Included in Stage 1 Urban release area costings			100		**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100		**18,405**		635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		**2,619**																														

								TOTAL	**270,884**	**1,947**	**2,725**	**2,826**	**2,839**	**3,209**	**3,427**	**3,664**	**3,636**	**3,631**	**3,645**	**3,671**	**3,767**	**3,406**	**3,491**	**4,125**	**5,124**	**4,729**	**4,594**	**4,756**	**4,683**	**11,046**	**5,128**	**4,672**	**4,662**	**4,409**	**4,985**	**4,787**	**4,720**	**5,543**	**4,911**
								% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								% Growth Works	59,814	54	689	689	689	689	689	689	689	689	689	689	689	689	689	688	689	689	689	689	689	6,884	689	689	689	688	689	689	689	689	689
								% Renewal Works	211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,975	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222
								% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Major Headworks	23,700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Infrastructure	36,114	54	689	689	689	689	689	689	689	689	689	689	689	689	689	688	689	689	689	689	689	6,884	689	689	689	688	689	689	689	689	689
								Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Refurbishment	211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,975	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 2**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works Lot	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Major Headworks																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		0	100																					
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 205 ML/d to meet growth.			100					2,370	2,370	18,960														
		Infrastructure																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Additional 80ML. Assume 30 ML steel reservoirs for growth.			100												6,195									
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Additional pump capacity for growth of 1,400 kW.			100		54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
		Standards																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
		Refurbishment																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100																				
WSC Refurbishment Expend Spreadsheet 2006		Water Reticulation Mains	No detail available				100	1,607	1,767	1,767	1,767	1,767	3,052	3,052	3,052	3,535	3,535	3,535	3,535	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	1,375	1,375	826	826	826	826	826	826	826	459	459	459	459	294	294	294	294	294	294	294	294
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	180	180	180	180	360	360	360	360	360	360	360	900	900	900	900	900	900	900	900	900
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	349	349	514	514	968	968	587	587	370	370	503	503	783	783	420	420	420	420	420	420
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	148	148	148	148	148	148	148	148	148	148	148	148	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	54	54	69	69	69	105	105	105	105	78	78	78	136	127	127	127	127	127	127	127
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	69	91	91	139	139	274	274	141	141	53	53	58	58	42	42	42	42	42	42	42
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	49	49	49	49	49	49	49	49	49	145	145	145	145	145	145	145	145	145	145	145
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	10	11	12	13	13	11	13	14	14	13	14	20	20	20	22	22	22	22	22	22
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Warnervale**	Warnervale DC reuse	Included in Stage 1 Urban release area costings			100																					
MWH, WSC IWCM Sub-Plan 2007	**Hamlyn Terrace**	Hamlyn Terrace reuse	Included in Stage 1 Urban release area costings			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
TOTAL	**4,430**	**4,616**	**4,247**	**6,665**	**7,299**	**25,242**	**6,003**	**5,872**	**6,136**	**5,751**	**12,081**	**6,436**	**6,356**	**6,166**	**5,805**	**5,805**	**5,805**	**5,805**	**5,805**	**5,805**
% Works Lot	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Growth Works	185	185	185	2,555	2,535	19,145	185	185	185	185	6,380	185	185	185	185	185	185	185	185	185
% Renewal Works	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Headworks	0	0	0	2,370	2,370	18,960	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infrastructure	185	185	185	185	185	185	185	185	185	185	6,380	185	185	185	185	185	185	185	185	185
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refurbishment	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620

Wyong Shire Council

Water Supply — **Operations, Maintenance and Administration Schedule** — **Scenario 2**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																														
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				0																														
		Distribution																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																														
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Covered in the pro-rata increase in opex below.	100				0																														
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				0																														
WSC TAG to Board, 15 November 2006, revised Feb 2007		Tanker reuse	Landscape and construction watering	100				2,725	7	7	482	482	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC TAG to Board, 15 November 2006, revised Feb 2007		Rural Fire reuse	Use of recycled effluent for training purposes	100				250	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																														
		Demand Management																																				
MWH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		23	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		BASIX				100		49	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MWH, WSC IWCM Sub-Plan 2007		Inclining Block Tariff - Residential	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Active Water Loss Program																																				
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		80	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			2,252	0	0	1,126	1,126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			296	0	0	56	56	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
MWH, WSC IWCM Sub-Plan 2007		Continued operation of government efficiency program		100				764	0	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MWH, WSC IWCM Sub-Plan 2007		Dual flush retrofit		100				538		179	179	179																										
MWH, WSC IWCM Sub-Plan 2007		Rainwater tanks for new non-residential development		100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		IWCM Design	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Energy Audits	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		System Monitoring		100				5,000	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
		Existing Management Expenses																																				
WSC, Special Schedules 2005/06			Engineering & Supervision			100		504,572	7,044	7,173	7,305	7,439	7,575	7,714	7,826	7,939	8,054	8,170	8,289	8,408	8,530	8,654	8,779	8,906	9,017	9,129	9,242	9,357	9,473	9,591	9,710	9,830	9,952	10,076	10,201	10,327	10,455	10,584
		Existing Operating Expenses																																				
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				6,671	93	95	97	98	100	102	103	105	106	108	110	111	113	114	116	118	119	121	122	124	125	127	128	130	132	133	135	137	138	140
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			3,119	44	44	45	46	47	48	48	49	50	50	51	52	53	53	54	55	56	56	57	58	59	59	60	61	61	62	63	64	65	65
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				135,152	1,897	1,921	1,957	1,992	2,029	2,066	2,096	2,126	2,157	2,188	2,220	2,252	2,285	2,318	2,351	2,386	2,415	2,445	2,476	2,508	2,537	2,569	2,601	2,633	2,666	2,699	2,732	2,766	2,800	2,835
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			187,066	2,612	2,659	2,708	2,758	2,808	2,860	2,901	2,943	2,986	3,029	3,073	3,117	3,163	3,208	3,255	3,302	3,343	3,384	3,426	3,469	3,512	3,556	3,600	3,645	3,690	3,736	3,782	3,829	3,876	3,924
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				9,861	138	140	143	145	148	151	153	155	157	160	162	164	167	169	172	174	176	178	181	183	185	187	190	192	195	197	199	202	204	207
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			5,655	79	80	82	83	85	86	88	89	90	92	93	94	96	97	98	100	101	102	104	105	106	107	109	110	112	113	114	116	117	119
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				30,360	432	440	448	456	465	473	480	487	494	501	509	516	523	531	539	546	553	560	567	574	581	588	596	603	611	618	626	634	641	649
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	29,367	410	417	425	433	441	449	455	462	469	476	482	489	496	504	511	518	525	531	538	545	551	558	565	572	579	586	594	601	608	616
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			27,407	383	390	397	404	411	419	425	431	437	444	450	457	463	470	477	484	490	496	502	508	515	521	527	534	541	547	554	561	568	575
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				47,274	660	672	684	697	710	723	733	744	755	765	777	788	799	811	823	834	845	855	866	877	888	899	910	921	932	944	956	968	980	992
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	893	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18	19	19
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			27,262	381	388	395	402	409	417	423	429	435	441	448	454	461	468	474	481	487	493	499	506	512	518	525	531	538	544	551	558	565	572
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				6,463	90	92	93	95	97	99	100	102	103	104	106	108	109	111	112	114	115	117	118	120	121	123	124	126	127	129	130	132	134	135
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			73	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				70,911	990	1,008	1,027	1,045	1,065	1,084	1,100	1,116	1,132	1,148	1,165	1,182	1,199	1,216	1,234	1,252	1,267	1,283	1,299	1,315	1,331	1,348	1,365	1,382	1,399	1,416	1,434	1,451	1,469	1,487
									316	321	327	333	339	346	351	356	361	366	371	377	382	388	393	399	404	409	414	419	425	430	435	441	446	452	457	463	469	474
		New Programs																																				
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-136,790	-70	-72	-146	-223	-303	-386	-470	-556	-644	-735	-829	-925	-1,024	-1,125	-1,229	-1,336	-1,443	-1,552	-1,664	-1,778	-1,895	-2,014	-2,136	-2,261	-2,389	-2,519	-2,652	-2,788	-2,927	-3,069
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		765		45			45			45			45			45			45			45			45			45			45		
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		750	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		363	23			23			23			23			23			23			23			23			23			23		
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0																														
MWH, WSC IWCM Sub-Plan 2007		Water Pricing - inclined block tariff	No cost allowance made			100		0																														
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		7,875	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		6,250	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvement	Annual Survey			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		1,233		73			73			73			73			73			73			73			73			73			73		
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		6,750	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		1,020		60			60			60			60			60			60			60			60			60			60		
MWH, WSC IWCM Sub-Plan 2007		Active water loss prevention program	Program to reduce leakage by 75% in areas treated			100		3,001	54	55	55	56	57	58	58	59	60	61	61	62	63	63	64	65	66	66	67	68	68	69	70	71	71	72	73	74	74	75

							TOTAL	1,000,287	16,219	16,852	18,548	18,791	17,347	17,395	17,581	17,901	17,889	18,079	18,403	18,395	18,589	18,916	18,912	19,109	19,403	19,364	19,526	19,822	19,785	19,949	20,246	20,211	20,376	20,675	20,640	20,806	21,105	21,073
							Operations	316,978	4,691	4,875	5,231	5,312	4,772	4,837	4,935	4,964	5,004	5,024	5,097	5,089	5,134	5,139	5,093	5,093	5,093	5,078	5,118	5,232	5,206	5,207	5,266	5,172	5,216	5,239	5,197	5,148	5,229	5,197
							Maintenance	356,754	3,552	3,617	4,865	4,932	3,823	3,893	3,949	4,006	4,063	4,123	4,182	4,242	4,303	4,365	4,428	4,492	4,547	4,604	4,661	4,718	4,777	4,836	4,896	4,956	5,018	5,080	5,143	5,206	5,270	5,335
							Administration	396,714	7,527	7,808	7,868	7,767	7,998	7,837	7,887	8,070	7,918	7,950	8,146	7,993	8,038	8,215	8,059	8,102	8,260	8,086	8,110	8,285	8,097	8,108	8,280	8,078	8,093	8,244	8,058	8,070	8,214	8,034
							Chemical/Energy	30,260	422	420	428	446	454	463	469	476	483	490	497	504	512	519	526	534	541	547	554	566	568	575	582	590	597	604	612	619	627	639

Wyong Shire Council

Water Supply — **Operations, Maintenance and Administration Schedule** — **Scenario 2**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Major Headworks																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				**0**																				
		Distribution																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Covered in the pro-rata increase in opex below.	100				**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				**0**																				
WSC TAG to Board, 15 November 2006, revised Feb 2007		Tanker reuse	Landscape and construction watering	100				**2,725**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC TAG to Board, 15 November 2006, revised Feb 2007		Rural Fire reuse	Use of recycled effluent for training purposes	100				**250**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																				
		Demand Management																										
MWH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		**28**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		BASIX				100		**49**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MWH, WSC IWCM Sub-Plan 2007		Inclining Block Tariff - Residential	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Active Water Loss Program																										
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		**80**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			**2,252**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			**296**	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
MWH, WSC IWCM Sub-Plan 2007		Continued operation of government efficiency program		100				**764**	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MWH, WSC IWCM Sub-Plan 2007		Dual flush retrofit		100				**538**																				
MWH, WSC IWCM Sub-Plan 2007		Rainwater tanks for new non-residential development		100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		IWCM Design	Covered in the pro-rata increase in opex below.	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Energy Audits	Covered in the pro-rata increase in opex below.	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		System Monitoring		100				**5,000**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
		Existing Management Expenses																										
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**504,572**	10,715	10,847	10,982	11,117	11,255	11,394	11,521	11,649	11,779	11,911	12,043	12,178	12,313	12,450	12,589	12,729	12,871	13,015	13,160	13,306
		Existing Operating Expenses																										
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				**6,671**	142	143	145	147	149	151	152	154	156	157	159	161	163	165	166	168	170	172	174	176
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			**3,118**	66	67	68	69	70	70	71	72	73	74	74	75	76	77	78	79	80	80	81	82
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**135,153**	2,870	2,906	2,941	2,978	3,015	3,052	3,086	3,120	3,155	3,190	3,226	3,262	3,298	3,335	3,372	3,410	3,448	3,486	3,525	3,564
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**187,066**	3,972	4,022	4,071	4,122	4,173	4,224	4,271	4,319	4,367	4,416	4,465	4,515	4,565	4,616	4,667	4,719	4,772	4,825	4,879	4,933
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				**9,861**	209	212	215	217	220	223	225	228	230	233	235	238	241	243	246	249	252	254	257	260
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			**5,655**	120	122	123	125	126	128	129	131	132	133	135	136	138	140	141	143	144	146	148	149
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**30,960**	657	666	674	682	691	699	707	715	723	731	739	747	756	764	772	781	790	799	807	816
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs			100		**29,367**	624	631	639	647	655	663	671	678	686	693	701	709	717	725	733	741	749	757	766	774
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**27,407**	582	589	596	604	611	619	626	633	640	647	654	661	669	676	684	691	699	707	715	723
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**47,274**	1,004	1,016	1,029	1,042	1,054	1,068	1,079	1,091	1,104	1,116	1,128	1,141	1,154	1,167	1,180	1,193	1,206	1,219	1,233	1,247
WSC, Special Schedules 2005/06			Treatment - Chemical Costs			100		**893**	19	19	19	20	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**27,262**	579	586	593	601	608	616	622	629	636	644	651	658	665	673	680	688	695	703	711	719
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**6,463**	137	139	140	142	144	146	147	149	151	152	154	156	157	159	161	163	165	166	168	170
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**73**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				**70,911**	1,506	1,524	1,543	1,562	1,582	1,601	1,619	1,637	1,655	1,674	1,693	1,711	1,730	1,750	1,769	1,789	1,809	1,829	1,849	1,870
									480	486	492	498	504	511	516	522	528	534	540	546	552	558	564	570	577	583	590	596
		New Programs																										
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		**-136,790**	-3,214	-3,363	-3,514	-3,669	-3,827	-3,988	-4,148	-4,310	-4,476	-4,645	-4,817	-4,993	-5,172	-5,354	-5,539	-5,728	-5,921	-6,117	-6,317	-6,520
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**768**		45			45			45			45			45			45			45	
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23			23		23				23			23			23			23	
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		**0**																				
MWH, WSC IWCM Sub-Plan 2007		Water Pricing - inclined block tariff	No cost allowance made			100		**0**																				
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		**1,233**		73			73			73			73			73			73			73	
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**		60			60			60			60			60			60			60
MWH, WSC IWCM Sub-Plan 2007		Active water loss prevention program	Program to reduce leakage by 75% in areas treated		100			**3,005**	76	77	77	78	79	80	81	81	82	83	84	85	85	86	87	88	89	90	91	91

	TOTAL	**1,000,287**	**21,240**	**21,541**	**21,509**	**21,678**	**21,980**	**21,950**	**22,094**	**22,371**	**22,315**	**22,460**	**22,737**	**22,681**	**22,826**	**23,103**	**23,047**	**23,191**	**23,468**	**23,413**	**23,557**	**23,833**
	Operations	316,377	6,594	6,753	6,847	6,929	7,015	7,036	7,175	7,253	7,233	7,413	7,293	7,372	7,238	7,741	7,836	7,891	8,038	8,088	8,173	8,259
	Maintenance	296,734	5,401	5,468	5,535	5,603	5,673	5,743	5,806	5,871	5,936	6,002	6,069	6,136	6,204	6,273	6,343	6,414	6,485	6,557	6,630	6,704
	Administration	386,714	8,032	8,171	7,976	7,980	8,115	7,915	7,905	8,026	7,812	7,797	7,912	7,884	7,673	7,763	7,599	7,533	7,637	7,407	7,375	7,473
	Chemical/Energy	30,364	643	651	659	667	677	683	691	699	706	714	722	750	738	747	758	763	772	781	789	798

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 3**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			0	100	**0**																														
MWH, WSC IWCM Sub Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 190 ML/d to meet growth.				100	**17,250**																		1,725	1,725	13,800											
		Infrastructure																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100	**0**																														
MWH, WSC IWCM Sub Plan 2007		Water reservoir	Additional 70 ML. Asaume 30 ML steel reservoirs for growth.				100	**10,484**																					5,242									
MWH, WSC IWCM Sub Plan 2007		Water pumping station	Additional pump capacity for growth of 1,000 kW.				100	**1,900**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
		Standards																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100	**0**																														
		Refurbishment																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100	**0**																														
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Water Reticulation Mains	No detail available				100	**68,494**	197	197	197	268	268	268	268	396	396	396	428	428	428	428	557	557	557	653	653	653	653	868	868	868	964	964	964	964	1,607	1,607
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	**52,114**	404	542	542	542	597	597	597	597	1,011	1,011	1,011	1,103	1,103	1,103	1,103	1,930	1,930	1,930	2,205	2,205	2,205	2,205	1,377	1,377	1,377	1,927	1,927	1,927	1,927	1,375
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	**14,255**	18	18	18	18	18	18	72	72	72	72	72	72	72	108	108	108	108	108	108	108	144	144	144	144	144	144	144	180	180	180
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	**25,917**	514	514	825	825	475	475	277	277	326	326	349	349	514	514	958	968	587	587	372	372	514	514	825	825	475	475	277	277	326	326
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	**11,773**	1	1	1	1	1	1	1	31	31	31	31	31	31	31	74	74	74	74	74	74	74	120	120	120	120	120	120	120	148	148
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	**4,070**	16	22	22	22	24	34	24	24	30	30	30	32	32	32	41	77	77	77	79	79	79	85	146	146	146	155	155	155	161	54
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	**4,508**	54	59	59	49	49	70	70	67	67	69	69	91	91	139	139	274	274	141	141	54	54	59	59	49	49	70	70	67	67	69
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	**2,424**	3	3	3	3	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	22	22	22	22	22	22	22	22	22	22	49
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	**929**	43	18	18	18	20	15	15	15	22	18	18	19	33	34	34	34	20	21	21	21	12	17	17	17	17	13	13	14	12	10
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	**5,760**	200	200	200	100	260	400	400	100	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	**4,911**	80	80	50	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	**5,330**	150	100	100	100	150	250	150	160	150	150	170	200	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	0	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	**6,200**	100	100	100	100	300	300	300	300	200	200	300	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	**1,300**	0	0	0	0	0	0	0	0	200	400	300	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	**1,070**	100	100	0	0	100	0	170	200	180	90	90	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	**420**	0	0	0	0	0	120	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	**663**	0	0	0	0	150	90	73	150	150	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available				100	**200**	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	**490**	10	80	0	0	0	0	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	**242**	2	2	2	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																																				
MWH, WSC IWCM Sub Plan 2007	**Warnervale**	Warnervale DC reuse	Included in Stage 1 Urban release area costings				100	**0**																														
MWH, WSC IWCM Sub Plan 2007	**Hamlyn Terrace**	Hamlyn Terrace reuse	Included in Stage 1 Urban release area costings				100	**0**																														
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA				100	**18,405**		635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA				100	**2,619**																														

								TOTAL	**261,728**	**1,931**	**2,709**	**2,810**	**2,823**	**3,193**	**3,411**	**3,648**	**3,620**	**3,615**	**3,629**	**3,655**	**3,751**	**3,390**	**3,475**	**4,109**	**5,108**	**4,713**	**6,303**	**6,465**	**18,467**	**10,077**	**5,112**	**4,656**	**4,646**	**4,393**	**4,969**	**4,771**	**4,704**	**5,527**	**4,895**
								% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								% Growth Works	50,650	38	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	2,398	2,398	14,473	5,915	673	673	673	673	673	673	673	673	673
								% Renewal Works	211,078	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222
								% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Major Headworks	17,250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,725	1,725	13,800	0	0	0	0	0	0	0	0	0	0
								Infrastructure	33,458	38	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	5,915	673	673	673	673	673	673	673	673	673
								Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Refurbishment	211,070	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 3**

2005 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Major Headworks																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		0	100																					
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 190 ML/d to meet growth.			100																					
		Infrastructure																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Additional 70 ML. Assume 30 ML steel reservoirs for growth.			100												5,242									
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Additional pump capacity for growth of 1,000 kW.			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
		Standards																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
		Refurbishment																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100																				
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Water Reticulation Mains	No detail available				100	1,607	1,767	1,767	1,767	1,767	3,052	3,052	3,052	3,535	3,535	3,535	3,535	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	1,375	1,375	826	826	826	826	826	826	826	459	459	459	459	294	294	294	294	294	294	294
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	180	180	180	180	360	360	360	360	360	360	360	900	900	900	900	900	900	900	900	900
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	349	349	514	514	968	968	587	587	370	370	503	503	783	783	420	420	420	420	420	420
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	148	148	148	148	148	148	148	148	148	148	148	148	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	54	54	69	69	69	105	105	105	105	78	78	78	136	127	127	127	127	127	127	127
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	69	91	91	139	139	274	274	141	141	53	53	58	58	42	42	42	42	42	42	42
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	49	49	49	49	49	49	49	49	49	145	145	145	145	145	145	145	145	145	145	145
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	10	11	12	13	13	11	13	14	14	13	14	20	20	20	22	22	22	22	22	22
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Warnervale**	Warnervale DC reuse	Included in Stage 1 Urban release area costings			100																					
MWH, WSC IWCM Sub-Plan 2007	**Hamlyn Terrace**	Hamlyn Terrace reuse	Included in Stage 1 Urban release area costings			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131

TOTAL	**4,414**	**4,600**	**4,231**	**4,279**	**4,913**	**6,266**	**5,987**	**5,856**	**6,120**	**5,735**	**11,112**	**6,420**	**6,340**	**6,150**	**5,789**	**5,789**	**5,789**	**5,789**	**5,789**	**5,789**
% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Growth Works	169	169	169	169	169	169	169	169	169	169	5,411	169	169	169	169	169	169	169	169	169	169
% Renewal Works	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Headworks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infrastructure	169	169	169	169	169	169	169	169	169	169	5,411	169	169	169	169	169	169	169	169	169	169
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refurbishment	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620

Wyong Shire Council

Water Supply — **Operations, Maintenance and Administration Schedule** — **Scenario 3**

2006 Financial Year of Schedule Commencement

2005 Financial Year of CMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemicals/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																				
		Major Headworks																																			
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																													
IWVH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				**0**																													
		Distribution																																			
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																													
IWVH, WSC IWCM Sub-Plan 2007		Water reservoir	Covered in the pro-rata increase in opex below.	100				**0**																													
IWVH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				**0**																													
Report by Technical Advisory Group to Board, 15 November 2006		Tanker reuse	Landscape and construction watering	100				**2,725**	7	7	482	482	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Report by Technical Advisory Group to Board, 15 November 2006		Rural Fire reuse	Use of recycled effluent for training purposes	100				**25**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																																			
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				**0**																													
		Demand Management																																			
IWVH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		**28**	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWVH, WSC IWCM Sub-Plan 2007		BASIX				100		**49**	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IWVH, WSC IWCM Sub-Plan 2007		Inclining Block Tariff - Residential	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWVH, WSC IWCM Sub-Plan 2007		Active Water Loss Program																																			
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		**80**	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		**0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			**2,252**	0	0	1,126	1,126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			**296**	0	0	56	56	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
IWVH, WSC IWCM Sub-Plan 2007		Continued operation of government efficiency program		100				**784**	0.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
IWVH, WSC IWCM Sub-Plan 2007		Dual flush retrofit		100				**538**			179.4	179.4	179.4																									
IWVH, WSC IWCM Sub-Plan 2007		Rainwater tanks for new non-residential development		100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWVH, WSC IWCM Sub-Plan 2007		IWCM Design	Covered in the pro-rata increase in opex below.	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWVH, WSC IWCM Sub-Plan 2007		Energy Audits	Covered in the pro-rata increase in opex below.	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWVH, WSC IWCM Sub-Plan 2007		System Monitoring		100				**5,000**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
IWVH, WSC IWCM Sub-Plan 2007		Landscape and Planting controls		100				**1,150**			150	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
IWVH, WSC IWCM Sub-Plan 2007		Stormwater harvesting NSW Government funding application		100				**3,976**				700	700	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
IWVH, WSC IWCM Sub-Plan 2007		IWCM & WSUD DCP	Included in general purpose coucil planning costs	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Existing Management Expenses																																			
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**504,572**	7,044	7,173	7,305	7,439	7,575	7,714	7,826	7,939	8,054	8,170	8,289	8,408	8,530	8,654	8,779	8,906	9,017	9,129	9,242	9,357	9,473	9,591	9,710	9,830	9,952	10,076	10,201	10,327	10,455	10,584
		Existing Operating Expenses																																			
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				**6,671**	93	95	97	98	100	102	103	105	106	108	110	111	113	114	116	118	119	121	122	124	125	127	128	130	132	133	135	137	138	140
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			**3,118**	44	44	45	46	47	48	48	49	50	50	51	52	53	53	54	55	56	56	57	58	59	59	60	61	61	62	63	64	65	66
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**135,152**	1,887	1,921	1,957	1,992	2,029	2,066	2,096	2,126	2,157	2,188	2,220	2,252	2,285	2,318	2,351	2,386	2,415	2,445	2,476	2,506	2,537	2,569	2,601	2,633	2,666	2,699	2,732	2,766	2,800	2,835
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses	100				**107,090**	2,612	2,659	2,708	2,758	2,808	2,860	2,901	2,943	2,986	3,029	3,073	3,117	3,163	3,208	3,255	3,302	3,343	3,384	3,426	3,469	3,512	3,556	3,600	3,645	3,690	3,736	3,782	3,829	3,876	3,924
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				**9,861**	138	140	143	145	148	151	153	155	157	160	162	164	167	169	172	174	176	178	181	183	185	187	190	192	195	197	199	202	204	207
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses	100				**5,693**	79	80	82	83	85	86	88	89	90	92	93	94	96	97	98	100	101	102	104	105	106	107	109	110	112	113	114	116	117	119
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**30,990**	432	440	448	456	465	473	480	487	494	501	509	516	523	531	539	546	553	560	567	574	581	588	596	603	611	618	626	634	641	649
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**39,585**	405	412	420	427	435	443	450	456	463	469	476	483	490	497	504	512	518	524	531	537	544	551	558	565	572	579	586	593	601	608
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses	100				**27,407**	383	390	397	404	411	419	425	431	437	444	450	457	463	470	477	484	490	496	502	508	515	521	527	534	541	547	554	561	568	575
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**47,274**	660	672	684	697	710	723	733	744	755	765	777	788	799	811	823	834	845	855	866	877	888	899	910	921	932	944	956	968	980	992
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**882**	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	19	19
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**27,262**	381	388	395	402	409	417	423	429	435	441	448	454	461	468	474	481	487	493	499	506	512	518	525	531	538	544	551	558	565	572
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**6,493**	90	92	93	95	97	99	100	102	103	104	106	108	109	111	112	114	115	117	118	120	121	123	124	126	127	129	130	132	134	135
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**73**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				**70,311**	990	1,008	1,027	1,045	1,065	1,084	1,100	1,116	1,132	1,148	1,165	1,182	1,199	1,216	1,234	1,252	1,267	1,283	1,299	1,315	1,331	1,348	1,365	1,382	1,399	1,416	1,434	1,451	1,469	1,487
		New Programs																																			
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		**-136,700**	-70	-72	-146	-223	-303	-386	-470	-556	-644	-735	-829	-925	-1,024	-1,125	-1,229	-1,336	-1,443	-1,552	-1,664	-1,778	-1,895	-2,014	-2,136	-2,261	-2,389	-2,519	-2,652	-2,788	-2,927	-3,069
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**			45					45						45					45					45					45		
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23			23			23			23					23	23				23					23						
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		**0**																														
IWVH, WSC IWCM Sub-Plan 2007		Water Pricing - inclined block tariff	No cost allowance made			100		**0**																														
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in mangement plan annually			100		**7,675**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		**1,233**			73					73						73					73					73					73		
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**			60					60						60					60					60					60		
IWVH, WSC IWCM Sub-Plan 2007		Active water loss prevention program	Program to reduce leakage by 75% in areas treated	100				**3,825**	54	55	55	56	57	58	58	59	60	61	61	62	63	63	64	65	66	66	67	68	68	69	70	71	71	72	73	74	74	75

TOTAL	**1,005,020**	**15,897**	**16,675**	**18,965**	**19,202**	**17,108**	**17,149**	**17,330**	**17,645**	**17,628**	**17,813**	**18,131**	**18,118**	**18,306**	**18,628**	**18,618**	**18,809**	**19,098**	**19,054**	**19,211**	**19,501**	**19,459**	**19,617**	**19,859**	**19,818**	**19,978**	**20,271**	**20,231**	**20,391**	**20,685**	**20,646**
Operations	371,750	5,491	5,635	5,981	6,062	4,074	4,063	3,931	3,900	3,770	3,731	3,813	3,961	3,960	4,303	4,365	4,428	4,589	4,739	3,824	3,893	3,893	4,004	4,106	4,238	4,210	4,378	4,330	4,477	4,594	4,265	5,010
Maintenance	256,736	3,552	3,617	4,865	4,932	3,823	3,893	3,949	4,006	4,063	4,123	4,182	4,242	4,303	4,365	4,428	4,492	4,547	4,604	4,661	4,718	4,777	4,836	4,896	4,956	5,018	5,080	5,143	5,206	5,270	5,335	5,401	5,468	5,536	5,605	5,675
Administration	396,714	7,327	7,808	7,668	7,767	7,953	7,937	7,887	8,070	7,918	7,956	8,146	7,993	8,008	8,215	8,059	8,102	8,290	8,086	8,110	8,265	8,087	8,108	8,260	8,076	8,095	8,244	8,098	8,070	8,214	8,024	8,211	8,398	8,589	8,784	8,984
Chemical/Energy	219,897	417	435	452	440	448	457	463	470	477	494	491	469	503	512	520	527	534	540	547	554	561	569	575	582	593	596	604	611	619	623	630	638	646	654	662

Wyong Shire Council

Water Supply — **Operations, Maintenance and Administration Schedule** — **Scenario 3**

2036 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemicals/Energy	Operating Cost	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Major Headworks																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																				
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				0																				
		Distribution																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																				
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Covered in the pro-rata increase in opex below.	100				0																				
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				0																				
Report by Technical Advisory Group to Board, 15 November 2006		Tanker reuse	Landscape and construction watering	100				2,725	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Report by Technical Advisory Group to Board, 15 November 2006		Rural Fire reuse	Use of recycled effluent for training purposes	100				250	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																				
		Demand Management																										
MWH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		250	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		BASIX				100		490	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MWH, WSC IWCM Sub-Plan 2007		Inclining Block Tariff - Residential	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Active Water Loss Program																										
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			2,252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			296	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
MWH, WSC IWCM Sub-Plan 2007		Continued operation of government efficiency program		100				704	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
MWH, WSC IWCM Sub-Plan 2007		Dual flush retrofit		100				538																				
MWH, WSC IWCM Sub-Plan 2007		Rainwater tanks for new non-residential development		100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		IWCM Design	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Energy Audits	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		System Monitoring		100				5,000	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
MWH, WSC IWCM Sub-Plan 2007		Landscape and Planting controls		100				1,150																				
MWH, WSC IWCM Sub-Plan 2007		Stormwater harvesting NSW Government funding application		100				3,970	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
MWH, WSC IWCM Sub-Plan 2007		IWCM & WSUD DCP	Included in general purpose council planning costs	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Existing Management Expenses																										
WSC, Special Schedules 2005/06			Engineering & Supervision			100		504,572	10,715	10,947	10,982	11,117	11,255	11,394	11,521	11,649	11,779	11,911	12,043	12,178	12,313	12,450	12,589	12,729	12,871	13,015	13,160	13,306
		Existing Operating Expenses																										
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				6,671	142	143	145	147	149	151	152	154	156	157	159	161	163	165	166	168	170	172	174	176
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			3,118	66	67	68	69	70	70	71	72	73	74	74	75	76	77	78	79	80	80	81	82
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				135,152	2,870	2,906	2,941	2,978	3,015	3,052	3,086	3,120	3,155	3,190	3,226	3,262	3,298	3,335	3,372	3,410	3,448	3,486	3,525	3,564
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			167,066	3,972	4,022	4,071	4,122	4,173	4,224	4,271	4,319	4,367	4,416	4,465	4,515	4,565	4,616	4,667	4,719	4,772	4,825	4,879	4,933
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				9,861	209	212	215	217	221	223	225	228	230	233	235	238	241	243	246	249	252	254	257	260
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			5,655	120	122	123	125	126	128	129	131	132	133	135	136	138	140	141	143	144	146	148	149
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				30,960	657	666	674	682	691	699	707	715	723	731	739	747	756	764	772	781	790	799	807	816
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	29,985	616	623	631	639	647	655	662	669	677	684	692	700	707	715	723	731	739	748	756	764
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			27,407	582	589	596	604	611	619	626	633	640	647	654	661	669	676	684	691	699	707	715	723
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				47,274	1,004	1,016	1,029	1,042	1,054	1,068	1,079	1,091	1,104	1,116	1,128	1,141	1,154	1,167	1,180	1,193	1,206	1,219	1,233	1,247
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	892	19	19	19	19	20	20	20	20	21	21	21	21	22	22	22	22	22	23	23	23
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			27,262	579	586	593	601	608	616	622	629	636	644	651	658	665	673	680	688	695	703	711	719
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				6,483	137	139	140	142	144	146	147	149	151	152	154	156	157	159	161	163	165	166	168	170
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			74	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				70,911	1,506	1,524	1,543	1,562	1,582	1,601	1,619	1,637	1,655	1,674	1,693	1,711	1,730	1,750	1,769	1,789	1,809	1,829	1,849	1,870
		New Programs																										
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-136,790	-3,214	-3,363	-3,514	-3,669	-3,827	-3,988	-4,148	-4,310	-4,476	-4,645	-4,817	-4,993	-5,172	-5,354	-5,539	-5,728	-5,921	-6,117	-6,317	-6,520
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		765		45			45			45			45			45			45			45	
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		750	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		382	23			23			23			23			23			23			23	
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0																				
MWH, WSC IWCM Sub-Plan 2007		Water Pricing - inclined block tariff	No cost allowance made			100		0																				
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in mangement plan annually			100		7,875	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		6,250	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvement	Annual Survey			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		1,233		73			73			73			73			73			73			73	
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		6,750	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		1,020		60			60			60			60			60			60			60
MWH, WSC IWCM Sub-Plan 2007		Active water loss prevention program	Program to reduce leakage by 75% in areas treated		100			3,603	76	77	77	78	79	80	81	81	82	83	84	85	85	86	87	88	89	90	91	91

							TOTAL	**1,005,020**	**20,808**	**21,102**	**21,064**	**21,227**	**21,523**	**21,486**	**21,625**	**21,896**	**21,834**	**21,973**	**22,244**	**22,182**	**22,320**	**22,591**	**22,529**	**22,667**	**22,937**	**22,875**	**23,013**	**23,283**
							Operations	321,707	6,740	6,837	6,910	6,980	7,060	7,104	7,201	7,299	7,393	7,490	7,648	7,691	7,714	7,792	7,851	7,909	8,014	8,141	8,269	8,399
							Maintenance	256,773	5,401	5,468	5,535	5,603	5,673	5,743	5,806	5,871	5,936	6,002	6,069	6,136	6,204	6,273	6,343	6,414	6,485	6,557	6,630	6,704
							Administration	396,714	8,032	8,171	7,976	7,980	8,113	7,915	7,965	8,036	7,912	7,797	7,912	7,694	7,673	7,783	7,583	7,533	7,637	7,407	7,375	7,473
							Chemicals/Energy	29,827	634	642	670	694	677	674	652	690	697	705	713	721	729	737	743	753	762	770	779	788

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 4**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Major Headworks																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			0	100		**0**																													
MWH, WSC IWCM Sub Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 190 ML/d to meet growth.				100		**17,250**																1,725	1,725	13,800											
		Infrastructure																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100		**0**																													
MWH, WSC IWCM Sub Plan 2007		Water reservoir	Additional 70 ML. Assume 30 ML steel reservoirs for growth.				100		**10,484**																			5,242										
MWH, WSC IWCM Sub Plan 2007		Water pumping station	Additional pump capacity for growth of 1,000 kW.				100		**1,900**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
		Standards																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100		**0**																													
		Refurbishment																																				
WaterPlan 2050		Refer to WaterPlan 2050	No detail available					100	**0**																													
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Water Reticulation Mains	No detail available					100	**68,494**	197	197	197	268	268	268	268	396	396	396	428	428	428	428	557	557	557	653	653	653	868	868	868	964	964	964	964	1,607	1,607
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available					100	**52,114**	404	542	542	542	597	597	597	597	1,011	1,011	1,011	1,103	1,103	1,103	1,103	1,930	1,930	1,930	2,205	2,205	2,205	2,205	1,377	1,377	1,377	1,927	1,927	1,927	1,927	1,375
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available					100	**14,255**	18	18	18	18	18	18	72	72	72	72	72	72	72	108	108	108	108	108	108	144	144	144	144	144	144	144	180	180	180
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available					100	**25,917**	514	514	825	825	475	475	277	277	326	326	349	349	514	514	968	968	587	587	372	372	514	514	825	825	475	475	277	277	326	326
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available					100	**11,773**	1	1	1	1	1	1	1	31	31	31	31	31	31	74	74	74	74	74	74	74	120	120	120	120	120	120	120	148	148
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available					100	**4,070**	16	22	22	22	24	24	24	24	30	30	30	32	32	32	41	77	77	77	79	79	79	85	146	146	146	155	155	155	161	84
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available					100	**4,508**	54	59	59	49	49	70	70	67	67	69	69	91	91	139	139	274	274	141	141	54	54	59	59	49	49	70	70	67	67	69
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available					100	**2,424**	3	3	3	3	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	22	22	22	22	22	22	22	22	22	49
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available					100	**929**	43	18	18	18	20	15	15	15	22	18	18	19	33	34	34	34	20	21	21	21	12	17	17	17	17	13	13	14	12	10
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available					100	**5,760**	200	200	200	100	260	400	400	100	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available					100	**4,911**	80	80	50	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available					100	**5,330**	150	100	100	100	150	230	150	160	150	150	170	200	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available					100	**6,200**	100	100	100	100	300	300	300	300	200	200	300	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available					100	**1,300**	0	0	0	0	0	0	0	0	200	400	300	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available					100	**1,070**	100	100	0	0	100	0	170	200	180	90	90	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available					100	**420**	0	0	0	0	0	120	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available					100	**663**	0	0	0	0	150	90	73	150	150	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Control Systems	No detail available					100	**200**	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available					100	**490**	10	80	0	0	0	0	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available					100	**242**	2	2	2	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																																				
MWH, WSC IWCM Sub Plan 2007	**Warnervale**	Warnervale DC reuse	Included in Stage 1 Urban release area costings				100		**0**																													
MWH, WSC IWCM Sub Plan 2007	**Hamlyn Terrace**	Hamlyn Terrace reuse	Included in Stage 1 Urban release area costings				100		**0**																													
MWH, WSC IWCM Sub Plan 2007	**Chamhaven**	Stage1 Urban release areas	Mains for servicing Stage 1 URA				100		**18,405**		635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Stage2 Urban release areas	Mains for servicing Stage 2 URA				100		**2,619**																													

								TOTAL	**261,728**	**1,931**	**2,709**	**2,810**	**2,823**	**3,193**	**3,411**	**3,648**	**3,620**	**3,615**	**3,629**	**3,655**	**3,751**	**3,390**	**3,475**	**4,109**	**5,108**	**4,713**	**6,303**	**6,465**	**18,467**	**10,077**	**5,112**	**4,656**	**4,646**	**4,393**	**4,969**	**4,771**	**4,704**	**5,527**	**4,895**
								% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								% Growth Works	50,650	38	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	2,398	14,473	5,915	673	673	673	673	673	673	673	673	673
								% Renewal Works	211,078	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222
								% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Major Headworks	17,250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,725	1,725	13,800	0	0	0	0	0	0	0	0	0	0
								Infrastructure	33,406	38	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	5,915	673	673	673	673	673	673	673	673	673
								Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Refurbishment	211,078	1,893	2,037	2,138	2,151	2,520	2,738	2,976	2,948	2,943	2,957	2,982	3,078	2,718	2,802	3,436	4,435	4,040	3,905	4,067	3,994	4,162	4,439	3,983	3,973	3,720	4,297	4,098	4,031	4,854	4,222

Wyong Shire Council

Water Supply **Capital Works Program** **Scenario 4**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Major Headworks																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		0	100																					
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Augmentation from 160ML/d to 190 ML/d to meet growth.			100																					
		Infrastructure																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Additional 70 ML. Assume 30 ML steel reservoirs for growth.			100												5,242									
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Additional pump capacity for growth of 1,000 kW.			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
		Standards																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available			100																					
		Refurbishment																									
WaterPlan 2050		Refer to WaterPlan 2050	No detail available				100																				
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Water Reticulation Mains	No detail available				100	1,607	1,767	1,767	1,767	1,767	3,052	3,052	3,052	3,535	3,535	3,535	3,535	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
WSC Refurbishment Expend Spreadsheet 2006		AC Water Main Refurbishment	No detail available				100	1,375	1,375	826	826	826	826	826	826	826	459	459	459	459	294	294	294	294	294	294	294
WSC Refurbishment Expend Spreadsheet 2006		Water Trunk Mains	No detail available				100	180	180	180	180	360	360	360	360	360	360	360	900	900	900	900	900	900	900	900	900
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Mechelec	No detail available				100	349	349	514	514	968	968	587	587	370	370	803	503	783	783	420	420	420	420	420	420
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Civil	No detail available				100	148	148	148	148	148	148	148	148	148	148	148	148	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Civil	No detail available				100	54	54	69	69	69	105	105	105	105	78	78	78	136	127	127	127	127	127	127	127
WSC Refurbishment Expend Spreadsheet 2006		Water Pump Stations Mechelec	No detail available				100	69	91	91	139	139	274	274	141	141	53	53	58	58	42	42	42	42	42	42	42
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs	No detail available				100	49	49	49	49	49	49	49	49	49	145	145	145	145	145	145	145	145	145	145	145
WSC Refurbishment Expend Spreadsheet 2006		Water Reservoirs Roof, Ladders & Inlet Valves	No detail available				100	10	11	12	13	13	11	13	14	14	13	14	20	20	20	22	22	22	22	22	22
WSC Refurbishment Expend Spreadsheet 2006		SCADA refurbishment (50% Sewer, 50% water)	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Meter Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Repaint Steel Reservoirs	No detail available				100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Water Fitting Replacements	No detail available				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WSC Refurbishment Expend Spreadsheet 2006		Steel Main Refurbishment	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Valve Replacement Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Reclaimed Water Plants	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Leakage Minimisation Program	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Refurbish Water Pressure Contrd Systems	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Water Treatment Plant Optimisation	No detail available				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC Refurbishment Expend Spreadsheet 2006		Replace Survey Equipment	No detail available				100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Warnervale**	Warnervale DC reuse	Included in Stage 1 Urban release area costings			100																					
MWH, WSC IWCM Sub-Plan 2007	**Hamlyn Terrace**	Hamlyn Terrace reuse	Included in Stage 1 Urban release area costings			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Mains for servicing Stage 1 URA			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Mains for servicing Stage 2 URA			100		131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
TOTAL	**4,414**	**4,600**	**4,231**	**4,279**	**4,913**	**6,266**	**5,987**	**5,856**	**6,120**	**5,735**	**11,112**	**6,420**	**6,340**	**6,150**	**5,789**	**5,789**	**5,789**	**5,789**	**5,789**	**5,789**
% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Growth Works	169	169	169	169	169	169	169	169	169	169	5,411	169	169	169	169	169	169	169	169	169
% Renewal Works	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Headworks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infrastructure	169	169	169	169	169	169	169	169	169	169	5,411	169	169	169	169	169	169	169	169	169
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refurbishment	4,246	4,431	4,062	4,110	4,744	6,097	5,818	5,687	5,952	5,566	5,701	6,251	6,171	5,981	5,620	5,620	5,620	5,620	5,620	5,620

Wyong Shire Council

Water Supply

Operations, Maintenance and Administration Schedule

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Scenario 4

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																				
		Major Headworks																																			
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																													
IWMH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.	100				0																													
		Distribution																																			
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																													
IWMH, WSC IWCM Sub-Plan 2007		Water reservoir	Covered in the pro-rata increase in opex below.	100				0																													
IWMH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.	100				0																													
Report by Technical Advisory Group to Board, 15 November 2006		Tanker reuse	Landscape and construction watering	100				2,735	7	7	482	482	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Report by Technical Advisory Group to Board, 15 November 2006		Rural Fire reuse	Use of recycled effluent for training purposes	100				250	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																																			
WaterPlan 2050		Refer to WaterPlan 2050	No detail available	100				0																													
		Demand Management																																			
IWMH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		28	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWMH, WSC IWCM Sub-Plan 2007		BASIX				100		40	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IWMH, WSC IWCM Sub-Plan 2007		Inclining Block Tariff - Residential	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWMH, WSC IWCM Sub-Plan 2007		Active Water Loss Program																																			
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		80	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			2,252	0	0	1,126	1,126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			296	0	0	56	56	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
IWMH, WSC IWCM Sub-Plan 2007		Continued operation of government efficiency program		100				784	0.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
IWMH, WSC IWCM Sub-Plan 2007		Dual flush retrofit		100				538		179.4	179.4	179.4																										
IWMH, WSC IWCM Sub-Plan 2007		Rainwater tanks for new non-residential development		100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWMH, WSC IWCM Sub-Plan 2007		IWCM Design	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWMH, WSC IWCM Sub-Plan 2007		Energy Audits	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IWMH, WSC IWCM Sub-Plan 2007		System Monitoring		100				5,000	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
IWMH, WSC IWCM Sub-Plan 2007		Landscape and Planting controls		100				1,150		150	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50								
IWMH, WSC IWCM Sub-Plan 2007		Stormwater harvesting NSW Government funding application		100				3,976		0	700	700	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
IWMH, WSC IWCM Sub-Plan 2007		Permanent low level restrictions		100				1,050	20	70	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
IWMH, WSC IWCM Sub-Plan 2007		Smart Metres		100				4,882	0	0	0	50	0	10	15	19	24	28	32	37	42	46	51	55	59	64	68	73	76	80	85	89	93	97	102	106	111	115
IWMH, WSC IWCM Sub-Plan 2007		IWCM & WSUD DCP	Included in general purpose council planning costs	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Existing Management Expenses																																			
WSC, Special Schedules 2005/06			Engineering & Supervision			100		904,572	7,044	7,173	7,305	7,439	7,575	7,714	7,826	7,939	8,054	8,170	8,289	8,408	8,530	8,654	8,779	8,906	9,017	9,129	9,242	9,357	9,473	9,591	9,710	9,830	9,952	10,076	10,201	10,327	10,455	10,584
		Existing Operating Expenses																																			
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				6,671	93	95	97	98	100	102	103	105	106	108	110	111	113	114	116	118	119	121	122	124	125	127	128	130	132	133	135	137	138	140
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			3,116	44	44	45	46	47	48	48	49	50	50	51	52	53	54	55	56	56	57	58	59	59	60	61	61	62	63	64	65	65	
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				135,152	1,887	1,921	1,957	1,992	2,029	2,066	2,096	2,126	2,157	2,188	2,220	2,252	2,285	2,318	2,351	2,386	2,415	2,445	2,476	2,506	2,537	2,569	2,601	2,633	2,666	2,699	2,732	2,766	2,800	2,835
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			187,066	2,612	2,659	2,708	2,758	2,808	2,860	2,901	2,943	2,986	3,028	3,073	3,117	3,163	3,208	3,253	3,302	3,343	3,384	3,426	3,468	3,512	3,556	3,600	3,645	3,690	3,736	3,782	3,829	3,876	3,924
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				9,861	138	140	143	145	148	151	153	155	157	160	162	164	167	169	172	174	176	178	181	183	185	187	190	192	195	197	199	202	204	207
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			5,655	79	80	82	83	85	86	88	89	90	92	93	94	96	97	98	100	101	102	104	105	106	107	109	110	112	113	114	116	117	119
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				30,960	432	440	448	456	465	473	480	487	494	501	509	516	523	531	538	546	553	560	567	574	581	588	596	603	611	618	626	634	641	649
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	35,928	502	511	520	530	539	549	557	565	573	582	590	599	607	616	625	634	642	650	658	666	675	683	691	700	709	717	726	735	744	754
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			27,407	383	390	397	404	411	419	425	431	437	444	450	457	463	470	477	484	490	496	502	508	515	521	527	534	541	547	554	561	568	575
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				47,274	660	672	684	697	710	723	733	744	755	765	777	788	799	811	822	834	845	855	866	877	888	899	910	921	932	944	956	968	980	992
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	4,904	68	70	71	72	74	75	76	77	78	79	81	82	83	84	85	87	88	89	90	91	92	93	94	96	97	98	99	100	102	103
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			27,262	381	388	395	402	409	417	423	429	435	441	448	454	461	468	474	481	487	493	499	506	512	518	525	531	538	544	551	558	565	572
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				6,453	90	92	93	95	97	99	100	102	103	104	106	108	109	111	112	114	115	117	118	120	121	123	124	126	127	129	130	132	134	135
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			72	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				70,911	990	1,008	1,027	1,045	1,065	1,084	1,100	1,116	1,132	1,148	1,165	1,182	1,199	1,216	1,234	1,252	1,267	1,283	1,299	1,315	1,331	1,348	1,365	1,382	1,399	1,416	1,434	1,451	1,469	1,487
		New Programs																																			
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-136,790	-70	-72	-146	-223	-303	-386	-470	-556	-644	-735	-829	-925	-1,024	-1,125	-1,228	-1,336	-1,443	-1,552	-1,664	-1,778	-1,895	-2,014	-2,136	-2,261	-2,389	-2,519	-2,652	-2,788	-2,927	-3,069
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		765		45			45			45			45			45			45			45			45			45			45	
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		750	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		383	23			23			23			23				23			23			23			23			23			23	
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0																														
IWMH, WSC IWCM Sub-Plan 2007		Water Pricing - inclined blocktariff	No cost allowance made			100		0																														
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		7,875	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		6,250	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		1,233		73			73			73			73			73			73			73			73			73			73	
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		6,750	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		1,020		60			60			60			60			60			60			60			60			60			60	
IWMH, WSC IWCM Sub-Plan 2007		Active water loss prevention program	Program to reduce leakage by 75% in areas treated			100		3,605	54	55	55	56	57	58	58	59	60	61	61	62	63	63	64	65	66	66	67	68	68	69	70	71	71	72	73	74	74	75

							TOTAL	**1,021,918**	**16,071**	**16,901**	**19,144**	**19,433**	**17,298**	**17,347**	**17,535**	**17,857**	**17,847**	**18,038**	**18,364**	**18,358**	**18,553**	**18,882**	**18,879**	**19,078**	**19,373**	**19,336**	**19,500**	**19,796**	**19,761**	**19,926**	**20,174**	**20,141**	**20,308**	**20,908**	**20,575**	**20,742**	**21,043**	**21,011**
							Operations	327,857	4,421	4,838	4,895	4,952	4,992	4,992	5,069	5,139	5,211	5,282	5,356	5,442	5,527	5,601	5,677	5,754	5,837	5,907	5,981	6,057	6,130	6,206	6,283	6,359	6,435	6,511	6,589	6,668	6,749	6,830
							Maintenance	256,734	3,352	3,617	4,665	4,932	3,823	3,893	3,949	4,006	4,063	4,123	4,182	4,242	4,303	4,365	4,428	4,492	4,547	4,604	4,661	4,718	4,777	4,836	4,896	4,956	5,016	5,080	5,143	5,206	5,270	5,335
							Administration	396,716	7,927	7,808	7,688	7,767	7,958	7,837	7,887	8,070	7,918	7,946	8,146	7,993	8,038	8,215	8,053	8,102	8,260	8,086	8,110	8,265	8,087	8,108	8,260	8,078	8,095	8,244	8,058	8,070	8,214	8,034
							Chemical/Energy	40,611	570	580	591	602	613	624	633	642	652	662	671	680	690	700	710	721	730	739	748	757	767	776	786	796	806	815	825	836	848	857

Wyong Shire Council

Water Supply

Operations, Maintenance and Administration Schedule

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Scenario 4

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Major Headworks																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		100			0																				
MWH, WSC IWCM Sub-Plan 2007		Water Treatment Plant augmentation	Covered in the pro-rata increase in opex below.		100			0																				
		Distribution																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		100			0																				
MWH, WSC IWCM Sub-Plan 2007		Water reservoir	Covered in the pro-rata increase in opex below.		100			0																				
MWH, WSC IWCM Sub-Plan 2007		Water pumping station	Covered in the pro-rata increase in opex below.		100			0																				
Report by Technical Advisory Group to Board, 15 November 2006		Tanker reuse	Landscape and construction watering		100			2,725	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Report by Technical Advisory Group to Board, 15 November 2006		Rural Fire reuse	Use of recycled effluent for training purposes		100			250	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Reticulation																										
WaterPlan 2050		Refer to WaterPlan 2050	No detail available		100			0																				
		Demand Management																										
MWH, WSC IWCM Sub-Plan 2007		WELS	WELS promotion materials.			100		28	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WSC TAG to Board, 15 November 2006, revised Feb 2007		Education	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		BASIX				100		49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MWH, WSC IWCM Sub-Plan 2007		Inclining Block Tariff - Residential	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing water loss program	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Active Water Loss Program																										
WSC TAG to Board, 15 November 2006, revised Feb 2007		Audits	Non-residential audit program labour.			100		80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Washine Machine Rebate	Covered in the pro-rata increase in opex below.			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Residential retrofit of taps and showers	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing efficiency program in Government offices	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT for schools	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		RWT rebate	Covered in the pro-rata increase in opex below.			100		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Existing stormwater harvesting initiatives			100			2,252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC TAG to Board, 15 November 2006, revised Feb 2007		Stormwater harvesting for cricket pitches			100			296	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
MWH, WSC IWCM Sub-Plan 2007		Continued operation of government efficiency program		100				784	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
MWH, WSC IWCM Sub-Plan 2007		Dual flush retrofit		100				538																				
MWH, WSC IWCM Sub-Plan 2007		Rainwater tanks for new non-residential development		100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		IWCM Design	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		Energy Audits	Covered in the pro-rata increase in opex below.	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MWH, WSC IWCM Sub-Plan 2007		System Monitoring		100				5,000	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
MWH, WSC IWCM Sub-Plan 2007		Landscape and Planting controls		100				1,150																				
MWH, WSC IWCM Sub-Plan 2007		Stormwater harvesting NSW Government funding application		100				3,976	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
MWH, WSC IWCM Sub-Plan 2007		Permanent low level restrictions		100				1,050	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
MWH, WSC IWCM Sub-Plan 2007		Smart Metres		100				4,882	120	124	129	133	138	143	147	151	156	160	165	169	173	178	183	187	192	196	201	206
MWH, WSC IWCM Sub-Plan 2007		IWCM & WSUD DCP	Included in general purpose council planning costs	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Existing Management Expenses																										
WSC, Special Schedules 2005/06			Engineering & Supervision			100		504,572	10,715	10,847	10,982	11,117	11,255	11,394	11,521	11,649	11,779	11,911	12,043	12,178	12,313	12,450	12,589	12,729	12,871	13,015	13,160	13,306
		Existing Operating Expenses																										
WSC, Special Schedules 2005/06			Dams & Weirs - Operation Expenses	100				6,671	142	143	145	147	149	151	152	154	156	157	159	161	163	165	166	168	170	172	174	176
WSC, Special Schedules 2005/06			Dams & Weirs - Maintenance Expenses		100			3,118	66	67	68	69	70	70	71	72	73	74	74	75	76	77	78	79	80	80	81	82
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				135,152	2,870	2,906	2,941	2,978	3,015	3,052	3,086	3,120	3,155	3,190	3,226	3,262	3,298	3,335	3,372	3,410	3,448	3,486	3,525	3,564
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			187,066	3,972	4,022	4,071	4,122	4,173	4,224	4,271	4,319	4,367	4,416	4,465	4,515	4,565	4,616	4,667	4,719	4,772	4,825	4,879	4,933
WSC, Special Schedules 2005/06			Reservoirs - Operation Expenses	100				9,861	209	212	215	217	220	223	225	228	230	233	235	238	241	243	246	249	252	254	257	260
WSC, Special Schedules 2005/06			Reservoirs - Maintenance Expenses		100			5,655	120	122	123	125	126	128	129	131	132	133	135	136	138	140	141	143	144	146	148	149
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				30,960	657	666	674	682	691	699	707	715	723	731	739	747	756	764	772	781	790	799	807	816
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	35,928	763	772	782	792	801	811	820	830	839	848	858	867	877	887	896	906	917	927	937	947
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			27,407	582	589	596	604	611	619	626	633	640	647	654	661	669	676	684	691	699	707	715	723
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				47,274	1,004	1,016	1,029	1,042	1,054	1,068	1,079	1,091	1,104	1,116	1,128	1,141	1,154	1,167	1,180	1,193	1,206	1,219	1,233	1,247
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	4,904	104	105	107	108	109	111	112	113	114	116	117	118	120	121	122	124	125	127	128	129
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			27,262	579	586	593	601	608	616	622	629	636	644	651	658	665	673	680	688	695	703	711	719
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				6,463	137	139	140	142	144	146	147	149	151	152	154	156	157	159	161	163	165	166	168	170
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			79	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WSC, Special Schedules 2005/06			Other - Purchase of Water	100				70,911	1,506	1,524	1,543	1,562	1,582	1,601	1,619	1,637	1,655	1,674	1,693	1,711	1,730	1,750	1,769	1,789	1,809	1,829	1,849	1,870
		New Programs																										
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-136,790	-3,214	-3,363	-3,514	-3,669	-3,827	-3,988	-4,148	-4,310	-4,476	-4,645	-4,817	-4,993	-5,172	-5,354	-5,539	-5,728	-5,921	-6,117	-6,317	-6,520
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		765		45			45			45			45			45			45			45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangament plan			100		750	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		383	23			23			23			23			23			23			23	
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0																				
MWH, WSC IWCM Sub-Plan 2007		Water Pricing - inclined block tariff	No cost allowance made			100		0																				
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		7,875	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		6,250	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		1,233		73			73			73			73			73			73			73
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		1,875	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		6,750	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		1,020		60			60			60			60			60			60			60
MWH, WSC IWCM Sub-Plan 2007		Active water loss prevention program	Program to reduce leakage by 75% in areas treated			100		3,665	76	77	77	78	79	80	81	81	82	83	84	85	85	86	87	88	89	90	91	91

							TOTAL	**1,021,918**	**21,180**	**21,482**	**21,452**	**21,622**	**21,925**	**21,896**	**22,042**	**22,320**	**22,266**	**22,412**	**22,690**	**22,636**	**22,781**	**23,060**	**23,005**	**23,151**	**23,429**	**23,374**	**23,520**	**23,798**
							Operations	297,837	6,600	6,695	7,052	7,139	7,227	7,317	7,398	7,481	7,564	7,643	7,724	7,820	7,907	7,995	8,084	8,174	8,266	8,357	8,449	8,544
							Maintenance	236,734	5,401	5,468	5,535	5,603	5,673	5,743	5,806	5,871	5,936	6,002	6,069	6,136	6,204	6,273	6,343	6,414	6,485	6,557	6,630	6,704
							Administration	396,714	8,032	8,171	7,976	7,980	8,115	7,915	7,905	8,026	7,812	7,797	7,912	7,694	7,673	7,783	7,599	7,533	7,637	7,407	7,375	7,473
							Chemical/Energy	90,633	867	876	889	900	911	922	932	943	953	965	975	985	996	1,008	1,019	1,030	1,042	1,053	1,065	1,077

Wyong Shire Council

Sewerage **Capital Works Program** **Traditional Scenario**

2,006 Financial Year of Program Commencement
2,005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Total Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation from 40,000 to 105,000EP then 172,700EP for secondary treatment			80	20	**71,779**		3,551	3,551	28,410																						3,627	3,627	29,013		
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation from 41,500 to 45,000EP for secondary treatment			80	20	**6,646**		665	665	5,317																											
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	WyongSouth STP	Augmentation 48,000 to 61,600EP then 76,000EP for secondary treatment			80	20	**43,657**		3,158	3,158	25,263																						1,208	1,208	9,663		
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation from 57,600 to 74,000EP then 90,000EP for secondary treatment			80	20	**21,644**																	821	821	6,568											
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation from 12,000 to 19,700EP for secondary treatment			80	20	**8,211**																										821	821	6,568		
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation from 12,000 to 15,000EP for secondary treatment			80	20	**6,645**																										665	665	5,316		
		Infrastructure - Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		**6,100**	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100		**22,813**		787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		**3,443**																														
		Reburbishment																																				
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	**1,250**	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006		SPS Mechelec	No detail available.				100	**19,129**	218	281	281	401	401	751	751	556	726	468	323	322	300	374	374	679	679	419	419	259	259	322	322	410	410	760	760	449	449	252
WSC Refurbishment Expend Spreadsheet 2006		SPS Civil	No detail available.				100	**12,823**	19	19	19	19	45	45	45	46	46	46	51	69	69	69	99	99	99	100	117	117	120	140	140	140	159	265	265	265	286	286
WSC Refurbishment Expend Spreadsheet 2006		Sewer Rising Mains	No detail available.				100	**52,148**	96	96	96	96	189	189	189	189	189	451	451	451	451	451	652	652	652	652	652	1,571	1,571	1,571	1,571	1,571	1,530	1,530	1,530	1,530	1,530	2,611
WSC Refurbishment Expend Spreadsheet 2006		Sewer Gravity Mains	No detail available.				100	**116,000**	442	442	442	524	631	631	644	763	763	763	800	978	978	1,026	1,145	1,145	1,145	1,257	1,790	1,790	1,812	2,011	2,011	2,011	2,123	3,189	3,189	3,254	3,851	3,851
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Civil	No detail available.				100	**63,880**	14	14	14	15	20	20	20	174	174	174	176	185	185	185	277	277	277	410	410	410	410	577	577	577	657	657	657	657	657	657
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Mechelec	No detail available.				100	**48,749**	964	1,031	1,151	1,267	1,267	966	1,073	1,264	1,264	1,159	1,159	1,195	595	337	337	447	447	504	504	592	592	822	822	1,370	1,370	2,659	2,659	1,514	1,514	788
WSC Refurbishment Expend Spreadsheet 2006		AC Sewer Main Refurbishment	No detail available.				100	**10,465**	443	443	443	443	392	392	392	392	392	605	605	605	605	605	320	320	320	320	320	109	109	109	109	109	109	109	109	109	109	52
WSC Refurbishment Expend Spreadsheet 2006		Odour Control Facilities	No detail available.				100	**1,250**	300	300	300	150	0	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

								TOTAL	**516,632**	**2,642**	**10,932**	**11,053**	**62,838**	**3,878**	**3,928**	**4,048**	**4,319**	**4,489**	**4,599**	**4,699**	**4,739**	**4,117**	**3,980**	**4,138**	**4,554**	**5,375**	**5,417**	**11,715**	**5,783**	**5,807**	**6,486**	**6,486**	**7,122**	**7,291**	**16,424**	**16,424**	**59,273**	**9,329**	**9,430**
								% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								% Growth Works	159,222	122	6,808	6,808	48,191	909	909	909	909	909	909	909	909	909	909	909	909	909	1,565	1,565	6,161	909	909	909	909	909	5,965	5,965	41,357	909	909
								% Renewal Works	357,410	2,520	4,123	4,245	14,739	2,970	3,020	3,140	3,410	3,580	3,690	3,790	3,830	3,208	3,072	3,230	3,645	3,809	3,852	5,552	4,874	4,898	5,577	5,577	6,213	6,382	10,459	10,459	17,916	8,420	8,521
								% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Major Headworks	158,982	0	3,837	3,837	30,386	0	0	0	0	0	0	0	0	0	0	0	0	0	821	821	6,568	0	0	0	0	0	2,693	2,693	21,547	0	0
								Infrastructure - Distribution	32,356	122	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909
								Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Reburbishment	325,294	2,520	2,651	2,770	2,946	2,970	3,020	3,140	3,410	3,580	3,690	3,790	3,830	3,208	3,072	3,230	3,645	3,645	3,688	4,239	4,874	4,898	5,577	5,577	6,213	6,382	9,195	9,195	7,804	8,420	8,521

Wyong Shire Council

Sewerage **Capital Works Program** **Traditional Scenario**

2,006 Financial Year of Program Commencement
2,005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation from 40,000 to 105,000EP then 172,700EP for secondary treatment			80	20																				
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation from 41,500 to 45,000EP for secondary treatment			80	20																				
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	WyongSouth STP	Augmentation 48,000 to 61,600EP then 76,000EP for secondary treatment			80	20																				
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation from 57,600 to 74,000EP then 90,000EP for secondary treatment			80	20		1,343	1,343	10,748																
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation from 12,000 to 19,700EP for secondary treatment			80	20																				
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation from 12,000 to 15,000EP for secondary treatment			80	20																				
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
		Reburbishment																									
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006		SPS Mechelec	No detail available.				100	252	304	304	354	354	653	653	373	373	191	191	217	217	188	188	188	188	188	188	188
WSC Refurbishment Expend Spreadsheet 2006		SPS Civil	No detail available.				100	286	298	475	475	484	605	605	605	618	309	309	315	517	517	517	517	517	517	517	517
WSC Refurbishment Expend Spreadsheet 2006		Sewer Rising Mains	No detail available.				100	2,611	2,611	2,611	2,611	1,525	1,525	1,525	1,525	1,525	981	981	981	981	981	702	702	702	702	702	702
WSC Refurbishment Expend Spreadsheet 2006		Sewer Gravity Mains	No detail available.				100	3,851	4,037	2,970	2,970	3,035	4,228	4,228	4,228	4,787	4,076	4,076	4,184	2,991	2,991	2,991	2,991	2,991	2,991	2,991	2,991
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Civil	No detail available.				100	657	801	1,050	1,050	1,050	1,050	1,050	1,050	1,050	801	801	801	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Mechdec	No detail available.				100	788	969	969	1,255	1,255	2,339	2,339	1,264	1,264	559	559	595	595	337	337	337	337	337	337	337
WSC Refurbishment Expend Spreadsheet 2006		AC Sewer Main Refurbishment	No detail available.				100	52	52	52	52	52	52	52	52	52	52	52	52	52	52	38	38	38	38	38	38
WSC Refurbishment Expend Spreadsheet 2006		Odour Control Facilities	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			TOTAL					**8,815**	**10,736**	**10,094**	**19,835**	**8,074**	**10,772**	**10,772**	**9,417**	**9,989**	**7,288**	**7,288**	**7,463**	**11,066**	**10,781**	**10,488**	**10,488**	**10,488**	**10,488**	**10,488**	**10,488**
			% Works LoS					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% Growth Works					294	1,369	1,369	8,892	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
			% Renewal Works					8,521	9,367	8,725	10,942	7,780	10,477	10,477	9,123	9,694	6,993	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194
			% Subsidy					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Major Headworks					0	1,343	1,343	10,748	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Infrastructure - Distribution					294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
			Standards					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Reburbishment					8,521	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,694	6,993	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Traditional Scenario**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation from 40,000 to 105,000EP then 172,700EP for secondary treatment	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation from 41,500 to 45,000EP for secondary treatment	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation 48,000 to 61,600EP then 76,000EP for secondary treatment	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay#2 STP	Augmentation from 57,600 to 74,000EP then 90,000EP for secondary treatment	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation from 12,000 to 19,700EP for secondary treatment	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park ST P	Augmentation from 12,000 to 15,000EP for secondary treatment	100				**0**																														
		Infrastructure - Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																														
	Shire Wide																																				
		Existing Management Expenses																																				
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**313,880**	4,382	4,462	4,544	4,627	4,712	4,799	4,888	4,938	5,010	5,062	5,156	5,231	5,306	5,383	5,461	5,540	5,609	5,679	5,749	5,821	5,893	5,966	6,040	6,115	6,191	6,268	6,346	6,424	6,504	6,584
		Existing Operating Expenses																																				
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**23,492**	328	334	340	346	353	359	364	370	375	380	386	391	397	403	409	415	420	425	430	436	441	447	452	458	463	469	475	481	487	493
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**91,793**	1,281	1,305	1,329	1,353	1,378	1,403	1,424	1,444	1,465	1,486	1,508	1,530	1,552	1,574	1,597	1,620	1,640	1,661	1,681	1,703	1,723	1,745	1,766	1,788	1,811	1,833	1,856	1,879	1,902	1,925
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**90,198**	1,259	1,282	1,306	1,330	1,354	1,379	1,399	1,419	1,440	1,461	1,482	1,503	1,525	1,547	1,569	1,592	1,612	1,632	1,652	1,673	1,693	1,714	1,736	1,757	1,779	1,801	1,823	1,846	1,869	1,892
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**28,350**	396	403	410	418	426	433	440	446	453	459	466	472	479	486	493	500	507	513	519	526	532	539	546	552	559	566	573	580	587	595
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**145,448**	2,031	2,068	2,106	2,144	2,184	2,224	2,256	2,288	2,322	2,355	2,389	2,424	2,459	2,495	2,531	2,567	2,599	2,631	2,664	2,697	2,731	2,765	2,799	2,834	2,869	2,905	2,940	2,977	3,014	3,051
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**166,112**	2,319	2,362	2,405	2,449	2,494	2,540	2,576	2,614	2,651	2,690	2,729	2,768	2,808	2,849	2,890	2,932	2,968	3,005	3,043	3,082	3,119	3,157	3,197	3,236	3,276	3,317	3,358	3,400	3,442	3,484
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**870**	12	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	**50,102**	699	712	725	739	752	766	777	788	800	811	823	835	847	859	872	884	895	906	918	929	941	952	964	976	988	1,001	1,013	1,025	1,038	1,051
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**112,602**	1,572	1,601	1,630	1,660	1,690	1,721	1,746	1,772	1,797	1,823	1,850	1,876	1,904	1,931	1,958	1,987	2,012	2,037	2,062	2,088	2,114	2,140	2,167	2,194	2,221	2,249	2,276	2,305	2,333	2,362
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**13,341**	186	190	193	197	200	204	207	210	213	216	219	222	226	229	232	235	238	241	244	247	250	254	257	260	263	266	270	273	276	280
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**5,293**	74	75	77	78	79	81	82	83	84	86	87	88	89	91	92	93	95	96	97	98	99	101	102	103	104	106	107	108	110	111
		New Programs																																				
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Everythree years			100		**1,020**	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0

							TOTAL	**1,057,399**	**14,837**	**15,186**	**15,353**	**15,651**	**16,015**	**16,197**	**16,450**	**16,766**	**16,899**	**17,162**	**17,488**	**17,631**	**17,905**	**18,242**	**18,395**	**18,680**	**18,991**	**19,117**	**19,374**	**19,693**	**19,828**	**20,093**	**20,422**	**20,566**	**20,840**	**21,178**	**21,330**	**21,613**	**21,959**	**22,121**
							Operations	397,163	4,992	5,107	5,224	5,322	5,435	5,492	5,546	5,612	5,672	5,731	5,810	5,869	5,956	6,029	6,076	6,174	6,238	6,303	6,369	6,434	6,504	6,573	6,641	6,711	6,782	6,854	6,926	7,000	7,074	6,765
							Maintenance	355,136	4,958	5,049	5,141	5,236	5,333	5,429	5,508	5,588	5,668	5,751	5,834	5,918	6,004	6,091	6,179	6,268	6,346	6,425	6,505	6,586	6,667	6,750	6,834	6,919	7,005	7,092	7,180	7,268	7,358	7,449
							Administration	329,766	4,679	4,842	4,819	4,925	5,092	5,074	5,166	5,318	5,285	5,369	5,536	5,506	5,604	5,763	5,736	5,838	5,989	5,954	6,047	6,301	6,168	6,264	6,420	6,390	6,489	6,648	6,621	6,722	6,884	6,859
							Chemical/Energy	79,332	1,107	1,128	1,148	1,169	1,191	1,213	1,230	1,248	1,266	1,284	1,303	1,322	1,341	1,360	1,384	1,400	1,417	1,435	1,453	1,472	1,489	1,508	1,528	1,545	1,565	1,584	1,604	1,623	1,644	1,664

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Traditional Scenario**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation from 40,000 to 105,000EP then 172,700EP for secondary treatment	100																							
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation from 41,500 to 45,000EP for secondary treatment	100																							
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation 48,000 to 61,600EP then 76,000EP for secondary treatment	100																							
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay#2 STP	Augmentation from 57,600 to 74,000EP then 90,000EP for secondary treatment	100																							
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation from 12,000 to 19,700EP for secondary treatment	100																							
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park ST P	Augmentation from 12,000 to 15,000EP for secondary treatment	100																							
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
	Shire Wide																										
		Existing Management Expenses																									
WSC, Special Schedules 2005/06			Engineering & Supervision			100		6,665	6,748	6,831	6,916	7,001	7,088	7,167	7,247	7,328	7,409	7,492	7,575	7,660	7,745	7,831	7,919	8,007	8,096	8,186	8,276
		Existing Operating Expenses																									
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				499	505	511	518	524	530	536	542	548	555	561	567	573	580	586	593	599	606	613	620
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			1,949	1,973	1,998	2,023	2,048	2,073	2,096	2,119	2,143	2,167	2,191	2,215	2,240	2,265	2,290	2,316	2,342	2,368	2,394	2,421
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				1,915	1,939	1,963	1,987	2,012	2,037	2,060	2,082	2,106	2,129	2,153	2,177	2,201	2,226	2,250	2,276	2,301	2,327	2,352	2,379
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	602	609	617	625	632	640	647	655	662	669	677	684	692	700	707	715	723	731	739	748
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			3,089	3,127	3,166	3,205	3,244	3,284	3,321	3,358	3,396	3,433	3,472	3,510	3,549	3,589	3,629	3,669	3,710	3,752	3,793	3,836
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				3,527	3,571	3,615	3,660	3,705	3,751	3,793	3,835	3,878	3,921	3,965	4,009	4,054	4,099	4,145	4,191	4,237	4,285	4,332	4,381
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	18	19	19	19	19	20	20	20	20	21	21	21	21	21	22	22	22	22	23	23
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	1,064	1,077	1,090	1,104	1,118	1,131	1,144	1,157	1,170	1,183	1,196	1,209	1,223	1,236	1,250	1,264	1,278	1,292	1,307	1,321
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			2,391	2,421	2,451	2,481	2,512	2,543	2,571	2,600	2,629	2,658	2,688	2,718	2,748	2,778	2,809	2,841	2,872	2,904	2,937	2,970
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				283	287	290	294	298	301	305	308	311	315	318	322	326	329	333	337	340	344	348	352
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			112	114	115	117	118	120	121	122	124	125	126	128	129	131	132	134	135	137	138	140
		New Programs																									
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60

							TOTAL	**22,414**	**22,770**	**22,942**	**23,245**	**23,611**	**23,794**	**24,078**	**24,426**	**24,589**	**24,882**	**25,238**	**25,410**	**25,713**	**26,079**	**26,260**	**26,572**	**26,948**	**27,139**	**27,460**	**27,846**
							Operations	6,235	6,332	6,380	6,459	6,539	6,609	6,697	6,792	6,841	6,922	6,997	7,070	7,154	7,253	7,304	7,390	7,479	7,561	7,640	7,741
							Maintenance	7,542	7,635	7,729	7,825	7,923	8,020	8,109	8,199	8,291	8,383	8,477	8,571	8,666	8,763	8,861	8,959	9,059	9,160	9,262	9,366
							Administration	6,963	7,128	7,105	7,213	7,381	7,363	7,464	7,627	7,603	7,707	7,872	7,850	7,957	8,125	8,106	8,216	8,397	8,371	8,484	8,658
							Chemical/Energy	1,684	1,705	1,726	1,748	1,769	1,791	1,811	1,831	1,852	1,872	1,893	1,914	1,936	1,957	1,979	2,007	2,023	2,046	2,069	2,091

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 1 - Current Initiatives**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Total Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**84,995**		4,205	4,205	33,638																											
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,919**		792	792	6,335																										
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**51,767**		3,742	3,742	29,936																										
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay#2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**31,865**																												1,593	1,593
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**9,822**																														
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,919**																														
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100			**0**																														
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100			**0**																														
		Infrastructure - Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		**3,250**	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Toukl**	Existing Recycled Effluent Initatives	Already operational and paid for		100			**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100		**22,813**		787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		**3,443**																														
		Reburbishment																																				
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	**1,250**	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006		SPS Mechelec	No detail available.				100	**19,129**	218	281	281	401	401	751	751	556	726	468	323	322	300	374	374	679	679	419	419	259	259	322	322	410	410	760	760	449	449	252
WSC Refurbishment Expend Spreadsheet 2006		SPS Civil	No detail available.				100	**12,823**	19	19	19	19	45	45	45	46	46	46	51	69	69	69	99	99	99	100	117	117	120	140	140	140	159	265	265	265	286	286
WSC Refurbishment Expend Spreadsheet 2006		Sewer Rising Mains	No detail available.				100	**52,140**	96	96	96	96	189	189	189	189	189	451	451	451	451	451	652	652	652	652	652	1,571	1,571	1,571	1,571	1,571	1,530	1,530	1,530	1,530	1,530	2,611
WSC Refurbishment Expend Spreadsheet 2006		Sewer Gravity Mains	No detail available.				100	**116,000**	442	442	442	524	631	631	644	763	763	763	800	978	978	1,026	1,145	1,145	1,145	1,257	1,790	1,790	1,812	2,011	2,011	2,011	2,123	3,189	3,189	3,254	3,851	3,851
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Civil	No detail available.				100	**63,880**	14	14	14	15	20	20	20	174	174	174	176	185	185	185	277	277	277	410	410	410	410	577	577	577	657	657	657	657	657	657
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Mechelec	No detail available.				100	**48,749**	964	1,031	1,151	1,267	1,267	966	1,073	1,264	1,264	1,159	1,159	1,195	595	337	337	447	447	504	504	592	592	822	822	1,370	1,370	2,659	2,659	1,514	1,514	788
WSC Refurbishment Expend Spreadsheet 2006		AC Sewer Main Refurbishment	No detail available.				100	**10,465**	443	443	443	443	392	392	392	392	392	605	605	605	605	605	320	320	320	320	320	109	109	109	109	109	109	109	109	109	109	52
WSC Refurbishment Expend Spreadsheet 2006		Odour Control Facilities	No detail available.				100	**1,250**	300	300	300	150	0	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL	**549,486**	**2,585**	**12,240**	**12,361**	**73,700**	**3,821**	**3,871**	**3,991**	**4,262**	**4,432**	**4,542**	**4,642**	**4,682**	**4,060**	**3,923**	**4,081**	**4,497**	**4,497**	**4,539**	**5,090**	**5,726**	**5,750**	**6,429**	**6,429**	**7,065**	**7,234**	**10,047**	**10,047**	**8,655**	**10,865**	**10,966**
% Works LoS	77,719	0	3,489	3,489	37,965	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	637	637
% Growth Works	107,230	85	4,347	4,347	28,819	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	1,489	1,489
% Renewal Works	364,537	2,500	4,404	4,524	7,916	2,969	3,019	3,139	3,410	3,580	3,690	3,790	3,830	3,208	3,072	3,230	3,645	3,645	3,687	4,238	4,874	4,898	5,577	5,577	6,213	6,382	9,195	9,195	7,803	8,376	8,840
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Headworks	194,286	0	8,736	8,736	69,905	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,593	1,593
Infrastructure - Distribution	29,506	0	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reburbishment	325,694	2,585	2,866	2,778	2,848	2,974	3,084	3,204	3,474	3,645	3,755	3,855	3,895	3,273	3,136	3,294	3,710	3,710	3,752	4,303	4,939	4,963	5,642	5,642	6,278	6,447	9,260	9,260	7,868	8,485	8,586

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 1 - Current Initiatives**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									4,295	4,295	34,359									
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20																				
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									1,435	1,435	11,478									
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay#2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	12,746															1,593	1,593	12,746		
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									982	982	7,857									
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									792	792	6,334									
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP	Tertiary package plant Already operational and paid for				100																				
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP	Tertiary package plant Already operational and paid for				100																				
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Toukl**	Existing Recycled Effluent Initatives	Already operational and paid for			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
		Reburbishment																									
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006		SPS Mechelec	No detail available.				100	252	304	304	354	354	653	653	373	373	191	191	217	217	188	188	188	188	188	188	188
WSC Refurbishment Expend Spreadsheet 2006		SPS Civil	No detail available.				100	286	298	475	475	484	605	605	605	618	309	309	315	517	517	517	517	517	517	517	517
WSC Refurbishment Expend Spreadsheet 2006		Sewer Rising Mains	No detail available.				100	2,611	2,611	2,611	2,611	1,525	1,525	1,525	1,525	1,525	981	981	981	981	981	702	702	702	702	702	702
WSC Refurbishment Expend Spreadsheet 2006		Sewer Gravity Mains	No detail available.				100	3,851	4,037	2,970	2,970	3,035	4,228	4,228	4,228	4,787	4,076	4,076	4,184	2,991	2,991	2,991	2,991	2,991	2,991	2,991	2,991
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Civil	No detail available.				100	657	801	1,050	1,050	1,050	1,050	1,050	1,050	1,050	801	801	801	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Mechelec	No detail available.				100	788	969	969	1,255	1,255	2,339	2,339	1,264	1,264	556	559	595	595	337	337	337	337	337	337	337
WSC Refurbishment Expend Spreadsheet 2006		AC Sewer Main Refurbishment	No detail available.				100	52	52	52	52	52	52	52	52	52	52	52	52	52	52	38	38	38	38	38	38
WSC Refurbishment Expend Spreadsheet 2006		Odour Control Facilities	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL	**21,504**	**9,335**	**8,694**	**9,030**	**8,017**	**10,715**	**10,715**	**9,360**	**17,435**	**14,734**	**67,259**	**7,406**	**11,009**	**10,724**	**10,431**	**10,431**	**12,024**	**12,024**	**23,177**	**10,431**
% Works LoS	8,896	0	0	0	0	0	0	0	9,360	3,298	34,359	0	0	0	0	0	639	587	5,888	0
% Growth Works	5,336	237	237	237	237	237	237	237	3,236	3,236	34,348	237	237	237	237	237	876	874	5,336	237
% Renewal Works	11,077	9,098	8,457	8,793	7,780	10,477	10,477	9,123	11,199	8,499	18,899	7,169	10,772	10,486	10,194	10,194	10,510	10,563	12,743	10,194
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Headworks	12,746	0	0	0	0	0	0	0	7,354	7,354	60,028	0	0	0	0	0	1,593	1,593	12,746	0
Infrastructure - Distribution	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reburbishment	8,573	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,884	6,882	6,899	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 1 - Current Initiatives**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**2,990**	0	0	0	46	47	48	48	49	50	51	51	52	53	54	54	55	56	57	57	58	59	59	60	61	62	62	63	64	65	66
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,102**	0	0	0	48	49	50	50	51	52	52	53	54	55	56	56	57	58	59	59	60	61	62	62	63	64	65	66	66	67	68
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,588**	0	0	0	55	56	57	58	59	60	61	62	62	63	64	65	66	67	68	69	70	70	71	72	73	74	75	76	77	78	79
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,197**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	83	84	85	87	88	89	90	91	92	93	94
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
WSC, TAG to Board, 15 November 2006, rev	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																														
WSC, TAG to Board, 15 November 2006, rev	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																														
		Infrastructure - Distribution																																				
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100				**0**																														
WSC, TAG to Board, 15 November 2006, rev	**Bateau Bay and Toukley**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																														
		Demand Management																																				
#REF!	**Shire wide**	Inflow and infiltration reduction program			100			**15,790**	228	231	235	239	243	247	250	254	257	260	264	267	271	274	278	282	285	288	291	295	298	301	305	308	312	315	319	323	326	330
#REF!		Trade Waste Management	Increased operational costs covered by growth accounted for below	100				**0**																														
		Existing Management Expenses																																				
WSC, Special Schedules 2005/06		Engineering & Supervision				100		**313,880**	4,382	4,462	4,544	4,627	4,712	4,799	4,868	4,938	5,010	5,082	5,156	5,231	5,306	5,383	5,461	5,540	5,609	5,679	5,749	5,821	5,893	5,966	6,040	6,115	6,191	6,268	6,346	6,424	6,504	6,584
		Existing Operating Expenses																																				
WSC, Special Schedules 2005/06		Mains - Operation Expenses		100				**23,492**	328	334	340	346	353	359	364	370	375	380	386	391	397	403	409	415	420	425	430	436	441	447	452	458	463	469	475	481	487	493
WSC, Special Schedules 2005/06		Mains - Maintenance Expenses			100			**91,793**	1,281	1,305	1,329	1,353	1,378	1,403	1,424	1,444	1,465	1,486	1,508	1,530	1,552	1,574	1,597	1,620	1,640	1,661	1,681	1,702	1,723	1,745	1,766	1,788	1,811	1,833	1,856	1,879	1,902	1,925
WSC, Special Schedules 2005/06		Pump Stations - Operation Expenses		100				**90,198**	1,259	1,282	1,306	1,330	1,354	1,379	1,399	1,419	1,440	1,461	1,482	1,503	1,525	1,547	1,569	1,592	1,612	1,632	1,652	1,673	1,693	1,714	1,736	1,757	1,779	1,801	1,823	1,846	1,869	1,892
WSC, Special Schedules 2005/06		Pump Stations - Energy Costs					100	**28,350**	396	403	410	418	426	433	440	446	453	459	466	472	479	486	493	500	507	513	519	526	532	539	546	552	559	566	573	580	587	595
WSC, Special Schedules 2005/06		Pump Stations - Maintenance Expenses			100			**145,448**	2,031	2,068	2,106	2,144	2,184	2,224	2,256	2,288	2,322	2,355	2,389	2,424	2,459	2,495	2,531	2,567	2,599	2,631	2,664	2,697	2,731	2,765	2,799	2,834	2,869	2,905	2,940	2,977	3,014	3,051
WSC, Special Schedules 2005/06		Treatment - Operation Expenses		100				**166,112**	2,319	2,362	2,405	2,449	2,494	2,540	2,576	2,614	2,651	2,690	2,729	2,768	2,808	2,849	2,890	2,932	2,968	3,005	3,043	3,080	3,119	3,157	3,197	3,236	3,276	3,317	3,358	3,400	3,442	3,484
WSC, Special Schedules 2005/06		Treatment - Chemical Costs					100	**870**	12	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18
WSC, Special Schedules 2005/06		Treatment - Energy Costs					100	**50,102**	699	712	725	739	753	766	777	788	800	811	823	835	847	859	872	884	895	906	918	929	941	952	964	976	988	1,001	1,013	1,025	1,038	1,051
WSC, Special Schedules 2005/06		Treatment - Effluent Management		100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06		Treatment - Biosolids Management		100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06		Treatment - Maintenance Expenses			100			**112,602**	1,572	1,601	1,630	1,660	1,690	1,721	1,746	1,772	1,797	1,823	1,850	1,876	1,904	1,931	1,959	1,987	2,012	2,037	2,062	2,088	2,114	2,140	2,167	2,194	2,221	2,249	2,276	2,305	2,333	2,362
WSC, Special Schedules 2005/06		Other - Operation Expenses		100				**13,341**	186	190	193	197	200	204	207	210	213	216	219	222	226	229	232	235	238	241	244	247	250	254	257	260	263	266	270	273	276	280
WSC, Special Schedules 2005/06		Other - Maintenance Expenses			100			**5,293**	74	75	77	78	79	81	82	83	84	86	87	88	89	91	92	93	95	96	97	98	99	101	102	103	104	106	107	108	110	111
		New Programs																																				
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum				100	**-85,093**	-44	-45	-91	-139	-188	-240	-292	-346	-401	-457	-516	-575	-637	-700	-765	-831	-897	-965	-1,035	-1,106	-1,179	-1,253	-1,329	-1,406	-1,486	-1,567	-1,650	-1,734	-1,821	-1,909
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years				100	**765**	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan				100	**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years				100	**383**	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate				100	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made				100	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually				100	**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review				100	**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey				100	**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years				100	**1,233**	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals				100	**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan				100	**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years				100	**1,020**	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0

							TOTAL	**1,014,839**	**15,253**	**15,678**	**15,729**	**16,133**	**16,527**	**16,591**	**16,798**	**17,138**	**17,149**	**17,361**	**17,707**	**17,724**	**17,942**	**18,295**	**18,317**	**18,542**	**18,964**	**18,855**	**19,130**	**19,458**	**19,454**	**19,652**	**19,984**	**19,985**	**20,187**	**20,523**	**20,527**	**20,771**	**21,111**	**21,120**
							Operations	300,088	4,092	4,167	4,244	4,396	4,477	4,559	4,625	4,692	4,760	4,829	4,898	4,969	5,041	5,114	5,188	5,263	5,329	5,395	5,503	5,572	5,641	5,711	5,782	5,854	5,926	6,000	6,074	6,149	6,245	6,322
							Maintenance	370,926	5,186	5,280	5,377	5,475	5,575	5,676	5,758	5,841	5,925	6,011	6,097	6,185	6,275	6,365	6,457	6,550	6,631	6,713	6,796	6,886	6,965	7,052	7,139	7,227	7,317	7,407	7,499	7,591	7,685	7,779
							Administration	257,562	4,868	5,103	4,961	5,019	5,209	5,066	5,106	5,278	5,117	5,153	5,325	5,163	5,200	5,368	5,204	5,239	5,397	5,221	5,244	5,400	5,222	5,243	5,396	5,216	5,235	5,386	5,203	5,220	5,368	5,183
							Chemical/Energy	86,263	1,107	1,128	1,148	1,244	1,267	1,290	1,309	1,328	1,347	1,368	1,386	1,406	1,426	1,447	1,468	1,489	1,508	1,527	1,587	1,696	1,626	1,647	1,667	1,688	1,709	1,730	1,751	1,792	1,814	1,837

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 1 - Current Initiatives**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	66	67	68	69	70	71	71	72	73	74	75	75	76	77	78	79	80	81	81	82
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	69	70	71	71	72	73	74	75	76	76	77	78	79	80	81	82	83	84	85	85
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	80	81	82	83	84	85	86	87	88	88	89	90	91	92	94	95	96	97	98	99
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	96	97	98	99	100	102	103	104	105	106	107	109	110	111	112	113	115	116	117	119
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
WSC, TAG to Board, 15 November 2006, rev	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
WSC, TAG to Board, 15 November 2006, rev	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100																							
WSC, TAG to Board, 15 November 2006, rev	**Bateau Bay and Toukley**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
		Demand Management																									
#REF!	**Shire wide**	Inflow and infiltration reduction program			100			334	338	342	346	349	353	357	361	365	368	372	376	380	384	388	392	396	400	404	409
#REF!		Trade Waste Management	Increased operational costs covered by growth accounted for below	100																							
		Existing Management Expenses																									
WSC, Special Schedules 2005/06			Engineering & Supervision			100		6,665	6,748	6,831	6,916	7,001	7,088	7,167	7,247	7,328	7,409	7,492	7,575	7,660	7,745	7,831	7,919	8,007	8,096	8,186	8,278
		Existing Operating Expenses																									
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				499	505	511	518	524	530	536	542	548	555	561	567	573	580	586	593	599	606	613	620
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			1,949	1,973	1,998	2,023	2,048	2,073	2,096	2,119	2,143	2,167	2,191	2,215	2,240	2,265	2,290	2,316	2,342	2,368	2,394	2,421
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				1,915	1,939	1,963	1,987	2,012	2,037	2,060	2,082	2,106	2,129	2,153	2,177	2,201	2,226	2,250	2,276	2,301	2,327	2,352	2,379
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	602	609	617	625	632	640	647	655	662	669	677	684	692	700	707	715	723	731	739	748
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			3,089	3,127	3,166	3,205	3,244	3,284	3,321	3,358	3,396	3,433	3,472	3,510	3,549	3,589	3,629	3,669	3,710	3,752	3,793	3,836
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				3,527	3,571	3,615	3,660	3,705	3,751	3,793	3,835	3,878	3,921	3,965	4,009	4,054	4,099	4,145	4,191	4,237	4,285	4,332	4,381
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	18	19	19	19	19	20	20	20	20	21	21	21	21	21	22	22	22	22	23	23
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	1,064	1,077	1,090	1,104	1,118	1,131	1,144	1,157	1,170	1,183	1,196	1,209	1,223	1,236	1,250	1,264	1,278	1,292	1,307	1,321
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			2,391	2,421	2,451	2,481	2,512	2,543	2,571	2,600	2,629	2,658	2,688	2,718	2,748	2,778	2,809	2,841	2,872	2,904	2,937	2,970
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				283	287	290	294	298	301	305	308	311	315	318	322	326	329	333	337	340	344	348	352
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			112	114	115	117	118	120	121	122	124	125	126	128	129	131	132	134	135	137	138	140
		New Programs																									
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-2,000	-2,092	-2,186	-2,282	-2,380	-2,481	-2,580	-2,681	-2,784	-2,890	-2,997	-3,106	-3,217	-3,330	-3,446	-3,563	-3,683	-3,805	-3,929	-4,056
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvement	Annual Survey			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60

							TOTAL	**21,331**	**21,675**	**21,689**	**21,904**	**22,253**	**22,271**	**22,464**	**22,791**	**22,786**	**22,982**	**23,312**	**23,311**	**23,511**	**23,844**	**23,846**	**24,049**	**24,386**	**24,391**	**24,598**	**24,938**
							Operations	6,400	6,479	6,559	6,641	6,723	6,806	6,882	6,958	7,036	7,114	7,194	7,274	7,355	7,437	7,520	7,603	7,688	7,774	7,860	7,948
							Maintenance	7,875	7,973	8,071	8,170	8,271	8,373	8,466	8,560	8,655	8,752	8,849	8,947	9,047	9,147	9,248	9,352	9,455	9,561	9,667	9,774
							Administration	5,196	5,341	5,153	5,164	5,306	5,115	5,117	5,251	5,051	5,050	5,180	4,977	4,973	5,100	4,893	4,885	5,009	4,798	4,787	4,907
							Chemical/Energy	1,859	1,882	1,906	1,929	1,953	1,977	1,999	2,022	2,044	2,067	2,090	2,113	2,137	2,161	2,185	2,209	2,234	2,259	2,284	2,309

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 2**

2.005 Financial Year of Program Commencement
2.005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Total Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																			
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**84,995**		4,205	4,205	33,638																										
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,919**		792	792	6,335																										
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**91,767**		3,742	3,742	29,936																										
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**31,865**																												1,593	1,593
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**9,822**																													
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,918**																													
WSC, TAG to Board, 15 November 2006, revised Feb 2	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100			**0**																													
WSC, TAG to Board, 15 November 2006, revised Feb 2	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100			**0**																													
		Infrastructure - Distribution																																			
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		**3,250**	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
WSC, TAG to Board, 15 November 2006, revised Feb 2	**Bateau Bay and Touki**	Existing third pipe RE system	Already operational and paid for		100			**0**																													
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100		**22,813**		787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		**3,443**																													
		Effluent Management																																			
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wanervale District Centre	Third pipe system for recycled water for 2000 greenfield residential accounts			100		**2,200**		220	220	1,760																										
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Hamlyn Terrace	Third pipe system for recycled water for 800 greenfield residential accounts			100		**2,157**						216	216	1,726																						
		Refurbishment																																			
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	**1,250**	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006		SPS Mechelec	No detail available.				100	**19,125**	216	281	281	401	401	751	751	556	726	468	323	322	300	374	374	679	679	419	419	255	259	322	322	410	410	760	760	449	449	252
WSC Refurbishment Expend Spreadsheet 2006		SPS Civil	No detail available.				100	**12,823**	19	19	19	19	45	45	45	46	46	46	51	69	69	69	69	99	99	100	117	117	120	140	140	140	189	265	265	265	286	286
WSC Refurbishment Expend Spreadsheet 2006		Sewer Rising Mains	No detail available.				100	**52,148**	96	96	96	96	189	189	189	189	189	451	451	451	451	451	653	652	652	652	652	1,571	1,571	1,571	1,571	1,571	1,530	1,530	1,530	1,530	1,530	2,611
WSC Refurbishment Expend Spreadsheet 2006		Sewer Gravity Mains	No detail available.				100	**116,000**	442	442	442	524	631	631	644	763	763	763	800	978	978	1,026	1,145	1,145	1,145	1,257	1,790	1,790	1,812	2,011	2,011	2,011	2,123	3,189	3,189	3,254	3,851	3,851
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Civil	No detail available.				100	**63,880**	14	14	14	15	20	20	20	174	174	174	176	185	185	185	277	277	277	410	410	410	410	577	577	577	657	657	657	657	657	657
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Mechelec	No detail available.				100	**48,746**	964	1,031	1,161	1,367	1,267	966	1,073	1,264	1,264	1,159	1,159	1,195	595	337	357	447	447	504	504	593	592	822	822	1,370	1,370	2,659	2,659	1,514	1,514	765
WSC Refurbishment Expend Spreadsheet 2006		AC Sewer Main Refurbishment	No detail available.				100	**10,465**	443	443	443	443	382	392	392	392	392	605	605	605	605	605	320	320	320	320	320	109	109	109	109	109	109	109	109	109	109	52
WSC Refurbishment Expend Spreadsheet 2006		Odour Control Facilities	No detail available.				100	**1,250**	300	300	300	150	0	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

			TOTAL	**553,843**	**2,585**	**12,460**	**12,581**	**75,460**	**3,821**	**4,087**	**4,207**	**5,988**	**4,432**	**4,542**	**4,642**	**4,682**	**4,060**	**3,923**	**4,081**	**4,497**	**4,497**	**4,539**	**5,090**	**5,726**	**5,750**	**6,429**	**6,429**	**7,065**	**7,234**	**10,047**	**10,047**	**8,655**	**10,865**	**10,966**
			% Works LoS	77,714	0	3,492	3,498	27,952	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	637	637
			% Growth Works	111,577	93	4,567	4,567	30,573	832	1,067	1,067	2,577	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	1,469	1,469
			% Renewal Works	364,551	2,492	4,399	4,516	16,921	2,989	3,020	3,140	3,410	3,382	3,690	3,790	3,830	3,208	3,072	3,229	3,645	3,645	3,688	4,238	4,874	4,898	5,577	5,577	6,213	6,382	9,195	9,195	7,804	8,729	8,840
			% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Major Headworks	194,286	0	8,731	8,739	89,903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,593	1,593
			Infrastructure - Distribution	33,883	93	1,072	1,072	2,612	832	1,067	1,067	2,577	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852	852
			Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Refurbishment	325,688	2,492	2,656	2,770	2,944	2,989	3,020	3,140	3,410	3,382	3,690	3,790	3,830	3,208	3,072	3,229	3,645	3,645	3,688	4,238	4,874	4,898	5,577	5,577	6,213	6,382	9,195	9,195	7,804	8,429	8,391

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 2**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works Lo S	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									4,295	4,295	34,359									
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20																				
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									1,435	1,435	11,478									
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	12,746																1,593	1,593	12,746	
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									982	982	7,857									
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									792	792	6,334									
WSC, TAG to Board, 15 November 2006, revised Feb 2	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100																						
WSC, TAG to Board, 15 November 2006, revised Feb 2	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100																						
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
WSC, TAG to Board, 15 November 2006, revised Feb 2	**Bateau Bay and Touki**	Existing third pipe RE system	Already operational and paid for		100																						
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
		Effluent Management																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wanervale District Centre	Third pipe system for recycled water for 2000 greenfield residential accounts			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Hamlyn Terrace	Third pipe system for recycled water for 800 greenfield residential accounts			100																					
		Refurbishment																									
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006		SPS Mechelec	No detail available.				100	252	304	304	354	354	653	653	373	373	191	191	217	217	188	188	188	188	188	188	188
WSC Refurbishment Expend Spreadsheet 2006		SPS Civil	No detail available.				100	286	298	475	475	464	605	605	605	618	309	309	315	517	517	517	517	517	517	517	517
WSC Refurbishment Expend Spreadsheet 2006		Sewer Rising Mains	No detail available.				100	2,611	2,611	2,611	2,611	1,525	1,525	1,525	1,525	1,525	981	981	981	981	981	702	702	702	702	702	702
WSC Refurbishment Expend Spreadsheet 2006		Sewer Gravity Mains	No detail available.				100	3,851	4,037	2,970	2,970	3,035	4,228	4,228	4,228	4,787	4,070	4,076	4,184	2,991	2,991	2,991	2,991	2,991	2,991	2,991	2,991
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Civil	No detail available.				100	657	801	1,050	1,050	1,050	1,050	1,050	1,050	1,050	801	801	801	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395
WSC Refurbishment Expend Spreadsheet 2006		Sewage Treatment Mechelec	No detail available.				100	788	969	969	1,295	1,295	2,339	2,339	1,264	1,264	559	559	595	595	337	337	337	337	337	337	337
WSC Refurbishment Expend Spreadsheet 2006		AC Sewer Main Refurbishment	No detail available.				100	52	52	52	52	52	52	52	52	52	52	52	52	52	52	38	38	38	38	38	38
WSC Refurbishment Expend Spreadsheet 2006		Odour Control Facilities	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL	**21,504**	**9,335**	**8,694**	**9,030**	**8,017**	**10,715**	**10,715**	**9,360**	**17,435**	**14,734**	**67,259**	**7,406**	**11,009**	**10,724**	**10,431**	**10,431**	**12,024**	**12,024**	**23,177**	**10,431**
% Works LoS	5,099	0	0	0	0	0	0	0	3,001	3,001	24,041	0	0	0	0	0	637	637	5,099	0
% Growth Works	5,339	237	237	237	237	237	237	237	3,239	3,239	24,243	237	237	237	237	237	874	874	5,339	237
% Renewal Works	11,066	9,098	8,457	8,793	7,780	10,477	10,477	9,123	11,195	8,494	18,975	7,169	10,772	10,486	10,194	10,194	10,513	10,513	12,740	10,194

% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Major Headworks	12,746	0	0	0	0	0	0	0	7,295	7,295	60,359	0	0	0	0	0	1,593	1,593	12,746	0
Infrastructure - Distribution	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237
Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refurbishment	8,521	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,903	6,992	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194

Wyong Shire Council

Sewerage — **Operations, Maintenance and Administration Schedule** — **Scenario 2**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
WWH, WSC WCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**2,990**	0	0	0	46	47	48	48	49	50	51	51	52	53	54	54	55	56	57	57	58	59	59	60	61	62	62	63	64	65	66
WWH, WSC WCM Sub-Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,102**	0	0	0	48	49	50	50	51	52	53	53	54	55	56	56	57	58	59	59	60	61	62	62	63	64	65	66	66	67	68
WWH, WSC WCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,388**	0	0	0	55	56	57	58	59	60	61	62	62	63	64	65	66	67	68	69	70	70	71	72	73	74	75	76	77	78	79
WWH, WSC WCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,197**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	83	84	85	87	88	89	90	91	92	93	94
WWH, WSC WCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
WWH, WSC WCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																													
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																													
		Infrastructure - Distribution																																			
WWH, WSC WCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100				**0**																													
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Tu**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100				**0**																													
WWH, WSC WCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																													
WWH, WSC WCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																													
WWH, WSC WCM Sub-Plan 2007	**Charmhaven**	Wanervale DC third pipe system	Third pipe system for recycled water for 2000 greenfield residential accounts	100				**3,579**					57	58	59	60	61	61	62	63	64	65	66	67	68	69	70	70	71	72	73	74	75	76	77	78	79	80
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Charmhaven**	Hamlyn Terrace DC third pipe system	Third pipe system for recycled water for 800 greenfield residential accounts	100				**962**										16	18	19	19	19	19	20	20	20	20	21	21	21	21	22	22	22	22	23	23	23
		Demand Management																																			
WWH, WSC WCM Sub-Plan 2007	**Shire wide**	Inflow and infiltration reduction program				100		**15,750**	228	231	235	239	243	247	250	254	257	262	264	267	271	274	278	282	285	288	291	295	298	301	305	308	312	315	319	323	326	330
WWH, WSC WCM Sub-Plan 2007		Trade Waste Management	Increased operational costs covered by growth accounted for below	100				**0**																													
WWH, WSC WCM Sub-Plan 2007		Sewerage Systems	Improved auditing of on-site systems.				100	**3,000**	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		Existing Management Expenses																																			
WSC, Special Schedules 2005/06			Engineering & Supervision				100	**313,080**	4,382	4,462	4,544	4,627	4,712	4,799	4,868	4,938	5,010	5,082	5,156	5,231	5,306	5,383	5,461	5,540	5,619	5,679	5,749	5,821	5,893	5,966	6,040	6,115	6,191	6,268	6,346	6,424	6,504	6,584
		Existing Operating Expenses																																			
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**23,492**	328	334	340	346	353	359	364	370	375	380	386	391	397	403	409	415	420	425	430	436	441	447	452	458	463	469	475	481	487	493
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**91,793**	1,281	1,305	1,329	1,353	1,378	1,403	1,424	1,444	1,465	1,484	1,508	1,530	1,552	1,574	1,597	1,620	1,640	1,661	1,681	1,702	1,723	1,745	1,766	1,788	1,811	1,833	1,856	1,879	1,902	1,925
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**90,198**	1,259	1,282	1,306	1,330	1,354	1,379	1,399	1,419	1,440	1,461	1,482	1,503	1,525	1,547	1,569	1,592	1,612	1,632	1,652	1,673	1,693	1,714	1,736	1,757	1,779	1,801	1,823	1,846	1,869	1,892
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**28,350**	396	403	410	418	426	433	440	446	453	459	466	472	479	486	493	500	507	513	519	526	532	539	546	552	559	566	573	580	587	595
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**145,448**	2,031	2,068	2,106	2,144	2,184	2,224	2,256	2,288	2,322	2,355	2,389	2,424	2,459	2,495	2,531	2,567	2,599	2,631	2,664	2,697	2,731	2,765	2,799	2,834	2,869	2,905	2,940	2,977	3,014	3,051
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**166,112**	2,319	2,362	2,405	2,449	2,494	2,540	2,576	2,614	2,651	2,690	2,729	2,768	2,808	2,849	2,890	2,932	2,968	3,005	3,043	3,080	3,119	3,157	3,197	3,236	3,276	3,317	3,358	3,400	3,442	3,484
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**870**	12	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	19
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	**50,102**	699	712	725	739	752	766	777	788	800	811	823	835	847	859	872	884	895	906	918	929	941	952	964	976	988	1,001	1,013	1,025	1,038	1,051
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**112,402**	1,572	1,601	1,630	1,660	1,690	1,721	1,746	1,772	1,797	1,823	1,850	1,876	1,904	1,931	1,959	1,987	2,012	2,037	2,062	2,088	2,114	2,140	2,167	2,194	2,221	2,249	2,276	2,305	2,333	2,362
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**13,341**	186	190	193	197	200	204	207	210	213	216	219	222	226	229	232	235	238	241	244	247	250	254	257	260	263	266	270	273	276	280
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**5,293**	74	75	77	78	79	81	82	83	84	86	87	88	89	91	92	93	95	96	97	98	99	101	102	103	104	106	107	108	110	111
		New Programs																																			
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum				100	**-85,093**	-44	-45	-91	-139	-186	-240	-292	-346	-401	-457	-516	-575	-637	-700	-765	-831	-897	-965	-1,035	-1,106	-1,179	-1,253	-1,329	-1,406	-1,486	-1,567	-1,650	-1,734	-1,821	-1,909
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years				100	**765**	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan				100	**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years				100	**383**	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate				100	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made				100	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually				100	**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review				100	**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvement	Annual Survey				100	**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years				100	**1,233**	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals				100	**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan				100	**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years				100	**1,020**	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0

								TOTAL	**1,022,379**	**15,313**	**15,738**	**15,789**	**16,193**	**16,644**	**16,709**	**16,916**	**17,250**	**17,269**	**17,500**	**17,848**	**17,865**	**18,085**	**18,439**	**18,463**	**18,688**	**19,012**	**19,004**	**19,280**	**19,605**	**19,606**	**19,805**	**20,138**	**20,140**	**20,344**	**20,681**	**20,686**	**20,932**	**21,273**	**21,283**
								Operations	334,268	4,882	4,787	4,744	4,936	4,934	4,877	4,864	4,752	4,820	4,900	4,978	5,041	5,124	5,318	5,274	5,330	5,416	5,484	5,563	5,646	5,732	5,804	5,876	5,949	6,020	6,093	6,173	6,253	6,340	6,423
								Maintenance	370,928	5,186	5,280	5,377	5,475	5,575	5,676	5,758	5,841	5,925	6,011	6,097	6,185	6,275	6,365	6,457	6,550	6,631	6,713	6,796	6,880	6,965	7,052	7,139	7,227	7,317	7,407	7,499	7,591	7,685	7,779
								Administration	260,362	4,828	5,163	5,021	5,079	5,260	5,126	5,166	5,338	5,177	5,215	5,305	5,233	5,260	5,428	5,264	5,299	5,457	5,281	5,304	5,460	5,282	5,303	5,456	5,276	5,298	5,446	5,363	5,389	5,428	5,242
								Chemical/Energy	86,262	1,107	1,128	1,148	1,244	1,267	1,200	1,309	1,338	1,347	1,368	1,386	1,406	1,426	1,447	1,468	1,489	1,508	1,527	1,587	1,699	1,626	1,647	1,667	1,688	1,706	1,730	1,751	1,792	1,814	1,827

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 2**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
IWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	66	67	68	69	70	71	71	72	73	74	75	75	76	77	78	79	80	81	81	82
IWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	69	70	71	71	72	73	74	75	76	76	77	78	79	80	81	82	83	84	85	85
IWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	80	81	82	83	84	85	86	87	88	88	89	90	91	92	94	95	96	97	98	99
IWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay#2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	96	97	98	99	100	102	103	104	105	106	107	109	110	111	112	113	115	116	117	119
IWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
IWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
WSC, TAGto Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
WSC, TAGto Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
		Infrastructure - Distribution																									
IWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100																							
WSC, TAGto Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Te**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100																							
IWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
IWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
IWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wanervale DC third pipe system	Third pipe system for recycled water for 2000 greenfield residential accounts	100				81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
WSC, TAGto Board, 15 November 2006, revised Feb 2007	**Charmhaven**	Hamlyn Terrace DC third pipe system	Third pipe system for recycled water for 800 greenfield residential accounts	100				24	24	24	24	25	25	25	26	26	26	27	27	27	27	28	28	28	29	29	29
		Demand Management																									
IWH, WSC IWCM Sub-Plan 2007	**Shire wide**	Inflow and infiltration reduction program				100		334	338	342	346	349	353	357	361	365	369	372	376	380	384	388	392	396	400	404	409
IWH, WSC IWCM Sub-Plan 2007		Trade Waste Management	Increased operational costs covered by growth accounted for below	100																							
IWH, WSC IWCM Sub-Plan 2007		Sewerage Systems	Improved auditing of on-site systems.				100	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		Existing Management Expenses																									
WSC, Special Schedules 2005/06			Engineering & Supervision				100	6,665	6,748	6,831	6,916	7,001	7,088	7,167	7,247	7,328	7,409	7,492	7,575	7,660	7,745	7,831	7,919	8,007	8,096	8,186	8,278
		Existing Operating Expenses																									
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				499	505	511	518	524	530	536	542	548	555	561	567	573	580	586	593	599	606	613	620
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses			100		1,949	1,973	1,998	2,023	2,048	2,073	2,096	2,119	2,143	2,167	2,191	2,215	2,240	2,265	2,290	2,316	2,342	2,368	2,394	2,421
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				1,915	1,939	1,963	1,987	2,012	2,037	2,060	2,082	2,106	2,129	2,153	2,177	2,201	2,226	2,250	2,276	2,301	2,327	2,352	2,378
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	602	609	617	625	632	640	647	655	662	669	677	684	692	700	707	715	723	731	739	748
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses			100		3,089	3,127	3,166	3,205	3,244	3,284	3,321	3,358	3,396	3,433	3,472	3,510	3,549	3,589	3,628	3,669	3,710	3,752	3,793	3,836
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				3,527	3,571	3,615	3,660	3,705	3,751	3,793	3,835	3,878	3,921	3,965	4,009	4,054	4,099	4,143	4,191	4,237	4,285	4,332	4,381
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	18	19	19	19	19	20	20	20	20	21	21	21	21	21	23	22	22	22	23	23
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	1,064	1,077	1,090	1,104	1,118	1,131	1,144	1,157	1,170	1,183	1,196	1,209	1,223	1,236	1,250	1,264	1,278	1,292	1,307	1,321
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses			100		2,391	2,421	2,451	2,481	2,512	2,543	2,571	2,600	2,629	2,658	2,688	2,718	2,748	2,778	2,809	2,841	2,872	2,904	2,937	2,970
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				283	287	290	294	298	301	305	308	311	315	318	322	326	329	333	337	340	344	348	352
WSC, Special Schedules 2005/06			Other - Maintenance Expenses			100		112	114	115	117	118	120	121	122	124	125	126	128	129	131	132	134	135	137	138	140
		New Programs																									
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum				100	-2,000	-2,092	-2,186	-2,282	-2,380	-2,481	-2,580	-2,681	-2,784	-2,890	-2,997	-3,106	-3,217	-3,330	-3,446	-3,563	-3,683	-3,805	-3,929	-4,056
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years				100	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan				100	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years				100	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually				100	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review				100	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvement	Annual Survey				100	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years				100	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals				100	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan				100	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years				100	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60

							TOTAL	**21,495**	**21,841**	**21,856**	**22,072**	**22,422**	**22,442**	**22,636**	**22,964**	**22,961**	**23,150**	**23,490**	**23,490**	**23,691**	**24,025**	**24,029**	**24,233**	**24,571**	**24,578**	**24,786**	**25,128**
							Operations	6,358	6,383	6,398	6,749	6,838	6,917	6,984	7,072	7,130	7,238	7,311	7,362	7,475	7,538	7,642	7,727	7,813	7,900	7,988	8,077
							Maintenance	7,875	7,973	8,071	8,170	8,271	8,373	8,466	8,560	8,655	8,752	8,849	8,947	9,047	9,147	9,248	9,352	9,455	9,561	9,667	9,774
							Administration	5,256	5,401	5,213	5,324	5,385	5,175	5,177	5,311	5,111	5,192	5,240	5,037	5,033	5,160	4,933	4,945	5,069	4,858	4,847	4,967
							Chemical/Energy	1,859	1,882	1,906	1,829	1,933	1,977	1,999	2,022	2,044	2,087	2,090	2,113	2,137	2,161	2,186	2,209	2,234	2,259	2,284	2,309

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 3**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Total Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																			
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**84,995**		4,205	4,205	33,638																										
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,919**		792	792	6,335																										
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**51,767**		3,742	3,742	29,936																										
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**31,865**																												1,593	1,593
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**9,822**																														
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,918**																														
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100			**0**																														
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100			**0**																														
		Infrastructure - Distribution																																			
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity		100			**3,300**	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Toukley**	Existing third pipe RE system	Already operational and paid for		100			**0**																														
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots		100			**22,813**		787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots		100			**3,443**																														
		Effluent Management																																			
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wyrevale District Centre	Third pipe system for recycled water for 2000 greenfield residential accounts		100			**2,200**		220	220	1,760																										
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Hamlyn Terrace	Third pipe system for recycled water for 800 greenfield residential accounts		100			**2,157**						216	216	1,726																						
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Localised Industrial Reuse			100			**0**																														
		Refurbishment																																			
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	**1,250**	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Mechelec	No detail available.				100	**19,129**	218	281	281	401	401	751	751	956	726	468	323	322	300	374	374	679	679	419	419	259	259	322	322	410	410	760	760	449	449	252
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Civil	No detail available.				100	**12,823**	19	19	19	19	45	45	45	46	46	46	51	69	69	69	99	99	99	100	117	117	120	140	140	140	159	265	265	265	286	286
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Rising Mains	No detail available.				100	**52,148**	96	96	96	96	189	189	189	189	189	451	451	451	451	451	652	652	652	652	652	1,571	1,571	1,571	1,571	1,571	1,530	1,530	1,530	1,530	1,530	2,611
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Gravity Mains	No detail available.				100	**116,000**	442	442	442	524	631	631	644	763	763	763	800	978	978	1,035	1,145	1,145	1,145	1,257	1,790	1,790	1,812	2,011	2,011	2,011	2,123	3,189	3,189	3,254	3,851	3,851
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Civil	No detail available.				100	**63,880**	14	14	14	15	20	20	20	174	174	174	176	185	185	185	277	277	277	410	410	410	410	577	577	577	657	657	657	657	657	657
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Mechelec	No detail available.				100	**48,749**	964	1,031	1,151	1,267	1,267	966	1,073	1,264	1,264	1,159	1,159	1,195	595	337	337	447	447	504	504	593	592	822	822	1,370	1,370	2,659	2,659	1,514	1,514	786
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	AC Sewer Main Refurbishment	No detail available.				100	**10,465**	443	443	443	443	392	392	392	392	392	605	605	605	605	605	330	330	330	330	330	109	109	109	109	109	109	109	109	109	109	52
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Odour Control Facilities	No detail available.				100	**1,250**	300	300	300	150	0	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

								TOTAL	**553,893**	**2,586**	**12,461**	**12,582**	**75,461**	**3,822**	**4,088**	**4,208**	**5,989**	**4,433**	**4,543**	**4,643**	**4,683**	**4,061**	**3,924**	**4,082**	**4,498**	**4,498**	**4,540**	**5,091**	**5,727**	**5,751**	**6,430**	**6,430**	**7,066**	**7,235**	**10,048**	**10,048**	**8,656**	**10,866**	**10,967**
								% Works LoS	77,714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								% Growth Works	111,627	66	1,073	1,073	2,613	853	1,068	1,068	2,578	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853
								% Renewal Works	364,551	2,520	2,650	2,770	2,940	2,970	3,020	3,140	3,410	3,560	3,690	3,790	3,830	3,208	3,072	3,230	3,645	3,645	3,688	4,238	4,874	4,899	5,578	5,578	6,213	6,382	9,195	9,195	7,803	8,420	8,523
								% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Major Headworks	194,286	0	8,790	8,790	69,909	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,593	1,593
								Infrastructure - Distribution	33,913	66	1,073	1,073	2,613	853	1,068	1,068	2,578	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853	853
								Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Refurbishment	325,694	2,520	2,650	2,770	2,940	2,970	3,020	3,140	3,410	3,560	3,690	3,790	3,830	3,208	3,072	3,230	3,645	3,645	3,688	4,238	4,874	4,899	5,578	5,578	6,213	6,382	9,195	9,195	7,803	8,420	8,523

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 3**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									4,295	4,295	34,359									
MWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20																				
MWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									1,435	1,435	11,478									
MWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	12,746																1,593	1,593	12,746	
MWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									982	982	7,857									
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									792	792	6,334									
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100																						
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100																						
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Toukley**	Existing third pipe RE system	Already operational and paid for			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100																					
MWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
		Effluent Management																									
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wyrrenvale District Centre	Third pipe system for recycled water for 2000 greenfield residential accounts			100																					
MWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Hamlyn Terrace	Third pipe system for recycled water for 800 greenfield residential accounts			100																					
MWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Localised Industrial Reuse				100																					
		Refurbishment																									
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Mechelec	No detail available.				100	252	304	304	354	364	653	653	373	373	191	191	217	217	188	188	188	188	188	188	188
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Civil	No detail available.				100	286	298	475	475	464	605	605	605	618	309	309	315	517	517	517	517	517	517	517	517
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Rising Mains	No detail available.				100	2,611	2,611	2,611	2,611	1,525	1,525	1,525	1,525	1,525	981	981	981	981	981	702	702	702	702	702	702
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Gravity Mains	No detail available.				100	3,851	4,037	2,970	2,970	3,035	4,228	4,228	4,228	4,787	4,076	4,076	4,184	2,991	2,991	2,991	2,991	2,991	2,991	2,991	2,991
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Civil	No detail available.				100	657	801	1,050	1,050	1,050	1,050	1,050	1,050	1,050	801	801	801	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Mechelec	No detail available.				100	788	969	969	1,255	1,255	2,339	2,339	1,294	1,264	559	559	595	595	337	337	337	337	337	337	337
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	AC Sewer Main Refurbishment	No detail available.				100	52	52	52	52	52	52	52	52	52	52	52	52	52	52	38	38	38	38	38	38
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Odour Control Facilities	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

							TOTAL	**21,505**	**9,336**	**8,695**	**9,031**	**8,018**	**10,716**	**10,716**	**9,361**	**17,436**	**14,735**	**67,260**	**7,407**	**11,010**	**10,725**	**10,432**	**10,432**	**12,025**	**12,025**	**23,178**	**10,432**
							% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							% Growth Works	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
							% Renewal Works	8,321	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,694	6,993	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194
							% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Major Headworks	12,746	0	0	0	0	0	0	0	7,590	7,590	68,033	0	0	0	0	0	1,593	1,593	12,746	0
							Infrastructure - Distribution	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
							Standards	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Refurbishment	8,321	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,694	6,993	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 3**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Mainten-ance	Admini-stration	Chemical/En ergy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Charmhavan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**2,990**	0	0	0	46	47	48	48	49	50	51	51	52	53	54	54	55	56	57	57	58	59	59	60	61	62	62	63	64	65	66
MWH, WSC IWCM Sub Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,102**	0	0	0	48	49	50	50	51	52	52	53	54	55	56	56	57	58	59	59	60	61	62	62	63	64	65	66	66	67	68
MWH, WSC IWCM Sub Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,588**	0	0	0	55	56	57	58	59	60	61	62	62	63	64	65	66	67	68	69	70	70	71	72	73	74	75	76	77	78	79
MWH, WSC IWCM Sub Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,197**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	83	84	85	87	88	89	90	91	92	93	94
MWH, WSC IWCM Sub Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
WSC, TAG to Board, 15 November 2006	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																													
WSC, TAG to Board, 15 November 2006	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																													
		Infrastructure - Distribution																																			
MWH, WSC IWCM Sub Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100				**0**																													
WSC, TAG to Board, 15 November 2006	**Bateau Bay and To**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Wanervale DC third pipe system	Third pipe system for recycled water for 2000 greenfield residential accounts	100				**2,622**					57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
WSC, TAG to Board, 15 November 2006	**Charmhaven**	Hamlyn Terrace DC third pipe system	Third pipe system for recycled water for 800 greenfield residential accounts	100				**738**										18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
		Demand Management																																			
MWH, WSC IWCM Sub Plan 2007	**Shire wide**	Inflow and infiltration reduction program			100			**15,790**	228	231	235	239	243	247	250	254	257	260	264	267	271	274	278	282	285	288	291	295	298	301	305	308	312	315	319	323	326	330
MWH, WSC IWCM Sub Plan 2007		Trade Waste Management	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007		Sewerage Systems	Improved auditing of on-site systems.			100		**3,000**	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
MWH, WSC IWCM Sub Plan 2007		Localised industrial treatment of sewage	No cost to WSC		100			**0**																													
		Existing Management Expenses																																			
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**313,880**	4,382	4,462	4,544	4,627	4,712	4,799	4,868	4,938	5,010	5,082	5,156	5,231	5,306	5,383	5,461	5,540	5,609	5,679	5,749	5,821	5,893	5,966	6,040	6,115	6,191	6,268	6,346	6,424	6,504	6,584
		Existing Operating Expenses																																			
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**23,492**	328	334	340	346	353	359	364	370	375	380	386	391	397	403	409	415	420	425	430	436	441	447	452	458	463	469	475	481	487	493
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**91,798**	1,281	1,305	1,329	1,353	1,378	1,403	1,424	1,444	1,465	1,486	1,508	1,530	1,552	1,574	1,597	1,620	1,640	1,661	1,681	1,702	1,723	1,745	1,766	1,788	1,811	1,833	1,856	1,879	1,902	1,925
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**90,198**	1,259	1,282	1,306	1,330	1,354	1,379	1,399	1,419	1,440	1,461	1,482	1,503	1,525	1,547	1,569	1,592	1,612	1,632	1,652	1,673	1,693	1,714	1,736	1,757	1,779	1,801	1,823	1,846	1,869	1,892
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**28,350**	396	403	410	418	426	433	440	446	453	459	466	472	479	486	493	500	507	513	519	526	532	539	546	552	559	566	573	580	587	595
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**145,448**	2,031	2,068	2,106	2,144	2,184	2,224	2,256	2,288	2,322	2,355	2,389	2,424	2,459	2,495	2,531	2,567	2,599	2,631	2,664	2,697	2,731	2,765	2,799	2,834	2,869	2,905	2,940	2,977	3,014	3,051
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**166,112**	2,319	2,362	2,405	2,449	2,494	2,540	2,576	2,614	2,651	2,690	2,729	2,768	2,808	2,849	2,890	2,932	2,968	3,005	3,043	3,080	3,119	3,157	3,197	3,236	3,276	3,317	3,358	3,400	3,442	3,484
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**870**	12	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	**50,102**	699	712	725	739	752	766	777	788	800	811	823	835	847	859	872	884	895	906	918	929	941	952	964	976	988	1,001	1,013	1,025	1,038	1,051
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**112,668**	1,572	1,601	1,630	1,660	1,690	1,721	1,746	1,772	1,797	1,823	1,850	1,876	1,904	1,931	1,959	1,987	2,012	2,037	2,062	2,088	2,114	2,140	2,167	2,194	2,220	2,249	2,276	2,305	2,333	2,362
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**13,341**	186	190	193	197	200	204	207	210	213	216	219	222	226	229	232	235	238	241	244	247	250	254	257	260	263	266	270	273	276	280
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**5,293**	74	75	77	78	79	81	82	83	84	86	87	88	89	91	92	93	95	96	97	98	99	101	102	103	104	106	107	108	110	111
		New Programs																																			
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		**-85,093**	-44	-45	-91	-139	-188	-240	-292	-346	-401	-457	-516	-575	-637	-700	-765	-831	-897	-965	-1,035	-1,106	-1,179	-1,253	-1,329	-1,406	-1,486	-1,567	-1,650	-1,734	-1,821	-1,909
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		**1,233**	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0

								TOTAL	**1,021,199**	**15,313**	**15,738**	**15,789**	**16,193**	**16,644**	**16,708**	**16,915**	**17,255**	**17,266**	**17,496**	**17,842**	**17,859**	**18,077**	**18,430**	**18,452**	**18,677**	**18,999**	**18,990**	**19,265**	**19,593**	**19,589**	**19,787**	**20,119**	**20,120**	**20,322**	**20,658**	**20,662**	**20,906**	**21,246**	**21,255**
								Operations	365,446	4,092	4,167	4,244	4,298	4,554	4,618	4,852	4,758	4,837	4,864	4,973	5,044	5,116	5,189	5,262	5,336	5,404	5,470	5,376	5,447	5,718	5,788	5,857	5,929	6,001	6,073	6,149	6,243	5,329	6,397
								Mainten-ance	370,936	5,186	5,280	5,377	5,475	5,575	5,676	5,758	5,841	5,925	6,011	6,097	6,185	6,275	6,365	6,457	6,550	6,631	6,713	6,796	6,880	6,965	7,052	7,139	7,227	7,317	7,407	7,499	7,591	7,685	7,779
								Admini-stration	260,562	4,928	5,163	5,021	5,079	5,269	5,126	5,166	5,338	5,177	5,215	5,385	5,223	5,260	5,428	5,264	5,299	5,457	5,281	5,304	5,460	5,282	5,303	5,456	5,276	5,395	5,446	5,263	5,280	5,428	5,342
								Chemical/En ergy	86,255	1,107	1,128	1,148	1,244	1,247	1,290	1,309	1,338	1,347	1,366	1,386	1,406	1,426	1,447	1,469	1,489	1,508	1,527	1,587	1,606	1,626	1,647	1,667	1,688	1,709	1,730	1,751	1,792	1,814	1,837

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 3**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Mainten-ance	Admini-stration	Chemical/En ergy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Charmhavan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	66	67	68	69	70	71	71	72	73	74	75	75	76	77	78	79	80	81	81	82
MWH, WSC IWCM Sub Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	69	70	71	71	72	73	74	75	76	76	77	78	79	80	81	82	83	84	85	85
MWH, WSC IWCM Sub Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	80	81	82	83	84	85	86	87	88	88	89	90	91	92	94	95	96	97	98	99
MWH, WSC IWCM Sub Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	96	97	98	99	100	102	103	104	105	106	107	109	110	111	112	113	115	116	117	119
MWH, WSC IWCM Sub Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
WSC, TAG to Board, 15 November 2006	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
WSC, TAG to Board, 15 November 2006	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100																							
WSC, TAG to Board, 15 November 2006	**Bateau Bay and To**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Wanervale DC third pipe system	Third pipe system for recycled water for 2000 greenfield residential accounts	100				57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
WSC, TAG to Board, 15 November 2006	**Charmhaven**	Hamlyn Terrace DC third pipe system	Third pipe system for recycled water for 800 greenfield residential accounts	100				18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
		Demand Management																									
MWH, WSC IWCM Sub Plan 2007	**Shire wide**	Inflow and infiltration reduction program			100			334	338	342	346	349	353	357	361	365	368	372	376	380	384	388	392	396	400	404	409
MWH, WSC IWCM Sub Plan 2007		Trade Waste Management	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007		Sewerage Systems	Improved auditing of on-site systems.			100		60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
MWH, WSC IWCM Sub Plan 2007		Localised industrial treatment of sewage	No cost to WSC		100																						
		Existing Management Expenses																									
WSC, Special Schedules 2005/06			Engineering & Supervision			100		6,665	6,748	6,831	6,916	7,001	7,088	7,167	7,247	7,328	7,409	7,492	7,575	7,660	7,745	7,831	7,919	8,007	8,096	8,186	8,278
		Existing Operating Expenses																									
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				499	505	511	518	524	530	536	542	548	555	561	567	573	580	586	593	599	606	613	620
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			1,949	1,973	1,998	2,023	2,048	2,073	2,096	2,119	2,143	2,167	2,191	2,215	2,240	2,265	2,290	2,316	2,342	2,368	2,394	2,420
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				1,915	1,939	1,963	1,987	2,012	2,037	2,060	2,082	2,106	2,129	2,153	2,177	2,201	2,226	2,250	2,276	2,301	2,327	2,352	2,379
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	602	609	617	625	632	640	647	655	662	669	677	684	692	700	707	715	723	731	739	748
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			3,089	3,127	3,166	3,205	3,244	3,284	3,321	3,358	3,396	3,433	3,472	3,510	3,549	3,589	3,629	3,669	3,710	3,752	3,793	3,836
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				3,527	3,571	3,615	3,660	3,705	3,751	3,793	3,835	3,878	3,921	3,965	4,009	4,054	4,099	4,145	4,191	4,237	4,285	4,332	4,381
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	18	19	19	19	19	20	20	20	20	21	21	21	21	21	22	22	22	22	23	23
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	1,064	1,077	1,090	1,104	1,118	1,131	1,144	1,157	1,170	1,183	1,196	1,209	1,223	1,236	1,250	1,264	1,278	1,292	1,307	1,321
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			2,391	2,421	2,451	2,481	2,512	2,543	2,571	2,600	2,629	2,658	2,688	2,718	2,748	2,778	2,809	2,841	2,872	2,904	2,937	2,970
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				283	287	290	294	298	301	305	308	311	315	318	322	326	329	333	337	340	344	348	352
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			112	114	115	117	118	120	121	122	124	125	126	128	129	131	132	134	135	137	138	140
		New Programs																									
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-2,000	-2,092	-2,186	-2,282	-2,380	-2,481	-2,580	-2,681	-2,784	-2,890	-2,997	-3,106	-3,217	-3,330	-3,446	-3,563	-3,683	-3,805	-3,929	-4,056
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60

							TOTAL	**21,466**	**21,810**	**21,824**	**22,039**	**22,388**	**22,406**	**22,599**	**22,926**	**22,921**	**23,117**	**23,447**	**23,446**	**23,646**	**23,979**	**23,981**	**24,184**	**24,521**	**24,526**	**24,733**	**25,073**
							Operations	6,475	6,564	6,634	6,715	6,798	6,881	6,957	7,033	7,111	7,189	7,269	7,349	7,430	7,512	7,595	7,678	7,763	7,849	7,935	8,025
							Mainten-ance	7,875	7,973	8,071	8,170	8,271	8,373	8,466	8,560	8,655	8,752	8,849	8,947	9,047	9,147	9,249	9,352	9,455	9,561	9,667	9,776
							Admini-stration	5,256	5,401	5,213	5,224	5,368	5,175	5,177	5,311	5,111	5,110	5,240	5,037	5,033	5,160	4,953	4,945	5,069	4,858	4,847	4,967
							Chemical/En ergy	1,859	1,882	1,906	1,929	1,952	1,977	1,999	2,022	2,044	2,067	2,090	2,113	2,137	2,161	2,184	2,209	2,234	2,259	2,284	2,309

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 4**

2,006 Financial Year of Program Commencement
2,005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Total Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																				
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**84,995**		4,205	4,205	33,638																										
WWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,919**		792	792	6,335																										
WWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**51,767**		3,742	3,742	29,936																										
WWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**31,866**																												1,593	1,593
WWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**9,822**																														
WWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	**7,918**																														
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100			**0**																														
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100			**0**																														
		Infrastructure - Distribution																																				
WWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		**6,100**	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Toukley**	Existing third pipe RE system	Already operational and paid for			100		**0**																														
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100		**22,813**		787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787	787
WWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		**3,443**																														
		Effluent Management																																				
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wanervale District Centre	Third pipe system for recycled water for 2000 greenfield residential accounts			100		**2,200**		220	220	1,760																										
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Hamlyn Terrace	Third pipe system for recycled water for 800 greenfield residential accounts			100		**2,157**						216	216	1,726																						
WWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Localised Industrial Reuse				100		**0**																														
WWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	The Entrance	Third pipe system for recycled water for redeveloped residential accounts using existing third pipe system for non-residential purposes			100		**8,225**			4,113	4,113																										
		Refurbishment																																				
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	**1,250**	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Mechelec	No detail available.				100	**19,139**	218	281	281	401	401	751	751	596	726	466	323	322	300	374	374	679	679	419	419	259	259	322	322	410	410	760	760	449	449	252
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Civil	No detail available.				100	**12,823**	19	19	19	19	45	45	45	46	46	46	51	69	69	69	69	99	99	100	117	117	120	140	140	140	159	265	265	265	286	286
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Rising Mains	No detail available.				100	**52,148**	96	96	96	96	189	189	189	189	189	451	451	451	451	451	652	652	652	652	652	1,571	1,571	1,571	1,571	1,571	1,530	1,530	1,530	1,530	2,611
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Gravity Mains	No detail available.				100	**116,000**	442	442	442	524	631	631	644	763	763	763	800	978	978	1,026	1,145	1,145	1,145	1,257	1,790	1,790	1,812	2,011	2,011	2,011	2,123	3,189	3,189	3,254	3,851	3,851
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Civil	No detail available.				100	**63,880**	14	14	14	15	20	20	20	174	174	174	176	185	185	185	277	277	277	410	410	410	410	577	577	577	657	657	657	657	657	657
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Mechelec	No detail available.				100	**48,749**	964	1,031	1,151	1,267	1,267	966	1,073	1,264	1,264	1,158	1,159	1,195	595	337	337	447	447	504	504	592	592	822	822	1,370	1,370	2,659	2,659	1,514	1,514	788
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	AC Sewer Main Refurbishment	No detail available.				100	**10,465**	443	443	443	443	392	392	392	392	392	605	605	605	605	605	320	320	320	320	320	109	109	109	109	109	109	109	109	109	109	52
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Odour Control Facilities	No detail available.				100	**1,250**	300	300	300	150	0	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			TOTAL					**564,918**	**2,642**	**12,517**	**16,750**	**79,629**	**3,878**	**4,144**	**4,264**	**6,045**	**4,489**	**4,599**	**4,699**	**4,739**	**4,117**	**3,980**	**4,138**	**4,554**	**4,554**	**4,596**	**5,147**	**5,783**	**5,807**	**6,486**	**6,486**	**7,122**	**7,291**	**10,104**	**10,104**	**8,712**	**10,922**	**11,023**
			% Works LoS					77,710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% Growth Works					122,652	122	1,129	5,341	6,781	909	1,124	1,124	2,634	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909
			% Renewal Works					364,557	2,520	2,859	2,770	2,940	2,970	3,020	3,140	3,419	3,580	3,690	3,790	3,830	3,208	3,072	3,229	3,645	3,645	3,686	4,239	4,874	4,898	5,577	5,577	6,213	6,382	9,195	9,195	7,804	8,429	8,591
			% Subsidy					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Major Headworks					194,236	0	8,736	8,739	69,956	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,593	1,593
			Infrastructure - Distribution					44,930	122	1,129	5,341	6,781	909	1,124	1,124	2,634	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909	909
			Standards					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Refurbishment					325,679	2,520	2,651	2,770	2,940	2,970	3,020	3,140	3,419	3,580	3,690	3,790	3,830	3,208	3,072	3,229	3,645	3,645	3,686	4,239	4,874	4,898	5,577	5,577	6,213	6,382	9,195	9,195	7,804	8,429	8,591

Wyong Shire Council

Sewerage **Capital Works Program** **Scenario 4**

2,006 Financial Year of Program Commencement
2,005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Charmhaven STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									4,295	4,295	34,359									
WWH, WSC IWCM Sub-Plan 2007	**Toukley**	Toukley STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20																				
WWH, WSC IWCM Sub-Plan 2007	**Wyong South**	Wyong South STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									1,435	1,435	11,478									
WWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20	12,746															1,593	1,593	12,746		
WWH, WSC IWCM Sub-Plan 2007	**Gwandalan**	Gwandalan STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									982	982	7,857									
WWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Mannering Park STP	Augmentation as per traditional case and upgrade to tertiary treatment		40	40	20									792	792	6,334									
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Already operational and paid for		100																						
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Toukley**	Toukley STP Tertiary package plant	Already operational and paid for		100																						
		Infrastructure - Distribution																									
WWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Sewage Pump Stations	Pro rata existing total capacity			100		122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
WSC, TAG to Board, 15 November 2006, revised Feb 2007	**Bateau Bay and Toukley**	Existing third pipe RE system	Already operational and paid for			100																					
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Stage 1 Urban release areas	23,000 Greenfield residential lots			100																					
WWH, WSC IWCM Sub-Plan 2007	**Mannering Park**	Stage 2 Urban release areas	4000 Greenfield residential lots			100		172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
		Effluent Management																									
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Wanervale District Centre	Third pipe system for recycled water for 2000 greenfield residential accounts			100																					
WWH, WSC IWCM Sub-Plan 2007	**Charmhaven**	Hamlyn Terrace	Third pipe system for recycled water for 800 greenfield residential accounts			100																					
WWH, WSC IWCM Sub-Plan 2007	**Shire Wide**	Localised Industrial Reuse				100																					
WWH, WSC IWCM Sub-Plan 2007	**Bateau Bay**	The Entrance	Third pipe system for recycled water for redeveloped residential accounts using existing third pipe system for non-residential purposes			100																					
		Refurbishment																									
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Lab Replacements	No detail available.				100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Mechelec	No detail available.				100	252	304	304	354	354	653	653	373	373	191	191	217	217	188	188	188	188	188	188	188
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	SPS Civil	No detail available.				100	286	298	475	475	484	605	605	605	618	309	309	315	517	517	517	517	517	517	517	517
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Rising Mains	No detail available.				100	2,611	2,611	2,611	2,611	1,525	1,525	1,525	1,525	1,525	981	981	981	981	981	702	702	702	702	702	702
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewer Gravity Mains	No detail available.				100	3,851	4,037	2,970	2,970	3,035	4,228	4,228	4,228	4,787	4,076	4,076	4,184	2,991	2,991	2,991	2,991	2,991	2,991	2,991	2,991
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Civil	No detail available.				100	657	801	1,050	1,050	1,050	1,050	1,050	1,050	1,050	801	801	801	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Sewage Treatment Mechelec	No detail available.				100	788	969	969	1,255	1,255	2,339	2,339	1,264	1,264	559	559	595	595	337	337	337	337	337	337	337
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	AC Sewer Main Refurbishment	No detail available.				100	52	52	52	52	52	52	52	52	52	52	52	52	52	52	38	38	38	38	38	38
WSC Refurbishment Expend Spreadsheet 2006	**Shire Wide**	Odour Control Facilities	No detail available.				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			TOTAL					**21,561**	**9,392**	**8,751**	**9,087**	**8,074**	**10,772**	**10,772**	**9,417**	**17,492**	**14,791**	**67,316**	**7,463**	**11,066**	**10,781**	**10,488**	**10,488**	**12,081**	**12,081**	**23,234**	**10,488**
			% Works LoS					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% Growth Works					294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
			% Renewal Works					8,521	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,694	6,993	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194
			% Subsidy					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Major Headworks					12,746	0	0	0	0	0	0	0	7,504	7,504	60,038	0	0	0	0	0	1,593	1,593	12,746	0
			Infrastructure - Distribution					294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
			Standards					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Refurbishment					8,521	9,098	8,457	8,793	7,780	10,477	10,477	9,123	9,694	6,993	6,993	7,169	10,772	10,486	10,194	10,194	10,194	10,194	10,194	10,194

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 4**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		Major Headworks																																			
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Charmhavan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**2,990**	0	0	0	46	47	48	48	49	50	51	51	52	53	54	54	55	56	57	57	58	59	59	60	61	62	62	63	64	65	66
MWH, WSC IWCM Sub Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,102**	0	0	0	48	49	50	50	51	52	52	53	54	55	56	56	57	58	59	59	60	61	62	62	63	64	65	66	66	67	68
MWH, WSC IWCM Sub Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,588**	0	0	0	55	56	57	58	59	60	61	62	62	63	64	65	66	67	68	69	70	70	71	72	73	74	75	76	77	78	79
MWH, WSC IWCM Sub Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**3,197**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	83	84	85	87	88	89	90	91	92	93	94
MWH, WSC IWCM Sub Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	**504**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
WSC, TAG to Board, 15 November 2006	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																													
WSC, TAG to Board, 15 November 2006	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100				**0**																													
		Infrastructure - Distribution																																			
MWH, WSC IWCM Sub Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100				**0**																													
WSC, TAG to Board, 15 November 2006	**Bateau Bay and To**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007	**Charmhaven**	Wanervale DC third pipe system	Third pipe system for recycled water for 2000 greenfield residential accounts	100				**3,579**					57	58	59	60	61	61	62	63	64	65	66	67	68	69	70	70	71	72	73	74	75	76	77	78	79	80
WSC, TAG to Board, 15 November 2006	**Charmhaven**	Hamlyn Terrace DC third pipe system	Third pipe system for recycled water for 800 greenfield residential accounts	100				**738**										18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
MWH, WSC IWCM Sub Plan 2007	**Bateau Bay and To**	The Entrance	Third pipe system for recycled water for redeveloped residential accounts using existing third pipe system for non-residential purposes	100				**2,760**			58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
		Demand Management																																			
MWH, WSC IWCM Sub Plan 2007	**Shire wide**	Inflow and infiltration reduction program			100			**15,790**	228	231	235	239	243	247	250	254	257	260	264	267	271	274	278	282	285	288	291	295	298	301	305	308	312	315	319	323	326	330
MWH, WSC IWCM Sub Plan 2007		Trade Waste Management	Increased operational costs covered by growth accounted for below	100				**0**																													
MWH, WSC IWCM Sub Plan 2007		Sewerage Systems	Improved auditing of on-site systems.			100		**3,000**	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
MWH, WSC IWCM Sub Plan 2007		Localised industrial treatment of sewage	No cost to WSC		100			**0**																													
MWH, WSC IWCM Sub Plan 2007		Greywater in Bushells Ridge		100				**1,500**	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MWH, WSC IWCM Sub Plan 2007		Smart Sewers		100				**4,842**						10	15	19	24	28	32	37	42	46	51	55	59	64	68	72	76	80	85	89	93	97	102	106	111	115
		Existing Management Expenses																																			
WSC, Special Schedules 2005/06			Engineering & Supervision			100		**313,880**	4,382	4,462	4,544	4,627	4,712	4,799	4,868	4,938	5,010	5,082	5,156	5,231	5,306	5,383	5,461	5,540	5,609	5,679	5,749	5,821	5,893	5,966	6,040	6,115	6,191	6,268	6,346	6,424	6,504	6,584
		Existing Operating Expenses																																			
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				**23,492**	328	334	340	346	353	359	364	370	375	380	386	391	397	403	409	415	420	425	430	436	441	447	452	458	463	469	475	481	487	493
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			**91,793**	1,281	1,305	1,329	1,353	1,378	1,403	1,424	1,444	1,465	1,486	1,508	1,530	1,552	1,574	1,597	1,620	1,640	1,661	1,681	1,702	1,723	1,745	1,766	1,788	1,811	1,833	1,856	1,879	1,902	1,925
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				**90,198**	1,259	1,282	1,306	1,330	1,354	1,379	1,399	1,419	1,440	1,461	1,482	1,503	1,525	1,547	1,569	1,592	1,612	1,632	1,652	1,673	1,693	1,714	1,736	1,757	1,779	1,801	1,823	1,846	1,869	1,892
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	**28,350**	396	403	410	418	426	433	440	446	453	459	466	472	479	486	493	500	507	513	519	526	532	539	546	552	559	566	573	580	587	595
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			**145,448**	2,031	2,068	2,106	2,144	2,184	2,224	2,256	2,288	2,322	2,355	2,389	2,424	2,459	2,495	2,531	2,567	2,599	2,631	2,664	2,697	2,731	2,765	2,799	2,834	2,869	2,905	2,940	2,977	3,014	3,051
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				**166,112**	2,319	2,362	2,405	2,449	2,494	2,540	2,576	2,614	2,651	2,690	2,729	2,768	2,808	2,849	2,890	2,932	2,968	3,005	3,043	3,080	3,119	3,157	3,197	3,236	3,276	3,317	3,358	3,400	3,442	3,484
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	**870**	12	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	**50,102**	699	712	725	739	752	766	777	788	800	811	823	835	847	859	872	884	895	906	918	929	941	952	964	976	988	1,001	1,013	1,025	1,038	1,051
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			**112,602**	1,572	1,601	1,630	1,660	1,690	1,721	1,746	1,772	1,797	1,823	1,850	1,876	1,904	1,931	1,959	1,987	2,012	2,037	2,062	2,088	2,114	2,140	2,167	2,194	2,221	2,249	2,276	2,305	2,333	2,362
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				**13,341**	186	190	193	197	200	204	207	210	213	216	219	222	226	229	232	235	238	241	244	247	250	254	257	260	263	266	270	273	276	280
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			**5,293**	74	75	77	78	79	81	82	83	84	86	87	88	89	91	92	93	95	96	97	98	99	101	102	103	104	106	107	108	110	111
		New Programs																																			
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		**-85,093**	-44	-45	-91	-139	-188	-240	-292	-346	-401	-457	-516	-575	-637	-700	-765	-831	-897	-965	-1,035	-1,106	-1,179	-1,253	-1,329	-1,406	-1,486	-1,567	-1,650	-1,734	-1,821	-1,909
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		**765**	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		**750**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		**383**	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		**7,875**	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		**6,250**	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		**1,233**	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		**1,875**	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		**6,750**	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		**1,020**	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0

								TOTAL	**1,031,258**	**15,343**	**15,768**	**15,877**	**16,281**	**16,747**	**16,807**	**17,019**	**17,365**	**17,380**	**17,616**	**17,968**	**17,989**	**18,213**	**18,571**	**18,599**	**18,830**	**19,157**	**19,153**	**19,433**	**19,766**	**19,767**	**19,970**	**20,307**	**20,313**	**20,520**	**20,862**	**20,871**	**21,121**	**21,466**	**21,481**
								Operations	313,500	4,122	4,197	4,331	4,464	4,603	4,715	4,786	4,858	4,931	5,003	5,099	5,179	5,253	5,331	5,411	5,491	5,562	5,633	5,716	5,811	5,891	5,969	6,048	6,123	6,200	6,279	6,358	6,438	6,540	6,622
								Maintenance	370,926	5,186	5,280	5,377	5,475	5,576	5,676	5,758	5,841	5,925	6,011	6,097	6,185	6,275	6,365	6,457	6,550	6,631	6,713	6,796	6,886	6,965	7,052	7,139	7,227	7,317	7,407	7,499	7,591	7,685	7,779
								Administration	260,562	4,928	5,163	5,021	5,079	5,269	5,126	5,166	5,338	5,177	5,215	5,385	5,223	5,260	5,428	5,364	5,299	5,457	5,281	5,304	5,468	5,282	5,303	5,456	5,276	5,295	5,446	5,363	5,280	5,428	5,242
								Chemical/Energy	86,269	1,107	1,128	1,148	1,344	1,297	1,290	1,309	1,328	1,347	1,389	1,386	1,406	1,426	1,447	1,464	1,489	1,508	1,527	1,587	1,604	1,626	1,647	1,667	1,688	1,709	1,730	1,751	1,792	1,814	1,837

Wyong Shire Council

Sewerage **Operations, Maintenance and Administration Schedule** **Scenario 4**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Capital Element	Description	Operations	Mainten-ance	Admini-stration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
		Major Headworks																									
MWH, WSC IWCM Sub Plan 2007	**Chamhaven**	Chamhavan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	66	67	68	69	70	71	71	72	73	74	75	75	76	77	78	79	80	81	81	82
MWH, WSC IWCM Sub Plan 2007	**Toukley**	Toukley STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	69	70	71	71	72	73	74	75	76	76	77	78	79	80	81	82	83	84	85	85
MWH, WSC IWCM Sub Plan 2007	**Wyong South**	Wyong South STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	80	81	82	83	84	85	86	87	88	88	89	90	91	92	94	95	96	97	98	99
MWH, WSC IWCM Sub Plan 2007	**Bateau Bay**	Bateau Bay #2 STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	96	97	98	99	100	102	103	104	105	106	107	109	110	111	112	113	115	116	117	119
MWH, WSC IWCM Sub Plan 2007	**Gwandalan**	Gwandalan STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Mannering Park STP	Additional cost because upgrade of process (increased capacity accounted for in growth below)	50			50	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	25
WSC, TAG to Board, 15 November 2006	**Bateau Bay**	Bateau Bay STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
WSC, TAG to Board, 15 November 2006	**Toukley**	Toukley STP Tertiary package plant	Additional operational cost (assumed included in Operations costs below)	100																							
		Infrastructure - Distribution																									
MWH, WSC IWCM Sub Plan 2007	**Shire Wide**	Sewage Pump Stations	Increased operational costs covered by growth accounted for below	100																							
WSC, TAG to Board, 15 November 2006	**Bateau Bay and To**	Existing third pipe RE system	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007	**Charnhaven**	Stage 1 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007	**Mannering Park**	Stage 2 Urban release areas	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007	**Charnhaven**	Wanervale DC third pipe system	Third pipe system for recycled water for 2000 greenfield residential accounts	100				81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
WSC, TAG to Board, 15 November 2006	**Charnhaven**	Hamlyn Terrace DC third pipe system	Third pipe system for recycled water for 800 greenfield residential accounts	100				18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
MWH, WSC IWCM Sub Plan 2007	**Bateau Bay and To**	The Entrance	Third pipe system for recycled water for redeveloped residential accounts using existing third pipe system for non-residential purposes	100				58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
		Demand Management																									
MWH, WSC IWCM Sub Plan 2007	**Shire wide**	Inflow and infiltration reduction program			100			334	338	342	346	349	353	357	361	365	368	372	376	380	384	388	392	396	400	404	409
MWH, WSC IWCM Sub Plan 2007		Trade Waste Management	Increased operational costs covered by growth accounted for below	100																							
MWH, WSC IWCM Sub Plan 2007		Sewerage Systems	Improved auditing of on-site systems.			100		60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
MWH, WSC IWCM Sub Plan 2007		Localised industrial treatment of sewage	No cost to WSC		100																						
MWH, WSC IWCM Sub Plan 2007		Greywater in Bushells Ridge		100				30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MWH, WSC IWCM Sub Plan 2007		Smart Sewers		100				120	124	129	133	138	143	147	151	156	160	165	169	173	178	183	187	192	196	201	206
		Existing Management Expenses																									
WSC, Special Schedules 2005/06			Engineering & Supervision			100		6,665	6,748	6,831	6,916	7,001	7,088	7,167	7,247	7,328	7,409	7,492	7,575	7,660	7,745	7,831	7,919	8,007	8,096	8,186	8,278
		Existing Operating Expenses																									
WSC, Special Schedules 2005/06			Mains - Operation Expenses	100				499	505	511	518	524	530	536	542	548	555	561	567	573	580	586	593	599	606	613	620
WSC, Special Schedules 2005/06			Mains - Maintenance Expenses		100			1,949	1,973	1,998	2,023	2,048	2,073	2,096	2,119	2,143	2,167	2,191	2,215	2,240	2,265	2,290	2,316	2,342	2,368	2,394	2,421
WSC, Special Schedules 2005/06			Pump Stations - Operation Expenses	100				1,915	1,939	1,963	1,987	2,012	2,037	2,060	2,082	2,106	2,129	2,153	2,177	2,201	2,226	2,250	2,276	2,301	2,327	2,352	2,378
WSC, Special Schedules 2005/06			Pump Stations - Energy Costs				100	602	609	617	625	632	640	647	655	662	669	677	684	692	700	707	715	723	731	739	748
WSC, Special Schedules 2005/06			Pump Stations - Maintenance Expenses		100			3,089	3,127	3,166	3,205	3,244	3,284	3,321	3,358	3,396	3,433	3,472	3,510	3,549	3,589	3,629	3,669	3,710	3,752	3,793	3,836
WSC, Special Schedules 2005/06			Treatment - Operation Expenses	100				3,527	3,571	3,615	3,660	3,705	3,751	3,793	3,835	3,878	3,921	3,965	4,009	4,054	4,099	4,145	4,191	4,237	4,285	4,332	4,381
WSC, Special Schedules 2005/06			Treatment - Chemical Costs				100	18	19	19	19	19	20	20	20	20	21	21	21	21	21	22	22	22	22	23	23
WSC, Special Schedules 2005/06			Treatment - Energy Costs				100	1,064	1,077	1,090	1,104	1,118	1,131	1,144	1,157	1,170	1,183	1,196	1,209	1,223	1,236	1,250	1,264	1,278	1,292	1,307	1,321
WSC, Special Schedules 2005/06			Treatment - Effluent Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Biosolids Management	100				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, Special Schedules 2005/06			Treatment - Maintenance Expenses		100			2,391	2,421	2,451	2,481	2,512	2,543	2,571	2,600	2,629	2,658	2,688	2,718	2,748	2,778	2,809	2,841	2,872	2,904	2,937	2,970
WSC, Special Schedules 2005/06			Other - Operation Expenses	100				283	287	290	294	298	301	305	308	311	315	318	322	326	329	333	337	340	344	348	352
WSC, Special Schedules 2005/06			Other - Maintenance Expenses		100			112	114	115	117	118	120	121	122	124	125	126	128	129	131	132	134	135	137	138	140
		New Programs																									
WSC, Management Plan 2006-09 Vol 2		Labour Productivity	Program to improve efficiency by 1% per annum			100		-2,000	-2,092	-2,186	-2,282	-2,380	-2,481	-2,580	-2,681	-2,784	-2,890	-2,997	-3,106	-3,217	-3,330	-3,446	-3,563	-3,683	-3,805	-3,929	-4,056
WSC, SBP 2004-2007		LOS Establishment	Establish LOS every three years			100		0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45	0	0	45
WSC, SBP 2004-2007		LOS Review	Review LOS annually in mangement plan			100		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
WSC, SBP 2004-2007		LOS Detailed Review	Review every three years			100		23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0	0	23	0
WSC, SBP 2004-2007		Unserviced Areas	Reviewed annually or as required, no operating cost estimate			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Water Pricing	No cost allowance made			100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WSC, SBP 2004-2007		Environmental Protection	Environment protection and sustainable development review in management plan annually			100		158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
WSC, SBP 2004-2007		Customer Relations	Management plan annual review			100		125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
WSC, SBP 2004-2007		Community Involvment	Annual Survey			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Human Resources - Staff Skills	Review every three years			100		0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73	0	0	73
WSC, SBP 2004-2007		Staff Productivity	Reviewed annually using staff appraisals			100		38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
WSC, SBP 2004-2007		Financial Planning	Appropriate RRR, management plan, financial plan			100		135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WSC, SBP 2004-2007		Review SBP	Every three years			100		0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0	60

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
TOTAL	**21,697**	**22,047**	**22,066**	**22,286**	**22,641**	**22,665**	**22,863**	**23,195**	**23,196**	**23,398**	**23,733**	**23,737**	**23,943**	**24,281**	**24,289**	**24,498**	**24,840**	**24,851**	**25,064**	**25,410**
Operations	6,706	6,791	6,876	6,963	7,051	7,140	7,231	7,323	7,396	7,470	7,554	7,640	7,726	7,814	7,902	7,992	8,082	8,174	8,266	8,359
Mainten-ance	7,875	7,973	8,071	8,170	8,271	8,373	8,466	8,560	8,655	8,752	8,849	8,947	9,047	9,147	9,249	9,352	9,455	9,561	9,667	9,774
Admini-stration	5,256	5,401	5,213	5,224	5,368	5,175	5,177	5,311	5,111	5,110	5,240	5,037	5,033	5,160	4,953	4,945	5,069	4,858	4,847	4,967
Chemical/Energy	1,859	1,882	1,906	1,929	1,953	1,977	1,999	2,022	2,044	2,067	2,090	2,113	2,137	2,161	2,185	2,209	2,234	2,259	2,284	2,309

Wyong Shire Council

Stormwater & Catchment **Capital Works Program** **Traditional**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element		Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide	**Terrestrial Biodiversity**																																			
		Water Quality																																			
IPART Submission 1/7/06		Stormwater Growth Assets	G	New assets to serve growth.			100		**355,850**	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117

TOTAL	**355,850**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**
% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Growth Works	355,850	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
% Renewal Works	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	355,850	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
Total	355,850	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117

Wyong Shire Council

Stormwater & Catchment **Capital Works Program** **Traditional**

2006 Financial Year of Program Commencement

2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element		Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide	**Terrestrial Biodiversity**																										
		Water Quality																										
IPART Submission 1/7/06		Stormwater Growth Assets	G	New assets to serve growth.			100		7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
TOTAL	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**	**7,117**
% Works LoS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Growth Works	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
% Renewal Works	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
Total	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117

Wyong Shire Council

Stormwater & Catchment **Operations, Maintenance and Administration Schedule** **Traditional**

2006 Financial Year of Schedule Commencement

2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Existing Operating Costs																																				
WSC Forecast Model 11/06 for IPART		Labour (excl employee provisions)	Not detailed.			100		**15,567**	198	203	208	213	218	223	227	232	236	241	245	250	254	259	264	268	272	276	281	285	289	294	298	303	307	312	316	321	326	331
WSC Forecast Model 11/06 for IPART		External consultants	Not detailed.			100		**3,128**	40	41	42	43	44	45	46	47	47	48	49	50	51	52	53	54	55	56	56	57	58	59	60	61	62	63	64	65	65	66
WSC Forecast Model 11/06 for IPART		Hire & contract services	Not detailed.			100		**3,710**	47	48	50	51	52	53	54	55	56	57	58	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	77	78	79
WSC Forecast Model 11/06 for IPART		Bulk water purchases	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Materials	Not detailed.				100	**8,074**	102	105	108	110	113	116	118	120	122	125	127	130	132	134	137	139	141	143	146	148	150	152	155	157	159	162	164	167	169	171
WSC Forecast Model 11/06 for IPART		Energy	Not detailed. Nil recorded by WSC				100																															
WSC Forecast Model 11/06 for IPART		Licence fees	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		BOO costs	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Other (excl. WDV asset disposal) . Please describe and enter separately items exceeding 5% of total operating expenditure	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Other	Not detailed.			100		**60,958**	774	793	814	834	855	872	889	907	924	942	960	978	996	1,015	1,033	1,050	1,066	1,083	1,099	1,116	1,133	1,151	1,168	1,186	1,203	1,221	1,239	1,258	1,276	1,294
WSC Forecast Model 11/06 for IPART		Tax other than income tax	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Employee provisions	Not detailed.			100		**7,347**	93	96	98	101	103	105	107	109	111	114	116	118	120	122	125	126	128	130	133	135	137	139	141	143	145	147	149	152	154	156
WSC Forecast Model 11/06 for IPART		Other provisions	Not detailed.			100																																

							TOTAL	**98,785**	**1,254**	**1,286**	**1,319**	**1,352**	**1,385**	**1,413**	**1,441**	**1,469**	**1,498**	**1,526**	**1,555**	**1,585**	**1,614**	**1,644**	**1,674**	**1,701**	**1,728**	**1,755**	**1,782**	**1,809**	**1,837**	**1,865**	**1,893**	**1,921**	**1,950**	**1,979**	**2,008**	**2,038**	**2,068**	**2,098**
							Operations																															
							Maintenance																															
							Administration	90,710	1,151	1,181	1,211	1,241	1,272	1,298	1,323	1,349	1,375	1,402	1,428	1,455	1,482	1,510	1,537	1,562	1,586	1,611	1,636	1,661	1,687	1,712	1,738	1,764	1,791	1,817	1,844	1,871	1,899	1,926
							Chemical/Energy	8,074	102	105	108	110	113	116	118	120	122	125	127	130	132	134	137	139	141	143	146	148	150	152	155	157	159	162	164	167	169	171

Wyong Shire Council

Stormwater & Catchment **Operations, Maintenance and Administration Schedule** **Traditional**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Element	Description	Operations	Maintenance	Administration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Existing Operating Costs																									
WSC Forecast Model 11/06 for IPART		Labour (excl employee provisions)	Not detailed.			100		335	340	345	350	355	359	364	369	373	378	383	388	392	397	402	407	412	417	422	428
WSC Forecast Model 11/06 for IPART		External consultants	Not detailed.			100		67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
WSC Forecast Model 11/06 for IPART		Hire & contract services	Not detailed.			100		80	81	82	83	85	86	87	88	89	90	91	92	94	95	96	97	98	99	101	102
WSC Forecast Model 11/06 for IPART		Bulk water purchases	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Materials	Not detailed.				100	174	176	179	181	184	186	189	191	194	196	199	201	204	206	209	211	214	216	219	222
WSC Forecast Model 11/06 for IPART		Energy	Not detailed. Nil recorded by WSC				100																				
WSC Forecast Model 11/06 for IPART		Licence fees	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		BOO costs	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Other (excl. WDV asset disposal). Please describe and enter separately items exceeding 5% of total operating expenditure	Not detailed. Nil recorded by WSC																								
						100																					
WSC Forecast Model 11/06 for IPART		Other	Not detailed.			100		1,313	1,332	1,351	1,370	1,389	1,407	1,425	1,444	1,462	1,480	1,499	1,518	1,537	1,556	1,575	1,594	1,614	1,634	1,654	1,675
WSC Forecast Model 11/06 for IPART		Tax other than income tax	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Employee provisions	Not detailed.			100		158	161	163	165	167	170	172	174	176	178	181	183	185	187	190	192	195	197	199	202
WSC Forecast Model 11/06 for IPART		Other provisions	Not detailed.			100																					

						TOTAL	**2,128**	**2,159**	**2,189**	**2,220**	**2,252**	**2,281**	**2,310**	**2,339**	**2,369**	**2,399**	**2,429**	**2,459**	**2,490**	**2,521**	**2,552**	**2,584**	**2,616**	**2,648**	**2,681**	**2,714**
						Operations																				
						Maintenance																				
						Administration	1,954	1,982	2,010	2,039	2,068	2,094	2,121	2,148	2,175	2,203	2,231	2,258	2,287	2,315	2,344	2,373	2,402	2,432	2,462	2,492
						Chemical/Energy	174	176	179	181	184	186	189	191	194	196	199	201	204	206	209	211	214	216	219	222

Wyong Shire Council

Stormwater & Catchment **Capital Works Program** **Sc 1 - Current Initiatives**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element		Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																				
		Terrestrial Biodiversity																																			
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Restoring rivers and creeks.		100			**490**	490																											
		Water Quality																																			
Vol1 WSC Management Plan 2006/07		Sediment Traps	E	Installation of sediment traps in urban areas.		100			**8,650**	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173
Vol1 WSC Management Plan 2006/07		Lakes Improvements	E	Lake restoration, improvement and erosion control works.		100			**9,300**	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
Vol1 WSC Management Plan 2006/07		Stream Bank Improvements	E	Bank rehabilitation along Wyong River.		100			**9,150**	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
Vol1 WSC Management Plan 2006/07		Major wetlands management	E	Includes stormwater harvesting to protect Porters Creek.	30	50	50		**21,456**	105	7,117	7,117	7,117																									
Vol1 WSC Management Plan 2006/07		Estuary Management Plan	E	Implementation of Estuary Management Plan and other stormwater management works.		100			**3,500**	3,500																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.		100			**557**	557																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around the lake edges.		100			**595**	595																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Drainage systems in coastal areas.		100			**61**	61																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around Lake Macquarie.		100			**111**	111																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Works to redress the impacts of stormwater on bushland and natural wetlands.		100			**363**	363																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving boat access to rivers.		50		50	**139**	139																											
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving lakeside recreation facilities and visual appearance.		50	25	25	**1,034**	1,034																											
IPART Submission 1/7/06		Stormwater Renewals	Re	Renewal of exiting assets.				100	**12,600**	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
IPART Submission 1/7/06		Stormwater Environment	E	Improvements to service provided to environment.		100			**16,709**		341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
IPART Submission 1/7/06		Stormwater Growth Assets	G	New assets to serve growth.			100		**327,382**					7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117

									TOTAL	**412,097**	**7,749**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**
									% Works LoS	60,801	6,858	4,442	4,442	4,442	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883
									% Growth Works	338,369	311	3,559	3,559	3,559	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
									% Renewal Works	12,928	580	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
									% Subsidy	6,437	32	2,135	2,135	2,135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
									Renewal	12,600	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
									Environmental	72,115	7,497	8,000	8,000	8,000	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883
									Growth	327,382	0	0	0	0	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
									Total	412,097	7,749	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252

Wyong Shire Council

Stormwater & Catchment **Capital Works Program** **Sc 1 - Current Initiatives**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element		Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Terrestrial Biodiversity																										
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Restoring rivers and creeks.		100																						
		Water Quality																										
Vol 1 WSC Management Plan 2006/07		Sediment Traps	E	Installation of sediment traps in urban areas.		100			173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173
Vol 1 WSC Management Plan 2006/07		Lakes Improvements	E	Lake restoration, improvement and erosion control works.		100			186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
Vol 1 WSC Management Plan 2006/07		Stream Bank Improvements	E	Bank rehabilitation along Wyong River.		100			183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
Vol 1 WSC Management Plan 2006/07		Major wetlands management	E	Includes stormwater harvesting to protect Porters Creek.	30	50	50																					
Vol 1 WSC Management Plan 2006/07		Estuary Management Plan	E	Implementation of Estuary Management Plan and other stormwater management works.		100																						
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.		100																						
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around the lake edges.		100																						
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Drainage systems in coastal areas.		100																						
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around Lake Macquarie.		100																						
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Works to redress the impacts of stormwater on bushland and natural wetlands.		100																						
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving boat access to rivers.		50		50																				
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving lakeside recreation facilities and visual appearance.		50	25	25																				
IPART Submission 1/7/06		Stormwater Renewals	Re	Renewal of exiting assets.				100	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
IPART Submission 1/7/06		Stormwater Environment	E	Improvements to service provided to environment.		100			341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
IPART Submission 1/7/06		Stormwater Growth Assets	G	New assets to serve growth.			100		7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
TOTAL	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**	**8,252**
% Works LoS	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883
% Growth Works	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
% Renewal Works	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
% Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewal	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
Environmental	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883	883
Growth	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
Total	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252	8,252

Wyong Shire Council

Stormwater & Catchment **Operations, Maintenance and Administration Schedule** **Sc 1 - Current Initiatives**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Terrestrial Biodiversity																																				
SOE 2005 / 06		Glenning Valley Weeding	Southfork Road. Minor maintenance weeding using bush regen techniques.		100			**788**	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Tumbi Umbi Weeding	Victor Close. General maintenance weeding.		100			**788**	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Berkely Vale Weeding	Palm Springs Avenue. Primary weeding with minor maintenance weeding.	90	10			**552**	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12
SOE 2005 / 06		Glenning Valley Weeding	Bangalow Close. Targeted primary weeding with minor maintenance weeding.	90	10			**552**	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12
SOE 2005 / 06		Budgewoi Weeding	Wrenpi Street. Targeted primary weeding with minor maintenance weeding.	90	10			**788**	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Budgewoi Weeding	Mimosa Street. Targeted primary weeding with minor maintenance weeding.	90	10			**788**	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Mardi Weeding	Clementine Place. Targeted primary weeding with minor maintenance weeding.	90	10			**1,182**	15	15	16	16	17	17	17	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	23	24	24	24	25	25
SOE 2005 / 06		Mardi Weeding	Gavenlock Road. Targeted primary weeding with minor maintenance weeding.	90	10			**1,182**	15	15	16	16	17	17	17	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	23	24	24	24	25	25
SOE 2005 / 06		Weed Harvester Operations	26 weeks of operation	100				**25,375**	322	330	339	347	356	363	370	377	385	393	400	407	415	422	430	437	444	451	458	465	472	479	486	494	501	508	516	523	531	539
Vol 1 WSC Management Plan 2006/07		Community Environmental Works	Preparation of sensitive areas strategies for bush regeneration.			100		**98**	98																													
		Water Quality																																				
Vol 1 WSC Management Plan 2006/07		Sediment Traps	Cleaning of sediment traps.		100			**545**	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	12
Vol 1 WSC Management Plan 2006/07		Lakes Improvements	Lake restoration, improvement and erosion control works.		100			**586**	7	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	12	12	12
Vol 1 WSC Management Plan 2006/07		Stream Bank Improvements	Bank rehabilitation along Wyong River.	100				**577**	7	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12
Vol 1 WSC Management Plan 2006/07		Pollution Monitoring	Monitoring of waterway pollution.	100				**18,125**	230	236	242	248	254	259	264	270	275	280	285	291	296	302	307	312	317	322	327	332	337	342	347	353	358	363	368	374	379	385
Vol 1 WSC Management Plan 2006/07		Major wetlands management	Includes storm water harvesting to protect Porters Creek.	100				**331**	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7
Vol 1 WSC Management Plan 2006/07		Estuary and Associated Studies	Estuary management planning.			100		**2,200**	110	110				110	110				110	110				110	110				110	110				110	110			
Vol 1 WSC Management Plan 2006/07		Estuary Management Plan	Implementation of Estuary Management Plan and other stormwater management works.	100				**11,033**	140	144	147	151	155	158	161	164	167	170	174	177	180	184	187	190	193	196	199	202	205	208	211	215	218	221	224	228	231	234
Vol 3 WSC Management Plan 2006/07		Education	Community stormwater pollution education campaign.			100		**11,821**	150	154	158	162	166	169	172	176	179	183	186	190	193	197	200	204	207	210	213	216	220	223	226	230	233	237	240	244	247	251
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Urban areas gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.	100				**22**	22																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around the lake edges.	100				**24**	24																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Drainage systems in coastal areas.	100				**2**	2																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around Lake Macquarie.	100				**4**	4																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Works to redress the impacts of stormwater on bushland and natural wetlands.	100				**15**	15																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving boat access to rivers.	100				**6**	6																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving lakeside recreation facilities and visual appearance.	100				**41**	41																													
IPART Submission 1/7/06		Stormwater Renewals	Operating costs Renewal of existing assets. Included in existing operating forecast.	100																																
IPART Submission 1/7/06		Stormwater Environment	Operating costs Improvements to service provided to environment. Included in existing operating forecast.	100																																
IPART Submission 1/7/06		Stormwater Growth Assets	Operating costs New assets to serve growth. Included in existing operating forecast.	100																																
		Existing Operating Costs																																				
WSC Forecast Model 11/06 for IPART		Labour (excl employee provisions)	Not detailed.			100		**16,864**	214	220	225	231	237	241	246	251	256	261	266	271	276	281	286	290	295	300	304	309	314	318	323	328	333	338	343	348	353	358
WSC Forecast Model 11/06 for IPART		External consultants	Not detailed.			100		**3,389**	43	44	45	46	48	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
WSC Forecast Model 11/06 for IPART		Hire & contract services	Not detailed.			100		**4,019**	51	52	54	55	56	57	59	60	61	62	63	64	66	67	68	69	70	71	72	74	75	76	77	78	79	81	82	83	84	85
WSC Forecast Model 11/06 for IPART		Bulk water purchases	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Materials	Not detailed.				100	**8,747**	111	114	117	120	123	125	128	130	133	135	138	140	143	146	148	151	153	155	158	160	163	165	168	170	173	175	178	180	183	186
WSC Forecast Model 11/06 for IPART		Energy	Not detailed. Nil recorded by WSC				100																															
WSC Forecast Model 11/06 for IPART		Licence fees	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		BOO costs	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Other (excl. WDV asset disposal). Please describe and enter separately items exceeding 5% of total operating expenditure	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Other	Not detailed.			100		**66,038**	838	860	881	904	926	945	968	982	1,001	1,020	1,040	1,059	1,079	1,099	1,119	1,137	1,155	1,173	1,191	1,209	1,228	1,247	1,265	1,284	1,304	1,323	1,343	1,362	1,382	1,402
WSC Forecast Model 11/06 for IPART		Tax other than income tax	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Employee provisions	Not detailed.			100		**7,959**	101	104	106	109	112	114	116	118	121	123	125	128	130	132	135	137	139	141	144	146	148	150	153	155	157	159	162	164	167	169
WSC Forecast Model 11/06 for IPART		Other provisions	Not detailed. Nil recorded by WSC			100																																

							TOTAL	**184,440**	**2,632**	**2,479**	**2,430**	**2,491**	**2,553**	**2,714**	**2,765**	**2,707**	**2,760**	**2,813**	**2,976**	**3,030**	**2,975**	**3,030**	**3,085**	**3,244**	**3,293**	**3,233**	**3,283**	**3,334**	**3,495**	**3,546**	**3,488**	**3,540**	**3,593**	**3,757**	**3,811**	**3,755**	**3,810**	**3,865**
							Operations	60,094	376	781	801	821	841	858	876	892	909	927	944	962	980	998	1,017	1,033	1,049	1,065	1,082	1,099	1,115	1,132	1,149	1,167	1,185	1,202	1,219	1,237	1,255	1,274
							Maintenance	3,212	41	42	43	44	45	46	47	48	49	50	51	52	52	53	54	55	56	57	58	59	60	61	62	62	63	64	65	66	67	68
							Administration	112,387	1,605	1,543	1,470	1,506	1,544	1,685	1,716	1,637	1,669	1,701	1,843	1,876	1,799	1,832	1,866	2,005	2,035	1,955	1,986	2,016	2,157	2,188	2,109	2,141	2,173	2,316	2,348	2,271	2,304	2,338
							Chemical/Energy	8,747	111	114	117	120	123	125	128	130	133	135	138	140	143	146	148	151	153	155	158	160	163	165	168	170	173	175	178	180	183	186

Wyong Shire Council

Stormwater & Catchment **Operations, Maintenance and Administration Schedule** **Sc 1 - Current Initiatives**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Element	Description	Operations	Maintenance	Administration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Terrestrial Biodiversity																									
SOE 2005 / 06		Glenning Valley Weeding	Southfork Road. Minor maintenance weeding using bush regen techniques.		100			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Tumbi Umbi Weeding	Victor Close. General maintenance weeding.		100			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Berkely Vale Weeding	Palm Springs Avenue. Primary weeding with minor maintenance weeding.	90	10			12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15	15
SOE 2005 / 06		Glenning Valley Weeding	Bangalow Close. Targeted primary weeding with minor maintenance weeding.	90	10			12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15	15
SOE 2005 / 06		Budgewoi Weeding	Wiroja Street. Targeted primary weeding with minor maintenance weeding.	90	10			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Budgewoi Weeding	Mimosa Street. Targeted primary weeding with minor maintenance weeding.	90	10			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Mardi Weeding	Clementine Place. Targeted primary weeding with minor maintenance weeding.	90	10			25	26	26	27	27	27	28	28	28	29	29	29	30	30	31	31	31	32	32	32
SOE 2005 / 06		Mardi Weeding	Gavenlock Road. Targeted primary weeding with minor maintenance weeding.	90	10			25	26	26	27	27	27	28	28	28	29	29	29	30	30	31	31	31	32	32	32
SOE 2005 / 06		Weed Harvester Operations	26 weeks of operation	100				547	554	562	570	578	586	593	601	609	616	624	632	640	648	656	664	672	680	689	697
Vol 1 WSC Management Plan 2006/07		Community Environmental Works	Preparation of sensitive areas strategies for bush regeneration.			100																					
		Water Quality																									
Vol 1 WSC Management Plan 2006/07		Sediment Traps	Cleaning of sediment traps.		100			12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15
Vol 1 WSC Management Plan 2006/07		Lakes Improvements	Lake restoration, improvement and erosion control works.		100			13	13	13	13	13	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16
Vol 1 WSC Management Plan 2006/07		Stream Bank Improvements	Bank rehabilitation along Wyong River.	100				12	13	13	13	13	13	13	14	14	14	14	14	15	15	15	15	15	15	16	16
Vol 1 WSC Management Plan 2006/07		Pollution Monitoring	Monitoring of waterway pollution.	100				390	396	402	407	413	418	424	429	435	440	446	451	457	463	468	474	480	486	492	498
Vol 1 WSC Management Plan 2006/07		Major wetlands management	Includes storm water harvesting to protect Porters Creek.	100				7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9
Vol 1 WSC Management Plan 2006/07		Estuary and Associated Studies	Estuary management planning.			100		110	110				110	110				110	110				110	110			
Vol 1 WSC Management Plan 2006/07		Estuary Management Plan	Implementation of Estuary Management Plan and other stormwater management works.	100				238	241	245	248	251	255	258	261	265	268	271	275	278	282	285	289	292	296	299	303
Vol 3 WSC Management Plan 2006/07		Education	Community stormwater pollution education campaign.			100		255	258	262	266	269	273	276	280	283	287	291	294	298	302	305	309	313	317	321	325
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around the lake edges.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Drainage systems in coastal areas.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around Lake Macquarie.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Works to redress the impacts of stormwater on bushland and natural wetlands.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving boat access to rivers.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving lakeside recreation facilities and visual appearance.	100																							
IPART Submission 1/7/06		Stormwater Renewals	Operating costs Renewal of existing assets. Included in existing operating forecast.	100																							
IPART Submission 1/7/06		Stormwater Environment	Operating costs Improvements to service provided to environment. Included in existing operating forecast.	100																							
IPART Submission 1/7/06		Stormwater Growth Assets	Operating costs New assets to serve growth. Included in existing operating forecast.	100																							
		Existing Operating Costs																									
WSC Forecast Model 11/06 for IPART		Labour (excl employee provisions)	Not detailed.			100		363	368	374	379	384	389	394	399	404	410	415	420	425	430	436	441	447	452	458	463
WSC Forecast Model 11/06 for IPART		External consultants	Not detailed.			100		73	74	75	76	77	78	79	80	81	82	83	84	85	86	88	89	90	91	92	93
WSC Forecast Model 11/06 for IPART		Hire & contract services	Not detailed.			100		87	88	89	90	92	93	94	95	96	98	99	100	101	103	104	105	106	108	109	110
WSC Forecast Model 11/06 for IPART		Bulk water purchases	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Materials	Not detailed.				100	188	191	194	197	199	202	205	207	210	212	215	218	220	223	226	229	232	234	237	240
WSC Forecast Model 11/06 for IPART		Energy	Not detailed. Nil recorded by WSC				100																				
WSC Forecast Model 11/06 for IPART		Licence fees	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		BOO costs	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Other (excl. WDV asset disposal). Please describe and enter separately items exceeding 5% of total operating expenditure	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Other	Not detailed.			100		1,423	1,443	1,464	1,484	1,505	1,525	1,544	1,564	1,584	1,604	1,624	1,644	1,665	1,685	1,706	1,727	1,749	1,770	1,792	1,814
WSC Forecast Model 11/06 for IPART		Tax other than income tax	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Employee provisions	Not detailed.			100		171	174	176	179	181	184	186	188	191	193	196	198	201	203	206	208	211	213	216	219
WSC Forecast Model 11/06 for IPART		Other provisions	Not detailed. Nil recorded by WSC			100																					

	TOTAL	**4,031**	**4,087**	**4,034**	**4,091**	**4,149**	**4,312**	**4,366**	**4,311**	**4,365**	**4,420**	**4,586**	**4,642**	**4,588**	**4,645**	**4,703**	**4,871**	**4,930**	**4,879**	**4,940**	**5,000**
	Operations	1,292	1,311	1,329	1,348	1,367	1,385	1,402	1,420	1,438	1,457	1,475	1,493	1,512	1,531	1,550	1,569	1,588	1,606	1,625	1,644
	Maintenance	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
	Administration	2,482	2,516	2,440	2,474	2,509	2,652	2,684	2,607	2,640	2,673	2,817	2,851	2,775	2,809	2,844	2,989	3,025	2,951	2,987	3,024
	Chemical/Energy	188	191	194	197	199	202	205	207	210	212	215	218	220	223	226	229	232	234	237	240

Wyong Shire Council

Stormwater & Catchment **Capital Works Program** **Sc 2, Sc 3, Sc 4**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $'000

Data Sources	Area	Capital Element		Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	Capital Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																				
		Terrestrial Biodiversity																																			
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Restoring rivers and creeks.		100			**490**	490																											
		Water Quality																																			
Vol 1 WSC Management Plan 2006/07		Sediment Traps	E	Installation of sediment traps in urban areas.		100			**8,650**	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173
Vol 1 WSC Management Plan 2006/07		Lakes Improvements	E	Lake restoration, improvement and erosion control works.		100			**9,300**	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
Vol 1 WSC Management Plan 2006/07		Stream Bank Improvements	E	Bank rehabilitation along Wyong River.		100			**9,150**	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
Vol 1 WSC Management Plan 2006/07		Major wetlands management	E	Includes stormwater harvesting to protect Porters Creek.	30	50	50		**21,456**	105	7,117	7,117	7,117																										
Vol 1 WSC Management Plan 2006/07		Estuary Management Plan	E	Implementation of Estuary Management Plan and other stormwater management works.		100			**3,500**	3,500																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.		100			**557**	557																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around the lake edges.		100			**595**	595																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Drainage systems in coastal areas.		100			**61**	61																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around Lake Macquarie.		100			**111**	111																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Works to redress the impacts of stormwater on bushland and natural wetlands.		100			**363**	363																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving boat access to rivers.		50		50	**139**	139																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving lakeside recreation facilities and visual appearance.		50	25	25	**1,034**	1,034																													
IPART Submission 1/7/06		Stormwater Renewals	Re	Renewal of exiting assets.				100	**12,600**	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
IPART Submission 1/7/06		Stormwater Environment	E	Improvements to service provided to environment.		100			**16,709**		341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
IPART Submission 1/7/06		Stormwater Growth Assets	G	New assets to serve growth.			100		**327,382**					7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
MWH, WSC IWCM Sub-Plan 2007		River quality	E	Implement Rivercare Plans		100			**9,150**	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183

								TOTAL	**421,247**	**7,932**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**
								% Works LoS	69,951	7,041	4,625	4,625	4,625	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
								% Growth Works	338,369	311	3,559	3,559	3,559	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
								% Renewal Works	12,928	580	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
								% Subsidy	6,437	32	2,135	2,135	2,135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								Renewal	12,600	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
								Environmental	81,265	7,680	8,183	8,183	8,183	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
								Growth	327,382	0	0	0	0	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
								Total	421,247	7,932	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435

Wyong Shire Council

Stormwater & Catchment **Capital Works Program** **Sc 2, Sc 3, Sc 4**

2006 Financial Year of Program Commencement
2005 Financial Year of Capital Estimates, All Estimates in $000

Data Sources	Area	Capital Element		Description	% Subsidy	% Works LoS	% Growth Works	% Renewal Works	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																											
		Terrestrial Biodiversity																										
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Restoring rivers and creeks.		100																						
		Water Quality																										
Vol1 WSC Management Plan 2006/07		Sediment Traps	E	Installation of sediment traps in urban areas.		100			173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173
Vol1 WSC Management Plan 2006/07		Lakes Improvements	E	Lake restoration, improvement and erosion control works.		100			186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
Vol1 WSC Management Plan 2006/07		Stream Bank Improvements	E	Bank rehabilitation along Wyong River.		100			183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
Vol1 WSC Management Plan 2006/07		Major wetlands management	E	Includes stormwater harvesting to protect Porters Creek.	30	50	50																					
Vol1 WSC Management Plan 2006/07		Estuary Management Plan	E	Implementation of Estuary Management Plan and other stormwater management works.		100																						
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.		100																						
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around the lake edges.		100																						
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Drainage systems in coastal areas.		100																						
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Stormwater treatment measures around Lake Macquarie.		100																						
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Works to redress the impacts of stormwater on bushland and natural wetlands.		100																						
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving boat access to rivers.		50		50																				
Vol3 WSC Management Plan 2006/07		Stormwater Management Plan	E	Improving lakeside recreation facilities and visual appearance.		50	25	25																				
IPART Submission 1/7/06		Stormwater Renewals	Re	Renewal of exiting assets.				100	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
IPART Submission 1/7/06		Stormwater Environment	E	Improvements to service provided to environment.		100			341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
IPART Submission 1/7/06		Stormwater Growth Assets	G	New assets to serve growth.			100		7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
MWH, WSC IWCM Sub-Plan 2007		River quality	E	Implement Rivercare Plans		100			183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
				TOTAL					**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**	**8,435**
				% Works LoS					1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
				% Growth Works					7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
				% Renewal Works					252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
				% Subsidy					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Renewal					252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252	252
				Environmental					1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
				Growth					7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117	7,117
				Total					8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435

Wyong Shire Council

Stormwater & Catchment **Operations, Maintenance and Administration Schedule** **Sc 2, Sc 3, Sc 4**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Element	Description	Operations	Maintenance	Administration	Chemical/Energy	Operating Cost	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Shire Wide																																					
		Terrestrial Biodiversity																																				
SOE 2005 / 06		Glenning Valley Weeding	Southfork Road. Minor maintenance weeding using bush regen techniques.		100			788	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Tumbi Umbi Weeding	Victor Close. General maintenance weeding.		100			788	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Berkely Vale Weeding	Palm Springs Avenue. Primary weeding with minor maintenance weeding.	90	10			552	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12
SOE 2005 / 06		Glenning Valley Weeding	Bangalow Close. Targeted primary weeding with minor maintenance weeding.	90	10			552	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12
SOE 2005 / 06		Budgewoi Weeding	Wreqs Street. Targeted primary weeding with minor maintenance weeding.	90	10			788	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Budgewoi Weeding	Mimosa Street. Targeted primary weeding with minor maintenance weeding.	90	10			788	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
SOE 2005 / 06		Mardi Weeding	Clementine Place. Targeted primary weeding with minor maintenance weeding.	90	10			1,182	15	15	16	16	17	17	17	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	23	24	24	24	25	25
SOE 2005 / 06		Mardi Weeding	Gavenlock Road. Targeted primary weeding with minor maintenance weeding.	90	10			1,182	15	15	16	16	17	17	17	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	23	24	24	24	25	25
SOE 2005 / 06		Weed Harvester Operations	26 weeks of operation	100				25,375	322	330	339	347	356	363	370	377	385	392	400	407	415	422	430	437	444	451	458	465	472	479	486	494	501	508	516	523	531	539
Vol 1 WSC Management Plan 2006/07		Community Environmental Works	Preparation of sensitive areas strategies for bush regeneration.			100		98	98																													
Central Coast Blueprint		Riparian Protection and Rehab	Partnerships with local landholders in priority streams: Wyong River, Ourimbah Creek, Cockle Creek, Dora Creek, Narara Creek, Erina Creek and Kincumber Creek.	100				2,643	264	264	264	264	264	264	264	264	264	264																				
Central Coast Blueprint		Weed control	Develop a Regional Vegetation Management Plan for the Central Coast including clearing regionally significant weeds identified in the Regional Weed Management Strategy for Hunter and Central Coast	100				81	8	8	8	8	8	8	8	8	8	8																				
MWH, WSC IWCM Sub-Plan 2007		Weed control	Implement Regional Vegetation Management Plan	100				6,620	84	86	88	91	93	95	97	98	100	102	104	106	108	110	112	114	116	118	119	121	123	125	127	129	131	133	135	137	139	141
		Water Quality																																				
Vol 1 WSC Management Plan 2006/07		Sediment Traps	Cleaning of sediment traps.																																			
Vol 1 WSC Management Plan 2006/07		Lakes Improvements	Lake restoration, improvement and erosion control works.		100			545	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	12
Vol 1 WSC Management Plan 2006/07		Stream Bank Improvements	Bank rehabilitation along Wyong River.		100			586	7	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12	12
Vol 1 WSC Management Plan 2006/07		Pollution Monitoring	Monitoring of waterway pollution.	100				577	7	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12	12
Vol 1 WSC Management Plan 2006/07		Major wetlands management	Includes stormwater harvesting to protect Porters Creek.	100				18,125	230	236	242	248	254	259	264	270	275	280	285	291	296	302	307	312	317	322	327	332	337	342	347	353	358	363	368	374	379	385
Vol 1 WSC Management Plan 2006/07		Estuary and Associated Studies	Estuary management planning.	100				331	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7
Vol 1 WSC Management Plan 2006/07		Estuary Management Plan	Implementation of Estuary Management Plan and other stormwater management works.			100		2,200	110	110				110	110				110	110				110	110				110	110				110	110			
Central Coast Blueprint		River quality	Develop Rivercare Plans in Wyong River, Cockle Creek, Dora Creek, Narara Creek, Kincumber Creek and Erina Creek systems in accordance with Rivercare Guidelines Ecologically Sustainable Management of Rivers and Riparian Vegetation.	100				11,033	140	144	147	151	155	158	161	164	167	170	174	177	180	184	187	190	193	196	199	202	205	208	211	215	218	221	224	228	231	234
MWH, WSC IWCM Sub-Plan 2007		River quality	Implement Rivercare Plans	100		100		150	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10															
Vol 3 WSC Management Plan 2006/07		Education	Community stormwater pollution education campaign.	100				577	7	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.			100		11,821	150	154	158	162	166	169	172	176	179	183	186	190	193	197	200	204	207	210	213	216	220	223	226	230	233	237	240	244	247	251
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around the lake edges.	100				22	22																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Drainage systems in coastal areas.	100				24	24																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around Lake Macquarie.	100				2	2																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Works to redress the impacts of stormwater on bushland and natural wetlands.	100				4	4																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving boat access to rivers.	100				15	15																													
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving lakeside recreation facilities and visual appearance.	100				6	6																													
IPART Submission 1/7/06		Stormwater Renewals	Operating costs Renewal of exiting assets. Included in existing operating forecast.	100				41	41																													
IPART Submission 1/7/06		Stormwater Environment	Operating costs Improvements to service provided to environment. Included in existing operating forecast.	100																																		
IPART Submission 1/7/06		Stormwater Growth Assets	Operating costs New assets to serve growth. Included in existing operating forecast.	100																																		
MWH, WSC IWCM Sub-Plan 2007		IWCM/WSUD DCP	Implementation of a shire wide planning control. Costs included in Water Supply Capex/Opex			100																																
		Existing Operating Costs																																				
WSC Forecast Model 11/06 for IPART		Labour (excl employee provisions)	Not detailed.			100		16,854	214	220	225	231	237	241	246	251	256	261	266	271	276	281	286	290	295	300	304	309	314	318	323	328	333	338	343	348	353	358
WSC Forecast Model 11/06 for IPART		External consultants	Not detailed.			100		3,389	43	44	45	46	48	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
WSC Forecast Model 11/06 for IPART		Hire & contract services	Not detailed.			100		4,019	51	52	54	55	56	57	59	60	61	62	63	64	66	67	68	69	70	71	72	74	75	76	77	78	79	81	82	83	84	85
WSC Forecast Model 11/06 for IPART		Bulk water purchases	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Materials	Not detailed.				100	8,747	111	114	117	120	123	125	128	130	133	135	138	140	143	146	148	151	153	155	158	160	163	165	168	170	173	175	178	180	183	186
WSC Forecast Model 11/06 for IPART		Energy	Not detailed. Nil recorded by WSC				100																															
WSC Forecast Model 11/06 for IPART		Licence fees	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		BOO costs	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Other (excl. WDV asset disposal). Please describe and enter separately items exceeding 5% of total operating expenditure	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Other	Not detailed.			100		66,038	838	860	881	904	926	945	963	982	1,001	1,020	1,040	1,059	1,079	1,099	1,119	1,137	1,155	1,173	1,191	1,209	1,228	1,247	1,265	1,284	1,304	1,323	1,343	1,362	1,382	1,402
WSC Forecast Model 11/06 for IPART		Tax other than income tax	Not detailed. Nil recorded by WSC			100																																
WSC Forecast Model 11/06 for IPART		Employee provisions	Not detailed.			100		7,959	101	104	106	109	112	114	116	118	121	123	125	128	130	132	135	137	139	141	144	146	148	150	153	155	157	159	162	164	167	169
WSC Forecast Model 11/06 for IPART		Other provisions	Not detailed. Nil recorded by WSC			100																																

	TOTAL	**194,510**	**3,006**	**2,855**	**2,808**	**2,872**	**2,936**	**3,099**	**3,153**	**3,097**	**3,151**	**3,206**	**3,099**	**3,155**	**3,102**	**3,159**	**3,217**	**3,368**	**3,419**	**3,361**	**3,413**	**3,465**	**3,628**	**3,682**	**3,626**	**3,680**	**3,735**	**3,901**	**3,957**	**3,904**	**3,961**	**4,018**
Operations	70,010	1,239	1,147	1,160	1,182	1,210	1,233	1,252	1,271	1,291	1,310	1,018	1,076	1,098	1,118	1,138	1,157	1,176	1,193	1,212	1,232	1,249	1,268	1,287	1,307	1,326	1,346	1,366	1,386	1,406	1,427
Maintenance	3,212	41	42	43	44	45	46	47	48	49	50	51	52	52	53	54	55	56	57	58	59	60	61	62	62	63	64	65	66	67	68
Administration	112,537	1,615	1,553	1,480	1,516	1,554	1,695	1,726	1,647	1,679	1,711	1,853	1,886	1,809	1,842	1,876	2,005	2,035	1,955	1,986	2,016	2,157	2,188	2,109	2,141	2,173	2,316	2,348	2,271	2,304	2,338
Chemical/Energy	8,747	111	114	117	120	123	125	128	130	133	135	138	140	143	146	148	151	153	155	158	160	163	165	168	170	173	175	178	180	183	186

Wyong Shire Council

Stormwater & Catchment **Operations, Maintenance and Administration Schedule** **Sc 2, Sc 3, Sc 4**

2006 Financial Year of Schedule Commencement
2005 Financial Year of OMA Estimates, All Estimates in $'000

Data Sources	Area	Element	Description	Operations	Maintenance	Administration	Chemical/Energy	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
	Shire Wide																										
		Terrestrial Biodiversity																									
SOE 2005 / 06		Glenning Valley Weeding	Southfork Road. Minor maintenance weeding using bush regen techniques.		100			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Tumbi Umbi Weeding	Victor Close. General maintenance weeding.		100			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Berkely Vale Weeding	Palm Springs Avenue. Primary weeding with minor maintenance weeding.	90	10			12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15	15
SOE 2005 / 06		Glenning Valley Weeding	Bangalow Close. Targeted primary weeding with minor maintenance weeding.	90	10			12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15	15
SOE 2005 / 06		Budgewoi Weeding	Wreapi Street. Targeted primary weeding with minor maintenance weeding.	90	10			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Budgewoi Weeding	Mimosa Street. Targeted primary weeding with minor maintenance weeding.	90	10			17	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	21	22
SOE 2005 / 06		Mardi Weeding	Clementine Place. Targeted primary weeding with minor maintenance weeding.	90	10			25	26	26	27	27	27	28	28	28	29	29	29	30	30	31	31	31	32	32	32
SOE 2005 / 06		Mardi Weeding	Gavenlock Road. Targeted primary weeding with minor maintenance weeding.	90	10			25	26	26	27	27	27	28	28	28	29	29	29	30	30	31	31	31	32	32	32
SOE 2005 / 06		Weed Harvester Operations	26 weeks of operation	100				547	554	562	570	578	586	593	601	609	616	624	632	640	648	656	664	672	680	689	697
Vol 1 WSC Management Plan 2006/07		Community Environmental Works	Preparation of sensitive areas strategies for bush regeneration.			100																					
Central Coast Blueprint		Riparian Protection and Rehab	Partnerships with local landholders in priority streams: Wyong River, Ourimbah Creek, Cockle Creek, Dora Creek, Narara Creek, Erina Creek and Kincumber Creek.	100																							
Central Coast Blueprint		Weed control	Develop a Regional Vegetation Management Plan for the Central Coast including clearing regionally significant weeds identified in the Regional Weed Management Strategy for Hunter and Central Coast	100																							
MWH, WSC IWCM Sub-Plan 2007		Weed control	Implement Regional Vegetation Management Plan	100				143	145	147	149	151	153	155	157	159	161	163	165	167	169	171	173	175	177	180	182
		Water Quality																									
Vol 1 WSC Management Plan 2006/07		Sediment Traps	Cleaning of sediment traps.		100			12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15
Vol 1 WSC Management Plan 2006/07		Lakes Improvements	Lake restoration, improvement and erosion control works.		100			13	13	13	13	13	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16
Vol 1 WSC Management Plan 2006/07		Stream Bank Improvements	Bank rehabilitation along Wyong River.	100				12	13	13	13	13	14	14	14	14	14	14	14	15	15	15	15	15	15	16	16
Vol 1 WSC Management Plan 2006/07		Pollution Monitoring	Monitoring of waterway pollution.	100				390	396	402	407	413	418	424	429	435	440	446	451	457	463	468	474	480	486	492	498
Vol 1 WSC Management Plan 2006/07		Major wetlands management	Includes stormwater harvesting to protect Porters Creek.	100				7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9
Vol 1 WSC Management Plan 2006/07		Estuary and Associated Studies	Estuary management planning.			100		110	110				110	110				110	110				110	110			
Vol 1 WSC Management Plan 2006/07		Estuary Management Plan	Implementation of Estuary Management Plan and other stormwater management works.	100				238	241	245	248	251	255	258	261	265	268	271	275	278	282	285	289	292	296	299	303
Central Coast Blueprint		River quality	Develop Rivercare Plans in Wyong River, Cockle Creek, Dora Creek, Narara Creek, Kincumber Creek and Erina Creek systems in accordance with Rivercare Guidelines Ecologically Sustainable Management of Rivers and Riparian Vegetation.			100																						
MWH, WSC IWCM Sub-Plan 2007		River quality	Implement Rivercare Plans	100				12	13	13	13	13	13	13	14	14	14	14	14	15	15	15	15	15	15	16	16
Vol 3 WSC Management Plan 2006/07		Education	Community stormwater pollution education campaign.			100		255	258	262	266	269	273	276	280	283	287	291	294	298	302	305	309	313	317	321	325
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Urban area gross pollutant traps, constructed wetlands and grassed swales, removing sediment and nutrients from urban stormwater to improve the water quality of Tuggerah Lakes.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around the lake edges.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Drainage systems in coastal areas.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Stormwater treatment measures around Lake Macquarie.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Works to redress the impacts of stormwater on bushland and natural wetlands.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving boat access to rivers.	100																							
Vol 3 WSC Management Plan 2006/07		Stormwater Management Plan	Operating costs Improving lakeside recreation facilities and visual appearance.	100																							
IPART Submission 1/7/06		Stormwater Renewals	Operating costs Renewal of exiting assets. Included in existing operating forecast.	100																							
IPART Submission 1/7/06		Stormwater Environment	Operating costs Improvements to service provided to environment. Included in existing operating forecast.	100																							
IPART Submission 1/7/06		Stormwater Growth Assets	Operating costs New assets to serve growth. Included in existing operating forecast.	100																							
MWH, WSC IWCM Sub-Plan 2007		IWCM/WSUD DCP	Implementation of a shire wide planning control. Costs included in Water Supply Capex/Opex			100																					
		Existing Operating Costs																									
WSC Forecast Model 11/06 for IPART		Labour (excl employee provisions)	Not detailed.			100		363	368	374	379	384	389	394	399	404	410	415	420	425	430	436	441	447	452	458	463
WSC Forecast Model 11/06 for IPART		External consultants	Not detailed.			100		73	74	75	76	77	78	79	80	81	82	83	84	85	86	88	89	90	91	92	93
WSC Forecast Model 11/06 for IPART		Hire & contract services	Not detailed.			100		87	88	89	90	92	93	94	95	96	98	99	100	101	103	104	105	106	108	109	110
WSC Forecast Model 11/06 for IPART		Bulk water purchases	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Materials	Not detailed.				100	188	191	194	197	199	202	205	207	210	212	215	218	220	223	226	229	232	234	237	240
WSC Forecast Model 11/06 for IPART		Energy	Not detailed. Nil recorded by WSC				100																				
WSC Forecast Model 11/06 for IPART		Licence fees	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		BOO costs	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Other (excl. WDV asset disposal). Please describe and enter separately items exceeding 5% of total operating expenditure	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Other	Not detailed.			100		1,423	1,443	1,464	1,484	1,505	1,525	1,544	1,564	1,584	1,604	1,624	1,644	1,665	1,685	1,706	1,727	1,749	1,770	1,792	1,814
WSC Forecast Model 11/06 for IPART		Tax other than income tax	Not detailed. Nil recorded by WSC			100																					
WSC Forecast Model 11/06 for IPART		Employee provisions	Not detailed.			100		171	174	176	179	181	184	186	188	191	193	196	198	201	203	206	208	211	213	216	219
WSC Forecast Model 11/06 for IPART		Other provisions	Not detailed. Nil recorded by WSC			100																					

TOTAL	**4,186**	**4,245**	**4,194**	**4,253**	**4,313**	**4,478**	**4,535**	**4,481**	**4,538**	**4,595**	**4,763**	**4,821**	**4,770**	**4,829**	**4,889**	**5,059**	**5,121**	**5,072**	**5,135**	**5,198**
Operations	1,447	1,466	1,449	1,310	1,331	1,351	1,371	1,391	1,411	1,431	1,852	1,872	1,893	1,714	1,735	1,757	1,779	1,801	1,823	1,845
Maintenance	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
Administration	2,482	2,516	2,440	2,474	2,509	2,652	2,684	2,607	2,640	2,673	2,817	2,851	2,775	2,809	2,844	2,989	3,025	2,951	2,987	3,024
Chemical/Energy	188	191	194	197	199	202	205	207	210	213	215	218	220	223	226	229	232	234	237	240

APPENDIX D - URBAN POLLUTANT RUNOFF ESTIMATES

Urban pollutant reductions are anticipated with increasing levels of water cycle integration primarily through a combination of improved wastewater treatment and WSUD. Year 2055 annual pollutant loads generated from the LGA's urban areas have been modelled using MUSIC software to compare the environmental benefits of the IWCM scenarios.

D.1 MUSIC

MUSIC is the Model for Urban Stormwater Improvement Conceptualisation, developed by the Cooperative Research Centre (CRC) for Catchment Hydrology. MUSIC simulates both quantity and quality of runoff for catchment areas from 0.01 km^2 to 100 km^2. Modelling time steps can range from 6 minutes to 24 hours to match the range of spatial scale.

MUSIC is designed to simulate stormwater systems in urban catchments. The model's algorithms are based on the known performance characteristics of common stormwater quality improvement measures.

The majority of stormwater runoff in urban catchments is generated from the impervious surfaces. Base flow, influenced by sub-surface soil moisture and groundwater levels, is less dominant in urban catchments as is evident from the "flashy" nature of urban stormwater hydrographs. The algorithm adopted to generate urban runoff is based on the rainfall-runoff model (**Figure D-1**) developed by Chiew & McMahon (1997).

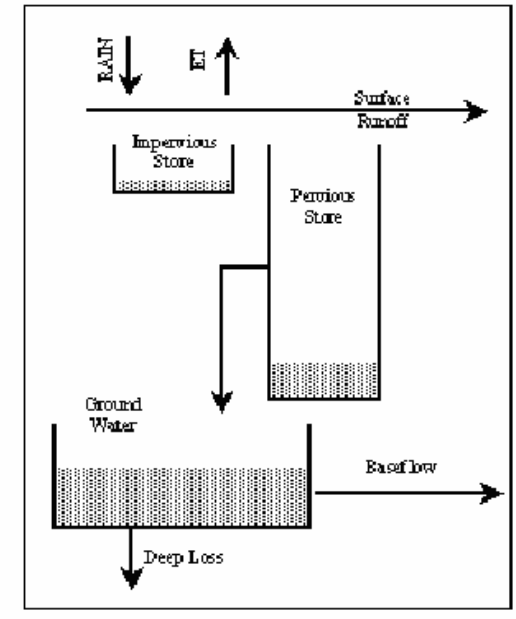


Figure D-1: MUSIC Rainfall-Runoff Model

MUSIC Version 3.01 was used to estimate the runoff pollutant loads for the Wyong IWCM. The LGA was sub-divided into landuses, based on the GIS data provided by Council. For each type

of landuse, a set of parameters was established to enable an annual pollutant generation rate (i.e. kg/ha/yr). The annual runoff coefficients determined by MUSIC are primarily influenced by the percentage of impervious area adopted. Relatively small changes in the impervious area included in a MUSIC model can result in significant changes in the results.

Any remediation works or existing WSUD measures have not been included in the initial load calculations, therefore the data presented should only be used as a relative guide to hot spots within the Wyong LGA.

D.2 Assumptions

Pollutant loads calculated for the Wyong rainfall catchments were estimated using MUSIC (Model for Urban Stormwater Improvement Conceptualisation) and were based on land use zonings provided by WSC. MUSIC models were built to estimate annual runoff and loss (evapotranspiration). The annual runoff coefficients determined by MUSIC are primarily influenced by the percentage of pervious area adopted. The assumed percentage pervious area according to each land zoning category is provided in **Table D-1**.

Table D-1: Assumed Pervious Area

Land Category	Area Pervious	Land Category	Area Pervious
Residential (Urban)	55%	National Parks	100%
Open Space	90%	Tourist	95%
Rural	95%	State Forests	100%
Future Residential	55%	Pre – Development Case	100%
Rural Residential	90%	River/Estuary	n/a
Industrial	20%	Lakes	n/a
Institutional	20%		

In order to assess the potential for WSUD approaches for new development, it has been assumed that a WSUD DCP would apply to all new urban residential development (equivalent to approximately 3,037 hectares). It is assumed that new urban development would be of a relatively higher density than existing development. Hence, the pervious area for new residential land uses was decreased from 55% to 45%. This resulted in an increase in pollutant generation rates (**Table D-2**).

Table D-2: Impact of Residential Development on Pollutant Generation Rates

Type of Development	% Pervious	Suspended Solids (kg/ha/yr)	Total Phosphorus (kg/ha/yr)	Total Nitrogen (kg/ha/yr)	Flow (ML/ha/yr)
Existing Residential	55%	1,380	2.9	21.3	7.7
New Residential	45%	1,550	3.4	23.7	8.5

Table D-3 shows the percentage change in pollutant loads, based on best practice water quality improvements. For the scenarios that incorporate WSUD in new development areas, a

reduction in pollutant loads in line with best practice pollutant reduction savings (VSC 1999) is assumed to be:

- Total suspended solids reduction of 80% of typical urban loads
- Total nitrogen of 45% of typical urban loads
- Total phosphorous of 45% of typical urban loads.

Table D-3: Impact of WSUD on Development on Pollutant Generation Rates

Type of Development	% Pervious	Suspended Solids (TSS) (kg/ha/yr)	Total Phosphorus (TP) (kg/ha/yr)	Total Nitrogen (TN) (kg/ha/yr)	Flow (ML/ha/yr)
Existing Residential	55%	1,380	2.9	21.3	7.7
New Residential with WSUD	45%	310	1.8	13.0	8.5[1]

1 Losses due to infiltration will result in a reduction in the annual flow. This has not been quantified.

The modelling assumptions applied to each scenario are:

- Traditional and Scenario 1: No WSUD.
- Scenario 2 to 4: WSUD DCP for all new development.

D.3 Method

The methodology used to determine the impacts of development and the IWCM scenarios provides comparison of the pollutant loads on a LGA-wide basis, as influenced by the activities relevant for each scenario.

The typical loads used to calculate the impact of development for Wyong LGA are set out in **Table D-4**. These loads were applied to corresponding land use areas for the current scenario, and for the scenarios defined in the section above.

Table D-4: Wyong LGA Urban Runoff Landuse Based Pollutant Loads

Parameter	Open Space	Rural	Rural Residential	National Parks	Tourist Areas	Residential	Industrial Commercial Institutional	Infill Residential
Flow (ML/yr)	5.1	4.7	5.1	4.3	4.3	7.7	10.3	8.5
TSS (kg/yr)	875	801	875	207	207	1,390	2,070	1,550
TP (kg/yr)	2.4	2.3	2.4	0.3	0.3	2.9	4.2	3.4
TN (kg/yr)	17.7	14.8	17.7	3.7	3.7	21.0	29.7	23.7

D.4 Outcomes

It should be noted that the current nutrient balances have been estimated at the LGA area level. That is, they represent typical levels of nutrient generation on a gross scale. These should not be confused with catchment nutrient exports, where nutrient inputs are subject to processes such as assimilation, denitrification and phosphorous adsorption before leaving the catchment.

It is recognised and generally accepted that urbanisation has had a negative impact on receiving waterways within Wyong LGA, and that further development is likely to continue to contribute negatively to the environment, unless remedial action is taken to minimise the impact.

Figure 2-9 and **Figure 2-10** plot forecast Year 2055 urban pollutant loads for each scenario based on the assumptions outlined above.

The projections developed in this section of the report are to be used to assist assessment of the scenarios and to develop the urban water service key infrastructure requirements and costs associated with each of the scenarios.

APPENDIX E - GUIDANCE ON WSUD PLANNING INSTRUMENTS

As part of the IWCM process, the development of an IWCM and WSUD DCP was included as an option in a number of the scenarios assessed. This section sets out further details for consideration in the development of such a planning instrument.

E.1 Previous Assessment of WSUD

WSC has monitored and assessed the implementation and effectiveness of the catchment management initiatives introduced into the Tuggerah Lakes catchment including streambank rehabilitation, managing disturbed land and constructed wetlands (WSC, 2002). The assessment illustrated, on a ratio of the reduction in nitrogen load, to the funds spent by Council on catchment management, that WSUD was the most cost effective nutrient management option (WSC, 2002).

Based on these findings, the Wyong Council committed to the WSUD approach for new development through the Management Planning framework and recommended this approach for use in all new WSC Development Control Plans, including that for the proposed urban release area in Warnervale (WSC, 2002). However, it was recognised that the engineering performance and ecological effectiveness of WSUD works would need on-going monitoring and evaluation. Therefore, it was recommended that the application of the WSUD approach at Warnervale be monitoring to establish local performance and to inform the provisions of other DCPs for new release areas.

E.2 BASIX and Development Control Plans

In 2004, the NSW Government introduced the State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (the BASIX SEPP) which was subsequently amended by the State Environmental Planning Policy (Building Sustainability Index: BASIX) Amendment Policy 2005 (the Amending SEPP).

The BASIX SEPP applies to all types of housing including single dwelling, dual occupancy villas, townhouses and apartments and alterations and additions of these buildings. However, the SEPP does not apply to non-dwelling development. In the case of mixed use buildings, the residential dwelling component of the building only is subject to the SEPP.

Applicants are able to choose from a wide range of possible commitments within the BASIX tool, to meet the NSW Government's sustainability requirements. Alternatively, the applicant may apply to the Department of Planning for a BASIX certificate based on commitments other than those offered by the BASIX tool, via an 'Alternative assessment' application.

To avoid duplication, the BASIX SEPP (see clauses 4, 8 and 9) makes provisions to make environmental planning instruments (EPIs) and development control plans (DCPs) ineffective to the extent that they aim to achieve the same objectives as BASIX. Clauses 8 and 9 state that competing provisions of an EPI or DCP are of no effect, to the extent to which they aim:

- To reduce consumption of mains-supplied potable water, or reduce emissions of greenhouse gases, in the use of a building to which BASIX applies, or in the use of land on which the building is situated, or

- To improve the thermal performance of a building to which BASIX applies.

When determining an application for development consent for development to which BASIX applies, a consent authority or certifying authority must not give consideration to any other provision dealing with these matters or impose any conditions upon consent in relation to these matters. These provisions are intended to ensure that if BASIX applies to a proposed development, BASIX will be the only system for assessing the development's greenhouse gas emissions, consumption of mains-supplied potable water and thermal performance.

However, the SEPP does not affect provisions which offer applicants an incentive to adopt commitments over and above those required to pass BASIX (see clause 4 of the SEPP). In addition, provisions of an EPI or DCP which have more than one purpose, including a purpose that conflicts with BASIX, continue to have effect to the extent to which they seek to address the alternative purpose. However, consent authorities should consider whether other measures are available for fulfilling the alternative purpose.

Examples of such a provision would include a requirement to install a rainwater tank for both water conservation and bushfire or stormwater management purposes. To the extent that the provision aims to conserve mains-supplied potable water, the provision cannot be enforced under current legislation. Care needs to be taken with such provisions. For instance, it may be possible to construe that a rainwater tank provided for stormwater management purposes, where the only form of drawdown on the tank is the use of water that would otherwise be provided by the mains supply, is in competition with the BASIX clauses. Further, it is demonstrable that there are other means of providing drawdown and stormwater management generally. Construed this way, the provisions would be unenforceable.

It is important to note however, that these overriding provisions only apply to the residential component of mixed-use buildings to which BASIX applies.

E.3 General Guidance for Consideration in Developing an IWCM and WSUD DCP

Table E- 1 sets out some general guidance for the purposes of developing a DCP. This guidance does not replace the need to prepare any such DCP in accordance with the Environmental Planning and Assessment Act 1979 or the need for further investigation studies to identify more locally applicable standards.

Given that BASIX has been through a series of amendments, and that such amendments may reasonably be expected to continue, WSC may decide to prepare a DCP which captures all of WSC's desired IWCM and WSUD aims, including provisions which would currently be in competition (and hence, unenforceable) with the BASIX SEPP. Although this decision may reduce the need to continually review the DCP, it would also result in the need for the consent authority to be vigilant in identifying competing provisions and ensuring that these are not considered as part of the development consent process. However, for the purposes of the information provided in **Table E- 1**, it has been assumed that the DCP will not include provisions competing with those of the BASIX SEPP.

Table E- 1: General Guidance for Consideration in Developing an IWCM and WSUD DCP

Aspect	Guidance
Definitions	IWCM: the holistic management of drinking water, stormwater run-off and harvesting, sewage treatment and recycling and waterway health. WSUD: the integration of water cycle management into urban planning and design.
Purpose	To achieve: water efficiency in development source substitution in development to minimise the impact of development on the natural water cycle in terms of both flow (quantity and timing) and quality to add value while minimising development costs.
Application	All new development and redevelopment across the shire except where provisions are in competition with the BASIX SEPP.
Requirements – Stormwater Management	A stormwater management plan (SMP) to be developed for all new development. SMP to demonstrate reduced stormwater discharge using retention and detention approaches to mimic pre-development hydrologic conditions stormwater runoff does not pollute receiving waters through pollutant source management and stormwater treatment WSUD techniques to allow for infiltration and address on-site detention and drainage design preservation of natural water courses and drainage channels compliance with WSC flooding policies consideration of operation and maintenance of stormwater controls proposed
Requirements - IWCM	An integrated water cycle management plan (IWCMP) to be developed for all new development. IWCMP to demonstrate consideration of: existing water cycle of the land and its surrounds water saving devices of at least WELS 3 star rating for showerheads, toilets, tap aerators, tap equipment, clothes washing machines and dishwashers efficient processes, techniques and equipment for all other water using activities potable water substitution and internal recycling opportunities
WSUD techniques	Types of techniques include (but are not limited to): grassed or vegetated swales – primary treatment and conveyance function; can provide secondary treatment benefits filtration trenches – primary treatment and conveyance and detention measures; can provide secondary treatment benefits bio-retention systems – secondary treatment, conveyance, detention and retention functions (through infiltration); can provide tertiary treatment benefits wetlands – tertiary treatment system, storage, detention, possible reuse measures rainwater tanks – using stormwater as a resource – detention, retention, a substitute for drinking water in garden irrigation, car washing, toilet flushing, etc greywater reuse – collect from households, primary treatment on site, reuse for external irrigation or internal toilet flushing measures rain gardens, rooftop greening, urban forests – provide natural vegetated features of aesthetic value and provide treatment function by filtering stormwater any combination of these and other techniques for the best possible outcome.

Aspect	Guidance
WSUD Guidelines	Design and certification to be undertaken by appropriately qualified engineering, surveying or environmental professionals. WSUD Engineering Procedures: Stormwater, Melbourne Water, 2005 Australian Runoff Quality Guidelines, Engineers Australia, 2006 Best Practice Environmental Management Guidelines, CSIRO, 2006 Other guidelines as appropriate for NSW
Treatment Guidelines	NSW Guidelines for Urban and Residential Use of Reclaimed Water (1993) Guidelines for Industry: The Utilisation of Treated Effluent by Irrigation (1995) NSW Code of Practice, Plumbing and Drainage (2nd Edition) (1999) National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (2000) Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (2006) Directives from NSW Health in relation to treatment and end-use requirements
WSUD targets	Catchment source flow and sediment control through techniques such as grass swales, buffer strips, cascades and infiltration techniques. Best practice pollutant reduction savings for WSUD assumed (VSC 1999): 80% retention of urban suspended solids 45% retention of urban total phosphorus and nitrogen 5-10% reduction in annual runoff Peak discharge maintained at pre-development levels.
IWCM targets	New non-dwelling premises demonstrate 20% reduction in mains-supplied potable water demand
Costs	Only administration costs are borne by Council.